Ot1
.G295
1874
S.2
V.2

THE

GARDENERS' CHRONICLE.

A Weekly Illustrated Journal

OF

HORTICULTURE AND ALLIED SUBJECTS.

VOL. II.—NEW SERIES.

JULY TO DECEMBER, 1874.

LONDON:
41, WELLINGTON STREET, COVENT GARDEN, W.C.
1874.

LONDON:
BRADBURY, AGNEW, & CO., PRINTERS, WHITEFRIARS.

MISSOURI BOTANICAL
RECEIVED
JUN 23 1949
GARDEN LIBRARY

INDEX OF CONTENTS.

JULY TO DECEMBER, 1874.

A

ABUTILON brasiliensis, 232
Accidental naturalisation of plants, 121
Acorus Calamus, 135, 229, 328, 370
Addlestone, old Oak at, 654
Adenandra fragrans, culture of, 274
Adhatoda cydoniæfolia, 493
Æcidium scrophulariæ on Scrophularia nodosa, 238
Aganisia fimbriata, 452, 804
Agave americana at Kew, 142; hardy, at Weymouth, 211
Agri-Horticultural Society's Garden, Madras, 521
Albuca fibrosa, 386
Alder, notes on the, 294
Alfa or Esparto, 152
Allamanda Schottii, 494
Alleys, pleached, 161
Allium Bauerianum, 131
Alnus imperialis, 334
Aloes at Antibes (not Mentone), a group of, 453
Aloes, Tree, of South Africa, 720
Alphonse Karr, 137
Alpine vegetation, the origin of, 98
Alternanthera amabilis latifolia, 558
Alum water as an insecticide, 431
America, a clearing in the forests of, 360
America, horticulture in, 333
American Association, the, 335
American blight, 181, 212, 243; neat's-foot oil a cure for, 370
American crop returns, 500
American Government seed bags, 534
American Pomological Society, the, 77
Ammonia, on the absorption of, from the air, by plants, 38
Anagyris fœtida, 323
Ananassa sativa variegata, 430
Anatomy of the stems and leaves of coniferous plants, 334
Anemone japonica Honorine Jobert, 527, 596, 657
Anemones flowering in autumn, 720
Animals and plants, relation of, 526
Annuals for autumn sowing, 282; for bee-keepers, 73
Anthurium Scherzerianum, fine specimen of, at Hawkstone, 718
Antibes, M. Thuret's garden at, 394
Antigua Queen Pine-apple, 181
Aphides, notes on, 175
Aphis the cause of Potato disease, 46
Apiary:—Annuals for bee-keepers, 73; bee culture, a list of plants suitable for, 522; beehives, how to make straw, 147; bee-keeping, 72; bees and their produce, the first great exhibition of, at the Crystal Palace, 342; disposition of the stocks, 459; how to destroy bees, 119, 147; honey supers, 118; folk-lore of bees, 12; judging honey supers, 267; management of bees, 233
Aponogeton distachyon, 463
Apple orchard, a Middlesex, 262
Apples, a selection of, for Surrey, 282
Apple, the Nelson Codlin, 431; the Snow, 305; Apple tree at New York, an old, 206; Warner's King *v.* Gloria Mundi, 559; large Warner's King, 529
Apples, varieties recommended for various districts, 230
Apricot, a productive, 275
Apricots, varieties of, for various districts, 394
Apricot trees, on removing old, 336
Aralia Sieboldi, 616; flowering of, 686
Arauja albens, notes on, 647
Arbor-vitæ, American, 145
Aristolochia Sipho, 390
Armadale Castle, 399
Artemisia, the genus, 237
Artificial colouring of natural flowers, 430
Artichoke, the Jerusalem, 654
Arundo conspicua, 398
Ascog Hall, Bute, the gardens at, 392
Ash, notes on the, 584
Asparagus decumbens, 686; ramosissimus, 6
Asparagus, the Dutch way of cutting, 275
Asplenium fragrans, a Violet-scented variety of, 197
Aster grandiflorus, 526; pendulus, 558
Auction sales and nursery stock, 591
Auricula feast, an, 616
Auricula, Howard's Eclipse, 270
Austria, the Phylloxera in, 590
Autumnal flowers, 452
Autumn-bearing Raspberry, the, 466, 529
Autumn bulbs, 676
Autumn tints on the foliage, 430
Azalea indica alba, 197
Azalea viscosa a fly-catcher, 432
Azalea, on the culture of the, 73, 118
Azaleas at Lake Como, 463
Azara integrifolia variegata, 365
Azores, fruits of the, 520

B

BAHIA sugar, 590
Bailey, Mr. Thomas (with portrait), 527
Balearic Islands, notes from the, 233; resources of the, 141
Balsams, notes on the culture of, 118
Balsams, white, a good strain of, 206
Bamboo, the, 391
Bambusa gracilis, 657
Banbury Onion, the, 433
Bangalore, notes from, 266
Barnes, Mr. James (with portrait), 655
Bath Pond, 78
Bauera rubioides fl.-pl., 303
Bean, Carter's Mammoth Longpod, 83; Mont d'Or Butter, 274; Seville Longpod, 83; with many names, a, 435
Bedding-out at New Tarbet, 270
Bedding Pansies, 80; at Chiswick, 16
Bedding plants, wintering, 594
Beech tree, a remarkable, at Newbattle Abbey, 521
Beetles as house pets, 395
Begonia Frœbelii, 552; geranoides, 526; Martiana, 328; nitida, 242; Royalty, 467; hybrid, 147; the new, 401; tuberous-rooted, 303
Belfast, International Exhibition at, 205, 270, 301
Belgium, bound for, 643, 675, 709, 739
Belladonna Lilies, 530
Bellis rotundifolia var. cœrulescens, 329
Belsfield, Windermere, 743
Bennet's, Dr., garden at Mentone, 424
Berberis, notes on the genus, 647; on the movements of the stamens of, 461
Betula alba foliis purpureis, 83
Biblical plants, the Darnel and other, 74
Bignonia radicans, 647; radicans major, 232
Bill of fare, a, 270
Birds frequenting the Botanical Gardens, Regent's Park, 714
Birds and fruit-buds, 784
Birmingham, the Midland Counties Horticultural Exhibition at, 16
Blackberries in the garden, 275
Bladder Plums, 19
Boboli Gardens, Florence, the, 6
Boiler, Messrs. Dennis & Co.'s new, 46
Boldo and Condurango, 558
Boldoa fragrans, 686
Bollea Lalindei, 33; Patini, 34
Bon Jardinier's novelties, the, 745
Bonnet or Dishcloth Gourd, the, 178
Books, notices of:—Aveling's Botanical Tables for the use of students, 13; Baltet's Culture des Arbres Fruitiers, 683; Bartley's Seven Ages of a Village Pauper, 43; Bateman's Monograph of Odontoglossum, 75; Beddome's Flora Sylvatica of Southern India, 491; Belgique Horticole, 491; Bennet's Winter and Spring on the Shores of the Mediterranean, 714; Berling's Hymenomycetes Europæi sive Epicriseos Systematis Mycologici, 299; Botanical Magazine, 75, 171, 331, 491, 619, 746; Buek's Index to De Candolle's Prodromus, 75; Bulletin Mensuel de la Société d'Acclimatation, 523; Carrington's British Hepaticæ, 107; Cesati's Compendio della Flora Italiana, 139; Cooke's Report on the Resinous Products of India 778; Eason's Almanac and Handbook for Ireland, 778; Ewart's Land Improvers' Pocket Book, 331; Flore des Serres, 235, 331, 459, 683; Focke's Batographische Abhandlungen, 587; Foster's Physiology, 139; Geographical Magazine, 203, 683; Regel's Gartenflora, 107, 682, 778; Grevillea, 746; Hanbury and Flückiger's Pharmacographia, 523; Heatherside Manual, the, 395; Horton's Complete Measurer, 107; Hulme's Plants, their Natural Growth and Ornamental Treatment, 778; Illustration Horticole, 75; Jamain and Forney's Les Roses, 13; Jenning's Orchids and How to Grow Them in India, 171; Johnson's Natural Principles of Landscape Gardening, 107; Jordan's Remarques sur le Fait de l'Existence en Société à l'Etat Sauvage, des Espèces Végétales Affines, 171; Journal of Botany, 746; Journal of the Scottish Meteorological Society, 107; Journal de la Société Centrale d'Horticulture de France, 619; Keller's Amazon and Madeira Rivers, 682, 809; Kitchener's A Year's Botany, 808; Krelage's Notice sur quelques Espèces et Variétés de Lis, 331; Laurencin's La Pluie et le Beau Temps, 808; Linnean Society's Journal, 203, 523; Transactions, 107, 714; Mansell-Pleydell's Flora of Dorsetshire, 107; Manteuffel's L'Art de Planter, 746; Micrographic Dictionary, 331, 459; Moore's Elements of Botany, 746; Nelthropp's Treatise on Watch-work, Past and Present, 43; Paul's Roses and Rose Culture, 12; Piper's Poultry Yard Account Book, 651; Popular Science Review, 139; Porter and Coulter's Synopsis of the Flora of Colorado, 331; Powell and Gamble's Report of the Conference of Indian Forest Officers, 235; Ninth Report of the Quekett Microscopical Club, 683; Rich's Sewage Question, 139; Riley's Annual Report of the Noxious, Beneficial, and other Insects of Missouri, 203; M. Rothschild's Les Plantes Medicinales et Usuelles de nos Champs, Jardins, Fôrets, &c., 13; Schomburgk's Report of the Progress and Condition of the Adelaide Botanic Garden for 1873, 395; Sowerby's and Johnson's British Wild Flowers, 331, 459, 619; Stewart and Brandis' Forest Flora of North-Western and Central India, 395, 426; Transactions of the Royal Society of Arts and Sciences of Mauritius, 555; Tyndall's Address before the British Association, 395; Watson's London Catalogue of British Plants, 139; Weisner's Die Rohstoffe des Pflanzenreiches, &c., 619; Bell's Edition of White's Natural History of Selborne, 235; Wittmack's Führer durch das Königliche Landwirthschaftliche Museum in Berlin, 235; Wooster's Alpine Plants, 683; Yarrell's British Birds, 746
Botanical congress at Florence, the, 98
Botanical trip to Mont Cenis and the Maritime Alps, 774
Botanists, autographs of ancient and modern, 430
Botanist, a humble, 121; an old Lancashire, 614
Botany, report of the laboratory of cryptogamic, 302; on teaching to junior classes, 430
Boussingaultia baselloides, 718
Brassica tribe, fingers-and-toes in the, 401
Brazil nuts, 774
Brest, plants hardy in the Botanical Gardens at, 112
Brie Comte Robert, Rose culture at, 534
British Association, the, 239, 260, 298
British gardeners (with portraits):—Bailey, Mr. Thomas, 527; Barnes, Mr. James, 655; Drewitt, Mr. James, 399; Fowler, Mr. A., 582; Henderson, Mr. M., 719; Speed, Mr. T., 783; Tillery, Mr. William, 463; Turnbull, Mr. A., 329
Broccoli, how to cook, 40
Brownea coccinea, 494, 654; latifolia, 494
Brown, Mr. George, death of, 626
Bruges, plan of an estate near, 335
Brugmansia sanguinea, 181; suaveolens, 498
Budding knife, a new, 689
Buddlea madagascariensis, 654
Bulbophyllum gracile, 162
Bulbs, autumn, 676
Bupleurum fruticosum, 391

C

CABBAGES, notes on, 436; as a farm crop, 234; caterpillars on, 18; in Colorado, 782
Cacti for a balcony, 216
Calcutta Botanical Gardens, 394
Californian fruits, 471, 496
Callistemon rigidus, 304
Calostemma Cunninghami, 334
Camellia japonica, 527
Camellias, on the culture of, 118, 196
Campanula isophylla, 366, Smithii, 83
Campbell, Dr. A., 677
Canine madness, 362
Canna M. Celler, 430
Canned goods hermetically sealed, 142
Caradoc Field Club, the, 557
Carapa tree, the, 586
Cardoons, on the culture of, 142
Carlsruhe, Congress of German Horticulturists and botanists at, 175
Carmichælia australis, 418
Carnation, popular notes on the, 262; the old Clove, 306; tree, 623
Carnivorous plants, 293, 402; Dr. Hooker, C.B., on, 260; Mr. Murray on, 354
Carpet beds *v.* Pelargonium beds, 528
Carpet bedding at Dorking, 276
Carrier pigeons, Press, 248
Carrots, 650
Caryota urens, 334
Cassia corymbosa, 530
Casuarinas, notes on, 274
Catalpa, notes on the, 100
Cattleya ×fausta, 467; gigas, 616, 720; iricolor, 162
Cauliflower, 657; how to cook, 40
Caution to cottage gardeners, 555
Ceanothus americanus, 181; azureus, 495
Celery, 435; the old Pink, 528
Centaury, the, 357
Centranthus rubra, 78
Ceylon, Coffee disease in, 657
Chairs for the judges, 657
Charcoal beds, the fungi of, 36
Chatsworth, the gardens at, 291, 336
Chemistry of manures, the, 327
Chemistry, the centennial of, 324
Chenopodium Bonus Henricus, 48
Cherries, best varieties in various districts, 362; on budding, on the Cherry Laurel, 11
Cheshunt, a Rose garden at, 242
Chestnut tree, the, 402; at Enfield, 334
Chilian Salpiglossis, the, 197
Chironia ixifera, 294
Chiswick, bedding Pansies and Violas at, 16; trial of Celery at, 435
Chlorophytum orchidastrum, 152
Christmas trees, 803
Chrysanthemums in the Temple Gardens, 526, 592; notes on the, 551
Churchyard flowers, 136
Cinchona, on coppicing the, 34; experiments in the culture of the, 462
Cinerarias, notes on, 555; double, 686
Citrus japonica, 337; trifoliata, as a stock for the Kumquat, 111
Clematis Aureliana, 430; Davidiana, 329; double-flowered, 303; Duke of Connaught, 303; Flammula, a purple-flowered, 174; florida var. Sieboldi,

391; montana, 400; montana, notes on, 323; orientalis, 418; Jackmanni, how to propagate, 755
Cleome heptaphylla, 398
Cleveland House, Clapham Park, flower gardening at, 711
Clianthus puniceus, 418
Climatal changes, 559, 592; Mr. I. Anderson-Henry on, 47
Climate, forests the result and not the cause of, 143; influence of forests on, 462; in Scotland, 303; of Central France, 48
Closing of flowers, 262
Clove Carnation, the old, 306
Clover, a malformed, 19
Coccocypselum repens, 431
Cocculus carolinianus, 586
Coffea liberica, 587
Coffee diseases in Ceylon, 83, 657
Colchicum luteum, 34; Parkinsoni, 18; speciosum, 366
Colletia cruciata, 686; discolor, 304
Colours, popular names of, 270, 306
Coltsfoot and Thistles, 401
Combretum micropetalum, 167
Comet, the, 78
Committee, the Scientific, of the Royal Horticultural Society:—Allium rotundum, 624; Clover, malformed, 19; Coffee fungus, 83; Fairy Rings, 19; Fungi, notes on the occurrence of, 624; Gall on Damson leaves, 83; Hemileia vastatrix, 624; Hollyhock disease, 83; Honeydew produced by aphides on Crocuses, 721; Iris Kæmpferi, 19; Larch disease, 721; Periodic phenomena of vegetation, 83; Phylloxera, 83; Pinks, diseased, 19; Pinguicula, irritability of, 19; Plums, bladder, 19; Potatos destroyed by Aphis, 83; Privet, monstrous, 83; Rice, diseased, 83; Rose, diseased, 83; Seeds, germination of, 19; Superfœtation, 721; Vitality of seeds, 83; Woods for engraving, 19
Committees, the Floral and Fruit, 720
Congress, horticultural, at Carlsruhe, 175; the Botanical, at Florence, 98
Coniferous plants, anatomy of the stems and leaves of, 334
Conifers at Hawkstone, 718
Convolvulus althæoides, 306
Copal tree, the, 273
Corbularia cantabrica, 590
Cork tree, Spanish name of the, 242
Cornish sardines, 398
Cornwall, market gardening in, 39, 67; trees and shrubs in, 370; plants grown in, 784
Corynophallus Afzelii, 167
Cossus ligniperda, how to breed, 13, 48
Cotswold Hills, notes from the, 497
Cotton in Egypt, production of, 654
Cotton-mill operatives, gardens for, 321
Cotyledon Peacockii, 258; peruviana, 258; mammillaris, 167; spinosa, 334
Couratari Taüri, 750
Covent Garden, improvements in, 526
Covering for outside Vine borders, 370, 401
Cowan's system of limekiln heating, 206
Crassula Cooperi, 167; profusa, 167; Saxifraga, 167
Cratægus Pyracantha, 391
Crocus cancellatus, 167; chrysanthus, 167; Olivieri, 167; Sieberi, 167
Crop, reports on the Potato, 208
Cross fertilisation, 261
Croton volutum, 167
Cryptogamic botany, report of the laboratory of, 302
Cryptogams, occurrence of aluminium in certain, 422
Cucumis anguria, 180
Cucumber Climax, 499; Daniels' Duke of Edinburgh, 115; Daniels' Duke of Edinburgh and Marquis of Lorne, 146
Cucumbers, Russian, 522; distorted with nodules, 302; long, 624
Culinary Notes:—How to cook Cauliflowers, 40; cold dinners, 774; in consultation, 258; seriously occupied, 644
Cultivation, effects of pruning, 113
Cupressus Lawsoniana, 653; Lawsoniana erecta viridis, 329
Curculigo recurvata, 167
Curmeria picturata, 167; Roezlii, 804
Cuscuta reflexa, 590; hardiness of, 657
Cut flowers, method of keeping, 78; notes on, 5, 33
Cyathea Burkei, 167; medullaris, 654
Cycas revoluta, 243
Cyclamen persicum, culture of, 238
Cycnoches maculatum, 167
Cydonia (see Pyrus)
Cynara Scolymus, 232
Cyperus laxus, 98
Cyphomandra betacea, 335
Cypripedium Argus, 710; Arthurianum, 676; Dominianum, 167; longifolium, 167; Roezlii, 167, 526; Sedeni, 167; superbiens, 167
Cyrtodeira fulgida, 167
Cytisus Everestianus, 167

D

DAHLIA coccinea, 329; imperialis, 616; green, 167
Damson leaves, gall on, 83
Darlingtonias, 260
Darnel and other Biblical plants, 74
Dasylirion acrotrichum, 329, 526
Dead Nettle, the, 261
Deadly Nightshade, the, 399
Decabelone elegans, 366
Decoration of railway stations, the, 16
Decorative plant, Ivy as a, 36
Decorations for round dinner-tables, 163
Delphinium elatum Keteleeri, 167
Demidoff, the gardens of Prince, 132
Dendrobium Ainsworthii, 167; arachnites, 354; asphale, 644; Bensoniæ var. aurantiacum, 6; chrysotis, 167; erythroxanthum, 162; infundibulum, 167; lituiflorum, 167; nobile, 402; Wardianum, 167
Dennis & Co.'s new boiler, 46
Deodar in the slopes of Windsor, 559
Desmodium penduliflorum, 167, 784
Dianthus Caryophyllus, 400
Dicliptera Tweediana, 167
Dieffenbachia latimaculata, 167; nobilis, 167
Diervilla, notes on the genus, 495
Diervilla trifida, 391
Digestion of animal matter by plants, on the, 15
Diggings from old mines, 162
Dion edule, 526
Dionæa muscipula, 464
Dioscorea illustrata, 167
Diospyros Mazeli, 167
Diplacus glutinosus, 180
Disa Barrellii, 167
Disease and the Potato crop, 275
Divining-rod, the, 483, 581
Dodds, Mr., testimonial to, 110
Dolichos bicontortus, 167
Doors for hothouses, double, 499
Dombeya Burgessiæ, 653
Doryanthes Palmeri, 167
Doum Palm, the, 813
Douane of the French frontier, the, 713
Double parasitism, 206
Draba bruniifolia, 167
Dracæna amabilis, 167; bellula, 167; Realii, 167; Shepherdii, 167
Draining, results of thorough, 305
Drewett, Mr. J. (with portrait), 399
Dried flowers, preserving the colours of, 111
Drimiopsis Kirkii, 644
Droseras, 260
Drought, the, 134
Drudge, the horticultural, 356
Dunrobin Castle, 324
Dyed plants, objections to, 814
Dynamite for removing tree stumps, 110

E

EARLEY'S November Plum, 656, 687
Easterman Giant, 344, 403; and herb puddings, 355
East Indian Toddy Palm, 334
Eastwell Park, Kent, 648
Ebony from Seaweed, 366
Echeveria agavoides, 167; gibbiflora metallica, 167; Peacockii, 19; rosacea, 167
Echeverias, wintering, 624
Echinocactus Cumingii, 167; Mirbelii, 167
Egypt, production of Cotton in, 654
Elæagnus longipes, 419
Elms, notes of old and curious, 102
Elsholtzia polystachya, 586
Elvaston Castle Gardens, 591
Emblematic plants, 226
Embothrium coccinium, 418
Encephalartos villosus, 419
Encholirion Saundersii, 419
England, vine and wine production in, 18
Epidendrum Catillus, 419; criniferum, 419; favoris, 98; Lindleyanum, 419
Epilobium angustifolium, 232
Epping Forest, 653
Eranthemum Cooperi, 232
Eranthemums, 430
Eremurus robustus, 419
Erica Chamissonis, 419
Erigeron mucronatum, 334
Eriostemons, on the culture of, 34
Eryngium maritimum, 211
Erythrina Parcellii, 392, 434; picta, 419
Erythrochiton hypophyllanthus, 526, 590
Erythronium grandiflorum, 419; grandiflorum albiflorum, 419
Escallonia rubra, 590
Escallonias, notes on, 323
Esparto or Alfa, 152
Eucalyptus on the west coast of Scotland, 400
Eucalyptus polyanthemus, 294
Euonymus japonicus, notes on, 495; radicans, 527
Euonymus, the, 591
Eupatorium ageratoides, 654, 753
Euphorbia plumerioides, 419
Evergreens, best season for planting, 721; transplanting and removing, 387, 784
Exhibitions, horticultural, 621
Expedition, a new Polar, 653

F

FAGRÆA zeylanica, 419
Fairy rings, 19
Farm, the:—Cabbage as a farm crop, 234, 436; Carrots, 650; on small farms, 42; food prospects, 500; harvest prospects, Wheat, 149; harvest and after, 267; harvest in Scotland, the, 500; Leicester root show, 691; Metropolitan root show, 691; Parsnip, the, 776; Potato crop, the, 394; Potatos, supertuberation of, 179; Potatos, on utilising diseased, 531; Rape culture, 106; root crops, 75; prize roots, 560; roots, the management of, 467; season, the, 213; dry summers, 106; Smithfield Club show, 754; Sutton & Sons' root show, 691; Vetch, the, 299; weather prospects, 11; weather, the, 618; Wheat as a feeding stuff, 593; Wheat sowing, 178, 362; Wheat prospect on, 43; new winnowing machine, 178
Farms and their products in Roumania, 234
Far West, notes from the, 370
Fern, a new Tree, 463
Ferneries at Elmfield, Streatham, 164
Ferns, monstrous, 497
Ferns, Tree, used for food, 111
Fertilisation, cross, 261
Ficus elastica, fruiting, 359
Ficus Parcellii, 419; Roxburghii, 419
Field Club, the Caradoc, 557
Fig culture in the Balearic Isles, 233
Figs for open air on the South Coast, 184
Fig, the Brunswick, 334
Fingers-and-toes in the Brassica tribe, 401
Finocchio as a vegetable, 143, 498
Fire extinguishing and heating apparatus, combined, 9
Fir, malformed Spruce, 558
Fir, the, of Scripture, 146
Fittonia argyroneura, 238
Floors Castle and Park, 712
Floral Charade, 808
Floral and Fruit Committees of the Royal Horticultural Society, 688; awards of, 429
Floral Guide to Llandudno, 9
Florence, the Botanical Congress at, 98
Florence Exhibition, success of the, 462
Florence, the Boboli Gardens at, 6; the environs of, 105
Floricultural certificates, 401
Florida, gardening in, 619
Flower and fruit shows, arrangement of, 141
Florists' Flowers:—Hybrid Begonias, 147; Cinerarias, 555; new Hyacinths, 176; Mimulus maculosus, 714; Pelargoniums, 177, 586, 778; double Primroses, 72; Tulips, early flowering single, 330
Flower gardening at Cleveland House, Clapham Park, 711
Flower-pots, perforated, 168
Flowers and insects, 261
Flower shows, 752, 784, 814
Flowers, a plea for wild, 138; artificial colouring of natural, 430; at funerals, 353; autumnal, 452; churchyard, 136; closing of, 262; cut, notes on, 5, 33; dried, preserving the colours of, 111; happy, 523; method of keeping cut, 78; October wild, 515; outdoor autumn, 529
Fluctuations of temperature, 18
Foliage, antumn tints on the, 430
Folk-lore of nuts, the, 451, 527
Food of plants and animals, 298
Food prospects, 500
Forestiera pubescens, 528
Forest distribution of Victoria, the, 40
Forestry:—Forest trees, injury done to, by wild animals and birds, 618; home-grown timber, best mode of disposing of, 394; notes on Indian forest produce, 330, 424, 490, 530; how should we lop trees, 170; Pine woods of Pennsylvania, the, 459; replanting of forests, &c., 115; support *v.* restraint in connection with staking trees, 13; treatment of tap-roots, 80; trees for landscape effect, planting, 618; trees *v.* rabbits, 714, 753
Forests, destruction of, on the Italian frontiers, 526; influence of, in drawing moisture from the heavens, 111; influence of, on climate, 462; replanting of, 115; the result and not the cause of climate, 143
Forest trees, how to prevent rabbits injuring newly planted, 657; injury done to, by wild animals and birds, 618
Forsythia Fortunei, 418; suspensa, 304; viridissima, 418
Fossil plants in granitic rocks, 98
Fountain in Leicester Square, the, 527
Fountains, Italian, 388
Fourcroya Commelyni, 430; undulata, 590
Fowler, Mr. A. (with portrait), 582
Foxglove, monstrous, 78
France, the climate of Central, 48
Francoa ramosa, 366
Fremontia californica, 142, 495
French Bean, Carter's Crystal Palace, 14
French frontier, the douane of the, 713
French Guiana, 121
French ringing tongs, 211
French Tagetes, dwarf, 238
Fritillaria pudica, 419
Frog culture, 782
Frogmore, the glass range at, 593
Frost in June, 19
Frost, preserving Vines against, 590
Fruit at South Kensington, the Jersey, 656, 689
Fruit borders, digging and dunging, 560
Fruit crops in Germany, 622
Fruit crops of 1874, tabulated reports of the condition of the, 198, 205; remarks on the, 202, 205
Fruit culture for the masses, 237
Fruit, on the decay of, 494
Fruit show at Ghent, the, 686
Fruit shows, arrangement of, 141
Fruits of California, 471, 496; of Persia, 38, 66, 100; of Portugal, 7; of the Azores, 520; of the West Indies, 231, 367, 399, 421; from Sweden, 495; new, certificated, 805
Fruits, size of, 18; a horticultural heresy, 146
Fruit trees, digging about them and dunging them, 528, 592
Freycinetia Banksii, 419
Fuchsia Ben Disraeli, 366; procumbens, 181, 291, 322, 419; Riccartoni in Ireland, 270; syringæflora, 419
Fuchsia bloom, an interesting, 686
Fuchsias, notes on the culture of, 108
Function of leaves in the vegetation of Plants, 111
Functions of the spiral vessels of plants, 494
Funerals, flowers at, 353
Fungi and galvanism, 530
Fungi and wood, phosphorescence of, 361
Fungi, edible and poisonous, 431; exhibition of, at Munich, 555; in paste, prevention of, 339; in Peach borders, 435; of charcoal beds, the, 36; tests of wholesomeness in, 297; the determination of edible, 433, 403; the Himalayan leaf, 498
Fungus meeting at Hereford, the great, 458

G

GAILLARDIA amblyodon, 419
Galactodendron utile, 419
Galeandra Devoniana, 419; minax, 98
Galls on the root of the Oak, 587, 714
Gall, the Spruce, 499
Galvanism and fungi, 530
Garden arrangements, the picturesque in, 463
Garden, blackberries in the, 275
Gardeners, a plea for an outing for, 18
Gardener's Royal Benevolent Institution, the, 46, 814
Gardeners without incumbrances, 302
Garden frames, Voice's patent, 334
Gardening at railway stations, 303
Gardening in Florida, 619; in New England, 648, 681; in town windows, 97, 225
Gardens and gardeners, 6
Gardens for cotton-mill operatives, 321
Gardens, on laying out, 392
Garden walls, wiring, 744
Gas-making, a novelty in, 121
Gaultheria glabra caracasana, 419; insipida, 419
Geaster Michelianus, 719
Genista Everestiana, 419; polygalæfolia, 175
Genoa, gardens of, 133
Geonoma gracilis, 419; Martiana (Seemanni), 419
Geranium Backhousianum, 419
Germany, fruit crops in, 622
Germination of seeds, the, 280, 329
Ghent, notes on, 739; horticultural industry in, 719; bouquet trade in, 771; the fruit show at, 686
Gibson, Mr. John, projected testimonial to, 16, 174
Gilchrist educational trust, the, 206
Gladiolus purpureo-auratus, 419
Glasshouses, removal of, 18
Glaucium Serpieri, 419
Gloneria, the genus, 654
Glycyrrhiza glabra, 212
Goat moth, the, 78
Godwinia gigas, 419
Golden Chickweed, 232
Golden Feather Pyrethrum, 232

Gompholobiums, on the culture of, 137
Gongora cassidea, 322
Goniophlebium glaucophyllum, 6, 419
Gooseberries, heaviest prize, 184
Gourd, a large, 465, 528
Gourd, the Bonnet or Dishcloth, 178, 783
Granadilla Jam, 407
Grape cure, the, in the Tyrol, 47
Grape-growing under difficulties in Lancashire, 517
Grape Phylloxera, Riley's history and economy of the, 210, 226, 271, 295
Grapes, a heavy crop of, 528; giant bunches of, 339, 369, 429; heavy crop of, 498; the Lambton Castle, 653; the Muscats at Berkhampstead, 398; unpopular, 753, 815
Grape, the Golden Champion, 334; Venn's Black Muscat, 560
Grass, the Pampas, 465
Gray, Dr. J. E., resignation of, 205
Great Ormes Head and Llandudno, plants of, 801
Green food for the Polar Expedition, 689
Greenhouse plants: their culture and management:—Adenandra fragrans, 274; Azaleas, 73; Eriostemons, 34; Gompholobiums, 137; Hoveas, 679; Leschenaultias, 391; Phœnocoma prolifera and others, 326; Polygalas, 616
Green Peas, coloured with copper, 46
Grevillea fasciculata, 419; robusta, 430
Greyia Sutherlandi, 419
Griffinia hyacinthina, 17, 419
Guano deposits in the Islands of Lobos de Tierra, 365
Guiana, French, 121
Gunnera brephogea, 419; scabra, 294
Gunnersbury, the large vinery at, 111
Gymnogramma decomposita, 419; triangularis, 303
Gynerium argenteum carminatum Rendatleri, 419

H

HAILSTORM in June, the, 19
Hamamelis arborea, 419
Hamilton Palace Gardens, 359
Happy flowers, 523
Hardenbergia ovata rosea, 419
Hardiness of Cuscuta reflexa, 657
Hardiness of Lardizabala biternata, 688
Harvest, and after, 267; in Scotland, 500
Harvest prospects, Wheat, 139
Hawthorn borer, 719
Heat and drought, effect of, on the Potato disease, 307
Heaths and insect fertilisation, 261
Heating and fire extinguishing apparatus, Smeaton & Co.'s, 9
Heating, conservatory, 813; Cowan's system of lime-kiln, 206
Heckfield, new Peaches at, 499; the subtropical garden at, 527
Heimia salicifolia, 304
Helianthus orgyalis, 238
Henderson, Mr. M. (with portrait), 719
Henna, notes on the uses of, 169
Herbaceous plants, on arranging, 554
Herb puddings and Easter Mangiants, 355
Hereford, the fungus meeting at, 458
Heteromorpha arborescens, 527
Heyderia decurrens, syn. Libocedrus decurrens, 16
Hibbertia Baudouinii, 419; perfoliata flore-pleno, 419
Hibiscus rosa-sinensis, 656; fruit of the, 720; rosa-sinensis puniceus, 419
Himalayan leaf fungus, 498
Himalayas, tea planting in the, 457
Hippophaë rhamnoides fœmina, 431
Holböllia latifolia, 418
Hollyhock disease, 46, 83, 110, 243
Holly tree, a remarkable, 400
Hollies, suspended animation in, 529; varieties of, 432, 519, 687, 752
Honeydew, 18, 78, 114, 211
Honey supers, judging, 267
Hop, a monœcious, 174
Hoplophytum Lindeni, 419
Hornets, 427
Horse, a vegetable, 339, 370
Horse lawn-mowing machines, 466
Horticultural club, a new, 622, 751
Horticultural drudge, the, 356
Horticultural exhibitions, 621
Horticultural heresies, 146, 242, 307
Horticultural labour difficulty, 269, 400
Horticultural novelties from Salt Lake, 8
Horticultural societies, objects of, 749
Horticulture in America, 333, 749
Horticulture of the last century, 79
Horticulture, the heart of, 656
Hothouses, double doors for, 499
Houlletia Lowiana, 484
Household, decorations in the, 772, 814
Hoveas, on the culture of, 679
Hoya carnosa fruiting, 465, 497, 528
Huntingdonshire, the season in, 688
Hurricane lamp, the, 177
Hyacinths, new, 176; on potting, 500
Hyde Park and Kensington Gardens, condition of the trees in, 589, 781
Hydrangea, a blue, 307
Hydrangea acuminata, 419; Hortensia, 418; paniculata grandiflora, 419
Hygienic properties of parks and plantations, 110
Hyophorbe indica, 419
Hypericum patulum, 398
Hypoxis longifolia, 419; pannosa, 130

I

ILEX Aquifolium, 519; A. alcicornis, 432; A. altaclarensis, 752; A. angustifolia, 752; A. arbutifolia, 752; A. atrovirens, 751; A. balearica, 751; A. Beetii, 520; A. belgica, 432; A. camelliæfolia, 812; A. ciliata, 752; A. ciliata major, 752; A. compacta, 687; A. costata, 520; A. crassifolia, 752; A. doningtonensis, 687; A. elliptica, 520; A. ferox, 812; A. Fisheri, 520; A. Foxii, 752; A. fructu-aurantiaca, 520; A. fructu-luteo, 519; A. grandifolia, 432; A. handsworthensis, 520; A. hastata, 687; A. Hendersoni, 752; A. heterophylla, 520; A. Hodginsii, 432; A. hybrida, 520, 752; A. integrifolia, 812; A. latifolia, 432, 528, 560, 624; A. latispina, 812; A. laurifolia, 812; A. laurifolia fructu-luteo, 812; A. lineata, 752; A. maderensis, 751; A. macrophylla, 752; A. magnifica, 812; A. marginata, 812; A. monstrosa, 750; A. myrtifolia, 687; A. nigra, 432; A. nigrescens, 752; A. nobilis, 432; A. ovata, 752; A. pendula, 519; A. platyphylla, 432; A. recurva, 687; A. rigida, 432; A. rotundifolia, 751; A. senescens, 812; A. scotica, 812; A. serratifolia, 687; A. Shepherdii, 751; A. Smithiana, 520; A. tortuosa, 812; A. trapeziformis, 812; A. Whittingtonensis, 687
Indian forest produce, notes on, 330, 424, 490
India office museum, 654
India, rice disease in, 77
Indiarubber, a new source of, 71
Influence of forests on climate, 462
Insect adaptation, 262
Insect, a deadly, 304
Insecticide, hot alum-water as an, 431
Insects and flowers, 261
Insects, useful and noxious, 271; exhibition of, at Paris, 173, 324; value of, 261; Pine trees injured by an, 18
Insect powder, a new, and the Phylloxera, 614
Intermediate Stock, the, 246
Invergordon Castle, 390
Ipecacuanha at Rungbee, the, 47
Ipomœa (Exogonium) Purga, 462
Iris Douglasiana, 419; ibirica, 488; Kæmpferi, 19, 488; Kæmpferi, var. Edward George Henderson, 45, 488; Korolkowi, 488; Obbiensis, 488; reticulata, 488; tectorum, 488
Irrigation of the kitchen garden, 276
Italian gardens and gardening, 6, 34, 68, 132, 168
Italy, vine training in, 194
Ivies, shrubby, 430
Ivy, as a decorative plant, the, 36
Ivy coccus, the, 13
Ixiolirion Pallasii, 488
Ixora Fraserii, 83

J

JAFFA, Oranges from, 589
James, Mr., of Patshull, 401
Japanese paper, 145; Pine tree, a dwarfed, 366; vegetable wax, 177
Japan, paper manufacture in, 241
Jardin des Plantes, the new reptile house at the, 683
Jarrah wood, the, 464
Jasminum nudiflorum, 323; revolutum, 304
Jaubert, M. le Comte, death of, 754
Jedburgh Pears, 325
Jersey fruit at South Kensington, the, 656, 689
Jerusalem Artichoke, the, 654
Judges, chairs for the, 657; selection of, by the Royal Horticultural Society, 334
June, frost in, 19
Jute plant, on the fibre of the, 431

K

KARR, Alphonse, 137
Kæmpferia Roscoeana, 485; rotunda, 485
Kangaroos in English parks, 111
Keens' Seedling and other Strawberries, 593
Kensington, a skating rink at, 78
Kew, Agave americana at, 142
Kew Gardens, instruction afforded at, 369; on the earlier opening of, 333
Kew, the flower gardens at, 237; the old walls at, 271, 304, 323, 390, 418, 495, 527, 560, 585, 591, 647, 742; the Orchid-house at, 398; the succulent-house at, 242; Water Lilies in flower at, 16
Killing and colouring (alleged) Rye-grass seeds, 368, 403, 466, 498
Kitchen gardening in New England, 648, 681
Kitchen garden, irrigation of the, 276
Knife, a new budding, 689
Kniphofia MacOwani, 366, 467; Rooperi, 485
Korolkowia Sewerzowi, 485
Kumquat, the, 336; Citrus trifoliata as a stock for the, 111

L

LABELS, zinc, 497
Laboratory of cryptogamic botany, report of the, 302
Lælia anceps Dawsoni, 488; flammea, 488; Jonghiana, 488; pumia, 488; Rivieri, 488
Lagerströmia indica, 488
Lamington House, Lanarkshire, 552
Lamp, a cheap convertible, 529; the hurricane, 177; the paraffin, 593
Lambton Castle Grapes, 653
Lancashire Garden, notes from a, 70, 230, 386, 554, 711
Landscape gardening, 653
Lapageria rosea and rosea alba, 488
Lapageria rosea, grown out-of-doors in Cornwall, 719
Laportea gigas, stung by, 402
Lardizabala biternata, hardiness of, 688
Lasiandra lepidota, 488
Lathyrus sphæricus found in Herts, 47
Lavender fields, the, in Surrey, 114
Leaves, function of, in the vegetation of plants, 111
Leicester Square, opening of, 15; the cost of, 48
Leucojum autumnale, 488
Lepcha labourers, the, 458
Leptosyne maritima, 488
Leschenaultias, on the culture of, 391
Lessertia perennans, 488
Lettuces, notes on, 104
Levens Hall, Westmoreland, 263
Libertia cœrulescens, 488
Libocedrus decurrens, change of the name of, 16
Libyan Desert, exploration of the, 646, 743
Lichens, on the nature of, 98
Lightning, trees recently struck by, 67
Ligustrum japonicum, 527, 560, 647; how to propagate, 755
Lilac, the white, 303
Lilies, and Lily culture, 365; M. Duchartre on the germination of, 811
Lilies, water, in flower at Kew, 16
Lilium auratum, 212, 329; auratum, double-flowered, 142; avenaceum, 231, 488; candidum, 232; dahuricum, 488; Humboldtii, 488; Krameri, 488; philippinense, 488; speciosum atrosanguineum, 182; speciosum var. Kæmpferi, 302; tigrinum flore-pleno, 488; Washingtonianum purpureum, 322, 488
Lily bulbs, underground development of, 165
Lily flowers, white, for healing cuts, &c., 110
Lily, the Sutah, 366, 598
Linaria heterophylla, 488; peloria of, 142; sagittata, 488
Lindley medal, the, 676; to whom awarded, 740
Liquidambar, notes on the, 177, 590
Liquorice culture at Pontefract, 420
Liriodendron tulipifera, 41; tulipifera luteo-marginata, 488
Lisianthus Russellianus, 782
Livistona Hoogendorfii, 488
Llandudno and Great Ormes Head, plants of, 80; the tourist's floral guide to, 9
Lobelia pumila, a double-flowered, 232; pumila grandiflora, 19; subnuda, 590
Lobelia, the double blue, 530, 559, 623
Lomatia propinqua, 232
Lonicera aureo-reticulata, 334; flexuosa, 324; tatarica, 647
Loquat, the, 304
Lord Palmerston and his gardener, 456
Loudon Club, the, 558
Luculia gratissima, 781
Lycaste Dowiana, 194; xytriophora, 194
Lycopersicum racemiforme, 334
Lyons, the Rose show at, 334

M

MACE, the Reed, 70
Mackaya bella, 488
Madder, growth of, in England, 249
Madras Agri-Horticultural Society's garden, 521
Magnolia grandiflora, 586
Maize in ancient Palestine, 211
Malortiea simplex, 488
Mammillaria senilis, 488
Manchester, exhibition at the Pomona Gardens, 398, 722, 815
Mandevilla suaveclens, hardy, 434
Mandrake, the, 289
Man-eating tree of Madagascar, the, 305
Mantisia saltatoria, 488
Manure, a remarkable, 494
Maranta hieroglyphica, 488; Makoyana, 488
Marcgraavias, 261
Marigold for city culture, the African, 558; dwarf French, 238
Masdevallia caloptera, 322; Chimæra, 488, 804; Davisii, 710; Denisoniana, 488; Harryana, 488; Houtteana, 98, 488; infracta, 488; Lindeni, 488; Livingstoniana, 322; melanopus, 322; myriosigma, 715; nycterina, 715; pachyura, 322; polysticta, 290; tovarensis, 715; Veitchiana, 715; velifera, 98
Matico, 679, 784
Measuring tapes, incorrect, 593
Medinilla amabilis, 715
Medinilla magnifica at Peterborough House, 421
Melaleuca Wilsoni, 715
Melons distorted with nodules, 302
Melons, judging by appearance, 281
Melons shown at Reading, the, 339
Meninia turgida, 715
Menispermum canadense, notes on the, 585
Mentone, Dr. Bennet's garden at, 424
Mercury, herb, 48
Mesembryanthemum abyssinicum, 715; cordifolium variegatum, 529; intonsum, 715; truncatellum, 430, 715
Messina, vintage in, 142
Mice *v.* slow-worms, 808
Miconia pulverulenta trifasciata, 715
Milla uniflora, 715
Mimulus (Diplacus) glutinosus, 111; maculosus, notes on, 714; primuloides, 715
Mistleto as medicine, 804; growing on Mistleto, 206
Moggridge, Mr. J. T., death of, 723
Moles as vegetarians, 559, 593, 623, 657
Mont Cenis, botanical trip to, 774
Mont d'Or Butter Bean, 274
Mosquitos, naturalisation of, in England, 270
Mowing machines, horse lawn, 466
Mulberry, an old, 559
Mulching, 615
Musa Champa, 83; Ensete, 366; superba, 715
Museum, the India Office, 654
Mushrooms and Toadstools, 422
Mushrooms, maggots in indoor summer grown, 181; monster, 334
Mycological work of the year, 466
Myosotis dissitiflora, 146, 181, 212, 339, 811
Myrtus communis, 323

N

NAPOLEONA, Omphalocarpum, and Asteranthos, Mr. Miers on, 53
Narcissus Clusii, 715
Nash, Mr. D., death of, 723
Natural history:—Bee-swarming, 587; beetles as house pets, 395; birds frequenting the Botanical Gardens, Regent's Park, 714; canine madness, 362; Cossus ligniperda, how to breed, 13, 48; cuckoo, the, 104, 147; the emu as a farm bird, 714; Galls on the roots of the Oak, 587, 714; hornets, 427; Ivy coccus, the, 13; Parsnip miner, 143; pisciculture, 166; rabbits, 42; reptile house at the Jardin des Plantes, the, 683; Sirex gigas, 395; snakes, 490, 522; Spruce chermes, 523; Tephritis onopordinis, 143; viviparous toad, the, 714; wasps as house pets, 234, 523; water beetles, 267
Natural history, the romance of, 304, 336
Naturalisation of plants, accidental, 121
Natural phenomena connected with the return of the seasons, 46
Neat's-foot oil as a preventive and cure of American blight, 370
Neglected plants: Samphire, 71
Nelumbium luteum, 329
Nemophila insignis, 79
Nepenthes, 261, 293; N. sanguinea, 715
Nertera depressa, 328, 528
Nettles and their irritating properties, 238
Nettle, the dead, 261
Newbattle Abbey, Beech tree at, 521
New England, gardening in, 648, 681
New York, an old Apple tree at, 206
Nice, a letter from, 147
Nicotiana wigandioides, 715
Nidularium spectabile, 715
Nitrogen of the soil, the, 453
Notes from the Far West, 370
Novelty in gas-making, a, 121
November nosegay, a, 622
Nunnezharia geonomæformis, 715
Nurseries, Messrs. Rollissons', 98, 131

Nurserymen, our liberal, 591
Nursery stock and auction sales, 591
Nutrition of plants, 260
Nuts, the folk-lore of, 451, 527
Nuytsia floribunda, 686, 753
Nymphæa Daubenyana, 329; tuberosa, 294

O

OAK at Addlestone, 654
Oak, Phylloxera on the, 68, 83
Oaks, galls on the roots of, 714
Oak tree, an old, 270
Obituary:—Archibald, Mr. J., 816; Brown, Mr. G., 626; Godfrey, Mr. R., 118; Hooker, Mrs., 661; Jardine, Sir William, 691; Jaubert, M. le Comte, 754; Kemble, Rev. C., 661; Masters, Mr. W., 437; Moggridge, Esq., J. T., 723; Nash, Mr. D., 723; Olm, Mr., 175; Phillpotts, Esq., J., 561; Sumner, Rev. Dr., 248; Tait, Mr. A. McQuhire, 789
October wild flowers, 515
Odontoglossum brevifolium, 715; distans, 558; Galeottianum, 97; lacerum, 740; madrense, 804; Mulus, 715; nævium majus, 715; Roezlii, 715; Roezlii var. album, 526; roseum, 715; Rossii majus, 715; Ruckerianum, 715; tripudians, 715; vexillarium, 715; vexillarium at Mr. Rucker's, 16
Old mines, diggings from, 162
Olive oil in Tunis, 248
Olive, the, in the Genoese Riviera, 489
Olm, Mr., death of, 175
Omphalodes Lucillæ, 715
Oncidium ampliatum majus, 715; dubium, 715; fuscatum, 715; Krameri-anum, 715; leucochilum speciosum, 715; Rogersii, 558; tigrinum, 719; varicosum Rogersii, 715
Onion, the Banbury, 433
Open-air border plants, 720; geographically arranged, 678, 742
Open-air vegetation at Edinburgh, 72
Ophiopogon spicatus, 494
Ophrys apifera, 48
Opuntia Rafinesquiana, hardiness of, 718
Opuntias near Mentone, 517
Orangery, the furnishing of an, 181
Oranges and Lemons, 741
Oranges from Jaffa, 589
Orange trees, 243
Orchard-house trees, Mr. G. F. Wilson's, 334
Orchid basket of Robinia Pseud-Acacia, 238
Orchids and insect fertilisation, 261
Orchids, cool, 401; sale of the late Bishop Sumner's, 399; the best, 719
Orchis maculata, for forcing, 205, 783
Oreodaphne californica, 324
Ornithidium strumatum, 772
Outdoor gardening, 149
Ouvirandra at home, the, 10
Oval beds, 19
Oxalis cernua flore-pleno, 715; corniculata roseo-nigra, 715; lobata, 366
Oxlip, what is an, 785
Ozokerit, 720, 784

P

PACHYPHYTUM bracteosum, how to propagate, 111
Packing, notes on, 115
Palazzo Orengo, near Ventimiglia, Italy, 34, 68
Palestine, Maize in ancient, 211
Pallavicini, the Villa, 133
Palmerston, Lord, and his gardener, 456
Pampas-grass, the, 465, 497, 529
Panax sambucifolius, 715; sessiliflorus, 715
Pancratium speciosum, 494
Pansies and Violas at Edinburgh, 296
Pansies, bedding, 80; new, certificated at Chiswick, 83
Paper, Japanese, 145
Paper-making materials, 129, 237
Paper manufacture in Japan, 241
Paraffin lamp, the, 593
Paris, exhibition of useful and noxious insects at, 173, 324; the mud of, 782
Parasitism, instance of double, 206
Parks and plantations, hygienic properties of, 110
Parochetus communis, 557
Parrottia persica, 271, 462
Parsley, curled, 431; notes on, 498
Parsnip as a small-farm plant, the, 776
Parsnip miner (Tephritis Onopordinis), 143
Passiflora cœrulea, 527; cœruleo-racemosa, 686; cœrulea, the hardiness of, 465; macrocarpa, fruiting at Kew, 232; racemosa, 466; sanguinolenta, 226, 715
Passion-flowers, fruit of the, 557
Paterson's Victoria Potato, 529
Pavias, the, 401
Peach borders, fungi in, 435
Peaches and Nectarines, 18, 78, 115, 392, 497, 528; size of, 211
Peaches at Heckfield, new, 499; the three earliest, 48, 80, 180
Peaches, Early Beatrice and Early York, 146
Peach, fruit from a double-flowered, 494
Peach harvest at Montreuil, 526
Peach trade in America, 266
Peach, yellows in the, 718
Pea, Multum in Parvo, 80; Piebald, 307
Pear, Beurré de l'Assomption, 212; Uvedale St. Germain, 646; Williams' Pitmaston Duchesse d' Augoulême, 753
Pears, deformed, 398; dessert, 337; Jedburgh, 325; large, 559, 656, 688, 753; ripening of, 433; varieties recommended for various districts, 297
Pear trees, dwarf, 101; renovating old, 623
Peas, colouring green, with copper, 46; late, 530; new, 77; training wires for, 366; variation in, 146
Pelargonium v. carpet beds, 528
Pelargonium Cleopatra, 232; Endlicherianum, 715; Fyche, Mrs. F., 232; Queen Victoria, 177; Robert Burns, 398
Pelargoniums and Geraniums, 623, 689; bedding, 181, 232, 275; raisers of zonal, 221; v. Geraniums, 465, 785; the show, 586; zonal, new, 778
Pelargonium Society, the, 301, 322, 370, 397, 400, 435, 497, 530, 559, 622, 686
Pelargoniums, pink nosegay, 435
Pelargonium (zonale) lycopodioides, 715
Pelecyphora aselliformis concolor, 715
Peloria of Linaria, 142
Pennsylvania, the Pine-woods of, 459
Pentapterygium rugosum, 715
Pentstemon, a monstrous, 114
Pentstemon, notes on the, 499; antirrhinoides, 557; Gordoni glandulosus, 715; heterophyllus, 557; humilis, 715; Jaffrayanus, 715; Palmeri, 747
Pergularia odoratissima, 232
Periodical phenomena of vegetation, 109, 162, 178
Persia, the fruits of, 38, 66, 100
Pescatorea cerina, 747; Dayana, 226
Phaius Blumei Bernaysii, 747
Phænocoma prolifera, on the culture of, 326
Phalænopsis Esmeralda, 382, fuscata, 6
Phillpotts, Mr. J., death of, 561
Philodendron melanochrysum, 747; Melinoni, 747; rubens, 747
Philydrum glaberrimum, 747
Phlox Miss Robertson, 197, 243
Phormium Colensoi variegatum, 747
Phosphorescence of fungi and wood, 361
Phycella Macleanica, 747
Phylloxera and a new insect powder, 614
Phylloxera, the, 135; in Austria, 590; and the French Government, 271; in France, 111; of the Oak, 68, 83; Riley's history and economy of the, 210, 226, 295; a means of preventing the spread of, 110
Physalis edulis, 559
Physianthus albens, notes on, 647
Phyto-geography, the study of, 525
Picea Webbiana, 401
Picturesque in garden arrangements, the, 463
Pigeons, Press carrier, 248
Pilocereus Dautwitzii, 747; fossulatus, 747
Pine-apple, a fine, 591; a fasciated Olive Queen, 237; the Ripley Queen, 49; the smooth leaved Cayenne, 41 the variegated, 430
Pine tree, a dwarfed Japanese, 367
Pine trees injured by an insect, 18
Pine woods of Pennsylvania, 459
Pinguicula, irritability of, 19
Pitcairnia Andreana, 747; lepidota, 747; undulata, 747
Placea ornata, 747
Plane trees on the Thames Embankment, 749
Plants, new garden, described:—Aganisia fimbriata, 452, 814; Albuca fibrosa, 386; Allium Bauerianum, 131; Asparagus (Asparagopsis) ramosissimus, 6; Begonia Frœbelii, 552; Bollea Lalindei, 33; B. Patini, 34; Bolbophyllum gracile, 162; Cattleya iricolor, 162; Colchicum luteum, 34; Cotyledon Peacockii, 258; peruviana, 25; Curmeria Roezlii, 804; Cypripedium Argus, 710; C. Arthurianum, 676; Cyperus laxus, 98; Dendrobium arachnites, 364; D. asphale, 644; D. Bensoniæ, var. aurantiacum, 6; D. erythroxanthum, 162; Drimiopsis Kirkii, 644; Epidendrum favoris, 98; Fuchsia procumbens, 291, 322; Galeandra minax, 98; Gongora cassidea, 322; Goniophlebium glaucophyllum, 6; Houlletia Lowiana, 484; Hypoxis pannosa, 130; Lilium Washingtonianum purpureum, 322; Lycaste Dowiana, 194; xytriophora, 194; Masdevallia caloptera, 322; M. Chimæra, 804; M. Davisii, 710; M. Houtteana, 98; M. Livingstoneana, 322; M. melanopus, 322; M. pachyura, 322; M. polysticta, 290; M. velifera, 98; Odontoglossum Galeottianum, 97; O. lacerum, 740; O. madrense, 804; Ornithidium strumatum, 772; Passiflora sanguinolenta, 226; Pescatorea Dayana, 226; Phalænopsis Esmeralda, 582; P. fuscata, 6; Pleocnemia Leuzeana, 354; Pleurothallis scapha, 162; P. macroblepharis, 772; Polystachya abbreviata, 291; Pyrus Maulei, 740, 747; Raphidophora lancifolia, 611; Sedum pulchellum, 552; Sempervivum calcaratum, 386; Utricularia Endresii, 582; Xanthosoma (?) mirabile, 258; Zygadenus Fremontii, 66; Zygopetalum Sedeni, 290
Pinks, diseased, 19
Pinus insignis, 303
Pisa Botanic Garden, 168
Pisciculture, 166
Plantations and woods in Ireland, 302
Plantations, management of, 458
Planting trees for landscape effect, 618
Plant nutrition, 260
Plants, accidental naturalisation of, 121; and animals, the food of, 298; and animals, the relation of, 526; an interesting group of, 687; for table decoration, 783; a plea for wild, 65; best way of arranging herbaceous, 554; carnivorous, 293, 402; carnivorous, Dr. Hooker, C.B., on, 260; carnivorous, Mr. Murray on, 354; Corenwinder's observations on the respiration and nutrition in, 494; emblematic, 226; exhibition of window garden, in the City, 141; experiments as to the movement of water in, 462; functions of the spiral vessels of, 494; hardy in the Botanic Gardens at Brest, 112; showing and judging at the Royal Botanic, 18; in flower in Mr. Hanbury's garden at Mortola, in June, 111; movement of water in, 486; neglected, 143
Plants, new, certificated by the Royal Botanic Society, 298; by the Royal Horticultural Society, 805
Plants, on the digestion of animal matter by, 15; open air border, geographically arranged, 678, 742
Plants, recently published portraits of, 167, 419, 488, 715, 747, 779
Plants, respiration and digestion in, 678, 238; suitable for bee-culture, a list of, 522; wintering bedding, 594
Platycerium alcicorne majus, 747
Platyloma bellum, 747; brachypterum, 747
Platystemon californicum, 616
Pleached Alleys, 161
Plea for wild plants, a, 65, 138
Plectopoma myriostigma, 647; Ruban Rose, 747
Pleocnemia Leuzeana, 354, 747
Pleroma macranthum, 232
Pleurothallis scapha, 162; P. macroblepharis, 772
Plum, Earley's November, 656, 687; Rivers' Early Prolific, 142
Plum harvest at Bosna Serai, 10
Plums, notes on, for different localities, 228
Pocket postal weights, 534
Pogonia discolor, 747
Poinsettia, 16; pulcherrima plena, 747
Polar Expedition, a new, 653; green food for the, 689
Polygalas, on the culture of, 616
Polygonatum vulgare macranthum, 747
Polygonum capitatum, 398
Polyporus from Canada, remarkable, 81
Polystachya abbreviata, 291
Pomaderris phillyræoides, 747
Pontefract, Liquorice culture at, 420
Poplar and Willow, the, 240
Portugal, the fruits of, 7
Potatos, 434
Potato crop and the disease, 275; the crop of 1874, 308, 339; crop in Ireland, 270; crop, remarks on the, 205; reports on the, 208, 394
Potato disease, 662; how to avoid it, 114; artificially produced, 48; caused by an aphis, 46; effect of heat and drought on, 307; prevention of fungi in paste, 339; Professor Dyer on the, 721; Royal Agricultural Society and the, 773, 806, 814
Potato, introduction of the, 494
Potato, Paterson's Victoria, 529; Rector of Woodstock, 497
Potatos, a heavy crop of, 465; berry-bearing, 241; destroyed by aphis, 83; digging of, 181; from seed an antidote against the disease, 180; heavy crops of, 497, 529,; on utilising diseased, 531; pasty and poor cropping, 339; supertuberation of, 179; the new American, 48
Potato, the plaint of the, 498
Potato, the Red-skin Flourball, 435, 497; the Regent, 623; Veitch's Ashleaf Kidney, 274, 339; Vermont Beauty, 530, 559
Potting, 815
Priestley, Joseph, the Birmingham memorial to, 173
Primrose, a double crimson, 181
Primroses, double, 72
Primula Sieboldi lilacina, 747; fimbriata punicea-pleno, 747; japonica, 752, 784; verticillata simensis, 747
Pringlea and Lyallia, on the structure of the flowers of, 53
Pritchardia grandis, 747; pacifica, 747
Privet, monstrous, 83; spines on, 142
Prize roots, 560
Prize vineries, 528, 688
Productive Apricot, 275
Pronuba Yuccasella, the history of, 205
Prunus japonica, 747; sinensis, 747
Pseudotsuga Davidiana, 747
Psychotria cyanococca, 747
Pteris serrulato-tremula, 747
Public squares, on the planting of, 526
Puccinea malvacearum, 47, 79, 243
Pulmonaria cœrulea variegata, 232
Punica Granatum flore-pleno, 304
Pyrostegia ignea, 747
Pyrus baccata, 747; baccata roseo-plena, 747; chinensis, 323; crenata, 747; (Cydonia) japonica, 435, 592; Maulei, 740, 747
Pyrus variolosa, 232, 528

Q

QUEENSLAND, exploration in, 486; notes from, 147, 175
Quercus humilis, 747; laurifolia, 747
Quesnelia rufa, 747

R

RABBITS, 42; how to prevent, injuring forest trees, 657
Rafflesia-Arnoldi, 747
Railway stations, on the decoration of, 16
Rampion, its culture and usefulness, 360
Rape, on the culture of, 106
Raphidophora lancifolia, 611, 747
Raphiolepis salicifolia, 747
Raspberry, autumn-bearing, 466, 529; training, 753; the Virginian, 270
Rat-trap, a permanent, 243
Reading, winter, 611
Red Valerian, the, 78
Reed Mace, the, 70
Regelia ciliata, 747
Reidia glaucescens, 550
Removing old Apricot trees, on, 336
Removal of glass-houses, 18
Remarkable manure, a, 494
Renovating old Pear trees on walls, 623
Reptile house at the Jardin des Plantes' the, 683
Respiration and digestion in plants, 238, 678
Retinospora dubia, 779; Elwangeriana, 779; obtusa aurea gracilis, 779
Rhamnus oleifolius, 304, 779
Rheum officinale, 779
Rhexia virginica, 303
Rhipsalis Houlletii, 779
Rhododendron Championi, 271; Sesterianum, 431; malayanum, 779; a monstrous, 398
Rhynchospermum jasminoides, 152
Rice disease in India, 77, 83
Rice, how to cook, 216
Ringing tongs, French, 211
Rivers' Early Prolific Plum, 142
Roberts' portable terra-cotta stoves, 430
Robinia Pseud-Acacia for Orchid baskets, 238
Rocks, granitic, fossil plants in, 93
Roezl, Benedict, autobiography of, 73
Rogiera gratissima, 206
Rollissons', Messrs., nurseries, 98, 131
Romanzoffia sitchensis, 779
Ronnbergia Morreniana, 779
Root crops, 75; the management of, 467; prize, 560
Rosa multiflora, 418
Rose for autumn blooming, the Appoline, 435
Rose, the green, 391, 434; Madame Lacharme, 114; Maréchal Niel, a new stock for the, 197; Royal Standard, 83
Rose culture at Brie Comte Robert, 334
Rose, a diseased, 83
Rose exhibiting, 281, 307
Rose exhibitors, immoral criticism of, 275, 338
Rose garden at Cheshunt, a, 242
Rose propagation, 398
Rose show, Mr. Wm. Paul's, at Regent's Park, 109, 146, 179
Rose show at Lyons, the, 334
Roses and Rose shows, 180, 212, 242, 244, 306, 337, 338, 368, 402, 433, 465
Rose shows, arrangement of, 141; formality of, 109
Roses and Rose planting, 651; and their cultivation, 36; for forcing, 377; how to bud, 86; list of, for exhibition and

garden purposes, 238; the best garden and show, are they not identical? 338
Roumanian farms and their products, 234
Royal Botanic Society, plant judging and showing at the, 18
Royal Horticultural Society, the committees' awards, 275; fruit show, the, 530, 559; Floral and Fruit Committees of the, 688; provincial exhibitions, 434; skating rink at the, 622
Rubus biflorus, 647; deliciosus, 779; spectabilis, 271; occidentalis, 270
Ruckia Ellemeetiana, 779
Ruscus, the species of, 207
Rush-bearing wakes, 366, 385
Rushlights and Rushes, 417
Russian Cucumbers, 522
Rye-grass seeds, killing and colouring, 368, 403, 498, 466

S

SABAL umbraculifera in the Palm stove at Edinburgh, 776
Sacks, dispute as to deposit on, 683
Salpiglossis, the Chilian, 197
Salt Lake, horticultural novelties from, 8
Salvia farinacea, 779; Grahami, 494; rutilans, 779; splendens, 593, 782
Sambul plant, the, 781
Samphire, 71, 146
Sample, dispute as to, 587
Sanitary condition of villages, 685, 717
Saponaria calabrica as a spring bedder, 80
Sardines, Cornish, 398
Sarracenia life bitters, 781
Sarracenias, 260, 293; ×Stevensii, 49; ×Williamsii, 49
Sarsaparilla, notes on, 586
Saxifraga Fortunei, 557; Kotschyi, 779
Saxo-Fridericia subcordata, 779
School of horticulture at Versailles, 462
Scitamineous plants, 753
Scorzonera as a substitute for Spinach, 78
Scorzonera undulata, 779
Scotland, the climate in, 303; Eucalyptus on the west coast of, 400
Scottish Alpine Botanical Club, 196
Scottish Arboricultural Society, 388, 557
Scripture botany, 240
Season, the, 79, 213, 530; in Huntingdonshire, the, 688
Sedgwick, the seat of W. H. Wakefield, Esq., 484
Sedum pulchellum, 552, 623, 657
Sedums for villa gardens, 118
Seed expulsion, 114
Seeds, germination of, 19, 280, 329; vitality of, 83
Selborne, 131
Sempervivum calcaratum, 386; ciliare, 232
Sempervivums, a catalogue of hardy, 103
Sheep chew Tobacco, 782
Shrubby Veronicas in Ireland, 270
Silene Hookeri, 779; pendula compacta, 779; pendula flore-pleno, 19
Silkworm eggs of Antioch, 527
Silphium plant, the, 486, 592, 623, 657
Siphonic watering-pot, a patent, 78
Sirex gigas, 395
Skating rink at South Kensington, 78, 622
Skimmia rubella, 779
Smelfungus, the wail of, 152
Smilax aspera, notes on, 495
Smith, Mr. Worthington G., testimonial presented to, 461
Snakes, 490, 522
Snow-apple, the, 305

SOCIETIES, REPORTS OF:—
Aberdeen, fungus exhibition, 404; Belfast, International Fruit and Flower Show at, 245, 276; Bishop Auckland, Floral and Horticultural, 309; Bishop Stortford Horticultural, 115; Brighton and Sussex Horticultural, 116, 370; Bury and West Suffolk Horticultural, 84, 373; Canterbury Horticultural, 278; Chelmsford and Essex Horticultural, 115; City Flower Show, 148; Crystal Palace Autumn Show, 340; Darlington Gardeners' Institute, 531; Devon and Exeter Botanical and Horticultural, 277; Dublin Rose Show, 85; Dundee Horticultural, 340; Ealing, Acton, and Hanwell Horticultural, 117; Eastleigh and Bishopstoke Horticultural, 342; Edinburgh Botanical, 657; Enfield Horticultural, 116, 342; Frome Amateur Rose Club, 148; Glasgow and West of Scotland Horticultural, 372; Grantham Horticultural, 148; Gravesend Horticultural, 84; Hayle Horticultural, 372; Helensburgh Horticultural, 531; Ipswich and East of England Horticultural, 21, 404; Isle of Thanet Floral and Horticultural, 278; Leicester Carnation and Picotee, 213; Linnean Society, 53, 660, 786; Liverpool Horticultural, 689; Maidstone Horticultural, 116; Manchester Botanical and Horticultural, 212; Manchester, Pomona Gardens, 722; Massachusetts Horticultural, 149; Midland Counties Grand Horticultural, 49, 85; National Carnation Society, the, 212; Newbury Horticultural, 372, Newcastle Botanical and Horticultural, 85; Padiham Floral and Horticultural, 213; Paris, Horticultural Exhibition in, 499; People's Garden, Willesden, 245; Plumstead, Woolwich, Charlton, and West Kent Chrysanthemum, 660; Preston Horticultural, 371; Reading Horticultural, 277; Royal Botanic, evening fête, 52; annual meeting, 206; Royal Caledonian Horticultural, 85, 373; Royal Horticultural: meetings of the Fruit and Floral Committees, 19, 82, 181, 244, 308, 466, 624, 721; Chrysanthemum and fruit show, 624; Dahlias, Gladioli, and vegetables, 308; Fungi exhibition, 467; Rose show, 19; Royal Jersey Agri-Horticultural, 723; Saffron Walden Horticultural, 20, 373; Sawbridgeworth Horticultural, 373; Scottish Arboricultural, 657; Sevenoaks Horticultural, 278; Shirley and Millbrook Horticultural, 278; Sittingbourne Gardeners', 373; Southampton Horticultural, 182; Southgate Horticultural, 85; South Essex Chrysanthemum, 660; Standford Horticultural, 20; Stevenage Horticultural, 116, 435; Stowmarket Horticultural, 182; Trowbridge Horticultural, 341; Tunbridge Wells Horticultural, 84; Wateringbury Horticultural, 182; West Ham Park Horticultural, 20; West Kent Horticultural, 52; Weston-super-Mare and East Somerset Horticultural, 245; Woodbridge Horticultural, 117

Soho Square and Baron Grant, 302
Soil, the nitrogen of the, 453; volcanic, 399
Solanum Capsicastrum, on the culture of, 720, 753, 814; jasminoides, 494, 586, 647, 294
Soldiers' gardens in India, 811
Sonchus laciniatus, 462
Sonerila Bensoni, 779; Hendersoni, 83; S. Hendersoni argentea, 83
Sophora tetraptera, 391
Spathicarpa platyspatha, 365
Spathiphyllum Ortgiesii, 779; pictum, 779
Speed, Mr. Thomas (with portrait), 783
Spinach, a summer substitute for, 78
Spines on Privet, 142
Spiræa Aruncus, 294
Spiral vessels of plants, functions of, 494
Spraguea umbellata, 431
Spyridium globulosum, 779
Spruce chermes, 523
Spruce gall, the, 499
Stachyurus, 499
Stanhopea Buchephalus Roezlii, 779; Wardii, 181
Stapelia Corderoyi, 779
Stellaria graminea aurea, 232
Stephanotis floribunda, fruiting, 789, 814
Steudnera discolor, 779
Stigmaphyllum ciliatum, 559
Stove, Roberts' patent terra-cotta, 430
Strawberry culture, a lesson in, 68
Strawberry for forcing, on the cultivation of the, 402
Strawberries, varieties recommended for various districts, 324
Strawberries, Keens' seedling and other, 593; Vicomtesse Héricart de Thury, 464, 499, 528, 559
Strawberry jam, 376
St. Petersburg, notes from, 233
Stung by Laportea gigas, 402
Sugar, Bahia, 590
Sugar cane in Carthagena, 719
Sugar culture at Malaga, 271
Summer, dry, 106
Sumner, Dr., death of, 248
Sundews, 260
Support *v.* restraint in connection with staking trees, 13
Sutah Lily, the, 366, 398
Sweet Flag, the, 135, 229, 328, 370
Syringodea pulchella, 779

T

TABERNÆMONTANA flore-pleno, 403
Table decorations, 163; plants for, 783
Tacca artocarpifolia, 779
×Tacsonia exoniensis, 494; Jamesoni, 463; Van Volxemii, 592; fruit of the, 557
Tagetes, dwarf French, 238
Tap-roots, treatment of, 80
Tea planting in the Himalayas, 457
Tecoma radicans, 647
Temperature, fluctuations of, 18
Temple gardens, the Chrysanthemums in the, 526, 592
Tephritis onopordinis (Parsnip miner), 143
Thistles and Coltsfoot, 401
Thistles for preparing ground for grass, 365
Thorough draining and its results, 305
Thuja gigantea and Thujopsis Standishii, 623
Thuja semperaurea, 303
Tillandsia Jonghei, 779; musaica, 487, 657, 779
Tillery, Mr. W. (with portrait), 463
Timber, the best mode of disposing of home-grown, 394
Time works wonders, 193
Toad, the viviparous, 714
Toadstools and Mushrooms, 422
Toddy Palm, the East Indian, 334
Tomato, the Arlington, 528; Carter's Green Gage, 495
Tomato culture at Bearwood, 493
Torreya myristica, 431
Tourists' Floral Guide to Llandudno, the, 9
Town window gardening, 225
Transit of Venus, 750
Transplanting and removing evergreens, 387
Tree, the Carapa, 586
Tree Carnations, 623
Tree Ferns used as food, 111
Trees and shrubs in Cornwall, 370
Trees, clearing ground of, 216; how should we lop, 170; in Hyde Park and Kensington Gardens, condition of, 589, 781; for landscape effect, planting, 618; recently struck by lightning, 67; support *v.* restraint in connection with the staking of, 13; staking, 80; *v.* rabbits, 714
Tree stumps, dynamite for removing, 110
Trees, wall fruit, 691
Tree Violet, the, 527
Trentham, the gardens at, in autumn, 612; the Shah's visit to, 754
Trichomanes Petersii, 616
Trichomanes, the genus, 423
Trichopilia lepida, 779; suavis Lamarchæ, 779
Trochetia melanoxylon, 720
Tropæolum aduncum, 686; canariense and Œnothera *v.* the Calceolaria, 530; speciosum, 197, 275
Truffle culture in France, 750
Tuberose, the, 257, 434, 466
Tulipa Greigi, 779; Hageri, 779
Tulip tree, the, 41
Tulips, early flowering single, 330
Tulp, 420
Tunis, Olive oil in, 248
Turnbull, Mr. Andrew (with portrait), 329
Turnip, a history of the, 534
Tydæa Lindeniana, 779; pardina, 779
Typha latifolia, 305

U

UNDER a hedge, 121
Uromyces concomitans, 238
Utricularia Endresii, 582, 657
Uvedale St. Germain Pears, 646

V

VANILLA plants, the scarcity of, 495
Vanilline extracted from the sap of the Pine, 495
Variation in Peas, 146
Variety at the dessert-table, 557
Vegetable horse, a, 339, 370
Vegetable physiology, hindrances to the study of, 493
Vegetable shows—a suggestion, 400
Vegetable wax, Japanese, 177
Vegetation at Edinburgh, open-air, 72; ancient theories of, 162; periodic phenomena of, 83, 109, 162
Veitchia Canterburyana, 430
Veitch's self-protecting Cauliflower, 657
Vellosia cœrulescens, 623, 657
Venn's Black Muscat Grape, 560
Venus' fly-trap, 260
Verbena venosa, hardiness of, 328
Vernonia scorpioides, 779
Veronica Andersoni, 590
Veronicas, shrubby, in Ireland, 270
Versailles, school of horticulture at, 462
Vetch, the, 299
Viburnum Awafurki, 499, 529; macrocephalum, the stock for, 629
Victoria, the forest distribution of, 40
Victoria Park, the bedding-out at, 272
Vienna, horticultural exhibitions at, 174
Villages, sanitary condition of, 685, 717, 814
Villa Demidoff, near San Donato, 132
Villa Fenzi, Florence, 105; Pallavicini, Genoa, 133
Vine borders, covering outside, 370, 401
Vine culture, successful, 498; at Grimston in pots, 560, 593
Vine, an ill-treated, 651
Vineries, prize, 528, 688, 752, 785
Vinery at Gunnersbury, the, 111
Vines, preserving against frost, 590
Vine training in Italy, 194
Viola cornuta, 48, 498, 592; umbrosa, 779
Violas and Pansies at Edinburgh, 296
Viola of the Romans, the, 387
Violet, popular notes on the, 357
Virginian Raspberry, 270
Vitis, the North American species of, 496; antarctica, 271; heterophylla, var. humilifolia, 466
Vitex Agnus Castus, notes on, 495
Voice's patent ventilating apparatus, 334; system of straining wires for Peas and Beans, 366
Volcanic soil, 399
Vriesia brachystachys, 779

W

WAKES, Rush-bearing, 366
Waldai, notes from, 233
Wail of Smellfungus, the, 152
Wallflower, a tall, 528
Wall fruit trees, 691
Walls, garden, wiring, 742
Wasps, 523, 624; as house pets, 231
Water-beetles, 267
Waterdale Gardens, Sutton, 517
Watering-pot, a patent siphonic, 78
Water in plants, the movement of, 486
Water Lily, a new, from Paraguay, 685
Water Lilies in flower at Kew, 16
Wax, Japanese vegetable, 177
Weather, the, 11, 618
Weeds, 343
Weigela, notes on the genus, 495
Wellingtonia gigantea, 657, 720, 785
West Indian fruits, 231, 367, 399, 421
Wheat, transmutation of, 654, 741; as a feeding stuff, 593; prospects of the crop, 43; sowing, 178, 362
Whitchurch Rectory, Edgware, the gardens at, 81
White Lilac, the, 303
Wild fowl, cover for, 789
Wild plants, a plea for, 65, 138
Wild flowers, October, 515
Willow, a curious split pollard, 718
Willow and Poplar, the, 240
Wimblebon House, the gardens at, 720
Window gardening, 97, 225, 561, 718
Window garden plants, exhibition of, in the City, 141
Windsor Forest, Virginia Water, &c., 638
Winnowing machine, a new, 179
Winter reading, 611
Winter, the last, 146
Wires for training Peas, 366
Wistaria multijuga, 779; sinensis, 370, 391; the way to grow, 306; at Newbattle Abbey, 197
Wood and fungi, phosphorescence of, 361
Wood, the Jarrah, 464; patent for rendering incombustible, 205
Woods and plantations in Ireland, 302
Woods for engraving, 19
Woolhope Naturalists' Field Club, 397, 454

X

XANTHOCERAS sorbifolia, 270, 779
Xanthorrhœa quadrangulata, 779
Xanthosoma (?) mirabile, 258, 779
Xiphion Histrio, 779
Xylomelum pyriforme, 418

Y

YEAR, events of the, 811
Yellows in the Peach, 718
Yew gardens at Elvaston, 591
Yew gardens at Levens Hall, 264
Yucca baccata, 779
Yucca moth, the history of the, 205

Z

ZAMIA Roezlii, 779
Zamioculcas, Rivieri, 779
Zanthoxylon alatum, 271, 336
Zinc labels, 497
Zizania aquatica, 237
Zonal Pelargoniums and their raisers, 211
Zygadenus Fremontii, 66
×Zygopetalum Sedeni, 290

List of Illustrations.

A

ADELAIDE Cottage, Home Park, Windsor (see Special Supplement)
Agaricus gloiocephalus, 455; mucidus, 467
Alders, three old and remarkable, 295
Aloes, group of, at Antibes, 453
Amanita muscaria, 465
American Arbor-vitæ at Southgate House, 145
Apricot, a productive, 275
Ash trees, illustrations of old, 584, 585

B

BAILEY, Mr. Thomas, portrait of, 527
Barnes, Mr. James, portrait of, 655
Bath pond, with tent covering, 79
Beech tree, at Newbattle Abbey, 521
Belgium, plan of an estate in, 335
Belsfield, Windermere, view of, 745
Bennet, Dr., view in the garden of, at Mentone, 425
Birts Morton, old Ash tree at, 584
Boiler, Messrs. Dennis & Co.'s new, 46
Brick, Stevens' garden edging, 613
Bruges, plan of an estate near, 335
Budding Roses, 86
Buttressed tree, a giant, 809

C

CANTHARELLUS cibarius, 455
Carpet beds in Victoria Park, 229
Cattleya gigas, 617
Cayenne Pine, the smooth-leaved, 41
Centaury, the, 357
Chinese garden at Villa Pallavicini, Genoa, 132
Church at Eastwell, the, 649
Citrus japonica, 337
Cleveland House, Clapham Park, Flower Garden at, 710
Cook's Hill, Northampton, old Ash tree at, 585
Coprinus comatus, 466
Cordiceps capitata, 455
Corniche Road, Olive grove on the, 489
Corylopsis spicata, 683
Cottage in the Home Park, Windsor (see Special Supplement)
Cottage, a Tuscan labourer's, 105
Cradley, old Elm on a rock near, 102
Curmeria Roezlii, 804
Cyclamen, specimen of a, grown by Mr. Little, 239
Cynips aptera, 587
Cyperus laxus, 99

D

DAIRY at Frogmore, the (see Special Supplement)
Decoration of a room, 773
Dennis & Co.'s new boiler, 46
Deodar planted by the Queen at Windsor, 559
Didymous pollard Ash at Teme side, 584
Drechsler's winnowing machine, 179
Drewett, Mr. James, portrait of, 399
Dunrobin Castle, view of, 325
Dwarfed Japanese Pine tree, 367

E

EASTWELL PARK, entrance gateway at, 645; entrance front of mansion, 648; the church at, 649
Elmfield, Streatham, fernery at, 164, 165
Elms, extraordinary growth of, 339; illustrations of old and curious, 102
Elvaston Castle, the Yew garden at, 591
Erythrina picta (Parcellii), 393

F

FARIMBONGY, the Ouvirandra growing in a tributary stream of the, 11
Fernery at Elmfield, Streatham, 164, 165
Finocchio, 498
Fistulina hepatica, 457
Ficus elastica in fruit, 359
Fire-extinguishing apparatus, Smeaton & Co.'s combined heating and, 9
Fir, malformed Spruce, 558
Floors Castle, the principal and garden fronts of, 712
Florence exhibition, Triton fountain at, 388
Flower garden at Cleveland House, Clapham Park, 710
Flower-pots, perforated, 169
Forests of Nicaragua, mining settlement at Santo Domingo, in the, 361
Fowler, Mr. Archibald, portrait of, 583
Foxglove, a monstrous, 78
Fuchsia procumbens, 291

G

GALL, the Spruce, 499
Gardens, view in Dr. Bennet's at Mentone, 425; at Elvaston Castle, view in the, 591; at Levens, view in the, 264, 265; of the Palazzo Orengo, view in the, 35, 69
Gateway at Eastwell Park, the, 645
Genoa, the Chinese garden at the Villa Pallavicini, 132; water temple in the same garden, 133
Goniophlebium glaucophyllum, 7
Griffinia hyacinthina, grown by Mr. Baines, 17

H

HEATING and fire-extinguishing apparatus, Smeaton & Co.'s combined, 9
Henderson, Mr. M., portrait of, 719
Hereford, a masonic rebus at, 456
Hope-end, Hereford, Ash at, 585
Hop, monœcious, 174
Hornby's movable garden scraper, 613
Horse, a vegetable, 339
Hurricane lamp, the, 177

I

ILEX Aquifolium, 519; I. A. alcicornis, 433; I. A. angustifolia, 751; I. A. Beetii, 519; I. A. belgica, 433; I. A. camelliæfolia, 813; I. A. ciliata, 751; I. A. ciliata major, 751; I. A. crassifolia, 751; I. A. doningtonensis, 687; I. A. Fisheri, 519; I. A. Foxii, 751; I. A. grandifolia, 432; I. A. handsworthensis, 519; I. A. hastata, 687; I. A. Hendersoni, 751; I. A. heterophylla, 519; I. A. integrifolia, 813; I. A. latifolia, 433; I. A. latispina, 813; I. A. marginata, 813; I. A. microphylla, 751; I. A. monstrosa, 751; I. A. myrtifolia, 687; I. A. nobilis, 432; I. A. ovata, 751; I. A. recurva, 687; I. A. scotica, 813; I. A. serratifolia, 687; I. A. Smithiana, 519; I. A. tortuosa, 813; I. A. trapeziformis, 813; I. A. Whittingtonensis, 687
Indiarubber collector's camp on the Madeira River, 807
Indians, Caripuna, with tapir, Orchids, &c., 681
Iris Kæmpferi var., 47
Italy, illustrations of Vine training in, 195, 196, 197
Ivy tent, a living, 37

J

JAPANESE Pine tree, a dwarfed, 367
Javary Palms on the banks of the Madeira River, 680

K

KARR, M. Alphonse, portrait of, 137
Knife, a new budding, 689
Kumquat, the, 337

L

LABOURER'S cottage, a Tuscan, 105
Lamington House, Lanarkshire, 553
Lamp, the hurricane, 177
La Mortola, view in the grounds of Palazzo Orengo, 35
Levens, view in the gardens at, 264, 265
Lilium avenaceum, 231; Washingtonianum purpureum, 323
Linaria, Peloria, &c., in, 142
Lindley, Dr., portrait of, 677
Lindley Medal, the, 676
Living tent of Ivy, a, 37
Llanfony, an old Elm near, 102
Luther's Beech in the Home Park, Windsor (see Special Supplement)
Lycoperdon giganteum, 457

M

MADEIRA River, Javary Palms and Indians on the banks of the, 681
Malformed Spruce Fir, 558
Mandrake, the, 290
Masonic rebus at Hereford, 456
Medinilla magnifica, Mr. Terry's specimen of, 421
Melon, root of, distorted with nodules, 302
Mentone, view in the garden of Dr. Bennet at, 425; Olive grove on the Corniche Road, near, 489; Opuntias at, 517
Mining settlement at Santo Domingo, in the forests of Nicaragua, 361
Monmouthshire, old Ash in, 584
Monœcious Hop, 174
Monstrous Foxglove, a, 78; Pear, 398; Rhododendron, 398
Mausoleum, the Prince Consort's (see Special Supplement)

N

NODULES on Melon root, 302
Newbattle Abbey, Beech tree at, 521
Nicaragua, mining settlement at Santo Domingo in the forests of, 361
Nymph fountain at the Florence Exhibition, 389

O

OAKLEY Park, Gloucestershire, Ulmus montana in, 102
Oaks, Queen Elizabeth, William the Conquerer, and evergreen, in Windsor Park (see Special Supplement)
Olive grove on the Corniche Road, 489
Opuntias near Mentone, 517
Ouvirandra, the, growing in a tributary of the Farimbongy, 11

P

PALAZZO Orengo, La Mortola, view in the grounds of, 35, 65
Palms, Javary, on the banks of the Madeira River, 680
Passiflora sanguinolenta, 227
Pear, a monstrous, 398
Pear trees on walls, method of renovating, 623
Peas, bicolor, 307
Peloria, &c., in Linaria, 142
Perforated flower-pots, 169
Peziza onotica, 457
Pine, the smooth-leaved Cayenne, 41
Pine tree, a dwarfed Japanese, 367
Plane tree, an ill-used, 750
Plan of an estate near Bruges, 335
Plans of carpet-beds in Victoria Park, 229
Pleocnemia Leuzeana, 355
Pollard Ash at Teme Side, 584
Potato, a supertuberated, 179
Privet, spiny branches of, 142
Pyrus Maulei, the fruit of, 741

Q

QUEEN'S breakfast-room in the Home Park (see Special Supplement)
Queen, Deodar planted by the, 559

R

RAPHIDOPHORA lancifolia, 612
Rat-trap, a permanent, 243
Rhododendron, a monstrous, 398
Ringing tongs, French, 211
Rockery, the Prince Consort's, at Windsor (see Special Supplement)
Roezl, M. Benedict, portrait of, 73
Room decoration, 773
Roots of Alder, grotesque, 295
Rose budding, 86
Roses, plan of new style of showing, 110
Ruscus androgynus, from the garden Prince Demidoff, 207

S

SABAL umbraculifera in the Palm-st at Edinburgh, 777
Scraper, Hornby's movable garden, 61
Sedgwick, the seat of W. H. Wakefie Esq., 485
Sedum pulchellum, 552
Shrawley, Worcester, hollow Al near, 295; an old pollarded Elm ne 102
Sirex gigas, 395
Skep making, 147
Smeaton & Co.'s combined heating fire-extinguishing apparatus, 9
Southgate House, the American Arb vitæ at, 145
Speed, Mr. T., portrait of, 783
Spiny branches of Privet, 142
Spruce Fir, malformed, 558
Spruce gall, the, 499
Stevens' garden edging brick, 613
Stour, old Ash at the mouth of the, 58

T

TENT covered bath pond, a, 79
Tent of Ivy, a living, 37
Teme Side, old Alder on, 295; p Ash at, 584
Tillandsia musaica, 487
Tillery, Mr. William, portrait of, 46
Tongs, French ringing, 211
Training wires, Voice's, 366
Trap for rats, a permanent, 243
Trees properly and improperly staked 81
Triton fountain in the Florence Ex tion, 388
Turnbull, Mr. Andrew, portrait of, 3
Tuscan labourer's cottage, a, 105

U

UROMYCES concomitans, 238
Uromyces surrounding Æcidium scrop lariæ, 238

V

VEGETABLE horse, 339
Ventilating, Voice's system of, 334
Victoria Park, plans of the carpet bed 229
View of Dunrobin Castle, 325; in garden at Levens, 264, 265; in grounds of the Palazzo Orengo Mortola, 35, 69
Vine at Cumberland Lodge, the old Special Supplement)
Vine training in Italy, illustration 195, 196, 197
Virginia Water, ruins and cascade (see Special Supplement)
Voice's system of ventilating, 334 tem of straining wires, 366

W

WALLS, method of renovating old trees on, 623
Water temple at Villa Pallavicini, G 133
Wheat, transmutation of, 812
Willow, a curiously split, 718
Windsor Castle, from the Thames terrace garden at (see Special Su ment)
Winnowing-machine, Drechsler's,
Wires, Voice's system of straining,
Wych Elms, illustrations of old curious, 102

X

XANTHOSOMA (?) mirabile, 258, 25

Y

YEW Gardens at Elvaston Castle Levens Hall, 264

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 27.—Vol. II. { New Series. } SATURDAY, JULY 4, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Apiary	12	Lilies in flower at Kew	16
Asparagus ramosissimus	6	Midland Counties Show at Birmingham	16
Beschorneria yuccoides	18	Natural history	13
Books, notices of	12	Odontoglossum vexillarium	16
Cabbages, caterpillars on	18	Ouvirandra at Home, the (with cut)	10
Colchicum Parkinsoni	18	Pansies and Violas at Chiswick	16
Cossus ligniperda, how to breed	13	Peaches, the size of	18
Cut flowers	5	Phalænopsis fuscata	6
Dendrobium Bensonæ, var. aurantiacum	6	Pine trees injured by insects	18
Farm, the	11	Plants, digestion of animal matters by	15
Fire-extinguishing apparatus	9	Plants, new garden	6
Forestry	13	Plant showing and judging	18
Fruits of Portugal	7	Plum harvest at Bosna Serai	10
Frost in June	19	Poinsettia, a double-flowered	16
Gardeners, a plea for an outing for	18	Railway stations, floral decorations at	16
Garden operations	22	Show at Birmingham, Midland Counties	16
Gardens and gardeners, of	6	Societies:—	
Gibson, projected testimonial to Mr.	15	Ipswich Horticultural	21
Glass-houses, the removal of	18	Royal Horticultural	19
Goat moth	13	Saffron Walden Horticultural	20
Goniophlebium glaucophyllum (with cut)	6	Stamford Horticultural	20
Griffinia hyacinthina (with cut)	17	Support *v.* Restraint, in staking trees (with cuts)	13
Heating and fire-extinguishing apparatus (with cut)	9	Temperatures, fluctuations of	18
Home correspondence	18	Testimonial to Mr. J. Gibson	15
Honey-dew	18	Tourist's Floral Guide, the	9
Horticultural novelties from Salt Lake City	8	Tree-staking	13
Italian gardens and gardening	6	Violas and Pansies at Chiswick	16
Ivy Coccus	13	Villa gardening	21
Law notes	21	Weather, the	21
Leicester Square, opening of	15		
Libocedrus decurrens	16		

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION *to the* GARDENERS' CHRONICLE, *including postage to the United States, is £1 6s.*

Grand National Rose Show, in the

EXHIBITION PALACE, DUBLIN, JULY 8 and 9 next. £105 offered in prizes. Highest prize in each class, £10. Schedules, &c., to be obtained of

THOMAS MOORE, WILLIAM WATSON, } Hon. Secs.
11, Eden Quay, Dublin.

THE ANNUAL SHOW of the FROME ROSE CLUB will be held on THURSDAY, July 16. Prizes open to all. Twenty-four distinct varieties, three blooms each: First prize, £15; second, £5; entrance, 5s. For the best twelve blooms of any one variety, £2, added to a sweepstake of 5s. each. A. R. BAILY, Hon. Sec.

HANDSWORTH (SHEFFIELD) FLORAL and HORTICULTURAL SOCIETY'S EXHIBITION will be held on WEDNESDAY, August 26, when Prizes to the amount of £200 will be given.

Schedules of Prizes, &c., on application to the Secretaries, Messrs. SAMUEL LOMAS and G. LUNN, Handsworth, near Sheffield.

Royal Pavilion, Brighton.

THE BRIGHTON and SUSSEX HORTICULTURAL SOCIETY'S GRAND SUMMER EXHIBITION of PLANTS, FRUITS, CUT FLOWERS, &c., will be held at the above, on WEDNESDAY and THURSDAY, July 15 and 16. The usual liberal Prizes are offered. Schedules can be obtained on application to the Secretary, 96, St. James' Street; or E. SPARY, Superintendent of the Exhibition, Queen's Graperies, Brighton.

N.B.—The AUTUMN SHOW (SEPTEMBER 9 and 10) Schedules are also ready.

EDWARD CARPENTER, Secretary.

THE GREAT INTERNATIONAL FLOWER SHOW, AUGUST, 1874.—The Directors of the Royal Botanic Gardens, Belfast, having united with the North of Ireland Horticultural Society to hold the Great International Show of Plants, Flowers, and Fruits in August next, the above mentioned Show will be held in the Royal Botanic Gardens, Belfast, on THURSDAY and FRIDAY, August 20 and 21, and Schedules of the Prizes offered, with all other information relating to the Show, can be obtained of any of the Honorary Secretaries.

R. ATKINSON, J. TAYLOR, C. D. YONGE, } Hon. Secretaries.

The Grandest Show of the Season.

THE MIDLAND COUNTIES GRAND HORTICULTURAL EXHIBITION, &c., at the Lower Grounds, Aston Park, Birmingham, TUESDAY, WEDNESDAY, and THURSDAY NEXT, and FRIDAY, July 7, 8, 9, and 10, under most distinguished patronage.

Programme.—July 7, Opening of Exhibition, at 1 o'Clock. July 8, National Lawn Mower Contest. July 9, Supplementary Rose Show, &c. July 10, Special Musical Entertainment.

Terms of Admission.—First Day, 5s.; Second and Third Days, 1s.; Fourth Day, 6d.

For Railway Arrangements see the Company's bills and advertisements.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

CAMELLIA ALBA PLENA for SALE, in Lancashire—a large plant, in tub, 9 feet high, well furnished, and in good health. For price and all particulars apply to

JAMES DICKSON AND SONS, Newton Nurseries, Chester.

SACCOLABIUM GUTTATUM (Lodiges and Bunney's fine variety).—Two fine specimens now in bloom and for SALE. Particulars sent on application.

WM. MAULE AND SONS, The Nurseries, Bristol.

To Nurserymen, Gardeners, &c.

FOR SALE, a very fine STEPHANOTIS FLORIBUNDA, in No. 1 pot. No reasonable offer refused. Apply at

Ship Inn, Barking, Essex.

Trade only.

ROSES—20,000 Dwarfs, on Manetti Stocks, worked immediately underground, all leading best sorts, finest Plants in the Trade, at 30s. per 100; £14 10s. per 1000, for cash only. Orders booked now and executed in autumn.

R. LOCKE, Alexandria Nurseries, Red Hill, Surrey.

New Roses for 1874.

EWING AND CO. will be prepared to foward, on and after May 15, carriage and package free to any railway station in the United Kingdom, upon receipt of Post-office Order for 31s. 6d., twelve fine well-established plants of the best NEW ROSES for 1874, including Captain Christie.

The Royal Norfolk Nurseries, Norwich.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.

RICHARD SMITH, Nurseryman, Worcester.

To the Trade, &c.

ROSES! ROSES!! ROSES!!!—MARÉCHAL NIEL, Perle de Lyon, Gloire de Dijon, and many other Tea and Noisette varieties—also H.P. MADAME LACHARME—are offered by EWING AND CO., in 5-inch pots, taking size and vigour of plants into consideration, CHEAPER THAN BY ANY OTHER HOUSE IN THE TRADE. Prices on application. Fully descriptive CATALOGUES gratis and post-free.

The Royal Norfolk Nurseries, Norwich.

PRIMULAS, PRIMULAS, PRIMULAS—Williams' superb strain, 1s. 6d. per dozen, 10s. per 100. CINERARIAS, from finest named sorts, same price. The above are quite equal to what I have sent out in previous years, and fit to pot into 3-inch pots. PRIMULA JAPONICA, 6d. each; HAPPY THOUGHT GERANIUM, 1s. each, package and carriage free. Post Office Order or Stamps must accompany orders.

JOHN STEVENS, The Nurseries, Coventry.

To the Trade only.

A. M. C. JONGKINDT CONINCK is now preparing his WHOLESALE LIST, including a fine Stock of Maiden Apples, Pears, and Plums, Moss Roses, Dwarf, Half-standard, and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants.

CATALOGUES will be sent post free on application.

Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

British Fern Catalogue.

ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, Sidcup Hill, Kent.

SEEDLING PALMS.
ARECA ALBA, 1-yr. Seedlings, 20s. per 100.
PHŒNIX SYLVESTRIS, 1-yr. Seedlings, 20s. per 100.
,, PALUDOSA, 2.yr. Seedlings, 20s. per 100.
OREODOXA REGIA, 1-yr. Seedlings, 20s. per 100.

Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

WANTED, 1500 BIGARREAU STANDARD CHERRY TREES, 6 feet. Apply, stating particulars and price, to

Mr. JAMES WATERMAN, Tenterden, Kent.

WANTED IMMEDIATELY, a quantity of large hardy CLIMBERS, 10 to 14 feet high, in pots. Send lowest prices to

G. REEVE SMITH, Aquarium, Brighton.

WANTED, fine handsome CONSERVATORY PLANTS and TREES.—The Pine-Apple Nursery Company having a great demand for large Conservatory Plants, are open to purchase to any extent large well grown specimens of an ornamental character. Please address, with full particulars, to

Mr. JOHN BESTER, the Manager, Pine-Apple Nursery, Maida Vale, W.

Splendid Herbaceous Calceolaria Seed.

WOOD AND INGRAM beg to offer the above, selected from the finest varieties of Neill's superb strain, in packets post free for thirteen penny stamps each.

The Nurseries, Huntingdon.

Cineraria, Calceolaria, Primula.

LUCOMBE, PINCE, AND CO., have just harvested their magnificent strains of CINERARIA, CALCEOLARIA, and PRIMULA, and they will be glad to send good packets, post free, at 2s. 6d., 3s. 6d., and 5s. each. Also PRIMULA JAPONICA, new seed, at 1s. 6d. and 2s. 6d. per packet. Exeter Nurseries, Exeter.

Cineraria, Primula, Calceolaria, and Cyclamen.

WM. CUTBUSH AND SON very highly recommend their choice strain of the above, which always gives satisfaction. In packets, 2s. 6d., 3s. 6d., and 5s., post free. Highgate Nurseries, London, N.

NEW CINERARIA SEED of 1874, from F. AND W. SMITH'S unrivalled Collection, in 1s., 2s. 6d., and 5s. packets.

The Nurseries, West Dulwich, S.E.

Dr. Denny's Geraniums.

SECOND SET.

JOHN COPELIN is now supplying the Trade with the above, at reduced prices. See previous advertisements.

Tyssen Street Nurseries, West Hackney, E.

MESSRS. TEUTSCHEL AND CO., Colchester, can offer majestic trunks of the very elegant CYATHEA SMITHII and DICKSONIA SQUARROSA, 3 to 7 feet high, also very fine clumps of TODEA SUPERBA, just arrived from New Zealand in capital condition.

Hyacinths, Tulips, Crocus, &c.

BUDDENBORG BROS., FLORISTS, Hillegom, Haarlem, Holland, WHOLESALE CATALOGUE of the above may be had free on application to

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

HYACINTHS, TULIPS, CROCUS, GLADIOLI, LILIES, IRIS, NARCISSUS, COLCHICUMS, HELLEBORES, PÆONIES, &c.

Our English CATALOGUE of the above for 1874 is now ready, and will, as usual, be sent post-free to all applicants.

ANT. ROOZEN AND SON (late Ant. Roozen), Overveen, near Haarlem, Holland.

The Best Hardy Bedding Plant.

CLEMATIS JACKMANNI.—Flowers rich purple, 4 inches across, and so profuse as to completely cover the bed. Begins to bloom in June, and continues until severe frost. It is perfectly hardy, and the stools improve annually. The only secret of success is a rich soil, to keep up free growth. 12s. per dozen. Other sorts of Clematis and Climbers in great variety. Descriptive LIST on application.

RICHARD SMITH, Nurseryman, Worcester.

Australian Seeds and Plants.

SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.

SHEPHERD AND CO., Nurserymen and Seedsmen, Darling

Bedding Plants for the Million!

JAMES HOLDER can supply Scarlet, Variegated, and Ivy-leaved GERANIUMS, CALCEOLARIAS, VERBENAS, FUCHSIAS, HELIOTROPES, AGERATUMS, SALVIAS, PHLOXES, CHRYSANTHEMUMS, CUPHEAS, SENECIOS, ECHEVERIAS, PETUNIAS, GAZANIAS, COLEUS, IRESINES, PYRETHRUMS, PINKS, MIMULUS, &c., strong plants, in single pots, eight dozen for 20s., or four dozen for 10s. 6d., basket and packing included, for cash.

Crown Nursery, Reading.

AGRICULTURAL, VEGETABLE, and FLOWER SEEDS.—Special quotations, and advantageous offers of the above on application to

ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

TURNIP, GREEN GLOBE, 14s. per bushel.

W. AND J. BROWN, Seedsmen, Stamford.

CABBAGE (Glen Dwarf Drumhead).—The Subscribers have a few Hundredweights of the above, OF THEIR OWN SAVING, to dispose of. Price on application.

W. P. LAIRD AND SINCLAIR, Seed Merchants, Dundee.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.

DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

FOR PRESENT SOWING.

Carter's Devonshire Grey-stone Turnip.

35s. per bushel. 5s. per gallon. 10d. per lb.

"I won the Special Prize for the best collection of Agricultural Roots on Wednesday last. Some of the roots of Carter's Purple-top Mammoth Turnip weighed over a stone each. All your Turnips were grand."—H. MATTHEWS, Epworth.

"I am pleased to say that the Seeds I have received from your establishment have fully answered my expectations."—P. EVERALL, Ackington.

All orders despatched the same day as received, where practicable.

Carter's

THE ROYAL SEEDSMEN,

237 AND 238, HIGH HOLBORN, LONDON.

New Pelargonium.

PELARGONIUM QUEEN VICTORIA.—This new Pelargonium is now being sent out for the first time. To say that it is handsome conveys but an inadequate idea of it, for it is the most marvellously beautiful and novel variety ever offered. The flowers have peculiar crispy petals; they are not really double, but from their fulness of form and extra number of petals have the appearanee of being so. The colour is a rich vermilion; all the petals broadly margined with pure white, and the upper ones blotched with maroon. The contrast of the broad white margin with the vermilion ground-colour makes the flower extremely pleasing and attractive. Price One Guinea each.

One dozen choice handsome flowered Pelargoniums, including the beautiful P. Queen Victoria, for three Guineas.

A drawing of Pelargonium Queen Victoria, by Macfarlane, can be had on application, price 2s. 6d. each.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

Rare Lilies.

BARR AND SUGDEN'S Descriptive LIST of all the rare and beautiful LILIUMS in cultivation is ready, and can be had free on application.

LILIUM WALLICHIANUM, very scarce, 15s., 21s., 30s., 42s., and 63s. each.
" POLYPHYLLUM, has not yet been flowered in cultivation, 63s., 84s., and 105s. each.
" WASHINGTONIANUM, 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., and 15s. each.
" HUMBOLDTII, 3s. 6d., 5s. 6d., 7s. 6d., 10s. 6d., and 15s. each.
" SZOVITZIANUM, 3s. 6d. and 5s. 6d. each.
" CALIFORNICUM, 7s. 6d., 10s. 6d., and 15s. each.
" SPECIOSUM PURPURATUM, 7s. 6d. each.
" " ALBUM PRÆCOX, 3s. 6d. each.
" TIGRINUM FLORE-PLENO, 7s. 6d. and 10s. 6d. each.
" " SPLENDENS, 3s. 6d., 5s. 6d., and 7s. 6d. each.
" " ERECTUM, 2s. 6d. each.
" PARDALINUM, 7s. 6d., 10s. 6d., and 15s. each.
" PUBERULUM, 3s. 6d., 5s. 6d., and 7s. 6d. each.
" KRAMERI, 21s. each
" TENUIFOLIUM, 5s. 6d. each.
" PHILADELPHICUM, 3s. 6d. and 5s. 6d. each.
" CONCOLOR and CORIDION, 2s. 6d. each.
" BUSCHIANUM, 5s. 6d. each.

The above are only a few of the rare and beautiful Lilies we have in stock.

SEED CATALOGUE now ready, and can be had free on application.

GLADIOLI CATALOGUE now ready, and can be had free on application.

BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

TREE FERNS.—The largest and best Stock in Europe. Prices moderate. An Inspection is invited by

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

New Hybrid Begonias.

THE following NEW BEGONIAS belong to the handsome flowered tuberous-rooted section, and are most desirable acquisitions:—

	s.	d.
ANACREON, bright deep crimson, a beautiful flower, with very long petals	7	6
CAROLINE, deep rosy pink, with broad petals	5	0
CLIMAX, deep rich rosy carmine; the two outer petals extremely broad	5	0
CORSAIR, rosy salmon, profuse bloomer	5	0
ENSIGN, bright pink, a very elegant variety	5	0
GEM, bright cream colour, the reverse of the petals light pink	5	0
GLITTER, vivid orange-scarlet, extremely showy	7	6
LOTHAIR, deep rose, a fine flower, with short broad petals	7	6
MAGNET, beautiful light pink, the reverse of the petals deep pink	5	0
MAZEPPA, very light cream colour, the reverse of the petals tinted with orange-pink	5	0
SURPRISE, bright pink, a very pretty colour	5	0
TROJAN, light rosy pink, very distinct	5	0

SEED of the above NEW BEGONIAS, each 2s. 6d. per packet; mixed, 3s. 6d. per packet.

WILLIAM BULL, F.L.S.,
ESTABLISHMENT FOR NEW AND RARE PLANTS,
KING'S ROAD, CHELSEA, S.W.

TO PURCHASERS OF

CHOICE AND RARE PLANTS.

Amateurs, Gardeners and Nurserymen will find the advantage of purchasing from

JOHN H. LEY,

EXOTIC NURSERY,

LANSDOWNE ROAD, CROYDON;

Who can supply the choicest varieties of STOVE and GREENHOUSE PLANTS, FERNS, PALMS, ORCHIDS, AZALEAS, CAMELLIAS, ERICAS, ROSES, GLOXINIAS, CALADIUMS, ACHIMENES, &c., in clean and healthy plants, and at half the prices usually charged. When the selection is left to J. H. L. even greater advantages can be offered, and this course is to be recommended to those just starting new glasshouses, or to those who have not a large variety. No useless sorts are ever included, and all good novelties are continually added (besides those of J. H. L.'s own introduction).

General CATALOGUE with special LIST of Collections will be sent post free. Prices for any List of Plants sent by return of post.

All goods are delivered free to the various stations in London, and plants are added to pay for carriage beyond. All packages gratis for "Cash with order."

An inspection of the stock is invited. The Nursery is reached in twenty minutes from London Bridge or Victoria (London, Brighton and South Coast Railway), and in seven minutes' walk from West, East, or New Croydon Stations.

NEW QUEEN ONION.

THE EARLIEST IN CULTIVATION.

Sown now will produce nice Onions, fit for use, this year, and will keep late into next spring. Seed per ounce, 2s. 6d.; per packet, 1s.

Also the following choice varieties for present sowing:—ITALIAN TRIPOLI, GIANT ROCCA, WHITE TRIPOLI, and GIANT MADEIRA, each 1s. per ounce; 6d. per packet, cheaper by the pound. WHITE LISBON, a fine Onion for spring use, 4d. per ounce. EWING'S No. 1 CABBAGE, one of the earliest in cultivation, a fine selected stock, per ounce, 1s. WHEELERS' COCOA-NUT ditto, per ounce, 1s. 6d.; per packet 6d.

For other Choice Seeds for Autumn Sowing see our "Illustrated Guide for Amateur Gardeners," price 1s; gratis to Customers.

DANIELS BROTHERS,
The Royal Norfolk Seed Establishment, Norwich.

AS SUPPLIED TO THE QUEEN — **SUTTONS'** — AS SUPPLIED TO THE PRINCE OF WALES

GRASS SEEDS FOR ALL SOILS.

CARRIAGE FREE.

Sutton & Sons

ARE PREPARED TO OFFER

NEW SEED

OF THEIR CHOICE STRAINS OF

FLORISTS' FLOWERS

FOR PRESENT SOWING.

Post Free.

CYCLAMEN PERSICUM GRANDIFLORUM

The following varieties have been carefully selected from the of the finest strains in cultivation, and, as they remain in bloom from November till March, are invaluable for decorating the conservatory or drawing-room during the winter months. The flowers also are extremely valuable for bouquets, as they retain their freshness for a considerable period when kept in water:—

ALBUM, pure white.
MARGINATUM, rose, edged with white.
ROSEUM, rose and carmine.
" ALBUM, white and red.
RUBRUM, bright crimson.
PURPUREUM, purple.

Price 5s. the Collection. Post free.

The following can also be supplied:—
SUTTONS' CHOICE CALCEOLARIA, 2s. 6d. per packet.
SUTTONS' CHOICE CINERARIA, 2s. 6d. per packet.
SUTTONS' CHOICE PRIMULA, 2s. 6d. per packet.

Complete particulars of other CHOICE FLOWER SEEDS for present sowing, gratis and post free.

SUTTON AND SONS, Seedsmen by appointment to the Queen and Prince of Wales, Royal Berks Seed Establishment, Reading.

SUTTONS' CABBAGE SEED

FOR PRESENT SOWING,

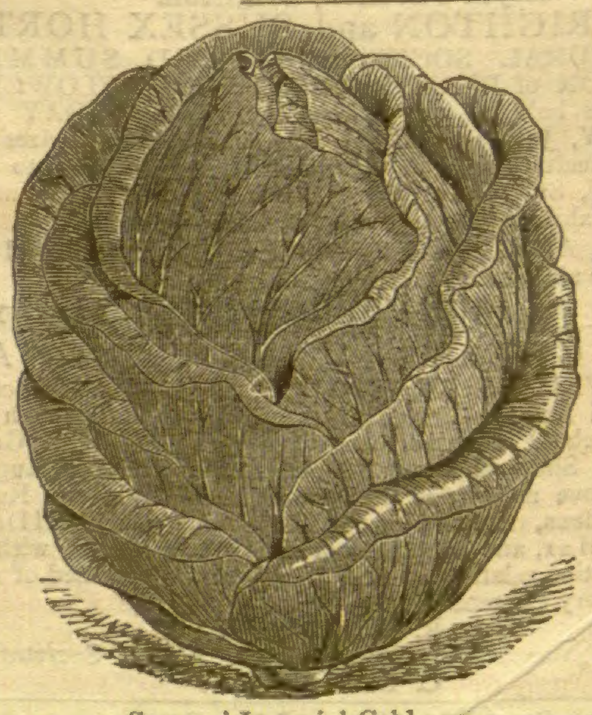
FOR SPRING AND SUMMER USE.

The best Cabbage for Spring and Summer use

SUTTONS' IMPERIAL.

This popular Cabbage is the finest in cultivation, and the earliest for Autumn, Winter, and Spring use. Good heads may also be cut from the stems during Summer. The heads are somewhat cone-shaped, remarkably large and firm, of fine flavour, and do not readily run to seed. Sow about the middle of July for Spring use.

Price 1s. per oz.



Suttons' Imperial Cabbage.

The following Sorts are also suitable for present sowing:—

EARLY YORK
NONPAREIL
WHEELER'S IMPERIAL
ENFIELD MARKET
EARLY BATTERSEA

Further particulars of Seeds for Summer and Autumn Sowing on application.

Sutton & Sons

THE QUEEN'S SEEDSMEN, READING.

Choice Seeds of Prize Flowers (Post free).
SOW NOW.

MR. WILLIAM BULL recommends the following :— Per packet.—*s. d.*

PRIZE PRIMULA SINENSIS, Red and White.. each	2 6
PRIZE PRIMULA SINENSIS, Fern-leaved, Red and White .. .. each	2 6
PRIZE PELARGONIUM, Gold and Bronze	2 6
PRIZE CINERARIA	2 6
PRIZE CALCEOLARIA	2 6
PRIZE GLOXINIA..	2 6
PRIZE BEGONIA, handsome-flowered..	3 6
PRIZE AURICULA, Alpine	2 6
PRIZE CARNATION	2 6
PRIZE COLEUS	2 6
PRIZE FUCHSIA	2 6
PRIZE PETUNIA	2 6

Establishment for Choice Seeds and New and Rare Plants, King's Road, Chelsea, London, S.W.

NEW PLANT CATALOGUE 1874,
Gratis and Post Free.

B. S. WILLIAMS'
NEW PLANT AND GENERAL
CATALOGUE OF NURSERY STOCK
Is now ready, and will be forwarded to all applicants.

It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
CORN MANURE, for the spring.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
6, Fenchurch Street. E. PURSER, Secretary.

NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED).
Consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.
Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

GISHURST COMPOUND. — Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

SIMPSON'S RED SPIDER, THRIPS, and GREENFLY ANTIDOTE.—The following unsolicited Testimonials have been received among others regarding the *bona fide* character of this remedy :—

From Mr. DAVID THOMSON, *Gr. to the* Duke of Buccleuch.
"Dear Sir,—I consider your Antidote an invaluable remedy for Red Spider. Three washings have annihilated the pest on our Muscats, and the Vines look much more fresh and green since the application. No bad effects to the foliage whatever. "Truly yours, D. THOMSON."

From Mr. SPREADBURY, *Gr. to the* Earl of Portsmouth.
"I like your Antidote better than any other insect destroyer I have used, being so very clean and efficacious."

In quarts, 6*s.* each. One quart diluted sufficient for 200 gallons of water as a preventive.
Supplied by JOHN KILNER, Wortley, Sheffield.
Sold by Seedsmen and Chemists.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of
CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

THE BEST GARDEN FERTILISER.

The Specially Prepared PHOSPHO-GUANO is the best Fertiliser for use in Gardens, and may be had in tins of 1 lb., 2 lb., 4 lb., and 7 lb.; also in Bags containing ½ cwt., 1 cwt., and 1½ cwt.

The following has just been received along with an order for this Guano: "Your Phospho-Guano is the best fertiliser I have used. With it, two years since, I grew Nuneham Park Onions upwards of 16 inches in circumference, and beat all the gardeners in a class of seventeen competitors. (Signed) D. BROWN, Market Gardener, New Scone, Perth."

May be had of the Sole Wholesale Vendors, the LAWSON SEED and NURSERY COMPANY (Limited), Edinburgh and London.—Southwark Street, S.E.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT. — Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing. Second sized Archangel, 100*s.*; Petersburgh, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

Improved System of Glazing without Putty.

WILLIAM PARHAM, Northgate Works, Bath; and 280, Oxford Street, London, W., Patentee and Inventor of the Improved System of Erecting and Glazing Horticultural Buildings without Putty; the Glass supported on channelled rafters with moulded cover plates and steel springs for expansion. Plans and Estimates on application. Catalogues seven stamps. Specimens may be seen at either address.

The Royal Pottery, Weston-super-Mare.

UNDER ROYAL PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.
JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	3*s.* 4½*d.*
3-inch Pipe, per yard	2*s.* 8½*d.*
2-inch Pipe, per yard	1*s.* 8*d.*

Connections at proportionate prices.
Illustrated Price List free on application to
T. G. MESSENGER, Hot-water Engineer, Loughborough.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c. TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard. TIFFANY, 6*s.* 6*d.* and 7*s.* 6*d.* per piece of 20 yards.
EATON & DELLER, 6 & 7, Crooked Lane, London Bridge.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable, at 1*d.* per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.
EDGINGTON'S RICK CLOTHS for 69 years have maintained their celebrity as the best.
EDGINGTON'S MARQUEES for Hire are the most elegant and capacious.
EDGINGTON'S CRICKET and GARDEN TENTS are the prettiest.
TIFFANY, SCRIM CANVAS, and every other kind of NETTING.
Be particular—FREDK. EDGINGTON AND CO., Rick Cloth, &c., Manufacturer to Her Majesty, 52, Old Kent Road, London, S.E.
A quantity of good Second-hand Government TENTS for Sale, Cheap.

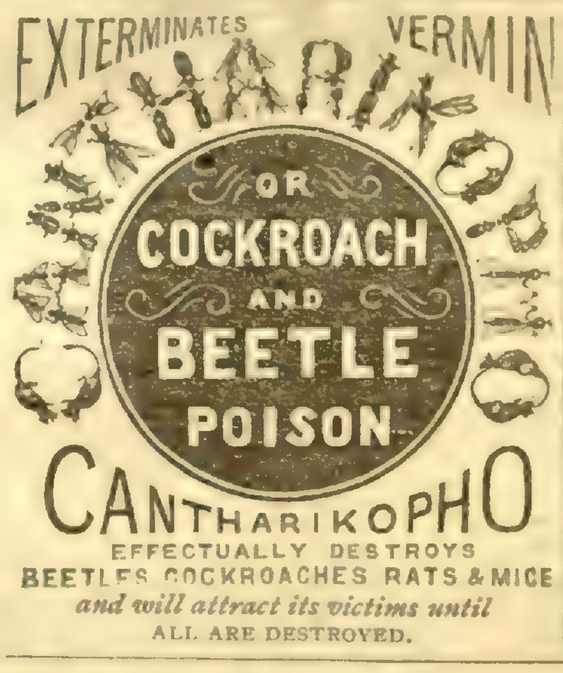
TANNED GARDEN NETTING, to protect Fruit from Birds and Blight. Suitable for Poultry, 1*d.* per square yard; whole Nets, averaging 600 yards, £2 2*s.*; widths cut from 1 to 12 yards, any length over 50 yards.
C. COTTON, Potter Street, Worksop.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.
MADE OF PREPARED HAIR AND WOOL.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes.
THE CHEAPEST AND MOST DURABLE
SHADING.
"FRIGI DOMO" CANVAS.

Two yards wide	1*s.* 10*d.* per yard run.
Three yards wide	3*s.* per yard.
Four yards wide	3*s.* 10*d.* per yard.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.
E. T. ARCHER, Stanstead and Brockley Roads, Forest Hill, London, S.E. All goods carriage free to London.
NOTICE.—REMOVED from 3, CANNON STREET, CITY.

MILDEW.
The best and most easily applied composition for the Prevention and Destruction of Mildew is
EWING'S INFALLIBLE COMPOSITION.
Can be had retail through all Seedsmen and Florists, in bottles holding about ¾ pint, sufficient to produce 8 gallons of fluid fit for use, at 1*s.* 6*d.* per bottle; or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, carriage paid to any Railway Station in the United Kingdom for 24 penny postage stamps.



Is indispensable to Nurserymen, Gardeners, and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1*s.* and 1*s.* 6*d.*, and sent post free with directions, for 1*s.* 3*d.* and 1*s.* 10*d.*, by the Proprietors

WILLIAM ROLLISSON AND SONS,
Tooting, London, S.W.

THE PATENT VERMIN ASPHYXIATOR.
LIST of AGENTS, DESCRIPTIVE PAMPHLET, PRICES, FULL INSTRUCTIONS, and TESTIMONIALS
Post Free, on application to
JOHN WATTS & CO.,
6, BROAD WEIR, BRISTOL.

VASES, STATUES, FLOWER POTS, FLOWER TRAYS, and BASKETS, in Terra Cotta, of various colours; also FOUNTAIN BASINS, FISH POND KERBS, GARDEN BORDER EDGINGS, PEDESTALS, BALUSTERS, GARDEN and PARK SEATS, and ARCHITECTURAL DETAILS, in Terra Cotta, warranted to stand frost.
The Stamford Terra Cotta Company (Blashfield's), Limited, 28, Berners Street, Oxford Street, London, W.—Works, Stamford, Lincolnshire.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

GREENHOUSES, VINERIES, ORCHARD HOUSES, &c., erected in any part of the Country. Every description of HOT-WATER WORK and PLANTHOUSE FITTINGS made and fixed. PLANT PRESERVERS, neat, useful, and portable. PLANS and ESTIMATES supplied without charge.—WILLIAM JAMES RIVETT, Horticultural Builder, Stratford, London, E.

J. G. SMEATON & CO.,
Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

SYRINGES & GARDEN ENGINES.

G. & W. PURSER'S
List of Engravings for this Season
Is now ready, and may be had, post free, on application.
Sole Makers of the Jet d'Eau.
WORKS: WARWICK STREET, BIRMINGHAM.

CYCAS MEDIA.

MR. WILLIAM BULL
Intimates that he has just received, ex. *Lincolnshire*, from Australia, the largest and finest Importation of this beautiful Cycas that has ever reached Europe.
The trunks are of various sizes, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, 9 feet, 10 feet, and 14 feet high, symmetrical, straight, and in the finest condition possible.

These Cycas are admirably adapted for the Decoration of Greenhouses and Conservatories.

An Inspection is invited, or Prices on application.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

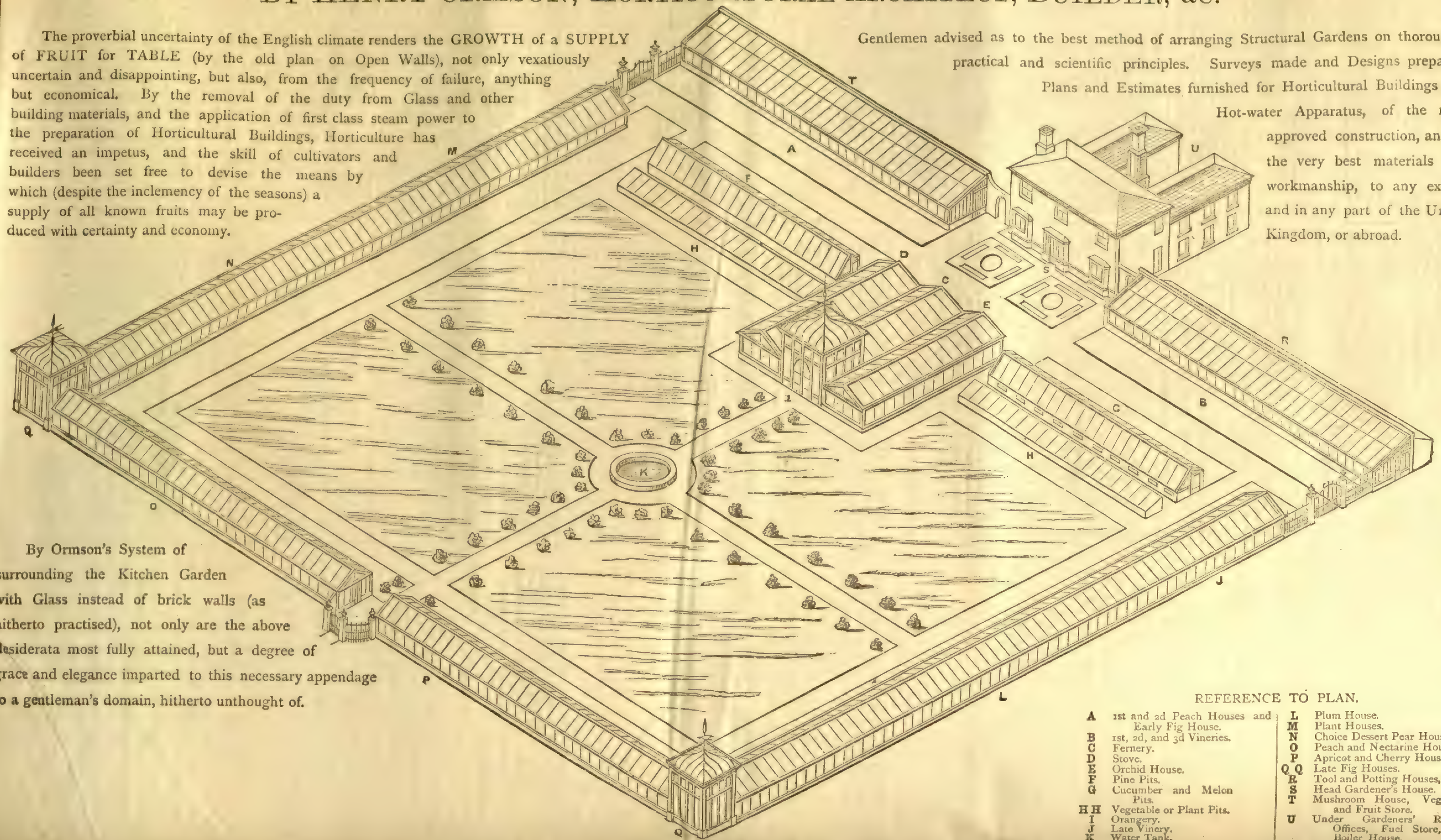
DESIGN FOR A NOBLEMAN'S OR GENTLEMAN'S KITCHEN GARDEN OF TWO ACRES,

WITH HEAD GARDENER'S HOUSE, UNDER GARDENERS' ROOMS, OFFICES, &c., &c.

BY HENRY ORMSON, HORTICULTURAL ARCHITECT, BUILDER, &C.

The proverbial uncertainty of the English climate renders the GROWTH of a SUPPLY of FRUIT for TABLE (by the old plan on Open Walls), not only vexatiously uncertain and disappointing, but also, from the frequency of failure, anything but economical. By the removal of the duty from Glass and other building materials, and the application of first class steam power to the preparation of Horticultural Buildings, Horticulture has received an impetus, and the skill of cultivators and builders been set free to devise the means by which (despite the inclemency of the seasons) a supply of all known fruits may be produced with certainty and economy.

Gentlemen advised as to the best method of arranging Structural Gardens on thoroughly practical and scientific principles. Surveys made and Designs prepared. Plans and Estimates furnished for Horticultural Buildings and Hot-water Apparatus, of the most approved construction, and of the very best materials and workmanship, to any extent, and in any part of the United Kingdom, or abroad.



By Ormson's System of surrounding the Kitchen Garden with Glass instead of brick walls (as hitherto practised), not only are the above desiderata most fully attained, but a degree of grace and elegance imparted to this necessary appendage to a gentleman's domain, hitherto unthought of.

REFERENCE TO PLAN.

A	1st and 2d Peach Houses and Early Fig House.	L	Plum House.
B	1st, 2d, and 3d Vineries.	M	Plant Houses.
C	Fernery.	N	Choice Dessert Pear House.
D	Stove.	O	Peach and Nectarine House.
E	Orchid House.	P	Apricot and Cherry House.
F	Pine Pits.	Q Q	Late Fig Houses.
G	Cucumber and Melon Pits.	R	Tool and Potting Houses, &c.
H H	Vegetable or Plant Pits.	S	Head Gardener's House.
I	Orangery.	T	Mushroom House, Vegetable and Fruit Store.
J	Late Vinery.	U	Under Gardeners' Rooms, Offices, Fuel Store, and Boiler House.
K	Water Tank.		

HENRY ORMSON, HORTICULTURAL BUILDER TO HER MAJESTY,

AND HOT-WATER APPARATUS MANUFACTURER OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY.

ORCHIDS.

SUCH LARGE IMPORTATIONS and Consignments of Orchids are constantly arriving at Mr. WILLIAM BULL'S Establishment, that he is able to offer the following at the low prices annexed:—

Each.—	s.	d.		s.	d.
CATTLEYA TRIANÆ	7	6	and	10	6
,, DOWIANA	31	6	and	42	0
ODONTOGLOSSUM TRIUMPHANS ..	15	0	and	21	0
,, PESCATOREI	15	0	and	21	0
,, ANGUSTATUM, new and handsome.	21	0	and	31	6
BROUGHTONIA SANGUINEA	7	6	and	10	6
ONCIDIUM MACRANTHUM	42	0	and	63	0
DENDROBIUM BENSONIÆ	15	0	and	21	0
,, THYRSIFLORUM	42	0	and	63	0
,, AMŒNUM.—This pretty Dendrobium, the flowers of which are white tipped with pink, and scented like Violets, has lately received a First-class Certificate, both from the Royal Horticultural and Royal Botanic Societies	31	6	and	42	0
ACCOLABIUM VIOLACEUM	15	0	and	21	0
,, BLUMEI MAJUS	15	0	and	21	0
PERISTERIA BRUCHMULLERIANA.	21	0	and	31	6
CYPRIPEDIUM NIVEUM	21	0	and	31	6
,, PARISHII..	31	6	and	42	0
ANGULOA CLOWESII	10	6	and	15	0
AERIDES AFFINE ROSEUM	10	6	and	15	0
,, CRISPUM..	10	6	and	15	0
,, LINDLEYANUM	15	0	and	21	0
CATTLEYA EXONIENSIS		8	and	10 gs.	
DENDROBIUM SENILE	21	0	and	31	6
CALANTHE VESTITA LUTEO-OCULATA	5	0	and	7	6
,, ,, RUBRO-OCULATA	5	0	and	7	6
ODONTOGLOSSUM CITROSMUM ..	7	6	and	10	6
,, ,, ROSEUM	10	6	and	15	0
BIFRENARIA AURANTIACA	15	0	and	21	0
PLEIONE MACULATA	15	0	and	21	0
,, REICHENBACHIANA	15	0	and	21	0
,, WALLICHII	7	6	and	10	6
PHALÆNOPSIS GRANDIFLORA ..	31	6	and	42	0
ONCIDIUM WELTONI	21	0	and	31	6
ODONTOGLOSSUM HASTILABIUM ..	21	0	and	31	6
,, GRANDE	7	6	and	10	6
LIMATODES ROSEA	5	0	and	7	6
LÆLIA PURPURATA	15	0	and	21	0
EPIDENDRUM DICHROMUM	10	6	and	15	0
DENDROBIUM PIERARDII	7	6	and	10	6
,, PARISHII	10	6	and	15	0
,, JAMESIANUM	15	0	and	21	0
,, DEVONIANUM	7	6	and	10	6
VANDA LAMELLATA.—This scarce and beautiful Vanda has lately received a First-class Certificate both from the Royal Horticultural and Royal Botanic Societies	31	6	and	42	0
CYPRIPEDIUM LONGIFOLIUM ..	21	0	and	31	6
HOULLETIA LINDENIANA	10	6	and	15	0
ODONTOGLOSSUM LINDENI	21	0	and	31	6
ONCIDIUM CUCULLATUM	7	6	and	10	6
,, TRULLA	10	6	and	15	0
CATTLEYA CHOCOENSIS	15	0	and	21	0
PLEIONE LAGENARIA	15	0	and	21	0
ONCIDIUM KRAMERIANUM	15	0	and	21	0
VANDA BENSONIÆ	15	0	and	21	0
SCHLIMIA JASMINODORA	31	6	and	42	0
ODONTOGLOSSUM PHALÆNOPSIS..	21	0	and	31	6
DENDROBIUM INFUNDIBULUM ..	15	0	and	21	0
,, CHRYSANTHUM	7	6	and	10	6
LYCASTE HARRISONÆ	10	6	and	15	0
ONCIDIUM SPHACELATUM	7	6	and	10	6
,, OPULENTUM, new and handsome ..	31	6	and	42	0

And quantities of other Orchids at equally low prices.

Choice Collections of Orchids made at 6, 9, and 12 gs. per dozen.

By sending names of those already possessed, different varieties can be given, and purchasers will have a good selection made for them.

WILLIAM BULL, F.L.S.,
Establishment for New and Rare Plants,
King's Road, Chelsea, London.

SATURDAY, JULY 4, 1874.

CUT FLOWERS.

I HAVE often been asked to give some hints for different arrangements of cut flowers, and always feel inclined to ask in return, Have you tried those combinations I wrote about last year? My correspondents beg me also to give common names instead of the Latin ones, and where possible I shall in these notes give both. But really the English name of a plant is sometimes less known than the Latin one—or sometimes there is a misunderstanding about the name altogether. In Scotland we talk of a Plane tree but mean a Sycamore (Acer), and of Syringa, but have Mock Orange (Philadelphus) in our mind, and would consider the nurseryman at fault who sent us a Lilac. Then Hyacinthus non scriptus of one's young days is a Scilla, and Bluebells in England are this disputed bulb, while in Scotland it is Campanula rotundifolia that represents Bluebells. Surely there is not a more vexed plant than wild Hyacinth, disputed over in both its Latin and English name. Linnæus himself is pronounced wrong, and its divided perianth is torn open to show that even he had made a mistake in not classing it with the Scillas; and Sir Walter Scott is misdoubted, as if he who was so thoroughly informed in all country matters would have made Fitzjames hunt the stag when the wild Hyacinths were in bloom and the deer still with the velvet on their horns, or expect Ellen's "tread" would not crush such sappy flowers. Harebells, the Bluebells of Scotland, Campanula rotundifolia, make his poems read correct, both in the *Lady of the Lake* and *Last Minstrel*:—

> "And July's eve with balmy breath
> Waved the Bluebells on Newark heath."

It is necessary for me to premise and repeat that my first object has always been to use hardy flowers, and my second to work only with those that take the shortest time to clean and arrange, and those which last the longest in the glasses. Arranging flowers here is a thing that has to be done, and if I had time and leisure enough to make it a mere amusement I would use a still greater variety of different plants and arrangements.

A flower like a Lily, for instance, that one sweep of the finger and thumb clears of leaflets, is a prize; and those, like Michaelmas Daisies, that require scissors to snip off the leaves, spoilt flowers, and useless buds, are a trial, particularly in the short days when daylight is so precious. Again, I must crave space to expostulate on mere fashion interfering with the use, or disuse, of a plant, be it a rare exotic or hardy flower, or a glass.

Surely it is enough for that supreme tyrant to reign over our houses, carriages, furniture, dress, food, and to twist upside down these two misapplied words, taste and vulgarity. I have frequently heard that inappropriate adjective "vulgar" applied to a plant, as if there was ever any pretence or pretension in Nature or her works, and as if they could be vulgar; common they may be, and the wiser one grows the clearer one sees that it is the commonest and freest blessings that are the greatest luxuries—sunshine, air, water. Thus in the plant line, all the stove-plants in the world could not make up for the loss of our grasses and daisies. There is no fear of Orchids, Stephanotis, and Gardenias being despised or unappreciated. Have they not cost much of man's money, man's trouble, man's skill to grow?—and therefore in these mammonish days must they not be more beautiful, valuable, and enjoyable than out-of-door flowers fresh from the open air, sunshine, and rain? Any mind that can see the extreme beauty and fitness in the commonest plant, is sure to be able to admire rare exotics, but the reverse is not so certain; nay, we often meet with a contraction in the love of flowers where indoor plants or florist flowers (so called) are exclusively studied, which I fancy is not met with where out-of-door plants are the hobby.

A truce to moralising: let me at once proceed to name any novelties in the arrangements I have tried during the last season or so which appear to me worthy of note.

All Spiræas (Meadow-sweets) I have had—some dozen varieties—are useful both for foliage and flowers. In early spring (March) the young undeveloped leaves of the largest one (S. Lindleyana) are good; the whole stalk and rib of the leaf is then of a fine red (rich brown later in the season), very like and quite as bright as Begonia splendens; the shape is also peculiar, and in March there is a scarcity of red for tall glasses. The pink and white flowers of S. Douglasii and S. callosa alba last long, and look well together.

With Campanula carpatica, pale blue, C. media (Canterbury Bells), dark blue, or Clematis Jackmanni, dark purple, sprays of S. ariæfolia look well. All the white Spiræas are of a warm yellowish tinge, which combines far better, I fancy, than a perfectly pure white flower, with certain shades of colour.

The young shoots of Hypericum Androsæmum (seedlings are brightest and best), of shaded warm brown, with one small yellow flower at the end of the branch, are very attractive; and even when the petals fall the coloured calyx and pale green young capsule in the centre are as good as the flower. When in Skye last autumn I saw this native St. John's Wort in its wild state. It is always a pleasure to find a plant for the first time. H. orientalis is the most delicate St. John's Wort we have here; its young shoots, although not so highly coloured, make, from their way of growing, very good foliage; the lovely yellow blossoms, like little single Banksia Roses, are in profusion in November; and, mixed with Aster longifolius and the little dark red Chrysanthemum, Bob, make a most lasting and pretty glass. A. longifolius is a great beauty, kindly sent us by Mr. Niven, of Hull; its double row of florets were curled up after 4° of frost, while the single A. simplex escaped unscathed. It is next to longifolius for colour that we have here, and is in perfection to the end of November.

A glass of the following single flowers lasts long (a double Rose Carnation, added for the colour, looked coarse and deformed among them):—Anemone Honorine Jobert, pure white, bright yellow stamens, green heart; Thalia glabra, clear lilac, yellow and blackish heart; Hypericum orientale, foliage; Thalictrum (Meadow Rue), small leaves of Tanacetum boreale (Tansy); Ferula acerifolia, and Acæna millefolia; fine Fern-like leaf, with a curious greenish flower-spike.

I think I am correct in saying all bulbs that grow on long stalks, in spikes or umbels, expand and last long in water, and it is better to cut them while there are buds to come out at the top—*e.g.*, all Lilies, Narcissus, Irises, Ornithogalums (Star of Bethlehem), Czackia (St. Bruno's Lily), Zigadenus, Alliums (Garlic), Gladioli, &c. Arundo conspicua is beautifully light for tall glasses, much more useful than plumes of Pampas grass; in fact, as with Bullrushes, I

have always failed in mastering Pampas feathers; they are too heavy, and sink down where they are not intended to go. *F. J. Hope.*

(*To be continued*).

New Garden Plants.

DENDROBIUM BENSONÆ, *Rchb. f.* in v. Mohl et. v. Schl. *Bot. Zeit.* 1867, p. 230, *var.* AURANTIACUM.*

A very distinct variety as to colour, since the disc of the lip is not merely yellow but deep orange, and the blotches are not blackish but brown. The flowers, too, are a good deal larger than in the genuine plant. I have to thank, for this interesting variety, Mr. Bull, of Chelsea. *H. G. Rchb. f.*

PHALÆNOPSIS FUSCATA, *n. sp.*†

Once more a new Phalænopsis—now-a-days a very unusual source of gratification. It appears to have very large leaves, and I suppose that the inflorescence must be like that of P. cornu-cervi, since the plant was well compared with it. The flowers are yellowish, mottled with brown, and very fleshy. The lip is quite peculiar, and the lateral sepals are not so much extended as in P. cornu-cervi. I have to thank for it Mr. Bull, who introduced it from the Malayan peninsula. *H. G. Rchb. f.*

GONIOPHLEBIUM GLAUCOPHYLLUM, *J. Smith, M.S.; Klotzsch, Lin.* xx. 393. POLYPODIUM GLAUCOPHYLLUM, *Kunze, Schkuhr Supp.* i. 227, t. 93 ‡

A very good figure of this pretty creeping-stemmed Fern is given by Kunze in his supplement to *Schkuhr*, above quoted. It was originally sent by L'Herminier from Guadaloupe to Bory de St. Vincent, from whom it received the MS. name of Polypodium glaucum, but as this was preoccupied, Kunze substituted that of P. glaucophyllum. It is also a native of New Grenada, Columbia, and Ecuador, and an undistinguishable plant is met with on the Guinea Coast.

The plant is well adapted for growing in small suspended baskets, the rhizome being widely creeping, and in the younger portions dotted with scales. The fronds are oblong-lanceolate, uniform in character, coriaceous, 6 to 10 inches long, with a firm erect glossy stipe of 2 to 6 inches. The colour is a deep glaucous green, paler and almost silvery glaucous beneath. The venation is very even and well marked, the principal veins from the midrib being equidistant, with the venules meeting at an angle between them, a small veinlet proceeding from the apex of the angle, and here and there bearing a small yellowish sorus.

We are indebted to Mr. Bull, of Chelsea, for the opportunity of sketching this interesting addition to our garden Ferns (see fig. 1). It, of course, requires a hothouse temperature. *T. M.*

ASPARAGUS (ASPARAGOPSIS) RAMOSISSIMUS, *Baker.*§

This species, which belongs to the small group with flattened cladodes and leaves not produced at the base into a distinct firm spur, was introduced from South Africa to Mr. Saunders' collection by Mr. Thos. Cooper. I do not know the exact station, and do not find it amongst Mr. Cooper's dried specimens, the complete set of which is now at Kew. The only near ally of this is A. scandens of Thunberg, which is frequent in cultivation and which is figured in the first part of the *Refugium* (tab. 21). The description of the plant is as follows:—

A wide-climbing copiously-branched slender shrub, with very numerous spreading or ascending branches and branchlets; leaves obscurely spurred at the base; internodes of the branchlets 1—3 lines long; cladodia 3—8 nate flattened, linear-falcate acute, ¼—⅜ inch long, spreading; flowers hermaphrodite, solitary at the tips of the branchlets; pedicels cernuous, 1½—2 lines long, articulated above the middle; perianth cream coloured, 1 line long, the blunt divisions spreading widely; stamens scarcely shorter than the perianth, the oblong anthers equalling the filament; style exceeding the globose ovary, distinctly tricuspidate at the apex. *J. G. B.*

* Flore dimidio majoris, labelli disco aurantiaco, maculis basios radiantibus brunneis.

† Aff. P. cornu-cervi. radicibus brevibus; foliis amplissimis oblongis obtuse acutis (pedunculo certe P. cornu-cervi?); floribus mediocribus illos speciei dictæ æquantibus; sepalis oblongis obtuse acutis; tepalis cuneato-oblongis obtusis; labello tripartito, partitionibus lateralibus ligulatis retusis utrinque unidentatis, latere inferiori medio umbonatis, partitione media oblonga acuta, per medium carinata; callo bidentato in basi, postposita ligula aristata utrinque, columna basi exangulata.

‡ Fronde coriacea, e basi subinequali, cuneata, parum decurrente ovato-oblonga, acuminata, marginata, margine levissime repanda, costa prominente, venis patenti-divergentibus subtus glauca; soris composito-uniseriatis, planiusculis, helvolis; stipite mediocri, glabro, basi adscendente; caudice scandente flexuoso, sulcato, sparsim fusco-squamato, demum glabrescente radicoso, fibris ramosissimis.—*Kze. l. c.*

§ Suffrutex late scandens ramosissimus, ramis et ramulis gracillimis, ultimis brevibus ascendentibus vel patulis; foliis basi vix calcaratis, internodiis ramulorum 1—3 lin. longis; cladodiis planis linearibus falcatis 3—8 nis, 3—5 lin. longis; floribus hermaphroditis, ad apices ramulorum solitariis; pedicellis cernuis perianthio superantibus supra medium articulatis; perianthii segmentis obtusis 1 lin. longis; genitalibus perianthio vix brevioribus; antheris oblongis flavis filamento æquilongis; stylo apice tricuspidato.

GARDENS AND GARDENERS.

I LIKE a greenhouse. Some poet has written—

"Who loves a garden loves a greenhouse, too."
[*Cowper.*]

Both require labour, care, and money. But the greenhouse will bring money. A piece of land 50 feet by 20, when properly enclosed and covered with glass, can be made, under the care of a skilful gardener and florist, to produce flowers which will bring profits to the proprietor almost fabulous. I am always amazed when I go through the greenhouse of my neighbour at the wonderful profusion of the various flowers he cultivates—beds of Petunias, of Heliotropes, of Pinks of every hue, Lilies, Roses, Heathers, and so forth and so on. I am amazed at the variety and the abundance. And when I consider what an amount of patient plodding, daily and nightly labour and care, all that I see has cost, I wonder more and more; and yet it should not cause wonder to any one who considers how Nature will yield her treasures to the industry of man.

My neighbour, Thomas Tapper, is a born Englishman. And a real native-born Englishman is, in my experience, the man who succeeds best as a floriculturist. I write nothing now of those who cultivate fruits, or raise vegetables, or rear horses and cattle, and also make themselves famous in such pursuits. And yet I dare write that it will be found that in those directions the native-born Englishman takes precedence. True it is that there are native Yankee-born gardeners, floriculturists, pomologists, arboriculturists, horticulturists, agriculturists, and so on; but I hazard the assertion that it will be found that Mr. Wilder, as well as others whom I a not now mention, living and dead, whose labou s in these directions have enriched and beautifie l, and do daily enrich and beautify, this earth of ours on this Western continent, can each and every one trace their descent to some ancestor who more than two centuries ago was devotedly attached to these delightful rural pursuits, and in whom the artificial pursuits of industry, of manufacture, of commerce, or of any new financial industry, were of but secondary consideration. We all have to reproduce the things that our remote ancestors have loved. Says Robert Herrick:—

"I sing of brooks, of blossoms, birds and bowers;
Of April, May, of June and July flowers;
I sing of May-poles, hock-carts, wassails, wakes;
Of bridegrooms, brides, and of their bridal cakes."

What a jolly poet was Robert Herrick! and in what a jolly climate, and a jolly country, and a jolly age, he lived and wrote! England 220 years ago was a jolly country! And he who, in this country of New England, under our skies, and on our soil, seeks to reproduce the jollity which enlivened those days may well sometimes almost despair. How can a man who sits in his study in the middle of the month of April, in New England, hope to have any adequate idea of the character of the temperature of the climate of Merrie Old England in the same month! And so I write that Wilder and Stone, and Loring and Flint, and Davis and Clark, and all the other lesser naturalists and agriculturists who among us have sought to embody rural pursuits, and to make gardening a profit as well as a pastime, deserve a most grateful remembrance. Yes, most grateful! For the memory of those who have in the history of this country been famous as warriors, as statesmen, as patriots, is after all of small consequence compared with the deeds of those whose labours have seemed to enrich and beautify the earth; who have shown us how two blades of grass can be made to grow where but one grew before; whose imparted skill has made us able to make the desert to blossom as the Rose.

It is one of the facts which, more than any other fact, is an evidence of the general inattention of the human race to the progress of the seasons that one is continually compelled to listen to remarks expressing regrets at the "remarkably cold weather for April"—at the "unusually backward spring" we are having! I think I have before written that our ideas of spring-time are in a great degree coloured by the Latin as well as by the English literature which describes spring time as it appeared to Virgil and to Horace, who wrote in Italy; and to Robert Herrick and Thomson, and to all authors of rural poetry and prose, who wrote in England, and who severally describe the climate of the country where they dwelt. The truth is, that we are too impatient. When I was a boy, and a man appeared on the street or at church in April or May with a white hat on his head, or a light pair of pants on his legs, he was sure to be asked if he was not "forcing the season." While I am writing this, the bleak winds from the north-east are driving the snow over the fields out-of-doors, and the midnight skies are promising anything but a spring-like day. But wait till the morrow comes. And then the south wind will blow, and the earth will grow warm, and the grass will spring up green, and the birds will sing, and the frogs will peep!

It is pleasant to note that with each new year the circle of my neighbour's influence as a floriculturist widens, and the number of those who come to procure his rare plants and flowers, and shrubs and Vines, constantly increases, until from a modest beginning five years ago his greenhouses have become known widely and favourably. And next to having a greenhouse of one's own is the pleasure of living near to that of another's. *Commonwealth* (*Boston*).

ITALIAN GARDENS AND GARDENING.

FLORENCE: THE BOBOLI GARDENS.—Behind the Pitti Palace, a building ugly enough for London, but containing a few of the very choicest gems of the painter's art and enriched with several almost equally marvellous mosaics, is the hill of Boboli, or Bogoli, as it was once written. Immediately behind the garden front of the palace, with its terrace and fountains, rises a steep slope, ascended by flights of steps, and marked out by grass plots, which should be lawns but are not. Arrived at the top the visitor enjoys a superb panorama of Florence, with its lofty towers and spacious domes, its marble-clad churches, its quaint bridges, and its fine quays. This view is so fine that it amply compensates for the slovenly, neglected look which the garden has. Besides, to the plant-lover and botanist these neglected grass plots are perfect treasure-houses of beautiful and rare weeds—well, they are weeds here, and yet so beautiful that one does not like to apply a derogatory epithet to them.

From the point which has now been gained the visitor soon reaches the centre avenue, the great feature of the Boboli gardens from a landscape-garden point of view. This avenue is of great length, but well proportioned as to width. It descends the side of one hill and ascends the slope of the opposite one in a perfectly straight line. It is formed of fine trees of the pyramidal Cypress, whose formal outlines are softened by age, and whose somewhat gloomy, sombre aspect must be a pleasant relief from the scorching sun and the intense blue sky. This is probably the case in summer, but this year, in the middle of May, the climate was more like that one is accustomed to two months earlier in London; but then, of course, this was "an exceptional season." Somehow or other the season always is exceptional. "Man never is, but always to be blessed." In any case the Boboli is not a bad place wherein to be caught in a shower of rain. But to return—on each side of this long avenue are marble statues, some good, some bad, many indifferent, but almost all mutilated and weather-stained. Statuary out-of-doors in England is in nine cases out of ten a mistake. We were hardly prepared to find that the same rule held good in Italy. The sight of gardeners with pails of water and besoms cleaning the statuary, suggested one cause for the frequent mutilation of these works of art.

In the centre of the avenue at its lowest part is a large marble basin surrounded by Orange trees, and with a huge and — must we say it?—ugly figure of Neptune, or some worthy of that description. He, too, was undergoing the annual process of scouring with the effect of whitening the projecting portions of his frame and leaving the recesses by contrast blacker than before. Nearer to the palace are some fine groups of statuary under cover, to which these remarks do not apply, and which must be left without further comment in this place, though from an artist's point of view they are the only pieces of the sculptor's art worth attention in the whole of Boboli. On either side of this noble avenue are quarters laid out more or less in rectangular fashion, some planted with evergreen Oaks of great age, with gnarled and twisted limbs thinly furnished with leaves and with grey bark splitting off in little oblong flakes like the tesseræ of an old Roman mosaic. There is something very weird about these old Ilex trees, but it must be confessed that many are worn out—too old and dry to be pictural. In England Moss or Ivy would help to clothe the dry frame and cover it with a garb of beauty; but here, Ivy, Moss, Lichen, all alike seem rare, an indication of a drier climate. Here and there are open grass plots bounded by arcades of evergreen Oaks, cool and shady in the hot weather. There are no statues in these arcades, and, to our thinking, they are better away. The grass plots in this part of the ground are fittingly left in their native wildness—they constitute so many little prairies in the midst of the forest of Ilex. And the weeds—they do but illustrate the old difficulty of defining a weed, for the weeds here are in many cases the treasured ornaments of our herbaceous borders at home.

Among scores of new and strange plants let us pick out a few, to illustrate the weed-flora of the Boboli. The Anemones were just over, but they must have been gorgeous. Wild Tulips of several varieties were hardly out; Bee Orchises, as well as several others of the same family, were in profusion. Allium roseum, one of the loveliest of its race, was abundant enough to

give a pink tinge to the plots when seen at a distance (Why, *par parenthèse*, does not some enterprising gardener invent—the word is surely allowable—an Allium roseum devoid of perfume?); Muscari racemosum and M. comosum, at least twice the size we are accustomed to see them in England; Scilla italica, with its pale blue flowers and delicious perfume, was also to be seen, 18 and 24 inches high; Salvia pratensis in profusion, its dark blue or purple flowers contrasting well with those of the Allium just mentioned; gorgeous yellow Composites, allied to our Apargias, but which no one seemed to think or know anything of, were thickly scattered amid the herbage, with Ornithogalum umbellatum; Arum italicum was to be seen in shady corners; Colchicum fruits gave token of autumn beauty; shrubby species of Cytisus gleamed with golden sheen beneath the Ilex trees—everywhere wild flowers. Had we, indeed, to sum up the three principal features of the Boboli Gardens, we should do so by citing the Cypress avenue, the evergreen Oaks, and the wild flowers.

THE FRUITS OF PORTUGAL.

(*Concluded from p. 823, vol. i., 1874.*)

THE contrast between the rural activity, rural wealth, and density of population in the northern and southern parts of Portugal is as striking as between the inhabitants themselves. The Minho province is, at least, cultivated to the extent of one-fifth of its surface, while not one-fifteenth part of the Alemtejo is tilled, and what few attempts at improvement have been made are due to settlers from the North. The causes of this difference between the two provinces of the same kingdom, inhabited by the same race, are of very old standing. They go back as far as the Moorish wars, when the South was completely depopulated and converted into fiefs, or "morgados." These "morgados," to prevent their sub-division, were placed under a special legislation, which subsists to the present day. In the North, on the contrary, the small proprietors abound, and the "*petite* culture" prevails. Along the sea coast there is a belt of sandy level country with extensive Pine forests; next comes the cultivated zone. Here Vines are grown as climbers, and each little field and every stream and watercourse is bordered by pollarded Oaks and Chestnuts, on which they are trained. In this extensive zone resides much of the agricultural wealth of the country. It merges very gradually into one where the hill tops are covered with Oak and Chestnut woods, and this gives place again to a higher tract of country, where cattle and sheep grazing are the principal occupations of the people. These are the general features, broken at intervals by places of a marshy character, where Rice is grown. A mountainous tract of about 27 miles in length by 10 or 12 in breadth, occur on either side of the Douro, some 60 miles from its mouth, in which district the Vine is almost exclusively cultivated, and where the port wine of commerce is produced.

The principal cereal grown throughout the North is the Maize, which can be sown as early as March, but the sowing generally takes place about the middle of April. With each bushel is mixed a quart or so of some kind of dwarf Kidney Bean, and about half as much Gourd or Melon seed. This system of mixing has always been considered a faulty method, but with the Portuguese it is a species of insurance; being too poor to risk his whole income on a single crop, he calculates that, when he loses part of his corn, in a dry year, he gets a return of Beans, and that a year favourable to neither may give him a good crop of Gourds. It is a constant practice to plant Cabbages in the Maize fields, in the heat of summer; while shaded by the Maize these make little progress, but when the corn is reaped the Cabbages make rapid progress. The Gourd and the tall Cabbage take the place of root crops generally, and upon a good soil the Gourd produces from 60 to 70 tons weight. Melons and Water Melons are objects of field cultivation, chiefly the latter. The kinds mostly grown are the Cantalupes, the common green smooth-skinned sort, and, more rarely, the Musk Melon. Unlike the Gourd, which is left to ripen after the Maize has been cut, the Melon is not grown with other crops, but by itself, in land ridged up with shallow furrows 8 or 10 feet apart. A rich soil, a dry atmosphere, and water of irrigation in dry seasons produce very large crops. Water Melons are grown on the same system and give a less precarious and a larger return than the Sweet Melon, and their abundance and cheapness allow of their very common use by the peasantry. The implements and tools in general use are ploughs of two sorts, harrows, a broad, heavy hoe, which takes the place of a spade, a smaller one for weeding, and a small reaping hook, which is used indifferently to cut grass and to reap the different grain crops. The ploughs differ very little from the old Roman type, and the description of the implement left by the Roman writers applies very nearly to the simpler and smaller of the two kinds now used by the Portuguese. The harrow is also of the rudest construction, having fifteen to twenty teeth, of iron or wood, set quincunx fashion into a strong oblong-square wooden framework, with one cross-bar. Rollers are unknown, but as a substitute the harrow can be reversed and weighted with stones, and then drawn, sledge-wise, over the land. The hoe is indispensable in Portuguese field husbandry. The larger kind is a flat piece of iron, shaped like, and two-thirds as large as, an English spade, fixed at a slightly acute angle upon a long handle. It is used in earthing-up Maize, planting field Cabbages, in making and altering watercourses, and in supplementing imperfect ploughing. It is worked with a skill that no labourer, used to the different movements required by a spade, could probably attain to; ground can be prepared by it for seeds or for planting more quickly than it can be dug by a spade, although it is less completely stirred and turned over. The cart used throughout modern Portugal is, like the plough, a modification of the old Roman type; two low wheels of solid wood, without spokes, and with iron tires, are fixed immovably to an axle, which revolves with them. The whole cart is enormously strong, and the separation of the wheels and axle from the body allows it to stand the shocks and joltings of roads which are often little more than watercourses on the steep sides of hills. The yoke is fixed to the necks of the oxen, in some parts of the country—the most hilly—to their horns, and when so fixed a leather cushion takes off the pressure from the foreheads of the animals.

The Grape produces by far the most valuable portion of the wealth of Portugal. In the Maize growing district the Vine is grown on the pollarded trees and on trellises. It is pruned when the supporting tree is cut back in winter, and gets no cultivation but what it shares with the crop growing beneath it. The Vine strikes its roots so far into the soil that it probably does no harm beyond the slight injury caused by the shade of its dense foliage in the summer. These Vines give the common "green wine," which is made in a very simple manner, and is not particularly agreeable to those unaccustomed to its use. The district for the port wine, or so called "demarcacao," is a strictly defined narrow strip of land, extending along both banks of the Douro, containing about 64,000 inhabitants. No other wine than the approved wine of this small district can be legally shipped from Oporto. On this account the wine grown here is termed *par excellence* "vinho do Porto," or Oporto wine. It was formerly divided into three sub-districts, called Feitoria, Subsidiario, and Ramo. The produce of the first alone was allowed to be exported to Europe. In 1852 they were all three agglomerated into one "demarcacao." The legal distinctions were abolished, but the fine wines are still grown in the Feitoria. The nature of its soil is the most valuable privilege of this district. Granite quartz forms the basis of the whole Douro basin. In the celebrated demarcation this granite is coated with a schistous stratum blended with argil. In the uplands there is no soil but that which is created by the action of the atmosphere on the saturated schistous rock, which, bursting afterwards from the heat of the sun, becomes pulverised, and forms the only soil on which the Vines grow. This is one reason why port wine, properly so called, can never become a very cheap wine. The demarcation is an unhealthy, thinly-inhabited district. There are very few springs, so that the want of water is severely felt, and is doubtless the principal cause of the limited population of this part of Traz-os-Montes and Beira. During the hot weather dense fogs rise from the Douro and its tributaries, causing a prevalence of

FIG. 1.—GONIOPHLEBIUM GLAUCOPHYLLUM.

ague in their particular neighbourhood. As the whole district is essentially dedicated to the culture of the Vine, bread and provisions are both dear and scarce. The soil is turned, and the Grapes trodden, entirely by the Gallegos, or natives of Gallicia. The fruit is cut by the women and children from the adjacent country, the only work done by the resident farmer being the pruning of the Vines. The vintage season varies from September 15 to the end of October.

After the Grapes are cut they are carried in open baskets to the "adega" or shed, where they are thrown into large open troughs, called "lagares," containing from ten to thirty pipes. When the "lagar" is filled with Grapes a gang of men jump in, and, forming a close line, with their arms on each other's shoulders, advance and retire with measured step, treading the fruit to the sound of the bagpipe, the fife, and the drum. This operation is continued for about thirty-six hours, when the Grapes are fully crushed, and fermentation commences. If the must be green, or not superabundant in saccharine, in thirty-six hours it will become a perfect wine; if the saccharine abound, double that time may be necessary to produce the desired result. The regulating the drawing off the wine into large "tonels" or vats, in which it undergoes its second fermentation, is by no means an easy operation. If rich wine is required, brandy is added in the "lagar," and the fermentation is thus checked. If a dry and pure wine the fermentation is allowed to take its natural course, and a small quantity of brandy will suffice to keep the wine in a sound and improving state. Immediately after the vintage the officers of "Commissao Reguladora" visit every farm, in order to "enrol" and sample the wine. They carry away a sealed sample bottle of every pipe, with the name of the grower pasted on it in such a manner as not to be visible till after the label is detached. At the fair of Pezode Regoa, in February, the samples are all tried by jury, those "approved" for export receive a "bilhete," or pass of admission to the export warehouse of Villa Nova. Here alone the approved wines can be stored. The largest wine farm on the river is the Quinta do Vesurio, belonging to the Ferreira family. It has produced in healthy years 800 pipes or 92,000 gallons of wine. It lies outside the legal "demarcation," yet the wine is of prime quality. The best castes of Grapes, such as the "Alvarelhao" and Bastards, will degenerate if removed to the Minho province. They will at first produce a ripe wine, but in a year or so will yield what is termed "green wine." Even the best Douro wines are, in their raw state, tart, rough, and, from their large solid ingredients, probably unwholesome. In this state they would hardly be recognised as port wine. What are properly called by the generic name of "Lisbon wines" are all grown in Estremadura, however different in quality, colouring, and names. The whole vintage of this province in 1838 was computed at 200,000 pipes. The best growths are those of Carcavellos, Laradio, Colares, Bucellas, Tojal, Torres Vedras, Cartaxo, Cadalaes, and especially the Muscatel of Setubal. Their principal foreign market is Brazil.

Elderberry is grown and used extensively for the sake of its well-known colouring matter. It is trodden with the Grapes in the "lagar;" and the steadily progressive export of the dried Elderberry may well suggest the doubt as to the genuineness of much of the "fine old port," of which the annual sales in London probably exceed the total growths of the port wine district of the Douro. The Black Mulberry in this climate attains almost to the dimensions of a forest tree, the leaves are used for the silkworms; and within the last ten years many of the best French and Italian varieties of the White Mulberry have been planted. Some of the Portuguese honey, and more especially that grown in the neighbourhood of Cintra, will compare not disadvantageously with the produce of Mount Hymettus itself.
E. T. B.

HORTICULTURAL NOVELTIES FROM SALT LAKE.

By A. MURRAY, F.L.S.

(*Concluded from p. 382, vol. i., 1874.*)

ANOTHER spring plant which took my fancy greatly was a small Umbellifer, that I found growing on the top of the mountains close to the melting snow. When the snow begins to melt the higher peaks remain for a considerable time, of course, wrapped in their white winding-sheet; but lower down and along the ridges it disappears, first on the parts most exposed to the sun, but larger or smaller patches of snow remain here and there for a considerable time after the general surface seems cleared. These patches occur very often in hollows and brush of scrub or Burr Oak, and one sees around their edges curious convolutions of earth, as if some mole had been roading all about, out and in, and twisting and turning, and as if a heavy showy of rain had then washed its asperities off, and only left a sodden, clapped-together trace of the mole. It is unnecessary to say that these are not in reality the work of moles or any other animal, they are the work of the snow and alternate frost and thaw, and mark the spot where the snow had stood a night or two before.

Out of these half-frozen, half-sodden, whole muddy places, where the soil, whatever it may be afterwards, is at that time as bare of vegetation as the sea beach, peeps my charming little Umbellifer. It appears to be undescribed—at least I cannot identify it with anything in Dr. Sereno Watson's book, nor can I find it in the Kew Herbarium. It grows about an inch high; the stem is sometimes longer, but then it trails along on the wet ground. It looks not unlike a little bit of Ladies' Smock, only instead of being yellow or white, it is of the most delicate pale lavender with large purplish or bluish black stamens. Its whole head or umbel is not bigger than a threepenny or sixpenny piece. It has tubers at the root. Naturally this is not a flower to attract the attention of the multitude—I am afraid that even the professed florist may turn up his nose at it; but the lover of alpines will doat upon it, and the admirer of beauty and harmony of colour must be charmed with it.

Besides the above I saw other spring plants with bulbous or tuberous roots, which were not unworthy of being introduced into this country. I found a Fritillary, larger than the F. pudica, in bud—apparently going to be purplish brown—but did not see it in flower, and a number of low growing things in a sort of marshy plain, called Parley's Park, embosomed in the mountains, which would be very well worth thorough examination. One or two other showy plants, however, I must mention—for instance, the different species of Castilleia.

This is a genus of Scrophulariaceæ, coming near Bartsia, Rhinanthus and Pedicularis, with an insignificant flower, but with the termination of the floral leaves more or less brightly coloured. It is known in America by the name of Painted Cup, and Americans are familiar with it, for it is not uncommon, is attractive to the eye, and its species are widely distributed; to Englishmen, however, except to those who have studied it in herbaria, or visited North America, it is not known. Generally speaking, no plant of any beauty or mark is long in finding its way into the gardens or hothouses of Europe, or, for that matter, into those of America, or anywhere else; in fact, it is one of the wonders of this age how soon any good new variety, reared or found by a nurseryman, much less a new species, spreads itself into every garden in the civilised world; but, hitherto, there has been one exception to this rule of universal intercommunication and distribution, and that has been afforded by parasitic plants. The Painted Cup is a plant which is said to be parasitic on roots, and no one appears to have thought it worth while to try to introduce it. It may be that another reason for this is that the species in the Eastern States, three in number, although the ends of the leaves are bright enough, are on the whole scarcely sufficiently attractive to make it worth while; but that is not so with at least two of the Utah species. There are several species there, but two of them are more especially worthy of introduction—one of them an early spring species, with its floral leaves of the most intense showy carmine, and the other a fine mauve coloured autumnal species. The floral leaves are cut into three or four fingers each, and the plant grows from 1 to 2 feet high. It is true that there are great individual differences in the vividness of the colour in the same species, it being sometimes as rich as the Gloire de Rosomène Rose, and in others of a dirty maroon or yellow colour, but when good the colour of the spring species is excellent.

I remember one pleasant Sunday morning in spring rambling over the hills behind Salt Lake City at the time that this crimson species was coming into bloom, and I met many groups of lads and lasses taking their stroll like myself, many of whom bore in their hands large bouquets composed entirely of this Painted Cup, which at a little distance looked like large bunches of laciniated Chrysanthemums, but of such a vivid carmine as no Chrysanthemum ever was. This species cannot be said to be uncommon on these hills, but I saw it nowhere in great quantity. It is scattered here and there, and forms such a bright and conspicuous object among the sombre Sage that it makes one suppose it more common than it really is. Sure I am that, even although it is perennial, the gangs of boys and lads that pluck it will soon make it scarce in the immediate vicinity of Salt Lake City. However, its range is wide, and there is plenty of desert land bearing it all around, from which, however, it will of course be more difficult to get seed. To do so would require the plants to be marked when flowering, for it is sufficiently similar to the Sage of the district (Artemisia tridentata) to make it, when not in flower and without the coloured floral leaves, difficult to detect. It is of about the same height and of the same habit, the leaves are similarly cut, although darker and not so hoary; therefore to find the seed the plants must be marked when flowering. If the seed is got I see no reason why it should not be made to grow in England, if treated with proper care and skill. It is no doubt said to be parasitic on the roots of the Sage, as the others are said to be parasitic on the roots of something else; and it certainly does grow in the midst of the Sage, and possibly its roots may inosculate with, and engraft themselves upon, those of that plant; but I cannot say that I was able to satisfy myself that it did so. I took up a good many plants purposely to see how this was. In some instances I feel perfectly certain there was no connection between their roots. One plant that I dug up and brought home as a specimen, although growing in the midst of Sage, had something like half a foot of clear ground round it on every side, and the roots came up clean and not mixed with those of the Sage at all, and if it had any connection with them it must have been by some small fibres running away to them from the main root out of sight; but even of this I saw no appearance. Usually, however, the roots were mixed with those of the neighbouring Sage, but I never detected any anastomosis. It is, however, fair to add that the two roots were very like each other, and that the fibres broke easily, so that it was difficult to make sure there was no union, and more than that, every one who has ever dug up plants that are said to be parasitic on roots knows that it is most difficult to make sure of the fact of union. Be that as it may, it seems clear, first, that, at any rate, it is not always parasitical, so that it can grow without Sage roots to fix on; and, second, that even if they were necessary it must be perfectly easy to sow the seed of the Sage and of the Painted Cup together, and leave them themselves to adjust their mutual relations to their own satisfaction.

It is obvious that this is a much simpler thing to deal with than the growth of the Loranthaceæ and other above-ground parasites. It is not so long ago (not three years ago) since the attention of horticulturists was called by our lamented friend, Dr. Welwitsch, to the possibility and desirableness of cultivating these splendid parasites, and scarcely a year thereafter passed before one of our most scientific horticulturists, Dr. Moore, of Glasnevin, solved the problem (whether in consequence of, or only coincident with, Dr. Welwitsch's recommendation matters little); and if this has been done with so difficult a family as the Loranthaceæ it must be easy work to do it with anything else, especially with anything that seeds and sends its roots underground.

Another genus whose acquaintance it is well worth our while to cultivate is the Columbine—Aquilegia. Various fine forms of the delicate and graceful long spurred Aquilegia canadensis are spread all over the West; scarlet and yellow inside, and often so bright, rich and glowing that I thought I saw a Tiger Lily flowering in the distance, until I got close to it, and found it to be one of these. The Aquilegia flavescens (yellowish tinged with scarlet) is not so good, but the gem of them all is Aquilegia cœrulea. This has now been introduced for some time, but the plants in Utah seem a distinct variety. Their colour is not blue or blue and white, but pure white or yellowish white. It flowered in great quantity 10,000 feet above the sea, wherever any tiny stream trickled down the mountain slopes, and the flowers at a little distance reminded me more of those of Eucharis amazonica than anything else. The plant grows in handsome bunches 2 or 3 feet high, the flowers large and broad, flat, and widely expanded, and the spurs excessively long (2 inches at least), with a rounded knob at the top. I see that Messrs. Backhouse, of York, mention a species in their catalogue under the name of Aquilegia leptoceras lutea, which reads very like the variety of A. cœrulea of which I speak, with the exception that theirs is described as golden-yellow instead of white or yellowish cream colour. I learned, too, on my way back that Mr. Hoopes, author of the excellent little work on Conifers, entiled *Hoopes on Evergreens*, had raised 1000 plants of this species from seed at his nurseries at West Chester, in Pennsylvania, but my arrangements did not allow of my visiting them and procuring a few.

Space will not permit me to go over all the beautiful plants (novelties to me) that crowd upon my memory. Lovely little Asters no bigger than a Daisy, with a yellow heart, and the sweetest and most delicate fringe of lavender eyelashes around it. And here a memorandum for the ladies: I believe that they do not usually consider that lavender and yellow combine well together, but this little plant and various similarly coloured Erigerons (rather larger) show that they go together admirably. Bright and showy Gilias, glowing Larkspurs, sweet little Androsaces, showy Pentstemons, sheets of pretty Phloxes, and a great many minute flowers which require microscopic examination to discern their beauties arrest the attention of the lover of plants even in the most barren spots—in fact, the number of insignificant looking minute flowers is a peculiarity very characteristic of these western regions.

Before concluding, I must not omit to notice a plant whose beauty lies in another direction, viz., variegated foliage. It is Euphorbia albo-marginata, which has its floral leaves broadly marked with a

pure white stripe, the white predominating. I am sure it must find favour with all admirers of variegated plants—the more so that the white is no sickly yellow, but a white so decided that when it first caught my eye I thought it was a white flower. The stem is about a foot high, and at its top there is a cluster of white and green leaves and bracts which give the effect that I speak of. It must be perfectly hardy. It grows in Colorada, and I also found it at Omaha on the Missouri.

Erratum.—In wood-cut of Erythronium at p. 831 (vol. i., 1874) the rootlets should proceed from the body of the bulb, about a third from the bottom, instead of at the bottom, as figured.

COMBINED HEATING AND FIRE EXTINGUISHING APPARATUS.

THE plan which we give at fig. 2 illustrates a method of supplying both hot and cold water to every floor of a house, museum, picture gallery, &c., which commends itself, not only for its general utility, but for its special value in case of fire. In the words of the patentees, Messrs. J. G. Smeaton & Co., Harwood Road, Fulham, S.W., we may add that—

"The apparatus consists of a hot-water heating apparus and cold-water service apparatus, so connected by an ingenious system of self-acting double-action valves, that the heating apparatus acts at all times independently of the cold-water apparatus, and the latter independently of the former; while, at the same time, should a fire arise, and the hydrants be opened at any one or more points, the valves come into instant action, and render available the whole of the water in both apparatus, as also that which may be received from any external force from street mains or other supply; and, further, should such force be greater than that obtained from the pressure exerted by the columns of water, the valves adjust themselves, and render the full amount of such extra pressure available. By this arrangement it will be observed that the greatest facility is afforded for fire-hydrants being fixed in every part of a building and in any position. The self-acting double-action valves are of simple construction, so fitted that they cannot set fast or get out of order, being entirely self-acting and adjusting themselves to the slightest variation of pressure."

The most prominent features claimed for the patent combined apparatus may be briefly described as follows:—The certainty of having a large supply of water at command at any moment it may be required, irrespective of turncocks, fire-engines, &c., as a hot-water apparatus must be always in working order. In the winter the ordinary fire-cocks, hydrants, pipes, &c., are frequently found to be in a useless condition owing to frost; but with the patent combined apparatus this is impossible, as the hot water is then in circulation. The opportunity is afforded for fixing fire hydrants in every room, passage, or hall, so that any one discovering a fire can, within a minute or two, have one or more jets of water playing on it.

It should also be here observed that hot water offers greater advantages as a means of extinguishing fire than cold water, as it vaporizes quicker, and vapour having a great capacity for heat, and being much more elastic and penetrating than cold water, will the more rapidly absorb and consume the flame; so that should a fire occur when the heating apparatus is in action, it would be more rapidly extinguished with the hot water; and also in the event of a fire happening when the apparatus is at rest, it might immediately be set in action and hot water be circulating in the pipes in less than half an hour.

A, Hot-water cistern to act for service and expansion.
B, Cold-water cistern—one or more may be used.
C, Ball-cock and loop service to cold-water cistern.
D, Safety expansion and circulating box in connection with hot-water cistern.
E, Self-acting double-action valve, stopping the communicating of hot water to cold-water cistern, and opening to admit supply to heating apparatus.
F, Cold water services for general household or other purposes.
G, Self-acting double-action valve to regulate supply and exhaust of cold-water cistern, by which the whole weight of water in the cisterns is available for the hydrants should the pressure be off from the main, while it prevents overflow if the pressure is on.
H, Fire hydrants, of any number and in any position.
J, Boiler of hot-water apparatus.
K, Self-acting double-action valve, preventing the cold water passing into the heating apparatus, whilst allowing the water in heating apparatus to pass to cold-water apparatus, and so become available for hydrants on same.
L, Self-acting double-action valve, retaining the whole of the water in the cisterns and pipes in case of the mains being emptied, or the pressure reduced below that exerted by the head of water in cisterns.
M, Cold-water service from street mains or other supply.
N, Vertical service column to cisterns.
O, Hot-water pipes, which may be fixed above or under floors, and so arranged that they may be heated in sections or all together as may be required.
P, Vertical hot-water mains from boiler to safety expansion circulating box in connection with hot-water cistern.

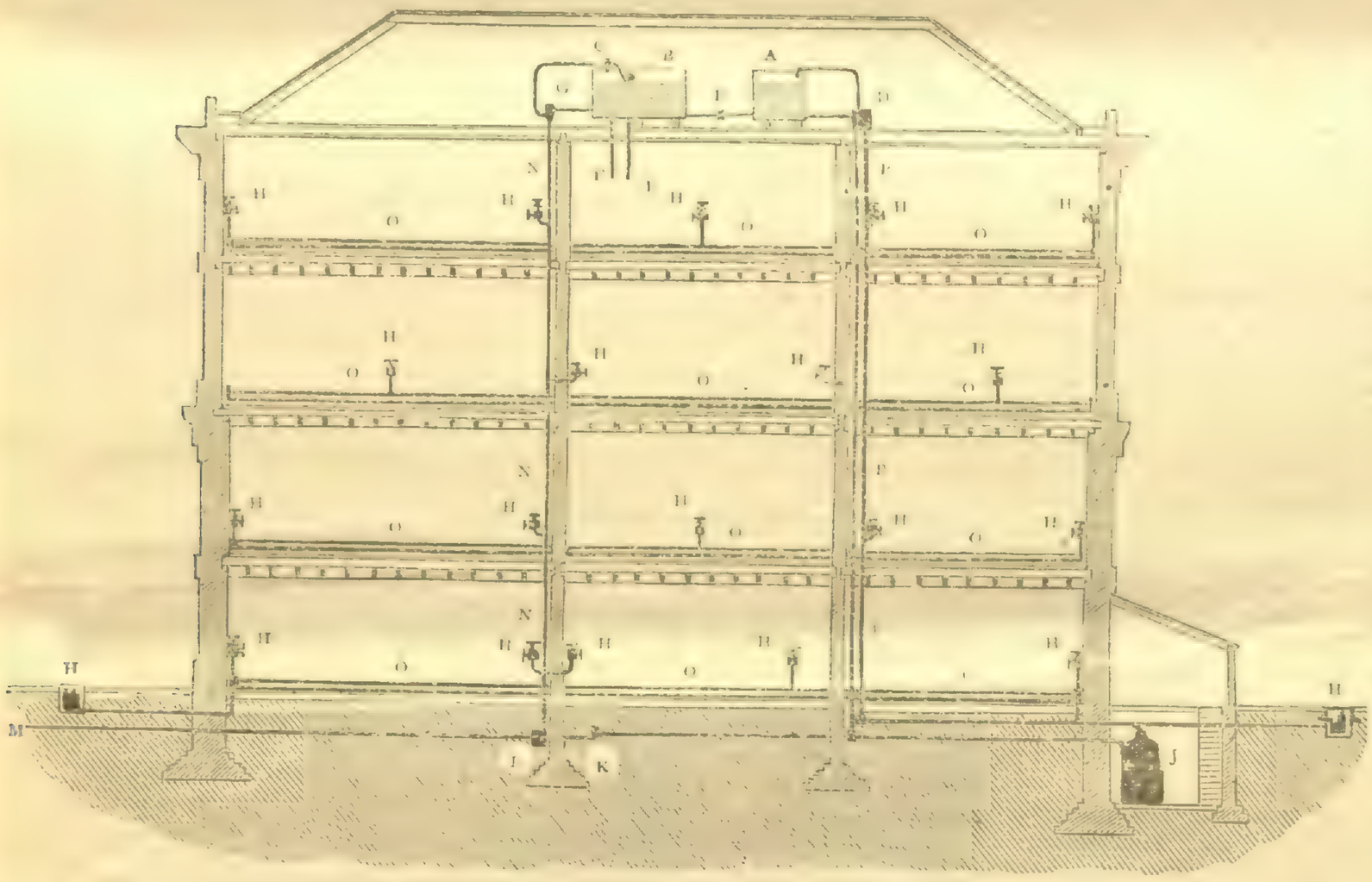


FIG. 2.—SMEATON AND CO.'S COMBINED HEATING AND FIRE-EXTINGUISHING APPARATUS.

THE TOURIST'S FLORAL GUIDE.

LLANDUDNO.—I have now for several years, when away from home visiting any part of the British islands either on business or pleasure, made it a practice to carry with me a note-book, in which I record all the interesting or rare species of indigenous plants I meet with, which are local in their distribution. I thus have always in my possession a permanent record which is doubly valuable if I make a second visit to the same neighbourhood; this plan I would strongly recommend every botanist to adopt.

Llandudno thirty years ago, when consisting of a few fishermen's huts or cottages, possessed a far richer flora than it does at the present time; not that I am aware, after reference to papers in the new and old series of the *Phytologist*, that many of the rarer species are lost to the flora, but they have become much more scarce, and do not occur in the same profusion as formerly. This can be easily accounted for, from the fact of so many visitors going there for the purpose of sea-bathing in the autumnal months. Most visitors like to carry away with them some little memento of the visit: this is either a Fern or pretty flowering plant. Especially is this the case if shells and sea-weeds are not plentiful: this will account in great measure for the scarcity of many of the species on the Ormes Heads.

Llandudno is now easily accessible by rail: a branch railway has within the past few years been opened from the main line at Conway. The tourist on his way may spend a few hours very profitably at Conway. About the fine and extensive ruins of the old castle several good phanerogamous plants occur, notably the Orobanche Hederæ, which flourishes in abundance on the roots of the Ivy that clothes the old weather-beaten and time-worn walls, and hangs in magnificent festoons from the broken turrets. The Sclerochloa rigida, Smyrnium Olusatrum, Sedum dasyphyllum, and Valeriana rubra, are also tolerably plentiful, whilst the usual accompaniment of such places—the well known Wallflower—is here peeping from beneath almost every jutting stone, and adds a beauty peculiarly its own to the ruinous heap. This plant, Cheiranthus Cheiri, is worthy of notice. I have always regarded it on Conway Castle walls as truly indigenous, even before I knew much about the nativity of British plants. It is a plant that would not be regarded as either beautiful or valuable in the eyes of a florist; it has a robust habit, with small yellow petals and glaucous foliage—the latter, besides possessing the whitish appearance, have the margins slightly recurved. It apparently never exceeds 12 inches in height, and is quite different from the cultivated plant.

Limestone soils are proverbially rich in a botanical point of view, and both the Little and Great Ormes Heads contain many rare species; in fact, North Wales has been noted for furnishing the herbaria of British botanists for many generations with rare plants. Some of the earliest recorded botanical tours—as, for example, Ray, &c.—were to the mountainous parts of Wales; but no single place is perhaps so noted as the neighbourhood of Llandudno. Let us hope it will long continue so. The flora is divided into two distinct parts, if I may be allowed to speak of it as the spring and autumn flora. To observe all the species, or to inspect the flora thoroughly, it must be visited in May and again in August, but the most gay and handsome species bloom early. Primroses and Cowslips abound on the slopes and pastures in the wildest profusion, and May or the early part of June is the time to see the really gorgeous spring Squill (Scilla verna). Some of the fields near the sea, and the grassy places on both the Heads, as well as Gloddaeth Woods, are blue with its flowers. To describe this plant as it occurs at Llandudno is beyond my power. In no part of England, so far as I am aware, does it occur so abundantly, so much so as actually to tire the eyes when gazing for some time upon its brilliant sky-blue petals. A kind of hybrid Cowslip, very much resembling the Bardfield Oxlip, is found at Gloddaeth, but traces of both the Primrose and Cowslip can be detected in its formation; if found growing alone, it might be mistaken for the true Oxlip. I have received a similar plant from the North of England; however, no one can be mistaken if they carefully studied the true Oxlip (P. elatior, Jacq.) from Bardfield. Another hybrid may occasionally be found at Llandudno, partaking more of the character of the Primrose.

I will first give a list of plants found in early summer, then close my paper with the autumnal plants. Another rare species, Scrophularia vernalis, is found in a lane at Gloddaeth: on one side of the lane it is plentiful for perhaps an hundred yards. In our works on British botany it is generally regarded as a suspicious, or rather doubtful, native; any one privileged to see it in this locality, where it must have been growing for a long time, would find his scruples about its nativity almost vanish, but some botanical lookers-out would say—How is it that it is confined to a solitary village lane? It is not so; it has evidently spread to many places in the neighbourhood, but is not so abundant as in the lane above mentioned. The yellowish flowers and grass-green foliage make a favourable contrast with the other vegetation growing about, and are so peculiar that it cannot be confounded with any other species of Scrophularia.

Before leaving Gloddaeth, upon glancing around, we observe Dianthus deltoides, D. Caryophyllus, and Asplenium Adiantum nigrum, growing—the two first named (which are introduced, I think) pretty plentifully in an old wall; the latter, however, is only found with fronds not more than an average of 2 inches in length. I have seen fine, luxuriant specimens from Llandudno many years since; it was then abundant, now it is scarce, and very seldom found. Formerly, as before stated, they were specimens worth collecting; now they can scarcely be seen. Is not this owing to the rapacity of wandering Fern collectors? I do not blame visitors.

Several other plants may be met with at or near Gloddaeth, such as Viola hirta, Asperula odorata, Lamium Galeobdolon, Ornithopus perpusillus, with several of the early Orchids, including Listera ovata. In some marsh-like ditches I have observed the handsome Water Violet throwing up its pretty spikes of flowers very freely to gladden the May landscape. It cannot be said to resemble a Violet, except, perhaps, that the petals are tinged with Violet colour. We

have also found at Gloddaeth the fine and certainly distinct Cardamine amara, Ophioglossum vulgatum, Valeriana dioica, Sanguisorba officinalis, Ranunculus auricomus, R. circinatus, R. Lenormandi, Viola odorata, V. Reichenbachiana, Narcissus Pseudo-Narcissus, and Sclerochloa loliacea. The Narcissus is doubtfully wild.

The Great Ormes Head has the principal attraction, and although the ardent botanist, if he is to be successful, has to brave many a keen, biting wind, yet it deters very few from walking about these exposed sea cliffs. Here almost the first plant to greet the invalid in early summer is the Viola hirta. How eagerly it is gathered by many persons, thinking, perhaps, for a moment, it is the old favourite sweet Violet. Brassica oleracea, which has flourished on and about the Head for very many years, is still to be met with; the genuine plant is but seldom found in herbaria, perhaps on account of its being very difficult, from its succulent nature, to preserve. Another conspicuous plant is sure to be noticed in May—the Malcomia maritima, on the exposed, almost bare, rocks; it is a dwarf variety, never exceeding, I think, 3 inches in height. At Conway Bay, where it is again found, it attains the usual size. A friend refuses to recognise it as indigenous in this locality, but believes it to have been originally introduced; it has every appearance of nativity, but this is not always a reliable guide. If one species is more conspicuous than another it is the Helianthemum vulgare. Two varieties of this plant occur, sometimes intermingled. One has large flowers, and is very showy; this, I suspect, is the "grandiflora" of English botany; the other has small flowers. The one most frequent in North Wales is grandiflorum. On the Ormes Heads it does not flower the first of the genus. H. canum is first in flower, and reigns without a rival the first two weeks in May; afterwards it gives place to H. vulgare.

Another plant, Hippocrepis comosa, adds a charm to the aspect of the Head in May. It seems to have found a congenial habitat on these bare rocks, where it forms large tufts; in some parts, where it is precipitous, they hang over in graceful wreaths. No botanist visits Llandudno without securing a few sprigs of the rare Cotoneaster vulgaris—this its only habitat in the British Islands. I think it was first discovered by the late W. Wilson, the eminent bryologist, about forty years ago. We have no need to fear its extinction, from the simple fact that it grows in several inaccessible places. In some of our floras it is stated to flower in July. This is incorrect: it is found in perfection in June. The Ferns, from their diminutive size, add nothing to the aspect of the early flora; only two species are now found—Asplenium marinum and, very rarely, A. Trichomanes. Ceterach officinarum, formerly collected at Llandudno, is now extinct. I must not omit to mention Silene nutans, a rare species, though tolerably abundant in this neighbourhood. This does not make nearly so conspicuous a feature in the landscape as its near ally, S. maritima, does on the cliffs at Douglas, Isle of Man. The latter is seen in immense masses, and when covered thickly over with flowers it looks very pretty.

The autumnal flora is widely different in many respects to the vernal flora. The prevailing colour of the flowers is yellow. Of course plants bearing white, pink and blue flowers are to be met with, but not in sufficient quantity to tint or colour the landscape. In July and August the town is crowded with visitors. These fail to see the aspect of the vernal flora, and seeing only the autumn flowers the eye becomes wearied by the sameness which is presented day by day. Amongst the latter, however, there are many rare species, and if the visitor is botanically inclined he may carry away a rich harvest.

On the sandy beach betwixt the Ormes Heads is seen one of the Poppy family, a very showy plant, both when flowering and in fruit; the Glaucium luteum, called by children Goat's-horn, probably from the slightly curved but remarkably long seed-pods. I have seen the pods on the beach, where the soil and air seemed to suit it, a foot or more in length. Associated with this species is the common prickly Echium vulgare. At this season it is late to pick the Phleum arenarium, although it may be detected in a dried and shrivelled state. Two other plants are found on the waste land—Verbena officinalis and Hyoscyamus niger; the latter is not wild, in fact I have never seen it except on refuse heaps and at the outskirts of villages. I recollect seeing it in abundance on the roadside in the Gudbransdal Valley, Norway, in company with another stranger, Echium violaceum. Artemisia Absinthium is abundant about Llandudno, and Potentilla verna appears to luxuriate on the sunny slopes of the Great Ormes Head. On the shelving rocks is discovered a very rare Composite plant, Chrysocoma Linosyris, and in the chink close by some few plants of Asplenium marinum, fortunately out of reach of the rapacious collector. It is not, I think, commonly seen in limestone, nor is the Botrychium Lunaria; this Fern, however, does not grow directly on the limestone, but in the rich soil covering the rocks. Scrambling about the rocks we continually come across Eryngium maritimum quite at home. The Little Ormes Head contains many interesting species, such as Serratula tinctoria, Helminthia echoides, Hypochæris maculata, and the wild Chicory (Chicorium Intybus), whilst the lower parts washed with the spray of the waves is purple with the Sea Pink (Armeria maritima). Near the beach a form of Statice binervosa occurs. Another form of this species is found near Conway, possibly a distinct variety. Botanists of the present day do not agree about this plant. Some of our leading botanists make several species where Bentham can only detect one. The late Mr. Joseph Woods could not state distinctly whether the Llandudno plant was Statice Dodartii, or S. occidentalis; it, however, agrees well with the description of S. binervosa. Going again over the rocks, we shall perceive the showy Geranium sanguineum about the Furze bushes, which are principally made up of Ilex Gallii, Planch.; the pretty Antennaria dioica occurs sparingly, together with the fine Astragalus glycyphyllus. There are but few leguminous plants, but what few there are found are mostly rare; such as Trifolium suffocatum is worth looking for. I could not find this on my last visit; a few years since it covered a small ledge to the exclusion of everything except Sclerochloa loliacea.

In glancing over the flora of Llandudno one or two peculiarities are noticed, as, for instance, the Scilla verna; this without doubt is a western species. Its distribution in Britain is remarkable. It occurs quite as abundantly at Holyhead, and then after extending its range a little beyond Llandudno, it ceases to be found elsewhere on this coast. It is one of the freaks of Nature which it is difficult to explain. Mr. Watson, in the *Cybele*, thus speaks of it:—"Its distribution is somewhat peculiar in reference to our geographical types, clearly coming nearest to the Atlantic, but, unlike most of the species of that type, having a western and northern more than a southern tendency." The Cotoneaster vulgaris is confined to the Ormes Head; how it first found a home in this bleak spot—whether it migrated from some distant Continental locality, or was left there by birds, or by some of the many strange means which modern thought has given to the world—I think it would puzzle the brains of a philosopher to decide, and even then it would be simple conjecture. The fact cannot be disputed—it is there, and with every appearance of being truly wild; and from aught we know to the contrary, it probably flourished on the same cliffs long before Julius Cæsar landed his warlike hordes on British shores, and perhaps attracted the attention of some of our skin-clad forefathers long before Cæsar was known or thought of.

The sandhills furnish some good plants, chief amongst which are Rosa spinosissima, Honckneya peploides, Eryngium maritimum, Cynoglossum officinale, and Sagina nodosum. The Erodium maritimum occurs but sparsely, not nearly so plentiful as on the Manx coast. In many points the species inhabiting the Ormes Heads resemble those found on Humphrey Head, *i.e.*, many plants are common to both, whilst they are counted rare in other localities. Several Hieracia occur on these rocks. From the difficulty of correctly ascertaining the species in the present state of this genus, I have not attempted to name them; they will, doubtless, repay the labour of other botanists who may visit this rich locality.

The following list will give a good idea of the more common plants of Llandudno, and the adjoining neighbourhood (those marked ! are doubtfully wild):—Anemone nemorosa, Coronopus Ruellii, Lepidium campestre, L. Smithii, Cochlearia anglica, Armoracia rusticana ! Cardamine pratensis, C. sylvatica, Barbarea præcox, Viola Riviniana, Polygala oxyptera, P. depressa, Lychnis diurna, L. Githago, Arenaria trinervis, Stellaria (several species), Oxalis Acetosella, Geranium pusillum, Anthyllis vulneraria, Lotus corniculata, L. major, Trifolium fragiferum, Vicia angustifolia, Orobus tuberosus, Potentilla anserina, Alchemilla vulgaris, Rubus corylifolius, R. hystrix, R. fruticosus, Rosa tomentosa, Saxifraga trydactylites, Bunium flexuosum, Galium cruciatum, Veronica montana, Ajuga reptans, Lamium album, Plantago Coronopus, P. maritima, Arum maculatum, Luzula sylvatica, L. pilosa, L. multiflora, Carex præcox, C. glauca, Melica uniflora, Briza media, Polystichum angulare, Lastrea Oreopteris, Blechnum boreale, Scolopendrium vulgare, Equisetum sylvaticum.

The two Heads, if they are to be thoroughly explored, will occupy from two to three days; each day will yield some novelty not perceived before. Besides their botanical interest, the Great Ormes Head affords some fine bold rock scenery, whilst the views over the mountainous district at the rear are highly beautiful and varied. The tourist may vary his walks at Gloddaeth, Conway, Penmaenmauwr, and many other places in the vicinity, which can now be reached without loss of time, either by coach or rail. Thus his time will be most agreeably taken up, not only collecting rare plants, but visiting some of the grandest scenery of which North Wales can justly boast. *James F. Robinson.*

THE PLUM HARVEST AT BOSNA SERAI.

To compensate for the general insufficiency and poverty of most of the crops that were gathered last autumn, Mr. Holmes, the British Consul, states that the yield of Plums has been unusually good, and he gives for the first time some particulars respecting this article of commerce, which may be considered the most valuable in the Turkish province of Bosna Serai.

The principal district which furnishes the fruit is the whole of the Possavina, in the north of Bosnia, comprising the parishes of Zvornik, Bielina, Beska, Kalé, Gratchamitza, Dervent, Gradishka, Maglai, Jebtche, Senitza, and as far as Travnik. The best quality and the largest quantity, however, comes from Beska, Kalé, Bielina, and Zvornik. A good crop furnishes about 300,000 kintals (15,000 tons) for exportation. The production of the past year has, however, been so abundant that it is calculated the quantity available for that purpose will reach the amount of 400,000 kintals (20,000 tons). The sales are managed by Beska brokers, chiefly Mussulmans, who make large profits. These brokers receive in the spring very large advances from the houses at Pesth and Trieste without giving any security but their own honesty, which is universally trusted, and has never been known to fail. The carriage of this merchandise, when the rivers are high, is by the Save to Sissek for Trieste, and by the Save and Danube for Pesth; when the Save is low, by land to Trieste, and overland to Voukovar, and thence by the Danube for Pesth. All the Prunes from Shamatz are carried across the Save to Rajevoselo, on the Austrian bank, by Turkish boats, where they are packed in barrels, and shipped to their destination. About three quarters of the whole produce of Bosnia is exported from Beska, which is a very flourishing and daily increasing town on the Save. The rest is sent through Shamatz, Brood, and Gradiska, also stations on the same river.

The best Plums are produced on the sides of the low valleys, descending into the great plain of the Possavina. Little or no attention is paid to the cultivation of the trees, and the fruit is rudely gathered, no care being taken to prevent breaking the branches. The produce of the orchards is shared between the landlord and the tenant, the latter receiving one-third, a revenue of 10 per cent. being paid to the Government by both. Austria, Croatia, and Servia produce enormous quantities of Plums from apparently the same kind of trees, and similar in appearance to those produced in Bosnia, but the quality of the Bosnian Plums is vastly superior, and if mixed with Servian or Croatian Plums the fraud cannot be concealed, as they then soon ferment. The Servian Plum, however, makes a better spirit, called "Sligovitz." The Bosnais also seem to have a monopoly in the art of drying the Plums, which they do in rude ovens, and numbers of the peasants are annually hired to go into Austria and Servia to dry the Plums produced there.

THE OUVIRANDRA AT HOME.

It was on July 30, 1862, that I first became acquainted with the lovely Lattice-leaf plant growing wild in its native haunts. I had previously seen fine specimens in the botanical gardens at Pamplemousses in Mauritius, where they flourished under the fostering care of Mr. Duncan, the then superintendent of that well-managed establishment. It was on a Wednesday, as I well remember, on looking back at my diary, and the ninth day of our journey from Tamatave up towards the capital. Sunday we had spent at Andevorante, our last station on the coast, and after traversing the River Tharoku with our numerous escort in a fleet of pirogues on Monday, had landed at Maronby, famous for its Coffee plantations, and pushed on to Manamboninahitra, which is chiefly connected in my mind with the annoyance caused by the rats running over me at night, as my hammock lashings gave way, and I slept on the floor of a Rice magazine, which had been hurriedly vacated and emptied for our accommodation.

Hitherto our travelling had been easy along the sea sand where the tide permitted, and through the park-like country on the margin of the coast where the sea was high; but we had become accustomed to the somewhat monotonous coast scenery, and were glad to turn our steps inland. About here the soil is alluvial, and quantities of Rice are cultivated with success. We passed copses of Vangueria, and near the villages plenty of Heliconia, whose pink offshoots near the root are eaten by the Malagassy; these vegetable-loving natives also prepare a species of sago from the bulb of a kind of Lotus (Nymphæa), which bears a blue flower. Leaving the lowland Rice districts at Manamboninahitra, we commenced ascending and descending stiffish clay banks. There is no regular road, everybody taking a separate narrow track, so that numberless paths like sheep-walks are

formed. Hills beyond hills extend for miles, of no great height; they are mostly mammilated, and covered with thousands of cattle grazing. The tops of these hills are bare, and the valleys and nullahs between them filled with Musæ, the Rofia Palm (Sagus Ruffia), and the famous Ravenala (Urania speciosa), or Travellers' Tree, which luxuriates in the rich soil.

This day, Tuesday the 29th, we arrived at Ranomafana, a village about 1500 feet above the sea level, and renowned for its hot springs in the bed of the river. We counted at least five hot jets in the shallow stream, which here is glittering with particles of mica. The Bishop took off his gaiters and stockings and waded in, whilst I and Dr. Meller stripped and enjoyed a warm bath, taking care not to be scalded by the boiling jets. Meller secured a sample of the hot water, which has a faint smell and a slight alkaline reaction and insipid taste, and speedily blackened a bright piece of silver. We halted at a village called Ambatoharanana. The following day, Wednesday 30th, our route lay through a country more wooded, and Lichens; one Lichen especially, a Rocella fuciformis, hangs from the larger trees in great abundance. It was in one of these charming glades that I made the accompanying sketch of the characteristic scenery (fig. 3) in which the Urania forms a prominent feature in the scene. Here, too, we found various fresh-water shells, such as Melania, Pizena spinosa, and Ampullaria adusta. In the shady and moist recesses were lovely variegated-leaved plants, a bright pink-marked Coleus, and a Sonerila with silvery markings, &c. A long-spiked Calanthe was also plentiful. *S. P. Oliver, Captain, 22d Brigade, R.A.*

FIG. 3.—THE OUVIRANDRA GROWING IN ONE OF THE TRIBUTARY STREAMS OF THE FARIMBONGY.

The crests of the hills were clothed with a dense Composite bush with orange flowers, and Arbutus. Here and there stood out solitary boulders of sandstone, dark and grim from exposure amongst the coarse tufts of grass, and an Apocyneous herb avoided by the cattle. We crossed and recrossed delightfully clear streams, tributaries of the river Farimbongy. Tree Ferns were now conspicuous; Arums lined the banks, covered with the most prolific vegetation, and in the marshy places grew a white blossomed Crinum with a delicious perfume, called by the natives Kingass. Here, in the pools and less rapid portion of the stream, I first saw the Ouvirandra fenestralis, its lattice leaves waving like long dark green streamers below the surface, and its pink blossoms (showing it to be of the variety Bernieriana) floating on the surface at the extremity of the long stalks. This lace-leaf plant or water-yam, which Sir W. J. Hooker designated "the most curious of Nature's vegetable productions," was first figured by Du Petit Thouars; and was introduced into England by the late Rev. W. Ellis, the well-known missionary, whose acquaintance I had made in Mauritius, and who I subsequently met up at the capital. The timber trees which overhung the stream were covered with Orchids, Ferns, Mosses,

THE FARM.

WEATHER PROSPECTS.—It would be impossible adequately to express the perfect satisfaction with which the fine rains of the past week have been received.

Only a few days since the fields wore a burnt-up aspect, the fallows were uncropped, the meadows had no green, but were just so many enclosures of brown bents, while the corn presented a most uneven aspect—here scarcely a foot high, there in flower, with patches looking the sickly hue of unhealthy ripeness. Now, thanks to a bountiful Providence, all is changed, the meadows already look green, roots are up in line, and the corn wears a much more healthy aspect, so that though the prices for store stock are considerably lower than they were before the drought commenced, yet the farmer may calmly yet hopefully survey his present work, and predicate his future prospects.

Everywhere the drill is the dominant implement at work, and as in many districts the Swede has, if at all, only just been sown, it is a matter for grave consideration whether it will not be too late for this crop. That Swedes will be less next winter than usual is obvious, and as these roots contain more and better feeding qualities than the common Turnips, or, as the farmer terms it, are "more proofy," it must have a great influence upon the kind and quantity of stock that can be wintered. Now it is true that Swedes sown so late as the end of June will not be likely to attain to a full size or a large crop, it is still worth while to risk a few, and to make up with common Turnips or Rape. Some of these, as the Tankard Swede Turnip, the Greystone, and the Queen, are highly reputed for keeping qualities, and it will therefore, be well to ascertain in each district the roots that have been hitherto found best adapted for late sowing, and to procure seed accordingly.

As regards Swedes we take it that at this time of the year they might be sown in closer rows than usual, and when the time for thinning arrives it will, we think, be scarcely worth while to regulate a crop which we look upon as scarcely being able to produce half the amount of those of better seasons, with the same care as though a large crop was expected. The same with Turnips, if they should be too late they will scarcely pay for the utter regularity of crops in which the best results can be obtained when the season has been propitious; hence, then, we take it that it will be a good time to try the various inventions for bunching roots, as, if ever they are to be useful, it will be now, when root setting-out and harvest threaten to come pretty much at the same time.

Another seasonal consideration will be the paucity of the hay crop, this will render it important to take care as regards straw. If this should be bright and the corn can be got together in good order, it will be found to be highly valuable in the next winter, but we must make up our minds for its being less in bulk than usual, and besides barley straw will not be improved this year by the presence of Clover, for as a rule much of the "seeds" in Barley has utterly failed, and therefore the prospect of a short crop of seeds next year should impel us to take all the care we can of the short hay crop of the present season.

Indeed, the due and proper use of straw is a very important question, and one to which we hope to recur hereafter. At present it is only needful to say that many grave questions are involved in that of the

use and abuse of straw, and the fact that already the dairy farmer is seeking to make arrangements with the arable farmer for straw keep for the forthcoming winter.

Corn prospects look better since the rain, but we predicate that in no crop will the yield be a good average one. Wheat ears are small and narrow-chested, that is, its locustæ will be of two grains instead of three, which would be medium full, or five, which would be a grand yield, thus: narrow, oo; ordinary, ooo; very full, ooooo. Some of the early and thin sown Wheats, where everything has given way to the best cultivation of this cereal, will be represented by the latter, which even this year we should expect to find at Major Hallett's; but oo will be the most usual this year in all the ordinary Wheat fields.

Barley is patchy and uneven—as usual, the earlier sown the best; much of the later will be short in straw and corn, and poor in quality.

Oats do not promise a large yield, and pulse will do little more than return its seed.

Hence, then, it is important for the farmer to cast about and see what can be done to arrest the evils of what has been an untoward season. Nature is doing much, but our climate is fickle, and therefore it is wise by a little forethought to be ready for eventualities.

The Starling as a Farm Labourer.—In the very dry weather of the present June, with the prevailing easterly winds, we were not surprised to find that the upper buds of our entire Pea crop were completely covered with the Green Dolphin, or Pea plant louse (Aphis Pisi). Now, as on our first survey we saw the starlings very busy in the crop, we determined not to have them disturbed, and when we next went through the crop, in two or three days afterwards, we put up such a flight of starlings as darkened the atmosphere. We saw that they had trodden the crop down considerably, but, while no Pea pod was injured, the aphis was lessened, and in a week from the first looking at this blight its whole mass—and it was a mass of filth, indeed—was removed. The perfection of the work was marvellous, and it was entirely due to the "gang labour" of the starling. It should be noticed that these observations were made before the rain came, and again, that the starlings have vastly increased since the systems of gun licensing and bird protection have been in vogue.

Apiary.

The Folk-lore of Bees.—This subject is far from being exhausted by the interesting paper which appeared in the *Gardeners' Chronicle* for June 20, and it seems worth while to supplement it by a few additional details, which I find entered from various sources in my "folk-lore" note-book. It seems to me that "J. F. R." is a little too severe upon superstitions, which, although "foolish and ridiculous" from a strictly common-sense point of view, are at any rate harmless in themselves, and which doubtless have their bearing, even if we do not at present see how, upon the former history of the ethnology and mythology of Great Britain. However, my object is rather to add fresh matter than to criticise, so I will not dwell further upon this point.

A mediæval tradition regarding bees may worthily occupy a foremost rank in our list, as it is still current in Cornwall, and has been elegantly versified by the Rev. R. S. Hawker, vicar of Morwenstow. This tells us how a woman, finding that her bees did not thrive, obtained a consecrated Host and placed it amongst them, having been told that by this means they would be rendered more fruitful; and so it proved. The bees thrived apace, and when the woman in due course went to take the honey, she found in the hive "a chapel built by the bees, with an altar in it, the walls adorned by marvellous skill of architecture, with windows conveniently set in their places; also a door, and a steeple with bells. And the Host being laid upon the altar, the bees, making a sweet noyse, flew round about it." This legend, in various forms, and with different details, appears to have been very popular, and is found in various religious works as late as the seventeenth century.

The notion that bees will not thrive if purchased is prevalent not only in many English counties, but also in France, and I notice that the French bee superstitions generally correspond very closely with those of England. A hive of bees may, however, be exchanged for another object; just as in Cornwall they are transferred from one owner to another with the tacit understanding that a bushel of corn, or in other places a small pig (which is a fair equivalent) is to be given in return. Both French and English bees are so possessed with the spirit of honesty that they will not thrive if stolen; indeed, the French bees will find their way back to their lawful owner. So discriminating are they, that should they come into the possession of a person of bad reputation, they will desert their hives and seek a more worthy master.

The very general English custom of announcing a death to the bees likewise prevails in some parts of France. The announcement of death in many English villages, and even in the classic town of Oxford, is, or was, made by tapping three times on the hives with the house-key, saying at the same time, "Bees, bees, bees, your master is dead, and you must work for—" the future owner. Nor is this all; for the bees are also invited to the funeral, at least in the Sheffield district; and it is considered that they will die should this compliment be omitted. In Devonshire, too, a correspondent of *Notes and Queries* says—"I once knew an apprentice boy sent back from the funeral *cortège* by the nurse, to tell the bees of it, as it had been forgotten. They usually put some wine and honey for them before the hives on that day." Another funeral bee-custom, formerly very general in Devonshire, was that of turning round the hives belonging to the deceased at the moment when the corpse was carried out of the house. It is a sign of death, not only when bees settle on "dead wood," but also when they desert their hives, or die; and in Cumberland if they rise and do not stay during a critical illness, it is a certain indication of death.

Bees have a great aversion to quarrelling, especially between man and wife, but in some parts of France are supposed to attack those who swear, and on this account children are warned not to use "bad words" near a beehive. They also understand what is said to them, and are not slow to avenge any insults offered to them. It was a mediæval superstition that bees would not live in Ireland; and another tradition of the same period tells us that a sorcerer, if he should eat a queen bee, would be impervious to any torture which might be practised upon him.

A humble-bee in the house denotes the approaching visit of a stranger. In the East of England, if a red-tailed bee enters the house, the stranger will be a man, if a white-tailed a woman. The entrance of a humble-bee into a cottage is sometimes regarded as a sign of death. The value of a May swarm is referred to by Tusser, who says:—

> "Take heed to thy bees that are ready to swarm,
> The losse thereof now is a crown's worth of harm."

In Warwickshire the first swarm of bees is simply called a swarm; the second from the same hive is known as a cast; while the third is termed a spindle. In Hampshire it is a common saying that the bees are idle or unfortunate at their work whenever there are wars. Borlase says that "the Cornish to this day invoke the spirit Browny when their bees swarm, and think that their crying Browny, Browny, will prevent their returning into their former hive, and make them pitch and form a new colony." This use of the word "browny," may, however, be no invocation of a spirit, but simply an apostrophe addressed to the bees; just as in Buckinghamshire the death of the master of the house is announced to the hives in the words: "Little browny, little browny, your master's dead."

When bees stay about near the hive it is regarded, and rightly, as a sign of rain; this generally-diffused notion is given by Virgil in the *Georgics*; and hence there is a proverb, "A bee was never caught in a shower." When many bees enter the hive, and none leave it, it is also a sign of rain. They were formerly used in medicine, as we learn from Purchas' *Theatre of Political Flying Insects* (1657), where we are told that "bees powdered cure the wind collick. Take twelve or fourteen bees powdered in anything every morning," &c. *B. M.*

Notices of Books.

Roses and Rose Culture; *a Shilling Book on Roses*. By William Paul. Kent & Co.

The astonishing and ever increasing popularity of the Rose is evinced by the successive publication of books about Roses. They range from grave to gay, from lively to severe, in the matter of treatment, and each and all have some points of excellence to recommend them. The present work, the substance of which appeared in the *Florist and Pomologist*, may be commended, not only for its low price, but for the extent of the information given in a short space, and the thoroughly practical and admirable manner in which it is written.

The author begins his subject by treating of soils, and very properly advocates the desirability of thorough drainage, especially in heavy clay soils; but the amateur with limited means and opportunities, to whom the word drainage conveys alarm and the operation itself dismay, may be relieved by being told of a plan which, while admittedly less perfect than pipe drainage, is, nevertheless, sufficiently so to favour the production of a large crop of Rose flowers every year, not worthy to take rank on the exhibition table, but quite good enough to give a full sense of pleasure to their owner, adorn his garden, and decorate his wife's boudoir. The plan is simply to dig in amongst the clay a good proportion of small nubbles of burnt clay or ballast, such as may generally be procured in clay neighbourhoods where building is going on.

But to revert to this "shilling's-worth." After treating of soils, the author passes on to the several varieties of Roses, the mode of pruning them and propagating them, the raising of seedlings, the growing for exhibition, &c. He discourses pleasantly on old and new Roses, gives a monthly calendar of operations, and ends with selections of kinds suitable for various purposes. Throughout the reader feels that he is being instructed by one full of knowledge of his subject, and, what is equally important, one able to impart it to others.

We should question the insertion of climbing Devoniensis among the best twenty-four climbing Roses, for the reason that it is such a very shy bloomer, while Céline Forestier is too tender for general purposes, and Maréchal Niel, except under unusually propitious circumstances, can hardly perhaps be recommended in the latitude of London as a trellis or even a wall Rose. On the subject of pruning—that source of bewilderment to beginners—Mr. Paul has some excellent remarks, which we quote at length:—

"On skilful and judicious pruning hangs the ultimate aim of all our labour—an abundant crop of good flowers. To those who already understand the subject, a few simple rules may suffice; but for those who are seeking information, it would seem necessary to discuss this question in detail. To both I submit four simple rules of practice, and shall afterwards follow out the subject for the use of those who may wish for more particular information.

"1. Autumnal or perpetual-flowering Roses should be pruned more closely than the summer kinds; and the more constantly or the more abundantly a Rose flowers the closer it should be pruned.

"2. The summer-flowering kinds should be pruned strictly according to their rate of growth; the vigorous-growing Moss, Damask, Sempervirens, Hybrid China, and the like, should be pruned sparingly, or a too vigorous growth will be encouraged, which produces wood and leaves instead of flowers; the weak growers alone should be pruned closely, the moderate growers in an intermediate way.

"3. Thin out the heads of hardy Roses in November, but leave the shortening of the shoots that remain after thinning till March.

"4. Do not thin out or shorten the tender kinds (Tea-scented, &c.) till March, or the symmetry of the plants may be spoiled by the effects of the winter's frost.

"To those who can grasp the difficulties of the subject by considering the above rules I would say, 'Read no further.' But there are beginners in Rose culture, and it would be hardly honest to pass over so important an operation as pruning with so slender a guide. It is too much the fashion now-a-days to pooh-pooh everything that gives rise to careful thought or nice discrimination in practice, the results of which are constantly apparent to the close observer. In gardening, as elsewhere, everything is easy to those who know, and knowledge may often be more economically acquired at the hands of others than through our own experiments and failures. Pruning is an intricate art, the principles of which can scarcely be mastered without some little study. If there is any royal road to learning here, it has yet to be discovered. Let me, then, endeavour, as briefly as possible, to make the subject as plain and easy as I can.

"If a beginner in Rose culture were to approach an old Rose tree with the view of pruning it, he would probably be puzzled with the multiplicity of shoots branching out and crossing each other in every direction. He might even relinquish the task from the difficulty of deciding where to begin. But I would not carry him thus suddenly into the heart of the difficulty. Let him begin with young plants, possessed of few shoots, such as are purchased from the nurseries. Let him proceed step by step, and his knowledge will grow with his Rose-trees. Suppose him to be about to prune a young bush or tree—he should be possessed of a sharp knife, and have his hands incased in thorn-resisting gloves. It is autumn, and he intends thinning out only; but before he does this let him inform himself of the nature of the variety. Is it an autumnal? Are the flowers given forth few in number and far between, or are they produced abundantly and in rapid succession? Or is it a summer Rose; and, if such, of vigorous, moderate, or weakly growth? Having answered these questions, if he will turn to the rules given above, he will discover how to proceed in each case. Next, let him study the tree about to be operated on, and mark out in his mind's eye a greater or smaller number of well-placed shoots, standing at about equal distances apart, so that he may realise a well-balanced head. These are to remain as permanent shoots; all others should be cut off close to their base, and thus thinning-out is done. It should be noted here that the more vigorous the growth of the variety, the greater should be the distances between these permanent shoots, in order to leave room for the free development of the broader masses of foliage.

"On the arrival of spring (March) the shoots left after the autumn thinning should be shortened. The same questions should be proposed as before as to the nature of the variety. If it be a vigorous-growing summer kind, leave from six to eight eyes on each shoot; if moderate, three to five eyes; if weakly two or three only. As to the autumnals, the vigorous-growing Hybrid Perpetuals and Bourbons may usually have from four to six eyes left on each shoot, the moderate and weakly from two to four eyes. The Perpetual Moss, Damask Perpetual, Chinese, and Tea-scented, which are

mostly profuse and constant bloomers, can scarcely be pruned too closely—from one to three eyes on each shoot, according to the degree of vigour, will ensure an abundance of good flowers.

"While I recommend the thinning out of supernumerary shoots in autumn, and the shortening of those that are left in spring, as the safest and best practice, yet if the shortening is also done in autumn, the flowering will take place a few days earlier. The objection to autumn shortening is that the mild days often prevalent in winter induce the dormant eyes to push into growth, in which state they are liable to be more or less injured by subsequent frosts.

"Finally, pruning should be regulated not only by the habit of the variety, but also by the object in view. If show Roses or large flowers are wanted, the heads should be thinned out more freely, and the shoots shortened closer than when masses of flowers are desired."

—— M. Rothschild (Paris) has issued a small pocket volume entitled "*Les Plantes Medicinales et Usuelles de nos Champs, Jardins, Forêts, &c.*—a treatise on medicinal plants, in which the information is conveyed somewhat in the style adopted by Mr. Barlow in his instructions to Masters Sandford and Merton. Setting apart the style, the information given is abundant and good of its kind.

—— *Botanical Tables for the Use of Students*, compiled by Edward Aveling (London, Hamilton, Adams & Co.) This consists of a series of tables intended as a guide to students, and which indeed may prove useful to them, although, as similar tables are given in most modern text-books, it is difficult to see for what special purpose the present series has been constructed. The fruit of Typhaceæ is described as a "drupe," which hardly applies to Typha.

—— In *Les Roses*, by H. Jamain and E. Forney (Paris, Rothschild), we have a more ambitious book, and one more fitted for the drawing-room table. It is a large 8vo book, of 268 pages, illustrated with beautiful woodcuts, and with sixty coloured plates of select varieties, accompanied by descriptive notices. Some of the plates are very good, of others we cannot speak so highly. The work is dedicated to the Duchess of Cambridge, and has a preface from the pen of M. Naudin. The subject-matter contains sections on the history of the Rose, its different varieties, and the mode of culture and propagation applicable to each. We commend the book to the favourable notice of amateurs.

Forestry.

SUPPORT *v.* RESTRAINT, IN CONNECTION WITH STAKING TREES.—Some months ago I sent you a few remarks on "Tree Lopping" (see p. 247, vol. i., 1874), which seemed to meet with a large amount of confirmatory evidence. I now wish to draw your attention, and that of your arboricultural readers, to a very important fact in reference to the supporting of young trees of all kinds, whether it be that they consist of forest or fruit trees, or any kind of shrubs that may need such support during their earlier stages of growth, and particularly for a few years following their being transplanted after having attained to moderate size.

Both the theory and practice of tree-staking followed at the present time I take to be based upon mistaken ideas, if secondary thoughts regarding the future well-being of the trees be taken into consideration. The very process or aid is, it were quite needless to say, an artificial one only, called forth by the fact that trees artificially grown and transplanted need in consequence some slight additional support, other and beyond what Nature has provided them with.

When I say "support," I do not in anywise mean "restraint," however. And as present practisers practise a too wholesale restraint, my mind is bent upon, if possible, demolishing the practice. A tree that is supported and restrained when young ceases to rely upon its own natural resources, and is influenced by the latter to its own irremediable injury, and to this end alone do the present style and practice followed, in regard to the staking trees, lead. For invariably when trees are planted stakes are placed to them as if with the intention of entirely supporting them, and even by anticipation renewals of even larger and stronger stakes are forced upon them as they proceed to grow, with a like view. The very fact that trees do not need stake supports naturally, should prove that just such an amount of support is requisite, when they are grown in an artificial state, as will secure them against excessive wind storms, and will maintain them only from the injurious consequences of being blown down. Too strong supports neutralise and destroy the natural oscillations and the straining to the wind which seem so apparent and so requisite naturally, in order to endow them with stiff, erect, and powerful boles and branches. To restrain this is to lessen the bulk of the bole and its strength, and to increase beyond all ratio the size of the branches. The better to explain this, I give an *impromptu* pen-and-ink sketch. Fig. 4 represents a young tree that has received the aid of a pliable stake alone, during the interval since last transplanted, about four years; fig. 5 exhibits the same kind, enjoying precisely similar advantages, and an immediately contiguous site, that has been constantly supported for a like period by an out-of-proportion-sized stake, as is the universal practice of the day. The consequence is seen at a glance. The tree must still be supported for some time to come, or, if the stake be removed, receive

FIG. 4.—TREE PROPERLY STAKED.

injury from wind or rain storms, or—and it is a barbarous practice—the top must be "lightened," or, in other words, much of its head must be cut away. If any doubt these facts they have only to pay a visit to the gardens of the Royal Horticultural Society, where, opposite the entry from the Council-room, they will see an avenue of Poplars which have been so treated. Or they may perhaps turn their attention to objects nearer home, such, for example, as plants

FIG. 5.—TREE IMPROPERLY STAKED.

that may have been forced, perhaps out of character, to do the duty of creepers or wall-trained trees, &c., any or all of which will show most plainly that when a plant is so placed as not to require its whole strength of stem, it will cease to build up that stem, and rely upon the artificial kinds of support forced in its way. In placing stakes to trees, therefore, let them always be such as will admit of such a moderate amount of play to the head and bole as will conduce to the formation of the latter in its natural strength. *William Earley.*

Natural History.

HOW TO BREED COSSUS LIGNIPERDA.—Your correspondent "O.," according to a note at p. 731 (vol. i., 1874), has never been successful in breeding Cossus ligniperda. This is not at all difficult if full-grown larvæ be obtained. What "O." has probably taken for the cocoon is what I term the winter nest, in which the creature rests dormant during that season—at least, so far as my own observation goes, and I have bred several. Early in spring they come out of this nest and commence feeding. The winter nest is so exactly like the cocoon that I have often been deceived, and instead of the moth emerging it has only been the same caterpillar that met my gaze when I expected the perfect insect. The larvæ of this insect is very difficult to feed up, but it may be done by giving them a constant supply of living wood. In the neighbourhood of Reigate the trees that it most affects, so far as I have observed, are old Ash pollards, and although they generally infest the base of the trees, I have often found them attacked from 3 to 5 feet from the ground. The cocoon is generally formed close to some external portion of the tree, the inside being preferred if the tree is hollow. The larva eats its way to the surface—leaving only a very thin shell of wood between itself and the atmosphere—and here forms the cocoon, and changes to a chrysalis, which on the hinder edge of the abdominal segments is armed with short stout spines, by means of which, when it is time for the moth to emerge, it pushes through the cocoon and the thin shell of wood that separates it from freedom, until about half of the chrysalis is exposed to the air, and then the moth emerges, and, if the tree be visited in early morning, it may often be found at rest near to the chrysalis. I have seen as many as thirty empty chrysalis cases sticking out from the inside of an old hollow Ash tree. *N. B.*

IVY COCCUS.—The Coccus of the Ivy is at present very noticeable in such regions as it frequents, from the large white flocculent cocoon sometimes nearly a quarter of an inch in length, in which the female and her eggs are wrapped, and which attracts attention by its bright contrast to the Ivy leaves on which it is placed.

In the course of the latter part of the winter the scale was observable in large quantities on the under side of the Ivy leaves in Torquay, where the sprays overhung stone, naturally or artificially placed, and was also to be found elsewhere similarly situated, but after careful search I have never been able to find the Coccus on Ivy growing in hedges, or in any locality save such as a position amongst natural rock, or some arrangement of wall or heaped stones.

About March 14 the cocci were to be seen in great numbers on the Ivy as rather flat oblong scales, about the eighth of an inch in length, varying in colour from white to yellowish, and some of them with the contained insect so far developed as to be separable from the guarding pellicle, though not yet fully formed.

From various circumstances I did not make further observations as to the progress of development till June 3, when the large white cocoons resembling oval or pyriform masses of cotton wool attracted attention.

In their early stages these cocoons simply appear as white cottony masses; further on, the head extremity of the coccus makes its way through the smaller end of the cocoon, the body gradually pressing forwards to make room for the increasing mass of hundreds of pale oblong greenish yellow eggs, till, her task completed, the mother coccus usually shrivels into a hard mass fixed in the opening of the cocoon, which her pressure has made; but occasionally the dead scale falling away leaves the white cottony flocculent mass, with its large orifice, standing on the leaf like a miniature white short sock from which the foot has been removed. The female coccus is somewhat under the eighth of an inch in length, soft and fleshy, and of a yellowish or yellowish brown colour, much rounded on the upper side and convex, but in a lesser degree on the under surface, the annular divisions distinguishable along the centre of the back above and plainly visible below, the legs and rostrum clearly perceptible, and the coccus with sufficient power of movement to replace itself when taken from its cocoon on a leaf, at a short distance from the spot to which it had been moved.

Some of the Ivy leaves at the beginning of June still retain the flat scales adherent to them, but now either emptied, or at least without their legitimate tenants, these scales rather more than the sixteenth of an inch in length, narrowly oval, and corresponding in shape at the two ends, save in one being more rounded than the other, and the raised linear marking down the middle of the back being also rounded at the extremity and pointed at the other. In the early part of the spring scale insects precisely resembling those then on the Ivy were observable on Laurustinus bushes in its near neigbourhood, and the bushes now show similar white cocoons of the female scale on their leaves and twigs. *O.*

MR. JAMES FRASER, HORTICULTURAL and AGRICULTURAL VALUER and AUCTIONEER, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES for JUNE, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

HENRY ORMSON, HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

MARENDAZ AND FISHER, RUSSIA MAT MERCHANTS, 9, James Street, Covent Garden, W.C., Importer of RAFFIA FIBRE, TANNED GARDEN NETTING, &c.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.
For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

Horticultural Society's Show, Bishop Stortford.

TO BE LET, EIGHT ACRES of excellent LAND (most advantageously situated, close to the Railway Station, Bishop Stortford), suitable for Horticultural Nursery or Market Gardening, part in cultivation.
For further particulars apply to D. NEWTON, Engineer, Bishop Stortford, Kent.

TO BE SOLD, the BUSINESS of a FLORIST, comprising eleven large Forcing Houses and Pits, nine Frames, Potting Sheds, together with a comfortable Dwelling House, and every convenience for a large Market Trade. Convenient distance from Covent Garden. Stock at valuation. Apply in first instance by letter to
W. B., Post Office, Southampton Street, Camberwell, S.E.

Leighton Buzzard, Beds.

TO BE SOLD, the unexpired term in a LEASE (upwards of 40 years to run, at a moderate ground rent) of FOUR substantially-built and well-arranged RESIDENCES, with good gardens, in a healthy locality, standing on an eminence, commanding extensive views, and in the centre of a hunting district, within an easy distance of London, and 15 minutes' walk from the London and North-Western Railway. Full particulars to be had on application to
Mr. J. DOUGLAS DICK, Secretary's Office, Royal Horticultural Society, South Kensington, S.W.

SALES BY AUCTION.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, July 7, at half-past 12 o'Clock precisely, a great variety of choice POULTRY and PIGEONS, from the yards and lofts of well-known breeders and exhibitors.
On view the morning of Sale, and Catalogues had.

Orchids, Cape Bulbs, and Specimen Greenhouse PLANTS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, July 8, at half-past 12 o'Clock precisely, several small Collections of established ORCHIDS, an importation of CATTLEYA TRIANÆ, Imported ORCHIDS from Bombay, a Consignment of CAPE BULBS, a Collection of Specimen STOVE and GREENHOUSE PLANTS, &c.
On view the morning of Sale, and Catalogues had.

Bedford Hill House, Balham, S.W.
STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.

MR. J. C. STEVENS has received instructions from James Brand, Esq. (in consequence of the expiration of the lease, and the land being required for building purposes), to SELL by AUCTION, on the Premises, Bedford Hill House, Balham, S.W., on TUESDAY, July 21, and following days, the STOVE and GREENHOUSE PLANTS, consisting of magnificent specimens of Eucharis amazonica, large and beautifully trained Camellias and Azaleas, Tree Ferns, Palms, including some of the finest plants in the country; Dracæna regina and others, Adiantum farleyense, &c. Also the choice Collection of ORCHIDS, consisting of Dendrobes, a very fine lot of Phalænopsis, a beautiful plant of Angræcum sesquipedale, the finest variety of Anthurium Scherzerianum, Epidendrum vitellinum majus, Odontoglossum Bluntii Alexandræ, a large number of Odontoglossum pulchellum, Cattleyas, &c.
Catalogues are preparing, and will be ready shortly.

Third Great Sale of the Meadowbank Orchids.

MR. J. C. STEVENS has been instructed by the Executors of the late Mr. Thomas Dawson to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, THURSDAY, and FRIDAY, August 5, 6, and 7, at half-past 12 o'Clock precisely each day, the third portion of the great Collection of ORCHIDS grown at Meadowbank. Among these will be offered some of the largest specimens of the collection, and some species and varieties of rare and beautiful character. Most of the lots to be offered are in superb health; many of the plants (both as regards health of plant and quality of flower) are quite unique. Chief among them might be named Lælia superbiens, 5 feet in diameter, with fifty pseudobulbs, and from six to ten young growths; great plants of the superb variety of Epidendrum rhizophorum; a magnificent variety of Cœlogyne speciosa, in flower, very large specimen of Cypripedium insigne and C. insigne Maulei, as well as of C. venustum grandiflorum and C. barbatum; unique plants of Lælia anceps, comprising the beautiful forms of rubra and magnifica and L. anceps Dawsoni; Dendrobium Wardianum, D. Griffithianum, D. nobile pendulum, a fine group of Odontoglossum citrosmum and citrosmum roseum of the same breed of large flowering dense-clustered varieties which have been already sold; plants of the unrivalled forms of Masdevallia Harryana, Bull's blood var. and splendens variety, as well as lots of Phalænopsis amabilis and amabilis picta; the rare Bletia Sherrattii, a first-rate assortment of Cattleya Mendelii a few of which will be in flower on the days of sale; good clumps of Cattleya citrina, fine pieces C. Warnerii and C. Mossiæ in many varieties; a very fine piece of the beautiful Odontoglossum grande majus, which is only eclipsed by giganteum; several Vandas and Aerides, among which may be named the peerless white and very rare A. margaritacea; beautiful plants of Oncidium Phalænopsis, Angræcum sesquipedale, Cattleya marginata, splendid pieces of Epidendrum vitellinum and the very strong and excellent E. cinnabarinum; Helcia sanguinolenta, the beautiful Lycaste macrophylla, several species of Trichopilias and Maxillarias, one of the largest and best Odontoglossum radiatum in the collection; several fine O. Alexandræ, the grotesque looking Brassavola Digbyana, fine specimen of Cœlogyne pandurata, Pleiones and Calanthes of sorts, extra specimens of Zygopetalums, finely grown pieces of the true Dendrobium taurinum, not undulatum, as is sometimes seen; the beautiful Dendrobium macrophyllum Huttoni, Oncidium and Odontoglossum Kramerianum, Colax jugosus, the only plant of Lælia Tuckeri imported, unique plants of Lælia albida, splendidly grown pieces of the Flor de San Joseph of Mexico (Epidendrum erubescens), as well as of the Flor de Mai (Lælia majalis); fine masses of Oncidium ornithorynchum and Odontoglossum bictoniense, a splendid plant of the purple-flowered form of Epidendrum ibaguense, extra varieties of Oncidium cruentum, Limatodes vestalis, Lælia Perrinni in extra varieties, Epidendrum myrianthum album, Bolbophyllum, Thunias, Peresteria, Nanodes, Chysis, Gongora, Warrea, Miltonia, Eria, Promenea, Vanda, Acampe, Schomburgkia, Brassia, Burlingtonia, Catasetum, Dendrochilum, Cirrhopetalum, Cirrhea, Acineta, Brassavola, Mesospinidium, Cleisostoma, Epiphora, Bletia, Pilumna, Barkeria, Ansellia, Cyrtopodium, Arpophyllum, to the extent in species and varieties of 900 lots,—all to be sold without reserve.

Full particulars and detailed Catalogue to be had on and after July 20, of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Bedfont, Middlesex.—To Gardeners and Others.

MR. W. GOUGH is directed to SELL by AUCTION, at the Railway Hotel, Feltham, on WEDNESDAY, July 15, at 4 o'Clock, a valuable Enclosure of First-class FREEHOLD MARKET GARDEN GROUND, well stocked with standard Fruit Trees and Gooseberry Bushes of the choicest sorts, forming a valuable fruit plantation, in the highest state of cultivation, with the iron building thereon, comprising cart-house, stable, and loft, admirably situate on the south side of the high road from Bedfont to Staines, about a quarter of a mile from the church, containing 2A. 2R. 27P.

May be viewed and particulars, with Conditions of Sale, had at the place of Sale, of Messrs. RUSTON, CLARK AND RUSTON, Solicitors, Brentford; and of Mr. W. GOUGH, Auctioneer, Surveyor, and Land Agent, Sunbury, Middlesex.

On Tuesday, July 21, and three following days.

SALE of the valuable Collection of EXOTIC PLANTS of Robert Corkling, Esq., most of which have been imported and established by him, comprising, in ORCHIDS, fine specimen and half-specimen plants of Cattleyas, Lælias, Oncidiums. Odontoglossums (including upwards of 100 plants of Bluntii and Alexandræ), Trichopilias, Cœlogynes, and Pleiones; also a few good EAST INDIAN ORCHIDS, viz., Vandas, Aerides, Saccolabiums, Dendrobiums, and Cypripediums; a fine Collection of STOVE PLANTS and FERNS, amongst which may be named Adiantum farleyense, from 2 to 3 feet across; also a Collection of the best JAPANESE CONIFERÆ, consisting of all the principal varieties, numbering about 1500 plants, and including specimen Retinospora, 5 to 6 feet high, and 2 to 3 feet in breadth; together with a number of GREENHOUSE PLANTS, CAMELLIAS, AZALEAS, &c.

MESSRS. CAPES, DUNN, AND CO., respectfully announce the receipt of instructions from Robert Corkling, Esq., to SELL by AUCTION, on TUESDAY, WEDNESDAY, THURSDAY and FRIDAY, July 21, 22, 23 and 24, commencing at 12 o'Clock prompt each morning, at his residence, Alder House, Whalley Range, near Manchester, the whole of his exceedingly choice Collection of ORCHIDS and STOVE and GREENHOUSE PLANTS.

Catalogues (price 6*d.* each, to admit two) are in course of preparation, and will be issued several days prior to the Sale. May be viewed on the Friday, Saturday and Monday preceding the Sale.

The specimen EVERGREENS in the grounds being too crowded, the surplus quantity may be purchased at once, deliverable either now or in the autumn.

N.B.—The HOUSE to be SOLD by Private Treaty, or to be LET, furnished, with immediate possession. For cards to view and to treat, apply to Messrs. HEWITT AND PAUL, Dickinson Street, Manchester.

CHOICE FLOWER SEEDS for present Sowing, post free.

	Per packet.—s.	d.
LEE'S CHOICE CALCEOLARIA, extra fine	2	6
LEE'S CHOICE CINERARIA, extra fine	2	6
LEE'S CHOICE CYCLAMEN, extra fine	2	6
NEW DOUBLE CINERARIA, choice mixed	3	6
PRIMULA FIMBRIATA, choice mixed..	2	6
PRIMULA, Fern-leaved, choice mixed	2	6
PRIMULA, Fern-leaved, double white	2	6
PRIMULA FIMBRIATA, double carmine	2	6
PRIMULA FIMBRIATA, double white	2	6

JOHN AND CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

ROYAL
HORTICULTURAL SOCIETY.

GREAT ROSE SHOW,
July 1, 1874.

AWARDS of the JUDGES.

CLASS 1.—72 ROSES, distinct, single trusses. (Nurserymen.)
1st, Mr. G. Prince, Market Street, Oxford, £6.
2d, Mr. C. Turner, Slough, £4.
3d, Messrs. Paul & Son, Cheshunt, £3.
4th, Messrs. J. Mitchell & Sons, Uckfield, £2.

CLASS 2.—48 ROSES, distinct, 3 trusses of each. (Nurserymen.)
1st, Mr. C. Turner, £6. | 2d, Messrs. Paul & Son, £4

CLASS 3.—24 ROSES, Hybrid Perpetuals only, distinct, 3 trusses of each. (Nurserymen.)
1st, Mr. J. Cranston, Hereford, £4.
2d, Mr. J. Fraser, Leyton, £3. | 4th, Mr. C. Turner, £1.
3d, Mr. G. Prince, £2.

CLASS 4.—24 ROSES, distinct, single trusses. (Nurserymen.)
1st, Mr. J. Cranston, £3. | 3d, Mr. G. Cooling, Bath, £1.
2d, Mr. C. Turner, £2.

CLASS 5.—48 ROSES, distinct, single trusses. (Amateurs.)
1st, Rev. G. Arkwright, Pencombe Rectory, Hereford, £6
2d, Rev. J. B. M. Camm, Monkton Wyld, Dorset, £4.
3d, Mr. W. Farren, 10, Crescent, Cambridge, £3.
4th, Mr. W. Ingle, Gr. to Mrs. Round, Colchester, £2.

CLASS 6.—24 ROSES, distinct, single trusses. (Amateurs.)
1st, Mr. W. Farren, £4.
2d, T. H. Gould, Esq., Mortimer Vicarage, Reading, £3.
3d, Mr. W. Ingle, £2.
4th, Mr. J. W. Chard, Gr. to Sir F. Bathurst, Bart., Salisbury, £1.

CLASS 7.—12 ROSES, distinct, single trusses. (Amateurs.)
1st, Mr. J. Mayo, Corn Market Street, Oxford, £2.
2d, Mr. D. Chapman, 15, Broad Street, Oxford, £1 10s.
3d, T. H. Gould, Esq., £1.
4th, Captain Christy, Westerham Hill, Kent, 10s.

CLASS 8.—12 ROSES of 1871, 1872, or 1873, distinct, single trusses. (Open.)
1st, Mr. J. Cranston, £2. | 3d, Messrs. Paul & Son, £1
2d, Mr. C. Turner, £1 10s.

CLASS 9.—6 trusses of any ROSE of 1871, 1872, or 1873. (Open.)
1st, Mr. C. Turner, £1. | 3d, Mr. G. Prince, 10s.
2d, Messrs. Paul & Son, 15s. | 4th, Mr. J. W. Chard, 7s.

CLASS 10.—12 TEA-SCENTED and NOISETTE ROSES, distinct, single trusses. (Nurserymen.)
1st, Messrs. Paul & Son, £1 10s. | 3d, Messrs. J. Mitchell & Sons, 15s.
2d, Mr. G. Prince, £1.

CLASS 11.—12 TEA-SCENTED and NOISETTE ROSES distinct, single trusses. (Amateurs.)
1st, Rev. G. Arkwright, £2. | 3d, Mr. W. Farren, £1.
2d, Mr. W. Ingle, £1 10s.

CLASS 12.—12 ROSES, distinct, single blooms. (Open.)
1st, Mr. C. Turner, £1 10s. | 2d, Mr. G. Cooling, £1.

CLASS 13.—24 ROSES, not fewer than 12 varieties, in pots not exceeding 8 inches in diameter. (Open.)
1st, Messrs. Paul & Son, £6. | 2d, Mr. C. Turner, £4.

CLASS 14.—12 trusses of ALFRED COLOMB. (Open.)
1st, Rev. J. B. M. Camm, £1. | 2d, Mr. J. W. Chard, 15s.

CLASS 15.—12 trusses of DUKE of EDINBURGH. (Open.
1st, Messrs. Paul & Son, £1. | 2d, Mr. C. Turner, 15s.

CLASS 16.—12 trusses of BARONESS ROTHSCHILD. (Open.)
1st, Mr. C. Turner, £1. | 2d, Rev. J. B. M. Camm, 15s.

CLASS 17.—12 trusses of LA FRANCE. (Open.)
1st, Rev. G. Arkwright, £1. | 2d, Rev. J. B. M. Camm, 15s.

CLASS 19.—12 trusses of MARIE BAUMANN. (Open.)
1st, Mr. G. Price, £1.

CLASS 20.—12 trusses of DEVONIENSIS. (Open.)
2d, Mr. F. May, Stistead, Essex, 15s.

CLASS 23.—6 dishes of PEAS, to include Carter's G. F. Wilson, and James' Prolific Marrow.
Prizes offered by Messrs. James Carter & Co.
1st, Mr. W. G. Pragnell, Gr. to G. D. W. Digby, Esq., Dorset, £3.
2d, Mr. H. Elliott, Gr. to J. Hibbert, Esq., Maidenhead, £1.

CLASS 24.—4 varieties of Mr. Laxton's PEAS, including Fillbasket and Laxton's No. 1.
Prizes offered by Messrs. Hurst & Son.
1st, Mr. T. Bailey, Gr. to T. T. Drake, Esq., Amersham, £4
2d, Mr. G. T. Miles, Gr. to Lord Carington, High Wycombe, £2 10s.
3d, Mr. R. Gilbert, Kitchen Gardens, Burghley, Stamford, £1

MISCELLANEOUS.—EXTRA PRIZES.

Silver Medal to Mr. B. S. Williams, Upper Holloway, for a miscellaneous Group of Plants.

Bronze Medal to Mr. C. Turner, for cut blooms of Pinks and Verbenas.

Bronze Medal to Mr. J. Aldous, Gloucester Road, South Kensington, for Group of Plants.

Bronze Medal to Mr. J. Tonkin, Gr. to T. Kekewich, Esq., Exeter, for two Smooth Cayenne Pine-apples.

Noteworthy Horticulturists and Botanists.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6*d.* each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.	JAMES BATEMAN, F.R.S.
W. WILSON SAUNDERS, F.R.S.	BERTHOLD SEEMANN, Ph.D.
Rev. M. J. BERKELEY, F.L.S.	ARCHIBALD F. BARRON.
M. DECAISNE.	Hon. MARSHALL P. WILDER.
G. F. WILSON, F.R.S.	JOHN GIBSON.
Dr. MOORE, of Glasnevin.	Professor ASA GRAY
Professor REICHENBACH.	I. ANDERSON-HENRY.
Rev. S. R. HOLE, M.A.	Professor KARL KOCH.
E. J. LOWE, F.R.S.	Baron VON MUELLER.
JAMES MCNAB.	JOHN SMITH (Kew).
ROBERT HOGG, LL.D.	Professor WESTWOOD.
Dr. REGEL.	Dr. THWAITES.
	Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5*s.* 11½*d.* | Six Months .. 11*s.* 11*d.*
Twelve Months .. £1 3*s.* 10*d.*

FOREIGN SUBSCRIPTION.

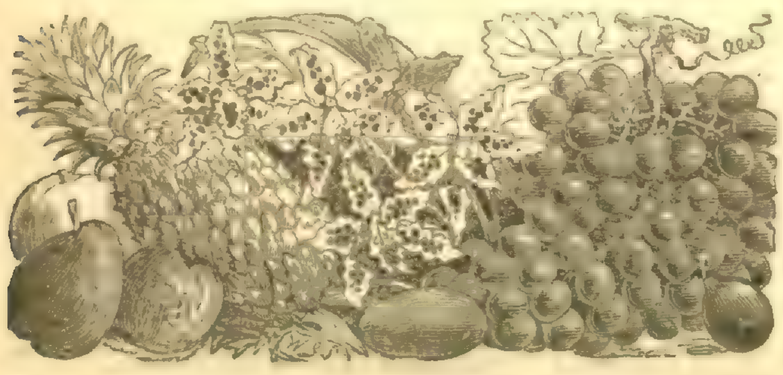
£1 6*s.* *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10*s.* 4*d.* *for* 12 *months, including postage to*—
AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14*s.* 8*d.* *for* 12 *months, including postage to*—
RUSSIA, ITALY, DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.



THE

Gardeners' Chronicle.

SATURDAY, JULY 4, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	July 6	Implement trial at Bedford commences. Meeting of the Entomological Society of London, at 7 P.M.
TUESDAY,	July 7	Midland Counties Grand Horticultural (four days) Exhibition at Birmingham opens.
WEDNESDAY,	July 8	Royal Caledonian Horticultural Society's Show. Bishop Stortford Horticultural Society's (two days') Show opens. Chelmsford Horticultural Society's Exhibition. West of England Rose Show, at Hereford. Wisbech Annual Flower Show. Grand National Rose Show in Dublin Exhibition Palace.
THURSDAY,	July 9	Horticultural Exhibition at Peterborough.
FRIDAY,	July 10	Altrincham and Bowdon Rose Society's (two days') Show. Midland Counties Grand Exhibition at Birmingham closes.

MOST of us remember the use that PALEY made of the watch as an evidence of design, and of necessity of a designer. Twenty or thirty years ago this doctrine suffered by injudicious illustration, and a new school arose deriving its chief inspiration from GOETHE. Modifications in form were set down as variations from an ideal pattern or type, and adaptations to special ends, though admitted in some cases, were discredited in others. Not the least service which Mr. DARWIN has rendered to science has been the demonstration that many adaptations formerly supposed either to be of trifling moment or purposeless illustrations of a particular preordained pattern, are really adaptations to special purposes, or, at least, are the relics of traces of former adaptation of this kind. While some naturalists have been counting spots and measuring scales, splitting hairs 'twixt south and south-west sides, disputing whether there are two or twenty species of Brambles, or referring every little bump to a theoretical typical form, Mr. DARWIN has been quietly and steadily setting to work to show the purpose and meaning of various organs and rudimentary structures. In this manner he has made clear the use and purport of many parts and variations in plants, the study of which was before to a large extent barren in results. In thus affording a rational and intelligible explanation of many structures and phenomena, Mr. DARWIN has not only advanced physiological science to a high degree, and infected others with the desire so far as their means and abilities are concerned to do likewise, but he has placed a most effective weapon in the hands of those who, like PALEY, attach very high importance to the study of Natural Theology. Our pages of late years have teemed with illustrations of adaptations of structure to function, especially with regard to the fertilisation of flowers by insects. Only lately, through the kindness of Dr. ASA GRAY, we have had occasion to lay before our readers the curious arrangements by which Droseras and Sarracenias obtain some at least of their nourishment by entrapping and digesting insects. Dr. SANDERSON has shown us how the movement of the leaves of Venus' Fly-trap Dionæa is accompanied by electrical phenomena, as in the case of the muscles of animals. One of the most curious illustrations yet made known, showing the relation of structural form to definite purpose in the economy of the plant, is that laid before the Scientific Committee on Wednesday last by Mr. DARWIN. Mr. DARWIN'S researches are not yet fully completed, and at some future time he will give a fuller account of his researches, meanwhile no reader will fail to see the exceeding interest of the phenomena we now proceed to relate :—

"The leaves of Pinguicula vulgaris, according to Mr. DARWIN, possess a power of digesting animal matter similar to that shown by the Sundews (Drosera). Albumen, fibrin, meat or cartilage induce a secretion from the glands of the upper surface of the leaf, and their secretion becomes feebly acid (but not so much so as that of Drosera). Their secretion is reabsorbed, and causes an aggregation of the protoplasm in the cells of the glands, such as had been observed in other similar cases. Before excitement the glands were seen to be filled with a homogeneous pale greenish fluid ; after the aggregation of the protoplasm it can be seen to move. When a row of insects or of Cabbage seeds are placed near the margin of a leaf (or when a single insect is placed at one point,) the whole margin (or one point) becomes curled considerably over in two or three hours ; the apex of the leaf will not turn over towards the base. Small fragments of glass also cause a similar movement, but to a much less degree. The inflexed margin pours forth a secretion which envelopes the flies or seeds, but pieces of glass cause no, or hardly any, increase of secretion. But here comes a puzzle : If the flies or fly be removed, the margin of the leaf turns back in less than twenty-four hours ; but it does so also when a row of flies and Cabbage seeds are left adhering ; so that the use or meaning of the inflexion is at present quite a puzzle."

We must await the publication in full of Mr. DARWIN'S researches before we can say more on the subject. Meantime, as many of our readers will speedily be hieing northwards to the moorlands, where Pinguicula grows, and where Drosera is abundant, we would fain hope that some of them will be enabled to watch the plants in question, and ascertain what insects are entrapped, and under what circumstances.

THE official dedication of LEICESTER SQUARE to the public use has afforded us an opportunity for supplementing the information we have already given as to the Square at p. 155, vol. i., 1874. The arrangement of the flower-beds has been slightly altered, but in the main the disposition is the same as that shown in the plan we gave in the number before cited. In place of a circular bed in front of each of the four busts in the several corners of the Square, a somewhat semi-lunar form has been adopted, which is decidedly an improvement. As at present planted the centre of each bed is occupied with yellow Calceolarias, with three rows on either side, consisting, going from the centre outwards, of a pink-flowering Pelargonium, a silver variegated variety, and blue Lobelia. The four central masses are laid with turf, with two oblong beds "bedded out" with flowers, and with Yuccas intervening. Good sized standard Bays in tubs are placed in appropriate situations, and the central marble basin surrounding the statue of SHAKSPEARE is also begirt with flowers. The shrubberies are composed entirely of evergreens, chiefly of Rhododendrons, with a few coniferous shrubs, Golden Yews, Thujas, &c. We tremble to think of the fate of these shrubs after a few months' exposure to London atmosphere. We have, however, little doubt, from the rapidity with which the transformation from a "filthy wilderness" into "a blooming garden" has been effected, that the planting is to a considerable extent of a temporary character, and that care will be taken ultimately to place a few deciduous trees here and there, and generally to obviate the thin, poor appearance which a newly-planted place almost necessarily has. In the blazing sun which poured fiercely down on the visitors on the opening day the want of shade was painfully felt, and though, of course, it was too much to expect that such shade would be forthcoming immediately, yet we should be glad to know that provision is likely to be made for the future in this matter. Pyramidal trees, such as Lombardy Poplars, fastigiate Oaks, and other trees of like character, would be quite in keeping with the architectural surroundings, while Planes, Maples, especially Acer eriocarpum, white Poplars, some of the species of Pyrus, the Naples Alder, Alnus cordata, or some of them, might be advantageously placed at intervals. We say some of them, for there is, in truth, little space at disposal, the whole area being little more than an acre, and very properly a large portion of this is occupied with walks, seats, &c.

The central statue of SHAKSPEARE is in white marble, and is a copy of that in Westminster Abbey. It is supported on a square pedestal, also of white marble, and this is flanked by four dolphins, on the top of a shallow flight of steps, which even a dolphin would have a difficulty in ascending, especially head downwards. The whole structure rises from a circular marble basin, filled with water. Had the pedestal been of polished Aberdeen granite, we think the effect would have been greatly enhanced, while the placing of the conventional dolphins, who have apparently escaped from the water beneath, with their tails uncomfortably bent up against the sharp angles of the pedestal, would, were the creatures living, certainly demand the intervention of the Royal Humane Society. The more humane and, artistically, the more effective mode, would have been to have allowed the tails to have fitted into flutings or recesses, which would also have obviated the painful angularity of the pedestal, and it would have been still better had the creatures been placed in a more natural attitude. The jets of water from the blow-holes of the cetaceans, though anatomically correct, are scarcely of sufficient magnitude to be effective.

A low edging of bent iron, to resemble bent wood, surrounds the plots of turf, which latter look remarkably well, considering the short time it has been laid. The whole Square is enclosed with an ornamental iron railing of height sufficient to protect the enclosure and not too high to prevent the passers-by enjoying a full view of the grateful turf and pretty flower-beds.

Had REYNOLDS been looking on in the flesh from the windows of his house hard by on the occasion of the opening ceremonial, he would have fancied that fashion in ladies' head-gear had altered wondrous little, for there were not a few head-coverings almost precisely like

those we are familiar with in Sir JOSHUA'S portraits, and which he is said to have admired because they cast such a becoming shadow on the features! HOGARTH, too, who lived just opposite, would have been the painter to have handed down to posterity the lineaments of the lady humorously alluded to in Baron GRANT'S inaugural address, and who preferred the Square as it was before Baron GRANT and his aides-de-camp (Mr. KNOWLES and Mr. GIBSON, jun.) took it in hand. NEWTON, with his keen intellectual face, would surely have joyed in the light and air, of whose mysteries he was so profound an exponent; and HUNTER was too acute a physiologist not to have recognised the beneficent effect of such a "lung" as that now provided by the munificence of Baron GRANT. As for glorious WILL SHAKSPEARE, we are sure his heart would have beat responsive to the "one touch of Nature which makes the whole world kin," and he would have done justice to the public spirit which has devoted this whilom noisome spot to be a public good for ever. We must refer our readers to the daily prints for the account of the opening ceremony, and the manly speech in which Mr. GRANT detailed in fitting language the history of his connection with the Square, the difficulties that lay in his way, his well merited rebuke at those who attributed sordid motives to him, and his confidence that the people would not misuse what was intended for their benefit and enjoyment. The total cost—the money value of the present made to the Metropolis—is £28,000. We should be sorry to estimate such a good deed by a monetary standard, because that cannot represent the direct and indirect good which such a munificent donation will be the means of effecting.

—— FEW men in the world of horticulture have so thoroughly deserved the esteem of their fellows as Mr. JOHN GIBSON, whose portrait, and a brief memoir of whose life we published in our volume for 1872, p. 865. To Mr. GIBSON we certainly owe the idea of sub-tropical gardening, as it is called; and the improvement which the introduction of this system has wrought in the decoration of our pleasure grounds is patent to all. Besides this, Mr. GIBSON'S personal qualities have won for him universal regard. It is well-known that he is now, and has been for some time past, suffering from a severe attack of paralysis, and it has been thought by some of his London friends that the presentation of a Testimonial would not only cheer him in the midst of his sufferings, by the assurance it would give of their sympathetic regard, but would at the same time help to meet the manifold expenses which are incidental to a prolonged illness. A committee has been formed for carrying out this object, with Mr. G. F. WILSON, chairman; Mr. T. MOORE, treasurer; and Mr. H. J. VEITCH, secretary, to either of whom subscriptions may be sent.

—— We understand that the project of holding an INTERNATIONAL HORTICULTURAL EXHIBITION and CONGRESS in London has been postponed, in consequence of the general feeling amongst horticulturists of all sections that there is scarcely time for a due preparation of materials to form a show, such as would be desired, in 1875. As therefore the show at Amsterdam has been fixed for 1876, the London Exhibition must be deferred till 1877. In due time the Council of the Royal Horticultural Society will, we believe, take the initiatory steps.

—— Next Tuesday, at 1 o'clock, the first of the MIDLAND COUNTIES GRAND HORTICULTURAL EXHIBITIONS, to be held at the Lower Grounds, Aston, Birmingham, will be thrown open to the public, and we trust a very large attendance will be there to see it. The entries are unusually numerous. They include exhibits from almost all our best exhibitors in London and the provinces, in plants, cut flowers, fruits, and vegetables. Of stove and greenhouse plants the entries include more than 1000, selected from the best collections in the country; of cut Roses 6000 have been entered for competition by the leading winners of 1st prizes at our principal shows. Concerning fruits, we can give the following particulars:—The entries include 130 bunches of Grapes, ninety Pine Apples, twenty-five dishes of Peaches, twenty dishes of Nectarines, forty-three dishes of Strawberries; Cherries, Apricots, Figs, and miscellaneous fruits, in endless profusion; while of vegetables the entries are so numerous—including over 700 dishes—that we, familiar as we are with many famous exhibitions, fail to realise anything like the actual facts. Such a horticultural display has never before, we believe, been held in the provinces; and we sincerely hope that Mr. QUILTER, the spirited caterer of this entertainment, may be adequately supported by the entire population of the midland counties. For the mere pleasure-seeker there will be abundance of excellent music, in addition to the sensuous charms of plants, fruits, and flowers. For the gardener, amateur and professional, there will be the choicest productions of every department of horticultural skill. Then there will be acres of beautifully kept gardens, broad sweeps of beautiful lawns, shrubs, flowers, trees, and an endless variety of horticultural buildings, implements, and etceteras. It may interest some of our readers to know that entries have been received from twenty-nine counties, viz., Warwick, Stafford, Worcester, Hereford, Gloucester, Salop, Leicester, Derby, Notts, Northampton, Oxford, Herts, Lincoln, York, Cheshire, Westmoreland, Berks, Bucks, Wilts, Somerset, Devon, Kent, Surrey, Sussex, Middlesex, Essex, Monmouth, Cardigan, and Glamorgan.

—— The unfortunate LIBOCEDRUS DECURRENS has suffered another change of name, and this time it is made the type of a new genus. As is well-known to some of our readers, this handsome hardy evergreen tree was, and is still, in many gardens called Thuja gigantea, the true T. gigantea going under the name of T. Lobbii. This error appears to have originated with M. CARRIÈRE, who described and figured it in the *Revue Horticole* and *Flore des Serres* in 1854, and perpetuated it in his *Conifères*. It is no fault of this journal that these two splendid trees are better known under false names, for the Libocedrus decurrens was in the first instance spoken of by this name—the one originally given to it by TORREY in the Smithsonian *Contributions*, accompanied by a figure; and the Continental misnomer was pointed out as long ago as 1855. But GORDON and others in this country adopted CARRIÈRE'S nomenclature without question, though possibly this may have arisen from the fact that both trees were first described and figured in American works, little known in England at that period. M. CARRIÈRE could not make the Libocedrus fit into the Thuja gigantea, as described in HOOKER'S *Flora Boreali-Americana*, which is the true plant; and therefore he called it Thuja gigantea of NUTTALL, not of HOOKER. The complicated synonomy of the two species is as follows:—*Libocedrus decurrens*, Torrey, otherwise Thuja Craigana, Murray; T. gigantea, Carrière, Gordon and others, not of Nuttall. *Thuja gigantea*, Nuttall, otherwise T. Menziesii, Douglas, Gordon, and others; T. Lobbii, of gardens; Thujopsis Standishii, Gordon, and T. japonica, Maximowicz, not of our gardens, which is a form of Biota orientalis. Just as we are getting a bit settled in our minds as to the correct names of these two Conifers, in steps Professor KOCH, and tells us that Libocedrus decurrens cannot be retained in the genus, because it differs from the other species of Libocedrus in having an erect strobile consisting of six scales, whereof the two inner are grown together, forming a central column, the two intermediate larger, with one or two winged seeds at the base of each, and the two outer much smaller. In the other species of Libocedrus the two central consolidated scales are wanting, or very much reduced. Professor KOCH (*Dendrologie*, II theil, 2 abtheilung, p. 177) on these and other grounds erects it it into a separate genus, and names it Heyderia decurrens, in honour of a German plant amateur of note. Professor KOCH considers the habit and the characters afforded by the leaves also of importance. We doubt whether this change will meet with general acceptance, the distinctive characters of the new genus being too slender, in our estimation, though we are bound to say that it is perhaps as distinct as some other genera of this family, commonly recognised as such. The peltate stamens are said by KOCH to be three-celled, but they are usually four-celled, as in most of the Cupressineæ.

—— We may shortly expect to see in this country the so-called DOUBLE-FLOWERED POINSETTIA, concerning which expectations have been so highly raised. Judging from the drawings, and still better from the dried specimens, the new-comer will be a very splendid addition to our stoves. The term "double" as applied to flowers has in garden parlance a very wide meaning, and includes all sorts of conditions of very different nature. In the case of this Poinsettia the doubleness consists in a repeated branching or subdivision of the top of the flower-stalk, and a corresponding multiplication of the coloured leaves or bracts on which the beauty of the plant depends.

—— The floral decoration of RAILWAY STATIONS is a feature of modern gardening that grows apace. In cases where the line passes through the station at a level, or shallow cutting, it is the fashion to lay down a bed of gravel on a slightly sloping bank, and indicate the name of the station in large letters formed of white chalk-stone. Useful as this plan may be to travellers by railway, one cannot feel disposed to praise it from a decorative point of view, but that it can be improved upon is shown at the Harlow station of the Great Eastern Railway at the present moment. Here the letters, reposing on the gravelly bank, being from 5 to 6 feet in depth, are so formed by the use of a double line of stones as that each letter is a flower bed, and is mainly filled with Sedum acre aureum in full bloom, and white Pinks, with a few biennials and perennials. This is a great improvement on the bare tracing on the naked gravel, and it shows how railway stations can be made attractive by means of little forethought and judicious planting. The promoters of the *Railway Service Gazette*, the organ of the railway *employés*, seem to be fully alive to the importance of spreading a knowledge of gardening among their readers, and have a column devoted to gardening intelligence. In this way many a waste patch of land becomes converted into a useful garden, and spare hours of respite from labour, that might otherwise be given up to idleness and something worse, are profitably utilised.

—— Now that popular education is receiving much attention at the hands of statesmen, it may be well to record, as showing in what way the master of an elementary school may pleasantly supplement the daily routine of instruction, that at the meeting of the SAFFRON WALDEN HORTICULTURAL SOCIETY, held on June 24, a large and well-arranged collection of wild flowers was staged by the children of the British Schools. The flowers were staged, in neat bunches, on an ordinary stand used for cut flowers, and they bore their scientific and popular names, and plainly written. It would be well were schoolmasters more generally to encourage this taste among children.

—— The BEDDING PANSIES and VIOLAS at the CHISWICK GARDEN are now well worthy inspection, as, under the careful cultivation bestowed upon them, it is doubtful whether, in any part of the kingdom, this tribe of hardy bedding plants can be found in a more creditable condition than there. Instead of being planted in the lawn beds, a border, slightly shaded and cool, situated just beyond the Plum quarter, has been entirely given up to their cultivation, and the sorts are ranged four plants deep nearly its whole length, some kinds being represented by eight plants, others by four, and others by two plants only. The chief contributors to the collection are Mr. R. DEAN, of the Seed Grounds, Bedfont; Messrs. DICKSON & SONS, Edinburgh; Mr. COCKER, of Sunny Park, Dundee; and Messrs. STUART & MEIN, of Edinburgh. There are robust growers and dwarf compact kinds, flowers large and rounded and flowers small and irregular, and in colour, blue, purple, crimson, mauve, magenta, yellow, sulphur, white, diversely marked, and many intermediate shades. Single blooms afford but an indifferent conception of the value of a Pansy or Viola for bedding or massing; their merits in this respect can only be fairly judged by seeing them when full of growth and bloom, as it is evident in the Chiswick collections that many kinds having indifferent flowers are yet perchance the most floriferous, most constant, and productive of the greatest effects. We forbear in this sketch to single out any particular kinds, as the entire collection deserves a more extended and minute notice; but all who specially admire hardy bedding plants should not fail to pay an early visit to Chiswick, and form their own opinions as to the merits of the various kinds there growing.

—— Mr. RUCKER, of Wandsworth, has now in flower a plant of the grand ODONTOGLOSSOM VEXILLARIUM, with four spikes from one pseudobulb, bearing in all fifteen very fine flowers. Another plant in the same collection bears thirteen flowers, which are deeper in colour, but not so large.

—— In the Water Lily house, which is generally an attractive one to the visitors at Kew, the following plants are now in full flower:—Nymphæa dentata, N. pœcila, N. Daubenyana, N. rubra, N. rubra minor, N. Lotus (Devoniana), N. gigantea, N. stellata, N. Ortgiesiana, N. cœrulea, Euryale ferox, Pontederia cœrulea, Limnocharis Humboldtii, and last, but not least, the magnificent Sacred Bean of India, Nelumbium speciosum, with its large and beautiful rosy flowers and remarkable seed vessels.

—— A medal for merit was awarded to Messrs. J. B. BROWN & Co., London, at the BREMEN INTERNATIONAL EXHIBITION, for excellence in workmanship and cheapness of production of their galvanised wire netting.

—— About sixty of the *employés* of the Victoria and Paradise Nurseries, Upper Holloway, kept their annual holiday on Friday last (the 26th ult.), and sat down to a splendid repast at the Rye House. Mr. B. S. WILLIAMS himself presided, supported by the members of his family. After dinner some songs were sung and healths drank, in the course of which Mr. WILLIAMS, in proposing the health of his *employés*, spoke enthusiastically of the ability and interest displayed by them in the various parts of the business over which they presided.

GRIFFINIA HYACINTHINA.

THE cultivation of stove bulbous plants has of late years, for some unaccountable reason, been much neglected. This is the more to be wondered at when we consider that amongst them may be enumerated many of the most beautiful plants grown. Another matter greatly in their favour is that most of them are of comparatively easy culture, not subject to go off suddenly or even to get into an unhealthy condition if their requirements as to soil, water, and temperature are reasonably attended to; but with the gardener at the present day there is something of greater importance than the mere fancy of growing this or the other plant. With the vastly increased and still increasing demand for cut flowers, used in every conceivable way where they can be appropriately or inappropriately employed, it becomes a matter of simple utility, to grow that which will furnish, not merely a flower, however beautiful, whose beauty is short-lived, but things that will last well when severed from the plant, and also afford a continuous supply for a considerable time. For the purpose under consideration the colour is of great importance. The different shades of blue and violet are by far the scarcest amongst flowers in other ways suitable for cutting. This Griffinia is in every way adapted for the purposes under consideration; apart from the beauty of the flowers on the plant, which is of no mean order, they will last when cut for a whole week; their lovely colour—soft violet, with a white central stripe down each of its elegantly curved narrow petals, some 4 inches long—renders it second to no other flower for bouquets. The flower stems are thrown up, and bloom much like the well-known Agapanthus umbellatus. The plant here figured (fig. 7) annually produces some thirty of these large umbels, that each open their numerous flowers consecutively—some four or five at a time, giving a succession that lasts some five months, extending from September considerably into the new year. The plant is a slow grower, the bulbs being some three or four years in getting to their full size, after which they throw off offsets; it can also be increased from the seeds, which are produced freely, in spite of the flower-gatherer's knife, which, for the above cited reasons, is constantly at work on this plant. Each umbel will produce several of its singular fleshy seeds, about three-fourths of an inch in diameter, almost like small green Tomatos, when ripe, when they fall off or can be removed on being slightly touched.

I was for a number of years fruitlessly trying to get the plant to grow from seed, but met with nothing but disappointment. I tried all sorts of soil—peat, loam, and leaf mould, separately and combined, mixed with sand, or sand alone, covered a moderate depth, or only the thinnest covering imaginable, and all to no purpose. By a mere accident the seeds showed me their own natural way of vegetating. I had overlooked one and it fell on the surface of the pot, and had the luck to remain there on the top of the soil out of sight until it grew, at once showing that the seed required to lie wholly above the surface with no covering of any kind. The tiny bulbs are emitted singly from the pulpy masses, the base foremost, each then throws out its roots, after which a small slender leaf is liberated, and the plant commences growth, but, perhaps, not for a year or more without the support of the fleshy mass from which it has proceeded, and to which it still adheres, and which becomes gradually reduced in size, assuming a wrinkled, shrivelled appearance, quite tough, but without any apparent disposition to the usual decomposition that occurs in most seeds when germination has taken place.

As soon as the seeds are ripe, which will be during the winter, some three or four months after the flowers have faded, they must at once be sown, placing them on the surface of a well-drained pot, filled with loose, sandy soil, which the roots, as soon as formed, can penetrate easily, and from which they can be removed without injury. As soon as the young bulbs are fully formed, and have emitted roots, they should be removed singly to small pots, with the seed attached, but without covering it, just inserting the roots and base of the bulb in the soil, so as to steady the young plant. The soil should consist of good fibrous loam, with as much sand added as will ensure the water passing through it, but without making it too light—a condition that this and most other bulbs do not like. Drain the pots well, as the plant requires, when growing, a good supply of water; and at no time must it be allowed to get quite dry, like a deciduous bulb, or its thick, leathery leaves will suffer, to the serious injury of the plant. Grow the plants in an intermediate or moderate stove temperature. Keep them where they will receive plenty of light, but shade slightly in sunny weather, as the fleshy leaves do not well bear full exposure to the sun. Keep the plants growing on until the end of August, then place them where they will receive a rest for about two months.

During this time a greenhouse will suit them, but they should not be subjected to a lower night temperature than 45°, as the plant is a native of South America, consequently it will not bear keeping too cold even when at rest. Its natural season for making growth is during the autumn and winter, and the reason for keeping it on in growth for the first summer is that the plants may, before any stoppage takes place, get stronger than they would be able to do if allowed to go to rest as soon as they had made the little progress they were enabled to do during the short winter months of the first season of their existence. In November again place them in a night temperature of 55° or 60°, and, as soon as they show signs of growth, give them pots 2 inches larger, using similar soil to that which was recommended for their first season's growth, and treat them in every way as before advised as to heat and water; the plants will show when their growth is finished by ceasing to push up more leaves. Do not remove them out of heat until their last leaves are fully matured, which will be about the end of April. Through the summer a cool vinery or a greenhouse will answer for them: as before, re-pot, and if they have plenty of roots, they may have a 3-inch shift; but this plant will at no time bear overpotting. It is like many other bulbs in this—it likes to have its roots lying thickly against the sides of the pot. Treat through the winter and coming summer as recommended for the preceding season. In the autumn some of the strongest bulbs will most probably throw up flowers; but it will be better not to allow them to mature any seeds, as this will materially retard their growth, and during this season, if all goes well with them, they will increase much in size.

At no time during their entire existence must the bulbs be potted too deep; they should always be two-thirds above the soil. After they have got to their full size they will not require re-potting every year. They increase slowly by offsets, thrown up from the base of the bulb; but it is not advisable to divide them, as the roots are matted and interlaced to an extent not usual in other plants, and they suffer very much if mutilated in the least, which is unavoidable where division is attempted. The plant is little subject to the attacks of insects, yet scale and thrips will live and increase upon it if once established. The use of the sponge for the scale, and of fumigation for thrips, will be found effectual. It is a long-lived plant, not liable to get out of health. The plant represented above (now in the possession of the Rev. J. B. Norman, Edgware) is twenty-four years old, from a small single bulb. It is 5 feet in diameter, and is here figured as an illustration of what the plant is capable of becoming under appropriate cultivation. The flowers are well known to most gardeners.

T. Baines.

FIG. 6.—SPECIMEN PLANT OF GRIFFINIA HYACINTHINA, GROWN BY MR. BAINES.

Home Correspondence.

A Plea for an Outing for Gardeners.—As the *Gardeners' Chronicle* is read by almost all our employers, and as the majority of the latter can hardly fail to be impressed with the plodding perseverance of their gardeners—a class who are hardly ever out of collar, and who carry their cares with them even when they leave home, let me respectfully ask for an outing for my class. The best place to go to this year is Birmingham, to Mr. Quilter's great show: the time to go is Monday the 6th, or at latest the 7th of July—the time needed from three days to a week—the ways and means from three to five guineas, according to distance. The good it would do is simply incalculable, especially to employers. There is no teaching that can touch in potency a series of object lessons. These are to be provided in all horticultural subjects at Birmingham. In such a school, so profusely illustrated with masterpieces in all branches of cultural and decorative art, the dullest scholar must learn much; those of average capacity—and few gardeners are below that standard—will learn almost everything that it is to their employer's interest to know. And the good that an outing does such isolated men as gardeners, cannot be measured by the mere value of the knowledge they acquire at the moment. For the time being the strain of constant thought and wearing toil is removed, the collar is taken off, the lungs are expanded and filled with new air, a new set of mental and physical muscles are brought into play, friends look into each other's faces and grasp each other's hands as only gardeners can after a severance of years; and each man gains a fresh impulse and catches a new and higher inspiration from his fellows. The show furnishes us with new and higher models, the friendships formed are renewed in visiting it—inspire us with the courage, the strength, and often also furnish the ability to reach up to or exceed what we have seen. Nothing like a visit to a great show for folding up windbags, encouraging the modest and deserving, cheering the unfortunate—and those, like the poor, we have always among us; and, in a word, benefiting all gardeners. Some of the London press have recently been sneering at the egotism of gardeners. Of course, among such a large class conceit will gain a foothold here and there; but the marvel is—and the fact speaks volumes to their sterling worth—that, considering their isolation and the small circles they move in as a rule in the provinces, they are, as a class, the most modest and unassuming of men. But should any one be tried by a conceited gardener, the perfect cure is a trip to Birmingham. But I would not plead for time—at least, for an outing for gardeners—to correct faults imaginary or real in their conduct or character, but in reward for honest work and faithful services such as cannot be matched for the price paid for it in factory or field, nor any other trade or profession whatever. *D. T. Fish.*

Honey-dew.—For the last eighteen months I have had some specimens of Cyperus alternifolius under my immediate observation. These have, at intervals, from contact with other plants, been greatly infested with aphides; the insects, however, have been strictly confined to the flowering spikes and the peduncles, or branchlets, which support them, their occasional presence on other parts being obviously the result of accident. Within this circle, and for about a quarter of an inch beyond, when the aphides were present, the leaves have been thickly spotted with honey-dew; beyond this radius not a drop could be observed. In the absence of the insects all parts of the leaves have been equally free from the deposit. This has occurred not once but repeatedly, and as the plants have been growing under my own eye (in my usual sitting-room) I have been able to observe them continuously, with a view to this very point: neither does the foliage of the Cyperus appear to be a likely origin for any exudation of the kind. The difference in the leaves of the infested plants was conspicuous at the first glance, and left little doubt in my own mind as to, at all events, one of the sources from which honey-dew may be derived. *R. A. Pryor, Hatfield, Herts, July* 1.

—— I have been very much interested with your correspondent "O.'s" remarks concerning honey-dew, at p. 821, with whose conclusions, however, I am forced to disagree. Had your correspondent been witness to such an extraordinary deposit of honey-dew as was seen here during the latter half of the second week in June, he would have perforce entertained different views also. During the above week, and altogether within the space of forty-eight hours, one of the thickest coatings of honey-dew I have ever witnessed was deposited upon every leaf and branch of the whole of the Rose trees in the new rosery here. The honey-dew was deposited to such an extent that every leaf shone like water-colour paintings after a surface coating of gum arabic. I am not going to say that no aphis existed, but the numbers were moderate, and partially distributed—though not so the honey-dew. A reverend gentleman who closely examined the phenomenon with myself, and who possessed foregone conclusions in keeping with those of your correspondent, was forced to the admission that the gross weight of the obvious film of honey-dew exceeded that of the whole weight of the existent aphides. I think it not improbable that the primary cause of such displays has hitherto been entirely overlooked—that is, in so far as recently-published investigations are concerned; namely, that they are attributable primarily to a peculiar condition of the atmosphere, and always co-existent with such. I have it firmly impressed on my mind, though at the time it did not occur to me to commit the facts to paper, that we experienced extreme fluctuations of temperature, including a very warm but perfectly dewless night, about the advent of what I have described; and though I have not time at the present to give such attention to the subject as I could desire, I have no doubt whatever that the deposit upon the immense surface I refer to, was due to extravasated sap, caused by the long-continued root, and especially aërial, drought, which reached its climax on that dewless night. "O." should bear in mind that such a state of the elements generates aphides more readily than all others, and that their presence, though due to like causes, it is more than probable, in but a very small degree created such effects as "O." surmises. *William Earley.*

Fluctuations of Temperature.—In the article on "Weather Lore," last week, "E. S. D." states that "there is an abnormal drop in temperature about February 12 and May 12. It is rare that, at these critical epochs, the thermometer does not go rapidly down several degrees, rising afterwards to its normal average height." In your Almanac for 1873 you give the mean temperature for every day in the year (for London). This shows the drop from February 10 to 20, but there is no corresponding drop shown for May, during which month the average temperature rises steadily. The "abnormal drop" must, therefore, be an exception, and not the rule, and there must be a corresponding rise in some years, or the exceptional drop would affect the average. This appears to dispose of the aërolite theory. *Francis Ram.*

Removal of Glass-houses.—With regard to glass-houses already erected on rented land, a lawyer must advise upon the specialities of each case as it arises. As to the erection of new glass-houses—if boards be laid upon the surface of the ground (previously well filled up and rammed), and a course of bricks be laid upon these boards, and the wall built up in the usual way, the house will certainly belong to the tenant, for the house is cut off from the freehold by the boards (which have no mortar nor cement above or below them to affix to the freehold), and is therefore as removable as anything else which rests only on the surface of the soil, and is not let into it by a foundation laid in a trench, or affixed to it by mortar or cement. As to "lean-to" glass-houses, whatever is let into a wall belonging to the freehold, or nailed to it, passes with the freehold; whatever is only affixed with screws may be removed. On this principle I was advised to erect a lean-to green-house, which is therefore removable. *Henry Robert Boyd.*

The Size of Peaches.—In reference to a question about the measurement of fruit last year, I beg to state that we have been gathering Peaches here for some time back measuring from 9 to 10 inches in circumference. Of the later varieties, which are yet hard, the fruit when fully ripe must be a great deal larger. The variety that swells to the greatest size with us is the Stirling Castle. We had it last year measuring 11 inches in girth. It seems wonderful that Peaches can be brought to such perfection in every way, while Strawberries and Gooseberries are still green and Apples a little more than formed. *Wm. Paul, Edinburgh.*

Budding Cherries on the Cherry Laurel.—Some time back some correspondence arose in the *Gardeners' Chronicle* as to budding the Cherry upon the Cherry Laurel, and *vice versâ*. Just before that I had tried the former, and this year the fruit has matured very well, except being split with the late rains. I send a specimen or two by this post. I have sown some stones—will they come up Cherries or Laurels? [Cherries.] *Thomas W. Marsh.*

Colchicum Parkinsoni (Hook. f., Bot. Mag., 6090).—Dr. Hooker remarks, *l. c.*, "The plant now called variegatum, and which is supposed to be the Linnean one, is also a native of Greece, and is figured at tab. 1028 of this work (copied and reversed in Reichenbach's *Flora Exotica*, t. 57, without acknowledgment)." I must declare my father innocent of that charge. All the tables of the work (Schizanthus excepted) were made by benevolent Belgians, as is distinctly stated on the title: "Herausgegeben von einer gesellschaft von gartenfreunden in Brussel." They may have indulged in what Sir William Hooker used to call "piracy," when speaking of the selfish admirers of his own publications. Only the descriptions come to my father's account—"Erläuterudem text und anleitung zur cultur von H. G. Ludwig Reichenbach." My father's editor, M. Hofmeister, had purchased, *bonâ fide*, the colour impression from the Brussels friends of gardens (at money?) A great pity M. Hofmeister is dead, who could have given further particulars. After all, it would have been more satisfactory to learn who grew the Colchicum Parkinsoni. *H. G. Rchb. f.* [The usual acknowledged use of illustrations, directly or indirectly taken from other works, as also of literary matter, has, we regret to say, become a regular thing with some journals, in spite of its being a direct breach of faith with the public and an injury to the original publication. Eds.]

Caterpillars on Cabbages.—As this is a season when caterpillars are rife among Cabbages, the following plan of getting rid of them may not be generally known, and may be of use to some of the readers of the *Gardeners' Chronicle*:—Sad havoc is sometimes made among Cabbages by the larvæ of Pieris brassicæ (large Garden-white), P. rapæ (small Garden-white), and Mamestra brassicæ (Cabbage moth). These three feed almost exclusively on Cabbage and its allies, and, together with slugs, do much damage to them. This may be almost entirely obviated by plentifully sprinkling the plants with salt. The Cabbage in its wild state is a maritime plant, and is therefore constantly surrounded by a salt-impregnated atmosphere, so that no one need fear that the salt will injure the plants; on the contrary, it rather tends to make them more vigorous. I may add that since we have adopted the above remedy scarcely a caterpillar has been seen, whereas before adopting it we were greatly plagued with them. *N. B.*

Beschorneria yuccoides.—Can you or any of your correspondents kindly give any information as to the cultivation, &c., of Beschorneria yuccoides? *T.* [This plant is a native of Mexico, and is a greenhouse subject. I have always found that plants from that quarter (excepting Cacti) do not like to be very dry during winter; in fact, should be kept growing until the end of December, and then gradually brought to rest. The plant in question is fond of a rich loam with a dash of sand, and should be potted firmly, June being the best season to shift them. When growing it requires water freely, and though luxuriating under the same roof as Agaves, it will not stand so much drought and full exposure to sun. Seed should be sown as soon as ripe, in a good bottom-heat. In potting-off avoid shaking the soil much from the roots, and keep until established in stove temperature. When the plants flower they will throw offsets, which may be taken off as soon as 6 to 8 inches long. Put into bottom-heat until established, which they soon will be if not over-watered. Treated thus, I find it does well. *J. Croucher.*]

Plant Showing and Judging at the Royal Botanic.—Your reporter complains, and very justly, of the thinness or scarcity of plants at the show held on the 24th inst.; but is it to be wondered at, as there are several classes which should be reserved to gardeners, thrown open to nurserymen? Is it likely that gardeners will bring plants a long distance when they feel certain they will be beaten by nurserymen in an open class? This point requires careful consideration, as it is not because the nurserymen are the best cultivators, but the importers of new plants. It is generally supposed that in the gardeners' class prizes are given for superior culture, yet one gets a prize for the largest plants, a second for the meanest rubbish, but the third gets his for variety and cultivation. Is this as it should be? There is evidently something wrong in this, and the sooner the judges of plants bestow a little more care on their decisions the better will be the exhibitions at the Royal Botanic. I will not now encroach more on your valuable space, as I feel certain there are other gardeners who will have something to say on this subject. *R. Butler, St. Dunstan's, Regent's Park, N.W., June* 29.

Vines and Wine Production in England.—Vopiscus, a Roman writer of the second century, quoted by Merivale (*Roman History*), says of Domitian—"Gallis omnibus et Hispanis et Britannis permisit ut vites haberent, vinumque conficerent"—a tolerably plain proof that up to that time wine was considered a natural product of this country. Was our climate then hotter in summer than now? *G., Bath.*

Pine Trees Injured by an Insect.—I beg to ask your advice in regard to sad injury done to some of my Pine trees. I enclose specimens, which will show you that a grub has lodged itself at the base of the young shoots, and formed a tunnel of considerable length by eating away the interior. I did not detect what was in progress until the shoots began to droop, most of them at the same time turning brown, when I discovered that in every tunnel there was a chrysalis. Specimens of the chrysalis are in some of the shoots I now enclose. The trees present a most woful appearance. What can be done to remedy the mischief? Can I take any measures to de-

troy the perfect insects when they emerge from the chrysalis? Where can the little devastators have come from in the first instance? Other species of Pine, and of Conifers in general, right and left of the injured trees, have not been touched. The soil is good, and upon a chalky foundation. *G. C., Arundel, Sussex.* [It is easier to tell the culprit here than to suggest an effectual remedy. The insect is a small silvery prettily marked moth, named Retinia Buolina. We fear it is increasing in the country. It is certainly much more frequently brought under our notice now than it used to be some years ago, and we regret much that we cannot tell how to get rid of it in any more effectual way than by the obvious one of cutting off the attacked twigs and burning them; and not a day should be lost in doing so, as the insect is now in the burrow in the chrysalis state, and some of them are coming out every day. A few days' delay will allow the whole of the brood to come out and do tenfold the mischief next year. *A. M.*]

Oval Beds.—I find my gardener has run a straight line down the centre of his oval beds. Now, nothing can be uglier or æsthetically more improper. In an oval no straight lines are admissible—not even a cross. The proper treatment of an oval is to bed out round the two circles, filling in the two spandrils between with different flowers from the circles, or plant diagonally throughout, or have the three circles intersect one another. *East Somerset.*

Frost in June.—Severe frosts in June, though unusual, are not unprecedented. From a file of old newspapers, reaching so far back as 1782, I take the following, connected with the banks of the Tweed:—"On Tuesday night (June 5, 1787) we had a very sharp frost, and on Wednesday there fell several heavy showers of hail, and, as the weather has continued cold and stormy ever since, we fear the little fruit there was is totally destroyed." In the same paper is the following:—"Aberdeen, June 7.—On Monday evening it began to rain heavily, and continued the greatest part of Tuesday, accompanied with sleet and hail. Instead of the warm weather after rain, which is looked for at this season, the cold has been very intense, and on Wednesday morning the frost was so strong that the ice on the pools was as thick as half-a-crown piece." It may be observed that the frost mentioned above occurred after a very mild winter, but a cold spring. In the same journal, of date February 16, 1787, I find the following:—"Several Primroses in full bloom were planted near Whitehaven on Friday sennight (Friday week). There is at present in the garden of Mrs. Dalton, at Carlisle, a Cherry tree in blossom. Several of the buds appeared as early as the middle of January, and are now perfectly blown." The early spring continued to be uncommonly mild; but in June I read notes from England as follow:—"This year's harvest, both as to hay and corn, promises to be the finest ever known in England. Fruits, on account of the long easterly winds, will be very scarce, notwithstanding the general fine bloom in the spring." *T.*

The Hailstorm on June 24.—The thunderstorm which passed over this neighbourhood on the 24th will be long remembered on account of the tremendous fall of hail with which it was accompanied. In a few minutes the ground was thickly covered, so that it presented quite a wintry appearance; the stones being unusually large, much damage was done to the fruit crops and bedding plants. Strawberries were deeply indented by the hailstones, which has caused them to rot upon the ground; Pears on espaliers were also much damaged, the fruit wherever exposed being marked as if by shot. In the flower garden the Coleus are literally stripped of their foliage, and the Pelargoniums completely riddled; Elms and Chestnuts also suffered severely. It does not seem to have extended far, as but a short distance from here they had nothing whatever of it. *H. Stapleton, Spring Grove House, Isleworth.*

Reports of Societies.

Royal Horticultural: *July* 1.—G. F. Wilson, Esq., F.R.S., in the chair. The Rev. M. J. Berkeley announced the awards of the Fruit and Floral Committees, and called attention to several subjects of interest which had been brought before the Scientific Committee, and which are alluded to in the report below.

SCIENTIFIC COMMITTEE.—Dr. J. H. Gilbert, F.R.S., and afterwards Dr. Hooker, C.B., Pres. R.S., in the chair.

Diseased Pinks.—The Rev. M. J. Berkeley, in allusion to the Pinks shown at the last meeting, stated that he could find no trace either of insect or of fungus in the specimens sent to him for examination. He considered it probable that the disease was due to the frost attacking the collar of the plant in the spring, the effects of which might not be visible for some time. Dr. Hooker and other members stated that the effects of frost were frequently not visible at the time, but revealed themselves when the summer came on.

Bladder Plums.—The Rev. M. J. Berkeley showed specimens of Bladder-like Plums, from Pitsligo, Aberdeen. The specimens belonged to Prunus Padus. He thought it probable that the condition in question was produced by the same fungus, Ascomycetes, as produces the blister in Peach leaves.

Fairy Rings.—Dr. Gilbert entered into some explanations as to the growth of Fairy Rings, as observed by Mr. Lawes and himself at Rothamsted. Mr. Lawes had had analysed samples of the soil from the ring itself, from the space within the ring, and from the earth outside it, with the general result that the quantity of nitrogen in the soil outside the ring was greater than in the soil beneath the ring itself, while in the centre within the ring the amount of nitrogen was least. Under the green ring a quantity of mycelium was found. Dr. Gilbert also entered into some details as to the experiments carried on by Mr. Lawes on land originally sown with Clover, but which last year was half-sown with Barley, the other half with Clover, with the result that much more nitrogen was taken from the soil by the Clover than by the Barley. As the investigation is not completed, the publication of the details is deferred for the present.

Iris Kæmpferi.—Dr. Hooker showed flowers of this noble Iris from Messrs. E. G. Henderson. Apart from its beauty as an ornamental plant, much interest attaches to the specimens from the fact that the petals, which are usually narrower than the sepals, and erect, are here as broad as the sepals and, as well as the sepals, spread horizontally. The number of stamens also is increased, and in form they are partly petaloid and tubular. The plant called in gardens Iris Kæmpferi is supposed to be Iris lævigata of Fischer (see Regel's *Gartenflora*, 1873, p. 229, Oudeman's *Neerlands Plantentuin*, tab. viii., also tab. xxxiii., xxxiv.; *Illustration Horticole*, v. 858, t. 157. The plant was introduced before 1856 by von Siebold, from Japan.)

Germination of Seeds.—Dr. Hooker stated that seeds of Pringlea antiscorbutica, sent to Edinburgh in sealed tubes, had all germinated, while those sent to Kew in their pods as dried plants had none of them sprouted.

Irritability of Pinguicula.—Professor Dyer read portions of a communication from Mr. Darwin, relating to the power which this plant has, like Drosera, of catching insects and digesting them. See p. 15.

Malformed Clover.—Mr. Hiern showed specimens of a malformed Clover, which will be reported on at a future meeting.

Wood for Engraving.—Mr. W. G. Smith showed, in continuation of the series already exhibited by him, and engravings from which have appeared from time to time in these columns, with notes, wood engravings on Lignum Vitæ, which he found more brittle than Box. Up to the present time nothing had been found so good as Box.

FLORAL COMMITTEE.—Dr. Denny in the chair. First-class Certificates were awarded at this meeting to Messrs. E. G. Henderson & Son, for Tricolor Pelargonium Dr. Masters, one of the brightest coloured varieties, and which stood out well amongst its fellows in the Chiswick trial grounds last year; and for Iris Kæmpferi, var. Edward George Henderson, with large deep purple flowers barred with gold; to Mr. Croucher, gr. to J. T. Peacock, Esq., for Echeveria Peacockii; to Mr. Cranston, for a seedling Rose from Prince Camille de Rohan, a fine deep crimson, with a strong likeness to Marie Baumann; to Mr. R. Dean, Seed Grounds, Bedfont, for Silene pendula florepleno, a pretty novelty; and to Mr. Bester, manager to the Pine-apple Nursery Company, for Lobelia pumila grandiflora, a pretty, deep blue form, which was alluded to in our last issue. Messrs. James Backhouse & Son, York, sent three plants, with very fine spikes of flower, of Oncidium stelligerum. G. F. Wilson, Esq., sent a bunch of cut Lilies, amongst which were some interesting varieties of L. canadense, and others of L. californicum, L. Washingtonianum, L. puberulum, L. philadelphicum, L. pardalinum, and L. longiflorum. Two pans of the pretty dwarf coral-red berried rock plant, Nertera depressa, came from the Society's garden at Chiswick. A good selection of Antirrhinums came from Mr. R. Dean, and some yellow Foxgloves from Mr. Harrison Weir.

FRUIT COMMITTEE.—A. Smee, Esq., F.R.S., in the chair. Mr. Perkins, gr. to Charles Keyser, Esq., Warren House, Stanmore, sent a handsome Ripley Queen Pine, weighing 5 lb. 13 oz., the produce of a rooted sucker planted in August last. A Cultural Commendation was awarded. A fine Queen Pine, weighing 5 lb. 6 oz., was also shown by Mr. Richards, gr. to Baron Rothschild, Gunnersbury. Read's Scarlet-fleshed Melon was shown by Mr. Bennett, Hatfield, but not in good condition; and Mr. J. Read, the Gardens, Arley Hall, Northwich, showed Read's Perfection Melon, which was thought to be too much like Scarlet Gem to gain the coveted award. Mr. Woodbridge, gr. to the Duke of Northumberland, Syon, exhibited a dozen dishes of distinct varieties of Cherries, including Black Circassian, Early Purple Gean, Black Eagle, St. Marguerite's, Governor Wood, Belle de Suassi, Ohio Beauty, Elton, Monstrous Heart, Bigarreau Napoleon, &c. The samples were fine in size and colour, and all that could be desired in flavour. The committee voted their thanks to Mr. Woodbridge, and unanimously recommended to the Council the award of a bronze medal, which we hope the exhibitor will some day get. T. Laxton, Esq., Stamford, sent a promising seedling Strawberry, which was relegated to Chiswick for trial; as was also a new dwarf early marrow Pea, of great promise, named Robert Fenn, and shown by Mr. R. Dean. Mr. Melville, Superintendent, The Royal Vineyard, St. Laurence, Jersey, sent two bunches of a seedling Grape, named Duchess of Edinburgh. It is a White Muscat Grape, raised from the Black and White Muscats of Alexandria, but came too late to be brought before the full committee.

THE ROSE SHOW.—We ventured to anticipate in our last that this would probably be the best Rose show of the year, but should this eventually prove to be the case, we can only say that many better have gone before. Held, as usual here, in the Western Arcade, the show to-day was considerably smaller than many of its predecessors, and though, as must always be the case, there were a good many fine blooms, it cannot be said, on the whole, that what we lost in numbers was made up for in quality. An excellent feature in the schedule of prizes offered was the classes for half-a-dozen or a dozen blooms of specified varieties—a plan which we think might with advantage be extended, inasmuch as in the case of new varieties we should sooner gain a sound opinion of their merits, with the consequent advantage of being able to invest our money in Roses of merit, instead of those whose excellence or worthlessness have to be proved. Besides, the system would create more variety and cause even more interest to be taken in the Rose, and in the hands of tasteful managers would no doubt be productive of prettier combinations of colour than can ever be expected from the patchwork quilt-like system from which the exhibitors seem unable to break away. The arrangements at Rose shows in general seem as if they were intended as trials to see if Roses can be made to appear unattractive. To the great surprise of many rosarians, the 1st prize in the nurserymen's class for 72—a coveted distinction which in later years has been productive of many a sharp contest between the doughty champions of Cheshunt and Slough—was taken by Mr. G. Prince, of Oxford, whose flowers, it is well known, are from trees worked on seedling Briars; Mr. Turner was 2d, Messrs. Paul & Son 3d, and Messrs. J. Mitchell & Sons 4th. Mr. Prince's flowers were not so even as Mr. Turner's, but he had many large blooms, and all were fresh and bright in colour. His best flower was one of Maurice Bernardin—a perfect beauty, while the blooms of Madame Georges Schwartz, Madame Thérèse Levet, Marquise de Castellane, Charles Lefebvre, Emilie Hausberg, Etiénne Levet, and Niphetos were very fine in size. Mr. Turner's flowers were even and of good size, but owing to the recent rains had not quite such sparkling colour as we usually see in the Slough Roses, while the long absence of rain at Cheshunt has told terribly in the smallness and thinness of Messrs. Paul & Son's blooms. Mr. Turner was well 1st in the class for forty-eight varieties, three trusses of each, Messrs. Paul & Son being 2d. The finest flowers in Mr. Turner's lot were Etiénne Levet, Elie Morel, Xavier Olibo, Victor Verdier, Centifolia rosea, Paul Néron, and Marquise de Castellane, all quite first-rate. For thirty-six cut Roses, nurserymen, Mr. Cranston, King's Acre, Hereford, was 1st; Mr. Fraser, Lea Bridge, 2d; and Mr. G. Prince, 3d—the first named having, besides several of those already named, very good blooms of Jean Cherpin, Dupuy Jamin, La France, and Paul Verdier. Amongst nurserymen Mr. Cranston also sent the best twenty-four.

The amateurs' classes were all well contested. The best forty-eight single trusses came from the Rev. G. Arkwright, Pencombe Rectory, Herefordshire, who had a capital lot of blooms, including Duchess de Caylus, Gloire de Dijon, La France, Lælia, Baron Haussmann, Madame Bravy, Leopold I., Alfred Colomb, Annie Laxton, and Madame Boutin, which showed the most quality. The next best, a very even lot, came from the Rev. J. B. M. Camm, followed by Mr. Farren, of Cambridge, and Mr. W. Ingle. In the twenty-fours—a large and well-contested class—the awards were made in the following order:—Mr. W. Farren 1st, Mr. T. H. Gould 2d, Mr. W. Ingle 3d, and Mr. J. W. Chard 4th. The 1st and 2d prizes in the class for twelve single trusses both went to Oxford growers—Mr. J. Mark, Corn Market Street, and Mr. D. Chapman, Broad Street; Mr. T. H. Gould being 3d, and Captain Christy, Westerham, Kent, 4th. Marguerite Dombrain, La France,

Paul Verdier, Monsieur Woolfield, Countess of Oxford, Reine du Midi, and Madame Victor Verdier were the cream of the 1st prize group. The best twelve new Roses of 1871-72 or '73, came from Mr. Cranston, Mr. Turner being 2d, and Messrs. Paul & Son 3d. Madame Georges Schwartz, a large bright pink flower of 1871; Annie Laxton, the best new Rose at the Bath show, and a novelty in colour; L'Esperance, Dr. de Challus, Reynolds Hole, Etiénne Levet, and Madame Thérèse Parnin, were the best of Mr. Cranston's: while Mr. Turner's collection contained the best flower we have yet seen of the pale blush Bessie Johnson. The last named exhibitor took the 1st prize in the class for six trusses of any new Rose of 1871-72 or '73, with large, full, and fresh-looking flowers of Etienne Levet; Annie Laxton, shown well by Messrs. Paul & Son, being 2d; and Elie Morel, very large flowers, from Mr. G. Prince, 3d. For twelve Tea-scented and Noisette Roses the amateurs had a decided advantage over the nurserymen, showing by far the freshest flowers. The best came from the Rev. G. Arkwright, and included nice flowers of such well-known varieties as Devoniensis, Souvenir d'un Ami, Souvenir d'Elise, Madame Bravy, Rubens, Triomphe de Rennes, and Bouton d'Or. Messrs. Paul & Son were 1st amongst nurserymen. For twelve trusses of Marie Baumann an, excellent lot of large, full, fresh, and finely-coloured flowers from Mr. Prince were 1st. The best lot of that lovely Rose, La France, came from the Rev. G. Arkwright, and they were particularly fine in size and colour. The 2d prize was taken by the Rev. J. B. M. Camm, with nice flowers, but not possessing so much substance. The best lot of Baroness Rothschild—a grand lot of a grand Rose—came from Mr. Turner; the Rev. J. B. M. Camm coming in 2d with some large and clean blooms. This was a capitally contested class, in which Messrs. Paul & Son, Mr. Chard, Mr. Ingle, Mr. Prince, Mr. Fraser, and Messrs. Mitchell & Sons took part. The best dozen blooms of Duke of Edinburgh came from Messrs. Paul & Sons, who were followed by Mr. Turner; but in neither case could they be said to be first-rate. This was also the case in the class for twelve of Alfred Colomb, in which the Rev. J. B. M. Camm was 1st, and Mr. Chard 2d. Both groups were very uneven. Messrs. Paul & Son and Mr. Turner were the only competitors with nice collections in the class for twenty-four in pots, the best coming from the first-named firm.

In the Eastern Arcade a large and choice selection of plants was staged by Mr. B. S. Williams, and a smaller one by Mr. Aldous, South Kensington. Here, also, the competition was held for the prizes offered by Messrs. James Carter & Co., and Messrs. Hurst & Son, for various sorts of Peas. Messrs. Carter's prizes were for six dishes, to include G. F. Wilson and James' Prolific, and were won respectively by Mr. W. G. Pragnell, gr. to G. D. W. Digby, Esq., Sherborne Castle, and Mr. H. Elliott, gr. to J. Hibbert, Esq., Maidenhead, both showing some fine examples. Messrs. Hurst & Son's prizes were for four dishes, and the 1st was won by Mr. T. Bailey, gr. to T. T. Drake, Esq., Amersham, who had Laxton's William I., Supreme, No. 1, and Fillbasket—all large, fresh, and well-filled pods. Mr. G. T. Miles was 2d, and Mr. Gilbert 3d, both showing good examples of similar varieties.

Stamford Horticultural Society: *June* 23.—The picturesque town of Stamford appears to be well adapted for holding a flower show; the town is attractive in many respects, amid the surroundings of hill and dale, woodland amid grassy mead, flowing river and winding roadways. Stamford races have fallen through from lack of support, thus depriving the town of an annual holiday; and it occurred to the promoters of the flower show that if they were to continue their show over a second day, and add to it features of a popular character, it might make the annual exhibition a permanent summer holiday for the fine old town and neighbourhood. The first day was given up to the flower show and exhibition of poultry and rabbits, opportunity to visit Burghley House, and a grand flower show concert in the evening. The second day saw a great variety of popular entertainments provided; two and a-half hours were given to an inspection of the tents, and then followed a programme—beginning with a balloon ascent at half-past one, and finishing with a display of fireworks and the adoration of Bacchus at dusk—containing so many items of such a diversified character as to crowd a lifetime of sight-seeing into one short summer's day. Punch and Judy, negro entertainment, Spanish acrobats, the trapeze, limelights, songs of all kinds—an entire change of performance about every ten minutes held the popular mind spell-bound till the fireworks showed the way home to bed. It no doubt needs something sensational and uncommonly varied to supply the place of races.

The flower show was arranged in five tents; in one the collections of plants, in another the cut flowers, in a third the fruit and vegetables, in a fourth table decorations and bouquets, and in a fifth the cottagers' produce. In the matter of stove and greenhouse plants there was a falling off as compared with previous years, yet some good plants were staged by the leading exhibitors, Messrs. Cypher of Cheltenham, and House of Peterborough. Mr. Cypher had that beautiful exhibition plant, Clerodendron Balfourianum, very fine; also good examples of Erica Cavendishianum, Phœnocoma prolifera Barnesii, Dracophyllum gracile, and some capital fine-foliaged plants. Of foliage plants, Mr. House had a fine Cycas revoluta, Latania borbonica, Phormium tenax variegatum, well coloured; Erica tricolor rosea, and Bougainvillea glabra. In a group of Ferns shown by Mr. House was a very fine plant of Thamnopteris australasica, the very large sword-like leaves being of a brilliant hue of lively green. Fuchsias, Pelargoniums of all sections, groups of plants shown for effect, a group of coniferous plants—shown by the Messrs. Brown—Ferns, &c., comprising the leading plants.

There was an excellent show of Roses, especially in the amateurs' classes. Messrs. B. R. Cant, Colchester, and J. House, were 1st and 2d in the large collection for nurserymen; but in the smaller collection the positions were reversed. Some very nice Tea-scented and Noisette flowers were staged by Mr. Cant. The best of the new Roses were Francois Michelon, Etiénne Levet, Alexander Dickson, and Bessie Johnson. The best six trusses of any variety was represented by Etiénne Levet, the best twelve by La France: a superb stand of this fine free constant Rose was staged by Mr. J. L. Curtis, Cheltenham; the next best was Maréchal Niel. A very fine stand of forty-eight varieties was staged by Mr. R. Draycott, Hallaton Hall Gardens; Mr. W. Farren, of Cambridge, coming in 2d with some good flowers. In fact, in all the amateurs' classes there was a good competition and fine flowers. The most noticeable feature among the cut flowers were collections of wild flowers, nicely arranged as centre-pieces. Baskets of sweet-scented flowers attracted some attention; they consisted of Roses, Pinks, Mignonette, Sweet Peas, Stocks, Heliotrope, &c. There were some nice bouquets, and prettily designed centre-pieces in flowers and foliage.

A collection of cut double Zonal Pelargoniums, staged by Mr. Laxton, included some of his new varieties, such as Jacobæa, Prince of Orange, orange-carmine, very distinct; La Nègre, purplish crimson; Aurora, very bright scarlet; Speculum, orange-crimson; and Asa Gray, orange-salmon, very distinct. Some good examples of Mr. Laxton's varieties were also staged by the Messrs. Brown, of Stamford.

Some excellent fruit and vegetables were staged, conspicuous among the former was a collection exhibited by Mr. R. Gilbert, Burghley Park Gardens. This comprised Gros Colman, Gros Guillaume, and Trebbiano Grapes, Royal George Peaches, Figs, Strawberries, Cherries, Melons, and a Ripley Queen Pine. Among the Melons was a pale green-fleshed variety of high-class quality, shown by Mr. Gilbert, and to this a First-class Certificate of Merit was awarded.

Saffron Walden Horticultural Society: *June* 24.—The annual exhibition of this Society was held in the grounds of J. L. Taylor, Esq., which had the advantage of being well suited to the purpose, and were also close to the railway station. The morning of the show day was of a very unpromising character, but the weather improved during the day, and became quite fine towards evening. The exhibition, though never large, is always a good one, as things are generally very well done; and it is a popular show also, as many persons come in from the surrounding villages to inspect it.

Two commodious tents sufficed to contain the exhibits: one the plants, the other cut flowers, vegetables and fruits. A large group of plants, not for competition, was set up by Mr. Bryan, gr. to Lord Braybrooke, Audley New Park. It included some capitally grown stuff, and such examples as Alocasia macrorhiza variegata, Cyanophyllum magnificum, Dieffenbachia Bowmanni, Alocasia metallica, a fine Lomaria gibba, &c., and these being mingled with Dracænas and other bright-looking plants, had a good effect. Caladiums, Palms, Ferns, &c., made up the collection of foliaged plants. Some plants of the former, shown by Mr. Archer, gr. to G. S. Gibson, Esq., had very large, bold, and finely-marked leaves. Stove and greenhouse plants, some splendid Lilies, and Ericas were also shown. Large flowered and Zonal Pelargoniums were in good condition—the latter large, globular, and grandly grown well flowered plants, without any supports, and that could honestly shame out of existence all specimens tied out to flat trellises. Fuchsias were represented by nice bushy plants and good varieties: Warrior Queen, a good dark variety, and Albo-coccinea, the last having a red tube, with the sepals one-half white and a scarlet corolla, distinct and very attractive. A promising seedling Gold and Bronze Pelargonium, named Mrs. Crussell, was shown by Mr. J. C. Crussell, bearing large, well-shaped orange-cerise flowers.

The tent containing the cut flowers, fruits and vegetables was a charming little exhibition of itself. The former comprised stove and greenhouse a hardy flowers (the last always well done here), la flowered and Zonal Pelargoniums, Roses, Pans Ranunculus, Pinks, &c. When good flowers are up with judgment and taste, as they invariably at Saffron Walden, the effect is good. In amateurs' classes the cut Roses deserved high pra especially in the class for six varieties.

There was one very nice collection of fruit, some good Black Grapes. Strawberries were v fine, the grand old British Queen coming out w Peas were numerous and very good—Alpha, vancer, Supreme, Emerald Gem, Sangster's No. Veitch's Perfection, Dickson's Favourite, &c., w the leading sorts. Baskets of vegetables were goo set up neatly and with taste. A collection of w flowers, furnished by the children of the Brit Schools, were of a highly interesting character.

West Ham Park Horticultural Show: *June* —This exhibition was held in connection with th Essex Agricultural Society, and occupied a site ju outside the confines of the agricultural show-groun in West Ham Park. This extensive park is we suited to a gathering of this kind, and it is gratifyin to know that instead of falling a prey to the moder speculative builder, it will in all probability become public park for the town of Stratford, and a recreatio ground for its numerous industrial population.

The horticultural department was arranged and carried out by a sub-committe appointed by the agricultural show committee, of which Mr. John Fraser, of the Lea Bridge Road Nurseries, was chairman, and such well-known practical horticulturists as Messrs. Douglas, Ward, and Donald were members of it. The arrangement of the tents and disposition of the plants were mainly planned by Mr. Fraser, who personally superintended the staging, and was most energetic and successful in getting the plants set up and staged at an early hour. The entries, &c., were carried out according to the method observed by the Royal Horticultural Society; the judges were enabled to get to work early, and all went smoothly and harmoniously.

Five tents were filled with the exhibits entered in fifty-four classes. In the centre stood Mr. Unite's huge circular tent that used to figure at the provincial exhibitions of the Royal Horticultural Society, and round it was a broken ring of four others, all filled with occupants. Never before, perhaps, was the large tent so well occupied as on this occasion, and by as fine and varied a lot of plants. In the centre was a huge diamond-shaped stage, neatly covered with green baize, affording accommodation for two lines of plants, one above the other, and above this a broad platform. Then round the tent was another broad low staging, likewise covered with green baize, and well arranged with plants. The centre stage was occupied on three sides by very fine collections of twelve stove and green house plants, in flower, furnished by Mr. Ward, gr. to F. G. Wilkins, Esq., Leyton; Mr. J. Wheeler, gr. to J. Philpotts, Esq., Stamford Hill; and Mr. Donald, gr. to J. G. Barclay, Esq., Leyton; the prizes being awarded in the order named. Mr. Ward's group was made up of a superb lot of plants, such as Genetyllis Hookeriana, Erica Parmentieri rosea, E. Cavendishianum, E. Paxtoni, Bougainvillea glabra, Allamanda Hendersoni, Anthurium Scherzerianum, a very bright coloured Kalosanthes named Frederick Desbois, and others. These were in every way worthy of so good a cultivator as Mr. Ward. Mr. Wheeler staged some remarkably good plants, such as Stephanotis floribunda Clerodendron Balfourianum, Erica Cavendishianum Dipladenia amabilis, &c. The other side of the stage contained a large and valuable group of plants arranged for effect, staged by Mr. B. S. Williams, the centre platform being occupied by Tree Ferns and huge Palms of splendid growth; while among the plants could be seen Cycas revoluta, Croton variegatum, C. pictum, a splendidly-grown specimen of Gleichenia Speluncæ, the bright-coloured Metrosideros floribunda, Cordyline indivisa, Sarracenia flava, &c. A much smaller but well-arranged and effective group of plants was also staged by Messrs. W. Rollisson & Sons. This was rich in Dracænas, such as D. Mooreana, D. Baptistii, D. imperialis, Croton Youngii, Pandanus Veitchii, P. utilis, &c. Another nice group of foliage and flowering plants was also staged; and in the same class Mr. Burley, of Brentwood, set up an effective bank of Zonal and Nosegay Pelargoniums—the only bit of bright colouring in the large tent, and yet seemingly out of place amid the collections of stove, greenhouse, and foliaged plants. In the classes for six and four Ericas Mr. Ward staged some very fine grown plants, done in his usual excellent style. Such forms as Ne plus Ultra, ferruginea major, gemmifera superba, Paxtoni, pulcherrima, tricolor rosea, ampullacea, Williamsii, were found here. Mr. B. S. Williams was the only exhibitor in the nurserymen's class for twelve stove and greenhouse plants, which contained fine specimens of Erica obbata, Anthurium Scherzerianum, Allamanda Hendersoni, Phœnocoma prolifera, and others.

In another class for six stove and greenhouse

plants Mr. Ward again came to the fore with excellent examples of Erica depressa multiflora, Phœnocoma prolifera Barnesii, Genetyllis tulipifera, Erica Thompsoni, Kalosanthes Madame Celeste Winans, and Ixora Williamsii with large trusses of flowers in the way of I. amboinensis, and which is said to grow in a lower temperature than I. coccinea, I. Colei, and others.

Mr. Donald set up a splendid group of fine-foliaged plants. Palms, Crotons, Cycads, Dracænas, were conspicuous by their noble growth and fine leaf-marking. The same exhibitor had by far the best group of stove and greenhouse Ferns, which were numerously and on the whole well shown.

There was a nice exhibition of fruit—small, but select. Baskets of 12 and 6 varieties of vegetables were a good feature; cut flowers were represented mainly by Roses, the best forty-eight in three trusses being staged by Mr. B. R. Cant, who also showed in the class for twenty-four trusses, but was beaten by Mr. J. Fraser, of Lea Bridge Road. Some good flowers were staged by the amateur cultivators also.

A small tent was given up to the table decorations, there being classes for one and three pieces. In the former, Mr. Burley, Brentwood, staged one of the chaste and elegant designs for which he is so famous; the 2d prize group was also nicely done.

It may be added that the town of Stratford put on its gayest appearance to greet its numerous visitors, that the day was fine, and that there was every promise the exhibition would prove a great success.

Ipswich Horticultural: *June* 25.—The summer meeting of this Society was held last Thursday, simultaneously with, but independent of, the very successful meeting of the Suffolk Agricultural Association in Christ Church Park. The Flower Show, and also that of the Ipswich Poultry and Pigeon Show, was held in the grounds of the Lower Arboretum. The weather, though threatening, proved propitious, and the show was well supported by crowds of visitors. It was somewhat smaller than usual, but of good quality—fruit, vegetables, cut herbaceous plants, and Roses being its strongest points. The Black Grapes were particularly well done, as were the two collections of fruit shown by Mr. Blair, of Shrubland. Melons, too, were plentiful and good alike in the two classes "to be cut" and "not to be cut." There were also some capital dishes of Peaches and Nectarines, Cherries, and, of course, Strawberries galore, though none of them were very highly flavoured. Ipswich holds a sort of supremacy in Cucumber growing, and the local sorts, Ipswich Gem, Whitton Hero, &c., fairly beat the Duke of Edinburgh and Blue Gown out of the field; the former, however, was coarse at Ipswich. Peas were a goodly lot, and vegetables generally fine, though Cauliflowers were by no means up to the usual high standard seen here—doubtless owing to the unfavourable spring. Special prizes offered for the best basket of vegetables, ten sorts, and the best collection of twelve varieties, brought out a capital muster of most creditable productions. Onions were simply magnificent, as if it had been September and not June. Turnips, which are generally first-rate, were a scrubby lot, owing to their frequent checks. Turning to plants, there was comparatively little worthy of special note, excepting two Orchids—a fine specimen with three long spikes of the lovely Odontoglossum Alexandræ, from Mr. Miller, gr. to Lord Rendlesham, and a fine mass of Dendrobium nobile from the gardens of Mr. Packer. Mr. Gilbert, nurseryman, Ipswich, also showed a fine specimen of the golden Japan Lily, over 6 feet high, with a noble head of bloom. open and to come. There were a few good plants of the Clerodendron Balfourianum, Allamanda Wardleiana, Trachelospermum jasminoides (several), and a few good foliage plants and Ferns. Tricolor Pelargoniums were remarkably well done, Zonals fair, and Fuchsias very poor. The more popular herbaceous plants were well shown in 24's, and excited much interest; and those rarely seen but comely Picotees were shown in fine order by several exhibitors. The show of Roses was capital for the season—Mr. Cant, of Colchester, beating and being beaten in some of the leading classes. There were four lots of twenty-four, three of eighteen, twelve of twelve, and thirteen of six.

Law Notes.

Disputed Salesman's Case.—At the last sitting of the Westminster County Court, the case of Jacobs *v.* Pullen was heard before the presiding Judge, F. Bayley, Esq., in which the plaintiff, a salesman of Covent Garden Market, sued the defendant, a fruiterer and greengrocer of Bayswater, to recover the sum of £1 2*s.* 6*d.*, for a box of Oranges sold and delivered. The plaintiff, in proving his case, stated he sold the goods on credit, as he had had several previous transactions both with the defendant and his father, and that, by mistake, the bill was sent in to the father, who forwarded it to the son, who said he had already paid for the goods, and refused to pay a second time.—John Fellow (in the plaintiff's employ) said he recollected the transaction, and the Oranges were not paid for, and were entered to the defendant in the usual book.—The defendant produced a book in which he entered all payments; but, in answer to the Judge, said he never gave receipts for ready-money payments, and he recollected perfectly paying the plaintiff from the circumstance of his dropping a florin on the ground in doing so.

The learned Judge told the defendant that the onus of proof of payment rested with him, and that unless he could satisfy the Court on this point judgment would be against him.

The defendant not being able to do this, judgment was entered for the plaintiff for the sum claimed, with costs.

The Villa Garden.

Greenhouse.—There are now so many things coming on to flower in the greenhouse — among them Fuchsias, Balsams, Petunias, the pleasant old Trachelium cœruleum, Plumbago capensis, Campanula turbinata (the three last affording charming hues of blue), and others too numerous to mention—that it is important room be made for them; and the only plan is to place out-of-doors certain hardy plants and those of a tender character that have done blooming. If plants are crowded in a house they are sure to become drawn, and half the effect they would otherwise create is destroyed. A few plants grown well is surely better than a number of plants overcrowded and grown indifferently under a north wall that gets but little sun at mid-day. We had already prepared a bed of coal-ashes, and fenced it round with some rough boards obtained by knocking an old box or two to pieces. In this bed we have plunged the plants that have flowered in pots of Astilbe barbata (Hoteia japonica), Primula cortusoides amœna, P. intermedia, P. nivalis, double and single Primroses, Fern-leaved Primulas, Scilla sibirica, Triteleia uniflora, Hepaticas, and others. Here they are kept cool and moist about the roots, they are gradually maturing and ripening their growth, and they are only wanted in very dry weather, excepting the Astilbe, and these are regularly drenched with water every day. There are also a few of the fine old-fashioned named Polyanthuses that were so popular a quarter of a century or so ago—Buck's George IV., Cheshire Favourite, Lord Lincoln, Exile, and one or two others. The clearing away of these plants affords room for others; room is very essential to the well-being of plants in houses—they want light, and a free circulation of air among them; crowded and drawn plants get the green-fly on them, and become of an unhealthy aspect.

It is not difficult to keep down green-fly in a greenhouse at this season of the year. Give plenty of air in fine weather, and plenty of water also, and use the syringe freely and frequently on all bright days. There is an impression abroad among some people that water should not be applied to the foliage of plants when the sun is on them; experienced horticulturists smile at and ridicule such an idea, but it is a fact that this idea is largely held notwithstanding: there are many small superstitions abroad, and the prejudice against syringing plants when the sun is on them is one of them. We have heard persons express great wonder at this being done during bright sunshine and we would simply point to the condition of the plants as illustrating the beneficial effects of the practice — generally a convincing and conclusive argument.

One portion of the ash-bed recommended for summer plunging has been made into a bed for striking Pansy and other cuttings: at the bottom is a layer of cinder ashes, over that is laid a layer of clippings from a Laurel hedge, on that some pieces of turf and some decayed leaves, and then about 3 inches of a nice sandy light soil; a bed like this is of great value. Now that bedding Pansies are becoming so much and so worthily used for the spring decoration of flower gardens, a stock of them should be obtained by striking cuttings at this season of the year. Well established plants of Pansies are now making a profuse growth from the roots, throwing up a number of small shoots, and these should be selected for cuttings. They should be carefully removed with a sharp knife when about 2 inches in length, cutting them off just below a joint, and then inserting them in the beds about half an inch in depth, and an inch apart in lines which should be 2 inches apart, with the soil pressed firmly about the cuttings. Then sprinkle them well with a fine-rose watering pot, and keep them moist during dry sunny weather. They will soon root, and then it will be well to plant them out in lines on a spare piece of ground, to give them room to grow into size; then they will become fine plants for planting out in beds in autumn, to stand through the winter and flower well in the spring. The gay-coloured fancy varieties, with their strong growth and striking hues of colour, are also being much grown now, because more showy and stronger in constitution than the English or show Pansies. A few cuttings of these should also be put in at this season of the year.

Such a bed can be made of service for striking cuttings of such fine hardy spring-flowering perennial plants as evergreen Candytufts, especially the fine Iberis coriifolia, Cheiranthus Marshallii and C. alpinus, the double white and purple Rockets, and such-like, all of which strike well from cuttings at this season of the year. They are so useful in the garden in spring, that no words of praise can too highly commend them.

A few days ago we saw in a greenhouse attached to a Villa residence some plants of Echeveria sobolifera, growing singly in pots, and blooming profusely. A large number of reddish-brown flowers are produced on a branching main spike, but in the process of flowering the plant exhausts itself and dies. This is, however, but a small matter, for a plant will throw out many offsets in a season. In the early part of the spring some of the largest plants should be lifted from the open ground and potted singly into 48-pots, using a light free soil. Soon after they begin to make growth they will run away to flower, and it is then necessary to tie the stalk to a small stake or support, or the weight of the head of flowers will cause it to topple over and force the plant out of the ground. The plants form nice green rosettes before they throw up the flower-spike, and they are of service in a greenhouse to occupy the edges of shelves, so serving as a fringe to taller plants.

If not already done, some Primula and Cineraria seed should be sown in pans, using a very light, free, sandy soil, and then placed on a shady cool shelf in a greenhouse, covered with a piece of glass, and shaded by laying a piece of paper over them. The old-fashioned pans that have no holes at the bottom as an outlet for the water should be avoided, as the moisture accumulates in the pan, completely saturates the soil, which consequently gets sour, and prejudicially affects the growth of the seed. This kind of pan is all very well in a stove-house where there is a brisk bottom-heat and a high temperature. Pans can now be obtained having holes for drainage round the bottom. There should first be a layer of small pieces of broken pots, over this a layer of moss, to keep the soil from washing away out of the holes, and the whole filled up with soil. This should be kept moist by gentle sprinklings of water, occasionally given—doing it frequently in drying weather, and only occasionally when the weather is dull and wet.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, July 1, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
June	In.	In.	°	°	°	°	°	°			In.
25	29.64	−0.18	69.2	50.7	18.5	57.2	− 4.4	51.1	89	S.W.	0.07
26	29.46	−0.36	61.4	52.7	8.7	55.6	− 6.1	53.7	93	ENE: E.S.E.	0.33
27	29.46	−0.36	71.0	54.0	17.0	59.3	− 2.3	55.0	86	NE: E.	0.00
28	29.60	−0.22	63.7	52.7	11.0	56.1	− 5.4	51.1	93	NE: W	0.09
29	29.76	−0.06	71.0	50.9	20.1	58.8	− 2.6	54.2	85	WSW: S.W.	0.03
30	29.83	+0.01	78.8	57.0	21.8	65.3	+ 4.2	57.2	75	WSW	0.00
July 1	29.86	+0.04	71.0	54.3	16.7	59.1	− 1.8	57.5	94	S.W.	0.04

June 25.—Variable; frequent showers of rain.
— 26.—Overcast; rain fell frequently.
— 27.—A fine day; generally cloudy.
— 28.—Generally overcast; rain fell between 10 A.M. and 1 P.M.
— 29.—The sky was generally covered with cloud, and thin rain fell frequently.
— 30.—Fine till 7 P.M.; overcast afterwards.
July 1.—Overcast till afternoon, and rain fell between 7 A.M. and 11 A.M.; fine after 4 P.M.; cloudless at night.

—— In the vicinity of London the reading of the barometer, at the level of the sea, decreased from 30.17 inches at the beginning of the week to 29.96 inches by the evening of the 21st, increased to 30.03 inches by the morning of the 23d, decreased to 29.66 by 9 A.M. on the 26th, and remained almost stationary at that reading till the end of the week. The mean reading for the week was 29.85 inches, being 0.44 inch lower than that of the preceding week. The wave of high atmospheric pressure, which com-

menced with the present month, terminated on the 23d, and from the 24th to the 27th the readings were below the average to the mean amount of 0.26 inch.

The highest temperatures of the air at 4 feet above the ground varied from 75¼° on the 22d to 61½ on the 26th, with a mean for the week of 69½°. The mean of the low night temperatures was 48¾°, the extremes being 40° on the 22d and 54° on the 27th. The mean daily range of temperature was 20¾°, that on the 22d being as large as 35¼°, and that on the 26th, when the sky was overcast throughout, being only 8¾°. The period of low mean temperature, which began on the 12th, continued during the whole of the week, the mean daily values being respectively:—21st, 54°.6; 22d, 58°.2; 23d, 59°.8; 24th, 57°; 25th, 57°.2; 26th, 55°.6; 27th, 59°.3; and the departures in defect of their averages were 5°.3, 2°.1, 0°.9, 4°.2, 4°.4, 6°.1, and 2°.3.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the full rays of the sun, were 144° on the 21st, 139° on the 24th, and 134° on the 23d. On the 21st, 22d, and 23d a thermometer on grass, with its bulb fully exposed to the sky, read 35°, 32°, and 39° respectively, and at other times the readings of this instrument were all above 40°.

On the 21st, 26th, and 27th the direction of the wind was E., or a compound of E., whilst from the 22d to the 25th S.W. was the prevailing direction. The strength of the wind was gentle, but, during gusts on the 24th and 25th, 6¼ lb. and 6½ lb. pressure on the square foot were respectively registered.

The weather during the first three days of the week was fine; on the 24th rain fell frequently, and thunder and lightning were observed in the afternoon; on the 25th and 26th the weather was showery, and on the 27th it was fine but cloudy. The amount of rain measured was 0.87 inch.

In England the extreme high day temperatures ranged from 77¾° at Wolverhampton, to 62° at Newcastle-on-Tyne, the general average over the country being 71½°. The extreme low night temperatures varied from 48° at Liverpool, to 38½° at Norwich, with a general average of 44¼°. The mean range of temperature in the week was 27¼°, being as large as 35¼° at Blackheath, and as small as 17° at Newcastle-on-Tyne. The mean high temperatures observed by day ranged between 71½° at Wolverhampton and 60¼° at Newcastle-on-Tyne, with an average value of 67½°. The mean low temperatures observed by night ranged from 51° at Liverpool and Sunderland, to 46¾° at Norwich and Newcastle-on-Tyne, the general average being 48¾°. The mean daily range of temperature in the week was 18½°. The mean temperature for the week was 56¼°, the highest being at Wolverhampton, 58½°, and the lowest at Newcastle-on-Tyne, 51¾°. The fall of rain varied from 1 inch at Norwich, to two-tenths of an inch at Liverpool, Hull, Newcastle-on-Tyne and Sunderland. The average fall over the country was half an inch. The weather during the week was dull and cloudy, with frequent showers of rain.

In Scotland the highest temperatures ranged from 71° at Dundee to 66° at Aberdeen and Greenock; the lowest temperatures varied from 46° at Greenock to 41° at Edinburgh, their averages being 68° and 43° respectively. The mean range of temperature in the week was 25°. The mean temperature for the week was 56°, the highest being at Dundee, 57°, and the lowest at Aberdeen and Paisley, 55½°. The amount of rain measured at Leith was 1½ inch, which varied to two-tenths of an inch at Glasgow and Dundee, the average fall over the country being three-quarters of an inch.

At Dublin the highest temperature was 71½°, the lowest 39¼°, the mean 57½°, and rainfall 0.24 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—Where stove plants have been treated in this as in ordinary seasons, by the usual reduction of fire-heat or dispensing with it altogether, little progress, or serious injury, has been the result. the continuous winter-like cold of the nights having stagnated growth, and retarded the flowering of all plants that require a high temperature to grow them. Where plants have been chilled in the above way, the best thing is to at once encourage them to push afresh by keeping up a little more heat until we are favoured with the much-desired and seasonably warm weather; and until such comes it will not be safe to place stove plants in cooler houses, such as is usually practised in ordinary seasons, or not only will the flowers be shortlived, but the plants will suffer at the roots in a way that may be fatal to them. Those who exhibit stove plants, and who adopt the system of growing them elevated as near the glass as possible, so frequently advised in this department, will this season see the advantage of the practice, by their ability to withstand removal from the stove without the flagging, wretched appearance they have when grown away from the light, and which, in addition, has the effect of rendering them unsightly for a considerable time afterwards. There is nothing more useful for the summer and autumn decoration of the stove and intermediate house than *Æchmea discolor*, and *Æ. miniata*. These with advantage may be provided in quantity; they are the most useful when grown as single crowns, one in a pot 7 inches in diameter. These are large enough to grow them well; they will succeed in either loam or peat, to which add as much sand as will keep it open and sweet; a few fine crocks or broken charcoal intermixed with the soil is of use in keeping it in a condition suited to the wants of these plants, which in their native habitats are epiphytal, and consequently require a plentiful supply of water, but nevertheless cannot bear their roots in any material that is too close and retentive. They do the best grown upon shelves near the light, or near the front of the house. Here they throw up their flowers strong and robust, remaining for six or eight weeks in good condition. *Francisceas.*—Large plants after flowering should be cut back, and induced to break by putting them in the stove and syringing overhead; after they have broken they may, if it is required, be repotted, or top-dressed by removing a few inches of the surface soil and adding some new in its place. If the plants are getting at all leggy and the soil exhausted, they should, instead of merely shortening the shoots, be moderately headed down, and as soon as they have made a couple of inches of growth, turn them out of the pots and reduce the ball to something like one-third its size, without mutilating the roots more than can be avoided. Place in pots one-third smaller than such as they have previously occupied, in good fibrous peat, with sufficient sand to keep it open. Keep the plants in a brisk temperature, where they will grow apace, making shoots before autumn a foot or 18 inches in length, and flowering even stronger than young plants. *Clerodendron Balfourianum*, and *C. Thompsoni*, that have just done flowering; if the plants are small and it is desirable to increase their size they should at once be placed in heat, and if they require more root-room should be transferred to larger pots, using good yellow loam to grow them in. These plants flower much stronger in loam than when grown in peat. As soon as they break into growth train the young shoots on thin strings near the glass, without shading: the growth made under such conditions is of a nature that will produce double the amount of flowers it is possible to get from such as are grown under conditions that give it less solidity, notwithstanding how much is afterwards done to ripen it by withholding water and subjecting the plants to a drier atmosphere. Plants of these Clerodendrons, that are as large as they are required, after flowering may be placed in a greenhouse in the full sun, where they will make little growth, just receiving as much water as will keep them from flagging. *Gesneras*, of the *Cooperi* and *Donckelaari* type, are most useful stove plants, not taking up much room, and being very effective. They may be increased from cuttings. If, after they have done blooming, the flower-stems are cut down a couple of inches above the bulb, they will break out a number of growths on the crown of the bulbs. These may be taken off when a couple of inches in height, and will soon root if placed singly in small pots, in a mixture of half sand and loam, with just enough water to keep them from flagging. When rooted, encourage to make all the growth possible before winter, when they may have a slight rest. *Stephanotis floribunda.*—Young plants growing on for next year's flowering should have their shoots regularly trained near the glass, where they will receive all the light possible, and sufficient air to thoroughly solidify the growth as it is made. About this and some other plants of a similar habit an erroneous impression appears to exist, it being supposed that by submitting them to an extraordinary drying process at the roots and also the shoots, that a disposition to flower can be induced. A much more certain plan is to thoroughly mature the growth as it goes on in the way described. The earliest-flowered *Ixoras*, if now placed in a brisk heat, will push up and flower again, and will be found very useful for cutting during the autumn; if the plants have filled their pots with roots they will be benefited by the application of manure-water once a week; give it them quite clear and sufficiently diluted so as not to injure their roots, which it will do if applied in too strong a state. The two best varieties for furnishing these autumn-cut flowers are *coccinea* and *aurantiaca*, the latter not having such large heads, but producing them freely. One of the most fragrant flowers in cultivation is the old Jasminum Sambac flore-pleno, now seldom seen. It is a plant of straggling habit, but it is of comparatively small growth, and if trained upon a trellis will keep pushing up growth, which is certain in its flowering. The flowers, pure white, about the size of a common Daisy, are most useful for cutting. The plant can be easily grown from cuttings taken off w a heel, and inserted in a mixture of half loam a sand in a moderate heat, and when rooted remov to 3-inch pots, and kept in heat. Pinch out t points of the shoots to induce them to break bac train them as they grow in a horizontal positio which will still further induce them to break bac The plant is subject to red-spider, to keep which check it must be regularly syringed. No collectio of stove plants, however select, should be without t beautiful *Tillandsia Lindeni*: it is a plant of ea growth, not over large, succeeding well with ordina stove treatment; it should be grown in moderate he and not overpotted. Its leaves are much longer tha those produced by most of the genus, are narrow, chan nelled, and gracefully curved, and which when it charming blue flowers are emitted in succession from it lengthened scapes, give the whole plant a beautiful ap pearance. *Palms.*—All the larger-leaved species, such as *Stevensonia grandifolia*, *Verschaffeltia splendida*; the different sorts of *Thrinax*; *Verschaffeltia melanochætes*, *Livistonia altissima*, and others, are impatient of much sun, and if not carefully shaded are injured in a way that is of serious consequencr to those valuable plants, and which it takes a considerable time to remedy. These are also subject to the attacks of red-spider if they are not regularly syringed overhead thoroughly, both on the upper and under surface of the leaves. Care must also be taken that they do not suffer for want of water at the roots, or they will lose colour to an extent that destroys their wonted freshness, and which they will not regain until a fresh lot of leaves are made. Palms are not plants that require so much root-room as is often given them, if they are regularly supplied with water, and the drainage of the pots is perfect; for although water-loving plants, still they cannot bear it stagnant about their roots. *T. Baines.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—July—and as yet no summer! Flower gardening this season is heartless work; yet withal the plants look better than might be expected, considering that we had frost for three consecutive nights in the middle of June. It is curious to note that Ageratums and Heliotropes suffered more from frost than Coleus, Iresine, or Alternantheras—the latter, since the rain, are growing away freely and colouring splendidly. The lines, divisions, and groundworks where such plants are used should be kept well defined. To this end peg Althernantheras, pick flowers off, and press close to the ground Sedum lividum, glaucum and corsicum. Antennaria tomentosa, Cerastium, and Golden Feather Pyrethrum will also require the flowers picking off and keeping in bounds. The success of "carpet bedding" is due more particularly to its being well kept rather than to elaborate arrangement. Gnaphalium, Iresine, Coleus, Verbenas, Petunias, Lantanas, Nasturtiums and Lobelias, ought to be pegged, in order to cover the ground as early as possible. Herbaceous Lobelias, now throwing up their flower-stems, should have supports; Delphiniums and Phloxes the same. Sub-tropicals will be much benefited by having the ground loosened about them with a pointed stick or small hoe, and presuming that stakes were put to all tall growers when planted, tying to these should be done frequently, that no injury may happen to the plants. Roses, notwithstanding the bad weather, are now blooming well. Remove all decaying flowers, weed and mulch the beds, and encourage a second growth and bloom. Maréchal Niel, Gloire de Dijon, and Souvenir de la Malmaison, have made most wonderful growths this season; regulate, pinch, and tie the shoots as required. Mow regularly, clip all verges, roll walks after rain, and maintain neatness everywhere. *W. Wildsmith, Heckfield.*

FRUIT HOUSES.

VINES.—Grapes that have to hang over the winter months will require rather more thinning than those which may be termed mid-season ones, otherwise they cannot be expected to keep well when a cold, damp atmosphere has to be contended with. Keep the Vines free from all gross lateral growths, and see that houses swelling off their crops have liberal supplies of water. As a rule, the high and dry borders made upon modern principles do not receive sufficient water in dry seasons like the past, and advantage should be taken of the fine showers now passing over the country by emptying the tanks upon inside borders instead of allowing the surplus to find its way into the waste-pipes. Give plenty of air, with abundance of heat, to houses that are colouring, where flavour is of importance, as Grapes which are ripened in a low temperature do not always come up to the mark in flavour, neither do they keep so well as those which are ripened in a brisk heat; but if the Vines are heavily cropped and perfection in colour is doubtful, rest may be given to them by allowing the temperature to fall to 60° at night. Early Vines from which the fruit has been cut must be well syringed every evening, to preserve the old foliage as long as possible, otherwise second growth sets in when they

ought to be going to rest. Attend to the root wants of young Vines, and keep the feeders well up to the mulching by means of frequent surface waterings with tepid soft or pond water. *W. Coleman, Eastnor Castle.*

FIGS.—By this time the first crop of these will be all gathered, and the treatment as advised in the Calendar for Figs for the week ending June 6 should now be in force. Under those conditions the second crop will advance rapidly. There will sure to be a plentiful supply of fruit. This time, therefore, if not already done, thin them freely at once, reserving those which are nearest the base of the shoots. Tie in to the trellis the growths as they advance; stop such as are not required, and regulate those which remain, so that the beneficial effects of sunshine and light can have full power to mature them properly. See that the syringe is freely applied over the trees once or twice every day, as the red-spider is very prevalent this season, and it will soon establish itself if this matter is neglected. Do not allow the trees to suffer from want of water; such as are in pots or planted out in borders of limited extent will require it copiously and frequently. On every occasion of applying it mix a dash of guano in it. In houses where crops are ripening maintain constantly a free circulation of warm dry air; Figs will then ripen perfectly, and will keep better on the trees than otherwise. Attend with regularity to the requirements of the trees in pots, which will be required for early forcing. Syringe them overhead occasionally, and supply them with weak manure-water on every occasion. *G. T. Miles, Wycombe Abbey Gardens.*

PEACHES AND NECTARINES.—Where the fruit is all gathered in the earliest houses, attend still to syringing the trees, to dislodge red-spider if it has appeared on the foliage. If the garden-engine is used, it will be more effectual than the syringe for that purpose where the house is large. If the lights cannot be taken off and the trees exposed to the rain, the inside borders, if dry, should get a good watering, so as to reach the roots, and if a little liquid manure is added it will greatly assist the trees in making plump flower-buds. In later succession-houses, where the fruit is about taking the second swelling after stoning, the syringe must be applied vigorously to keep the red-spider in check. Give plenty of air at all times in favourable weather, and shut up early in the afternoon to economise heat. Keep the shoots tied down as they advance, and thin out any superfluous ones; the laterals on the strong shoots may be pinched in. Should mildew appear on the foliage or fruit, sulphur must be dusted over them, and the syringing discontinued for a time. *William Tillery.*

APPOINTMENTS FOR THE MONTH.

July	6	Meeting of the Entomological Society of London, at 7 P.M.
July	7—10	Midland Counties Grand Horticultural Exhibition at Birmingham. Mr. R. Dean (Ealing, London, W.), and Mr. W. T. Smedley (20, Colmore Row, Birmingham), Secretaries.
July	8	Royal Caledonian Horticultural Society's Show. His Grace the Duke of Buccleuch and Queensberry, K.G., President; Mr. J. Stuart (4, Albyn Place, Edinburgh, Secretary. Bishop Stortford Horticultural Society's Exhibition. J. A. Houblon, Esq., President; Mr. R. Gosling, Vice-President; Mr. W. Smith (Market Place, Bishop Stortford), Hon. Secretary. Chelmsford Horticultural Society's Exhibition. West of England Rose Show, at Hereford. Wisbeach Annual Flower Show. Grand National Rose Show, Exhibition Palace, Dublin. Mr. T. Moore and Mr. W. Watson (11, Eden Quay, Dublin), Hon. Secretaries.
July	9	Horticultural Exhibition at Peterborough.
July	10	Altrincham and Bowdon Rose Society's Show. Mr. W. L. Palfrey (Millington, Altrincham), Hon. Secretary.
July	15	Royal Horticultural Society: Fruit and Floral Committee, at 11 A.M.; Scientific Committee, at 1 P.M. Oundle Fllower and Poultry Show. Mr. Alfred King (Oundle), Secretary.
July	16	Brighton and Sussex Summer Exhibition. His Grace the Duke of Devonshire, President; Mr. Edward Carpenter, Secretary. Flower Show at Great Yarmouth. Rose Show in Zoological Gardens at Cilftoh.
July	23	Grantham and South Lincolnshire Horticultural Society's Show. President, the Right Hon. Earl Brownlow, Schedules of Mr. Lyne (Bookseller, Grantham).
July	28	Buckingham Horticultural Society's Exhibition.

Notices to Correspondents.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. Letters relating to advertisements should be addressed to the Publisher.

BOUQUETS AT THE CRYSTAL PALACE ROSE SHOW: *J. R. T.* The official list of prizes awarded at the Rose Show on June 20 confirms the statement made by our reporter at p. 836. You must appeal to the authorities at the Palace if an error has been made.—*Fairplay* should address his reclamation to the judges or to the manager of the show.

CLERODENDRON BALFOURIANUM: *W. A.* The plant propagates so freely from cuttings, that the seeds are of no special value, except the seedsmen could make use of them.

DOUBLE LARKSPUR: *T. Smith.* The partial conversion of the pistils to petals is of common occurrence in double-flowered Larkspurs, especially in D. grandiflorum.

GRAPES SHANKING: *X. Y. Z., Barnet.* Your Grapes are suffering from what is termed "shanking"—that is, a withering up of the footstalks of the bunches just about the time the berries should be getting ripe. There are many causes that tend to produce this, such as a check of any sort, too heavy crop, defective root-action, dryness at the root, excessive moisture, or anything that could have injured the roots in any way so that they are unable to perform their proper functions. The best method to pursue now is to reduce the crop considerably, when you may be able to save a portion.

INDIAN APPOINTMENTS: *W. Wilson.* Write to the Curator, Royal Gardens, Kew, W.

INSECTS: *Camjee.* Lastrea atrata, infested by thrips. Fumigate two or three times, at intervals of two or three days, and afterwards put it in a cooler place. It is very nearly, if not quite hardy. The other next week.

NAMES OF PLANTS: *P. P.* Polystichum angulare. The Rev. H. A. Walker, 8, Campden Grove, Kensington, is secretary to the British Pteridological Society, and would give you information respecting its meetings.—*F.* 1, Leontopodium alpinum; 2, Dianthus deltoides; 3, Calycanthus floridus.—*T. Bunyard & Sons.* Bignonia unguis.—*N. G.* 1, Veronica serpyllifolia; 2, V. arvensis.—*J. Cocker.* 1, Hedysarum neglectum; 2, Hemerocallis flava; 3, Erodium Manescavi; 4, 4, Viola elatior.—*John H. Ley.* Asclepias curassavica.—*C. W. D.* Dianthus Armeria.—*T. S. P.* Both specimens sent belong to Bupleurum protractum, Link, the smaller specimen being in a starved condition. The species is not British.—*A. F.* Probably the double white variety of Campanula persicifolia. We cannot say for certain without leaves.—*C. C.* Begonia Weltoniensis. *Y.*, 2, Fabiana imbricata; 3, Cyanotis vittata. Send better specimens of the others.—*Lotus.* Probably Virgilia lutea. You sent no flowers.

PEACHES GUMMING: *W. R. Innes Hopkins.* We believe you will be able to trace the cause of the gumming of your Peaches to their roots being in sour, cold, bad soil. The heavy watering with such liquid manure as you have applied would no doubt tend to help the affection.

PHYLLOXERA: *J. D.* Yes. Take every precaution. Burn every leaf, and look to the roots.

SCOTCH THISTLE: *W. B.* If you will consult Sowerby's *English Botany* you will find figures of Carduus nutans and Onopordon Acanthium, from which you can choose either to represent the Scotch Thistle; while Trifolium repens, or Oxalis Acetosella, will give you equal choice as regards the Shamrock.

CATALOGUES RECEIVED.—Hovey & Co. (53, North Market Street, Boston, U.S.A.), Illustrated Catalogue of New and Rare Plants.

COMMUNICATIONS RECEIVED:—R. A. P.—N. Fisher (send us a specimen of the grub).—E. S. D.—T. B.—W. E.—G. T. M.—J. P. MacM.—W. M.—A. B. M.—N. S.—R. B.

Markets.

COVENT GARDEN, July 2.

Business remains firm, and the stands are generally cleared. Auction sales of foreign goods in the market prevail to a considerable extent. Fresh cargos of West Indian Pines are just landed; prices range from 1*s.* to 2*s.* 6*d.* *Thos. Taylor, Wholesale Apple Market.*

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Carnations, per doz. bunches	4 0– 9 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Corn-flower, p. doz. bunches	4 0– 6 0	Pinks, white, 12 bun.	4 0– 9 0
Eucharis, per doz.	4 0– 9 0	— mixed do.	2 0– 4 0
Escholtzia, p. 12 bun.	3 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Gardenias, p. doz.	3 0– 9 0	— Outdoor, do.	0 4– 1 0
Heliotropes, per doz. sprays	– 0 6	— Moss, 12 bun.	6 0–12 0
Mignonette, 12 bun.	4 0– 6 0	Spiræa, per 12 sprays	1 0– 2 6
Pelargoniums, per 12 sprays	0 6– 1 0	Stephanotis, 12 sprays	3 0– 9 0
		Sweet Peas, p. bun.	4 0– 6 0
		White Lilies, p. bun.	1 0– 2 6

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Begonias, per doz.	6 0–12 0	Fuchsia .. do.	6 0–18 0
Bouvardias .. do.	9 0–18 0	Heaths, in var., do.	12 0–30 0
Calceolarias, shrubby	6 0–18 0	Mignonette .. do.	4 0– 6 0
— herbaceous, p. doz.	9 0–15 0	Myrtles .. do.	3 0– 9 0
Cyperus .. do.	6 0–12 0	Pelargoniums do.	9 0–24 0
Dracæna terminalis	12 0–30 0	do, Scarlet .. do.	4 0– 9 0
„ viridis .. doz.	12 0–24 0	Rhodanthe .. do.	6 0–12 0
Fairy Roses, p. doz.	6 0–12 0		

FRUIT.

	s. d. s. d.		s. d. s. d.
Cherries, p. lb.	0 6– 2 0	Nuts, Cob, p. lb.	1 0– 1 6
Gooseberries, p. qrt.	0 4– 0 9	Oranges, p. 100	6 0–16 0
Grapes, English, p. lb.	2 0– 5 0	Peaches, p. doz.	10 0–24 0
— finest, do.	8 0– ..	Pears, p. doz.	.. ..
— Muscats, do.	6 0–12 0	Pine-apples, p lb.	5 0–10 0
Lemons, per 100	6 0–14 0	Strawberries, p. lb.	0 6– 2 0
Nectarines, per doz.	8 0–18 0	Walnuts, p. bush.	20 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Horse Radish, p. bun.	3 0– 5 0
Asparagus, per 100	3 0– 8 0	Leeks, per bunch	0 2– 0 4
Aubergines, per doz.	6 0– ..	Lettuces, per doz.	1 6– ..
Beans, Broad, English, per bush.	3 0– 3 6	Mint (green), p. bun.	0 6– ..
— French, per lb.	1 6– ..	Mushrooms, per pott.	1 0– 2 6
Beet, per doz.	1 0– 2 0	Onions, per bush.	– 6 0
Cabbages, per doz.	1 3– 2 0	Parsley, per bunch	0 4– 0 6
Carrots, per bunch	0 6– 0 9	Peas, per quart	1 0– 2 0
— new do.	0 9– ..	Radishes, per bunch.	0 2– 0 4
— French do.	1 6– ..	— black, Turnip, do.	– 0 6
— English	0 9– ..	Rhubarb, p. bundle	0 4– 1 0
Cauliflowers, per doz.	2 0– 6 0	Shallots, per lb.	0 6– ..
Celery, per bundle	2 0– 3 0	Salsify, per bundle	1 6– ..
Cucumbers, each	0 6– 3 0	Spinach, per bush.	5 0–
Endive, per doz.	1 0– 2 0	Tomatos, per doz.	3 0– ..
Herbs, per bunch	0 2– 0 4	Turnips, per bundle	1 0– ..
		Veg. Marrows, each	0 6– ..

New Potatos:—Round, 10*s.* to 12*s.* per cwt.; Kidneys, 12*s.* to 18*s.* per cwt. Old stocks nearly finished.

SEEDS.

LONDON: *July* 2.—The recent genial and acceptable rains have brought us an increased demand for white Mustard seed, under the influence of which values have kept very steady. Rape seed is quiet; samples of new French Trifolium are offering at a moderate price; bulks will probably be to hand in two or three weeks. For yearling winter Tares there is a good inquiry, but the prospects of the new crop being so bad, holders appear unwilling to sell unless at long figures. A few speculative sales of new French Italian, for future delivery, have recently been made, at a strong advance on the old rates. Canary and Hemp seed are without alteration. Of blue boiling Peas scarcely any are now left. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

On Monday, at Mark Lane, the market was quiet, and prices were hardly so firm as on that day se'nnight, but no reduction was apparent in English Wheat, and the few purchases effected in foreign Wheat were principally on former terms. Barley was taken off slowly, and to a limited extent, at previous currencies. Malt was dull, but about the same in price. Oats were less freely dealt in, but prices, though easier, were not materially altered. Maize was inactive, and somewhat cheaper to sell. Beans and Peas remained without change in value. The Flour trade was slow, and prices were inclined to favour buyers.—On Wednesday there was a small attendance, and transactions in Wheat were greatly restricted, but no appreciable change occurred in value of either English or foreign. Barley was almost neglected, and very few purchases were effected in malt. Oats were rather quietly dealt in, and somewhat easier in price. Maize was also inclined to favour buyers, but Beans and Peas well supported their value. Flour was dull, and if anything slightly cheaper.

CATTLE.

At the Metropolitan market on Monday the number of English beasts was smaller, but of foreign larger; trade was more active than in the previous week, and choice qualities rather dearer. There were not quite so many sheep as on Monday of last week, but quite enough for the trade. Prices were low for fat heavy sheep, and there was no quotable advance in best qualities. Choicest lambs were rather dearer, but middling ones were with difficulty disposed of. Calves sold at about the same as on Thursday last.—Thursday's trade for beasts was very dull, and Monday's rates were realised with difficulty. Sheep were in small demand, and prices consequently did not advance. Choicest lambs made rather more money; the calf trade remained unaltered, and for milch cows business is still reported very bad.

HAY.

The Whitechapel report is to the effect that fair supplies are on offer, trade good, and prices firm. Prime meadow hay realised from 100*s.* to 112*s.*; inferior ditto, 70*s.* to 80*s.*; prime meadow hay, 90*s.* to 102*s.* 6*d.*; inferior ditto, 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load. The quotations from the Cumberland hay market are as follow:—Superior old meadow hay, 105*s.* to 115*s.*; inferior do., 88*s.* to 95*s.*; new hay, 90*s.* to 110*s.*; superior old Clover, 110*s.* to 120*s.*; inferior do., 90*s.* to 100*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

From the Borough and Spitalfields reports we learn that these markets were not well supplied with Potatos during the past week, and prices have therefore continued firm, Jersey Rounds making from 10*s.* 6*d.* to 13*s.*; Kidneys, from 13*s.* to 15*s.*; and St. Malo, Lisbon, and Malta, 10*s.* to 11*s.* per cwt. The imports into London last week consisted of 2501 sacks from Boulogne, 446 sacks and 1990 packages from Dunkirk, 1022 boxes from Cherbourg, 48 boxes from Lisbon, 3419 boxes from Barfleur, 2328 packages from Jersey, and 158 tons from St. Malo.

COALS.

In the market on Monday another reduction took place in the price of house coals—viz., 1*s.* per ton—the highest quoted price being for, Walls End Hetton, 24*s.* The last quotations to hand are:—Holywell Main, 23*s.* 6*d.*; Walls End Lambton, 23*s.* 6*d.*; Walls End East Hartlepool, 23*s.* 9*d.*

ESTABLISHED THIRTY-FIVE YEARS.

JAMES BOYD & SONS, PAISLEY,

HORTICULTURAL BUILDERS (IN WOOD OR IRON) AND HOT-WATER HEATING ENGINEERS.

HOTHOUSES Erected by us may be seen at Hatfield, Herts; Haydon Hall, Eastcott, Middlesex; Abermaide, Aberystwith, Wales; Powerscourt, Co. Wicklow, Ireland; Castle Kennedy, Stranraer; Newbattle, Dalkeith; and in most parts of Great Britain and Ireland.

PLANS, ESTIMATES, AND ILLUSTRATED CIRCULARS ON APPLICATION.

A GREENHOUSE Erected by us can be seen at the BIRMINGHAM SHOW, July 7 to 10.

GREAT HORTICULTURAL EXHIBITION AT BIRMINGHAM, JULY 7, 8, 9, & 10.

COWAN'S PATENT

COMPENSATING SYSTEM

OF HEATING.

THE DROMORE PATENT HEATING COMPANY

(owners of Cowan's Patents)

Will exhibit a complete MODEL of COWAN'S PATENT HEATING APPARATUS at the above-named Exhibition.

Also a number of IMPROVED BOILERS suitable for their Special System.

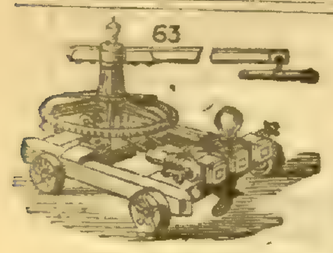
Mr. Cowan, Patentee and Manager, will attend and explain the System to those interested in it, each day of the Show.

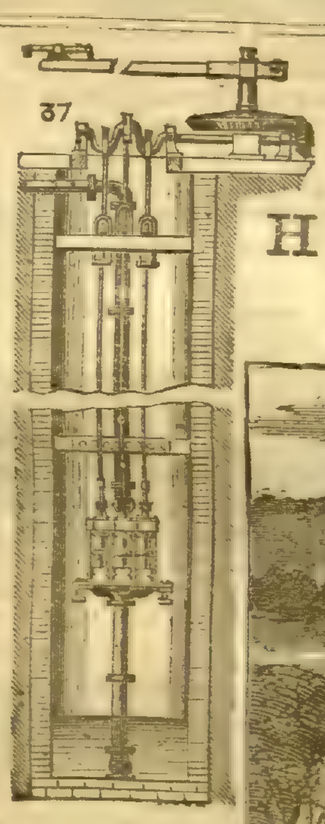
THIS IS THE ONLY SYSTEM OF HEATING WHICH

SAVES THE ENTIRE COST OF FUEL.

ILLUSTRATED CIRCULARS POST FREE ON APPLICATION TO

THE DROMORE HEATING COMPANY, 40, Lower Ormond Quay, Dublin.

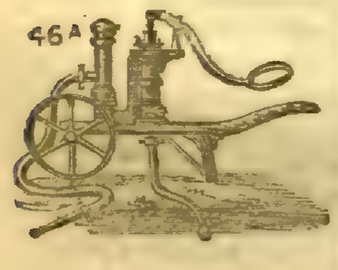


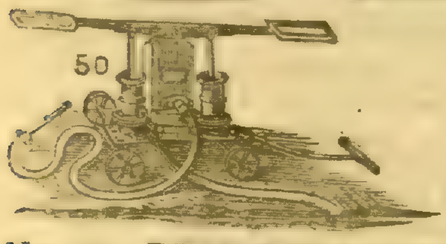


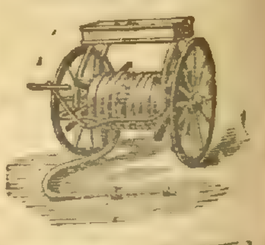
S. OWENS & CO.,

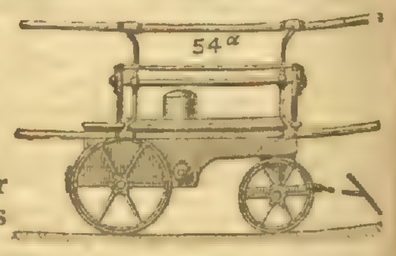
HYDRAULIC ENGINEERS,

WHITEFRIARS STREET, LONDON, E.C.









THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.

No. 63. PORTABLE IRRIGATORS with Double or Treble Barrels for Horse or Steam Power.

No. 46*a*. IMPROVED DOUBLE ACTION PUMPS on BARROW for Watering [Gardens, &c.

No. 49*a*. GALVANISED SWING WATER CARRIERS, for Garden use.

No. 50 and 54*a*. FARM and MANSION FIRE ENGINES of every description.

No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.

No. 49. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.

No. 54*b*. THE CASSIOBURY FIRE EXTINGUISHER, as designed for the Right Hon. the Earl of Essex.

No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.

No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.

No. 39*b*. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution. FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.

STEVENS' TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

Heating by Hot Water.

PUBLIC and PRIVATE BUILDINGS, MANUFACTORIES, CONSERVATORIES, &c., heated on the most improved system, combined with perfect ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

POLLARD AND CO. (late Bury & Pollard, Successors to John R. Peill, late Stephenson & Peill), Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Fixed at seats of Duke of Newcastle, Lord Belper, Lord Middleton, &c. At Viscount Sydney's replaced, after being twenty years in constant use. Foreign orders promptly executed. The Prince Salm Salm, the Duke de Croy, &c., recently supplied.

PRICE LISTS free by post.

Bear Garden, New Park Street, Southwark, London, S.E.

THE GARDENER'S FRIEND.

READ & CO.'S

PATENT

RETORT SADDLE BOILER

Portable, or for Setting in Brickwork.

Constructed for heating from 100 to 5000 ft. of 4-in. pipe.

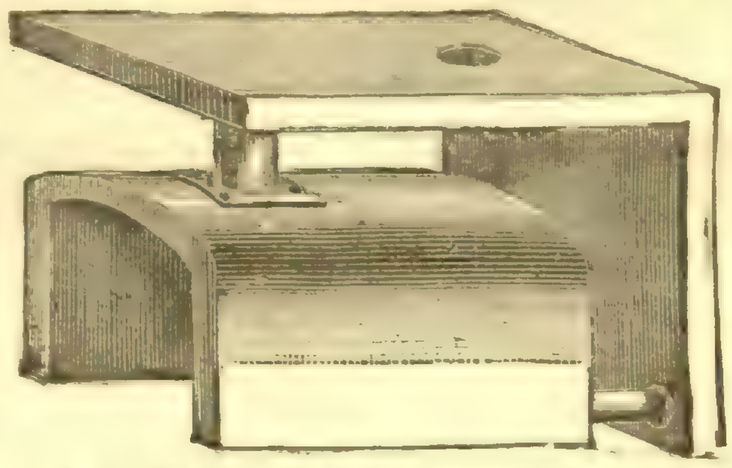
Stamp for prospectus on application to the Manufacturers,

T. READ & CO.,

167, OLD STREET, LONDON, E.C.

WANTED to HIRE or PURCHASE, a large PLANT VAN, for Exhibition purposes. J. CROUCHER, Mr. Peacock's, Sudbury House, Hammersmith, W.

JONES'S PATENT "DOUBLE L" SADDLE BOILER



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0
30 ,,	30 ,,	72 ,,	2,600	35	0	0
36 ,,	36 ,,	96 ,,	4,500	50	0	0
48 ,,	48 ,,	108 ,,	7,000	75	0	0
48 ,,	48 ,,	144 ,,	10,000	100	0	0

And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

First-class Certificate.

THE TERMINAL SADDLE BOILER is by far the cheapest and best, and is working its way into general favour.

The following Letter from Mr. WM. THOMPSON needs no comment:—

"Tweed Vineyard, March 21, 1873.

"Dear Sir,—I have now had your Terminal Saddle Boiler heating two large Span-houses, 21 feet wide and 15 feet high, containing 1484 feet of 4-inch pipe, and it does its work to my entire satisfaction. In fact I know of no Boiler of the same size and cost that will do the same amount of work with the same quantity of fuel. It is an excellent Boiler. You should advertise more than you do, for it deserves to be better known than it is.—Yours truly, WM. THOMPSON."

Illustrated Circulars, post free.

THOMAS JONES, Temple Street, Manchester.

J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

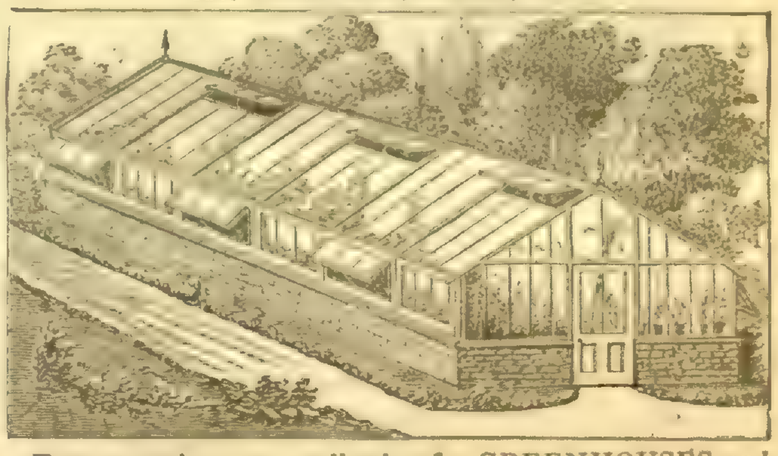
References to the Nobility, Gentry, and Trade in most of the Counties in England.

Townsend's Verge Cutter.

"We can strongly recommend Mr. TOWNSEND'S Machine, as being effective in execution and a marvellous saving of labour, which in these days is an important consideration."—*Journal of Horticulture.*

Wimbish Ironworks, Saffron Walden.

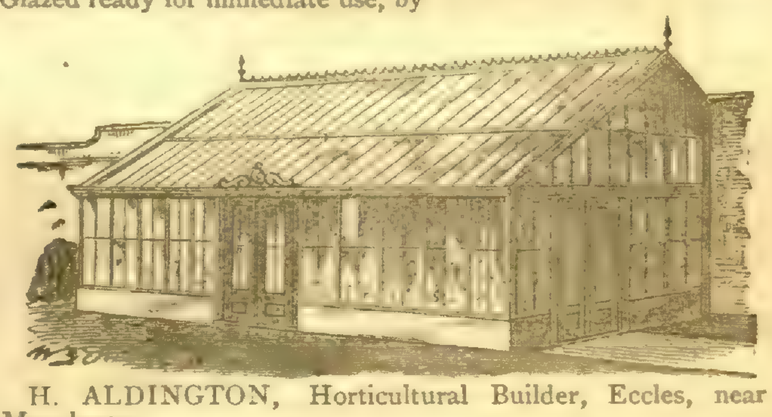
W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

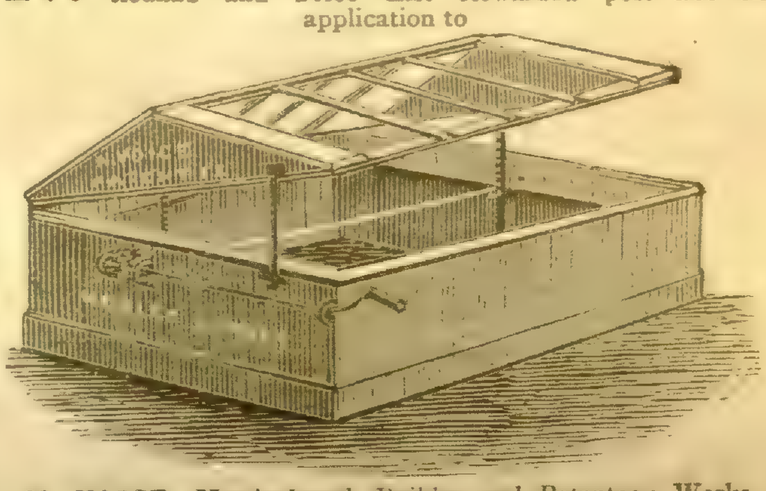
Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

CUCUMBER and MELON BOXES, and LIGHTS, Packed and sent to all parts, Painted and Glazed ready for immediate use, by



H. ALDINGTON, Horticultural Builder, Eccles, near Manchester.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

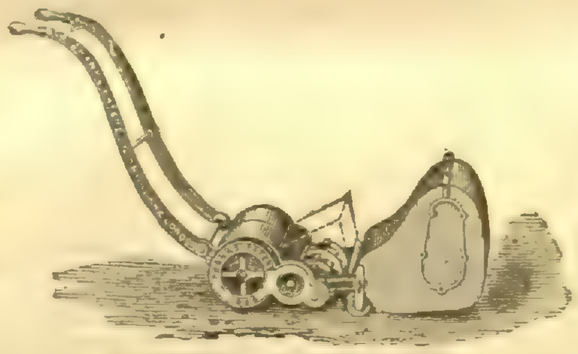
HORTICULTURAL TOOLS, &c.

GARDEN ENGINES, from 66*s.*

DEANE & CO.,

46, King William St., London Bridge.

Lawn Mowers, from 21*s.*
Garden Barrows ,, 22*s.* 6*d.*
Garden Rollers ,, 36*s.*
Spades, Forks, Scythes, &c.
Syringes and Pumps.
Garden Seats and Chairs.
Flower Stands and Vases.
Iron Hurdles and Fencing.
Wire Netting, Arches, &c.



LAWN MOWERS,

Shanks', Green's, Archimedean, &c.

HOT-WATER FITTINGS FOR GREENHOUSES, CONSERVATORIES, &c.

Deane's New Illustrated Horticultural Catalogue for 1874, *post free.*

ESTABLISHED A.D. 1700. Discount 5 per cent. for cash payments over £2.

DEANE AND CO., 46, KING WILLIAM STREET, LONDON BRIDGE, E.C.

T. G. MESSENGER,

CONTRACTOR, MIDLAND HORTICULTURAL BUILDING AND HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH,

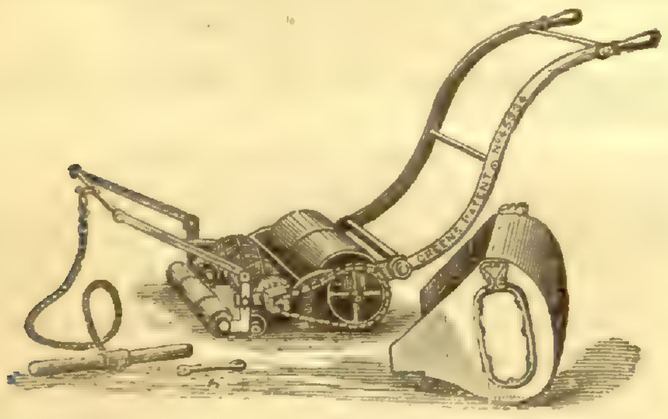
Begs to inform his numerous Patrons and the Public generally, that since his recent disastrous fire he has erected new, more extensive, and commodious works, fitted with the best steam-power machinery, for the construction of Horticultural Buildings in wood or iron, plain or ornamental, of any required dimensions. T. G. MESSENGER is now, therefore, in a position, from his great facilities and experience, to carry out with dispatch and in the best manner, at moderate cost, the orders with which he may be entrusted. Glasshouses erected on Messenger's Patent principles are, owing to mechanical arrangements, very strong, *most durable*, light, *elegant; perfect efficiency* for purpose intended is *guaranteed;* are economical in cost and maintenance. Hot-water engineering in all its branches. Messenger's Patent Hot-water Boilers, Flexible Jointed Hot-water Pipes and Valves, are now in use in many thousands of instances, with the greatest success. Particulars on application.

Plans and Estimates forwarded. Ladies and Gentlemen waited upon. The Plans of Architects and others carried out.

A richly Illustrated CATALOGUE forwarded Post Free on receipt of 33 Stamps.

GREEN'S PATENT
"Royal Guinea" & "Silens Messor"
OR
NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES FOR 1874.

The Winners of every Prize in all cases of competition.



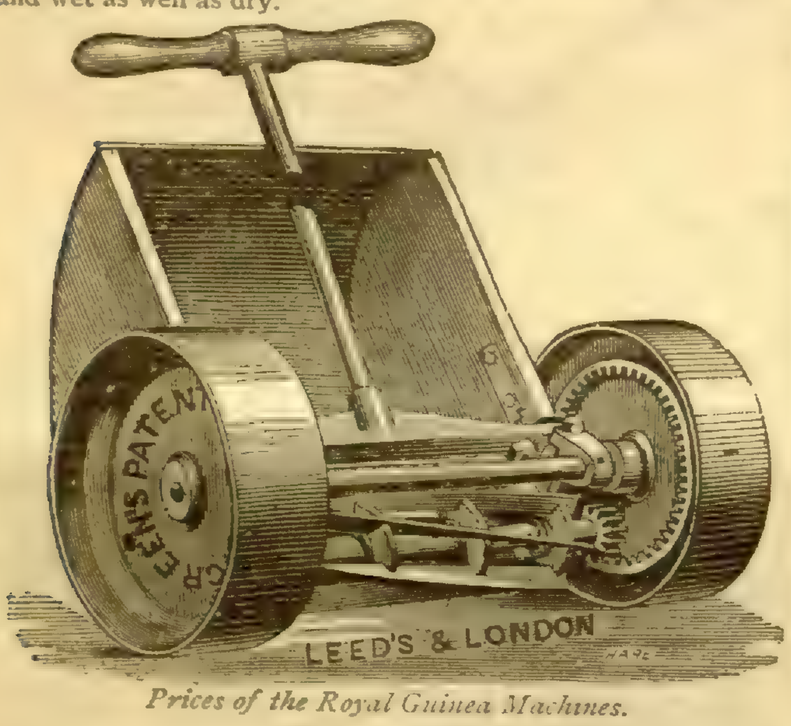
To cut 8 inches.	Can be worked by a Lady ..	..	£2 10 0
" 10 "	" " ..	..	3 10 0
" 12 "	Can be worked by One Person	..	4 15 0
" 14 "	" "	..	5 16 0
" 16 "	This can be worked by One Man on an even lawn.		6 17 0
" 18 "	By Man and Boy	..	8 0 0
" 20 "	" "	..	8 10 0
" 22 "	" "	..	9 0 0
" 24 "	" "	..	9 10 0

Prices of Horse, Pony, and Donkey Machines on application. Carriage paid to all the principal Railway Stations in the United Kingdom.

The "Silens Messor" machines have a world-wide reputation for their superiority and excellence.

They will cut either SHORT or LONG GRASS, BENTS, &c., and wet and well as dry, advantages which no other Lawn Mowers possess. They are the only Lawn Mowers in constant and daily use in all the Royal Gardens, and in most of the principal Gardens and Parks throughout the Kingdom.

GREEN'S LATEST PATENT
IS THE
"Royal Guinea" Lawn Mower,
which is a far superior Machine of its kind to any Lawn Mower extant, and it will cut either short or long Grass, Bents, &c., and wet as well as dry.



Prices of the Royal Guinea Machines.

To Cut—

6 ins.	8 ins.	10 ins.	12 ins.	14 ins.	16 ins.
21*s.*	31*s.* 6*d.*	42*s.*	52*s.* 6*d.*	63*s.*	84*s.*

Delivered, carriage free, to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

And a greater fact still is, that

Every Machine is Warranted to give entire Satisfaction, and if not approved of may be Returned at once, Unconditionally, without any expense to the Purchaser.

N.B.—Those who have Lawn Mowers to repair will do well to send them either to our Leeds or London Establishments, where they will have prompt attention, as an efficient staff of workmen is kept at both places.

GREEN'S PATENT ROLLERS
FOR
LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, AND GRAVEL PATHS,

Suitable for Hand or Horse Power.

The above can be had from all respectable Ironmongers and Seedsmen in the United Kingdom, or from

THOMAS GREEN & SON,
SMITHFIELD IRONWORKS, LEEDS; and 54 and 55, BLACKFRIARS ROAD, LONDON, S.E.

Carriage paid to all the principal Railway Stations in the United Kingdom.

DESCRIPTIVE ILLUSTRATED PRICE LIST FREE ON APPLICATION.

Notice of Removal.

F. K. BELL, Sole Manufacturer of the "NEW IMPERISHABLE LABELS," begs to state that he has REMOVED his Factory from Stratford-on-Avon, Warwickshire, to PEVENSEY ROAD, EASTBOURNE, SUSSEX, where all Orders are to be addressed, and shall receive prompt attention.

AGRICULTURAL LOCOMOTIVES,
STEAM PLOUGHING MACHINERY,
ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES
STEAM ROAD ROLLERS.

For Prices, Description, and Reports of Working, apply to the Manufacturers,

AVELING & PORTER,
ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna or their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

COWAN'S
COMPENSATING SYSTEM
FOR
Heating Horticultural & other Buildings,

Saves the Entire Cost of Fuel.

New and Enlarged Edition of Illustrated and Descriptive Pamphlet; also a Fac-simile Copy of Certificate presented to Mr. J. COWAN by a large number of Horticulturists, can be had, post free, on application to the

DROMORE HEATING COMPANY.

Offices:
40, LOWER ORMOND QUAY, DUBLIN.

Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL JUST RECEIVED.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

CARSONS' PAINT,
PATRONISED BY THE QUEEN,

The British, Indian and Colonial Governments, 8000 of the Nobility, Gentry, and Clergy, Railway and Canal Companies, Collieries, Ironmasters, &c., &c.,

Is extensively used for all kinds of

OUTDOOR WORK.
It is especially applicable to

WOOD, IRON, BRICK, STONE & COMPOSITION.

CAN BE LAID ON BY UNSKILLED LABOUR.

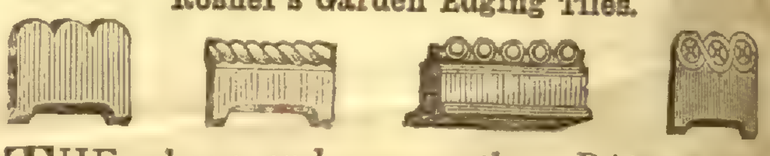
Sold in all Colours.

2 cwt. free to all Stations.

Prices, Patterns, and Testimonials sent Post Free.

WALTER CARSON & SONS,
LA BELLE SAUVAGE YARD,
LUDGATE HILL, LONDON, E.C.
And 21, BACHELOR'S WALK, DUBLIN.
NO AGENTS.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

Just Published, imperial 8vo, on fine toned paper, with eleven Illustrative Plates,

THE NATURAL PRINCIPLES of LANDSCAPE GARDENING. By JOS. FORSYTH JOHNSON (Landscape Gardener), Curator, Royal Botanic Gardens, Belfast.

Price 7*s.* 6*d.*, post free 7*s.* 9*d.*, from the Author.

Price 2*s.* 6*d.*, free by post 2*s.* 10*d.*,

THE NEW QUARTERLY MAGAZINE for JULY.

Contents.

Travels in Portugal (continued). By John Latouche.
The Personal History of Lord Macaulay. By the Rev. F. Arnold.
Meliora Latent: a Novel. By Mrs. Lynn Linton.
Birds and Beasts in Captivity. By Archibald Banks.
Student Guilds in Germany.
Habit in Plants, and Power of Acclimatisation. By H. Evershed.
Through the Graubunden to the Engadin. By Evelyn Carrington.
The Mistakes of a Day: a Story. By Mervyn Merriton.

London: WARD, LOCK, AND TYLER, Warwick House, Paternoster Row, E.C.

Linnean Society.

This day is published, price £1 10s., the First Part of Vol. XXX. of the

TRANSACTIONS of the LINNEAN SOCIETY of LONDON. Sold by LONGMAN AND CO., Paternoster Row; and by Mr. KIPPIST, at the Apartments of the Society, Burlington House, Piccadilly, of whom may be had all or any of the preceding volumes. The Fellows of the Society are requested to apply to Mr. Kippist for their copies, between the hours of 12 and 4 o'Clock.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

WANTED, at Sydenham, a GARDENER (HEAD, WORKING), married, who thoroughly understands the profession in all its branches, Vines, &c.—Apply by letter, stating experience, length of character, wages, &c., to G. L., Mr. G. Street, 30, Cornhill, City, E.C.

WANTED, as GARDENER, a young Man thoroughly competent to Manage a small Flower Garden, Nursery, and Forcing-House, also to look after a Pony and Phaeton, and assist in the House.—Apply, before 10 o'Clock, at 336, Clapham Road, S.W.

WANTED, a good WORKING GARDENER and WIFE, without children. The Wife must be willing and able to assist in the House and attend to Poultry, &c. Both must have good characters from their last situations. Cottage provided and another Gardener kept.—Apply, by letter, stating age, experience, wages required, and full particulars, to W., 60, Ludgate Hill, London, E.C.

WANTED, as GARDENER and COOK, a respectable couple, without family, to live in the house. The Woman must be a thorough good Cook and Manager, the Man a good Flower and Kitchen Gardener. Good characters indispensable.—Address, with full particulars, to L. A. R., Post Office, Parade, Tunbridge Wells.

WANTED, a FOREMAN in a small Nursery; a thorough knowledge of Roses indispensable. Good wages will be given to an energetic, practical young Man.—Apply, stating wages, character, &c., to F. R. S. C., Messrs. Waite, Burnell & Co., Seed Merchants, Southwark, S.E.

WANTED, a GENERAL FOREMAN, experienced in the Propagation and Culture of all kinds of Outdoor Nursery Stock, and also of Greenhouse and Bedding Plants.—State wages, references, &c., R. THORNHILL, Bowdon Nurseries, Bowdon, Cheshire.

WANTED, an active, steady WORKING NURSERY FOREMAN, of good address—one who thoroughly understands the general routine of Nursery-work (principally hardy Outdoor-work). Must understand Propagating generally, principally Roses, Fruit Trees, Conifers, &c., and the Management and Propagation of Plants under Glass.—Apply, in own handwriting, RALPH ROBSON, Nurseryman, Hexham.

WANTED, a GROUND FOREMAN, principally for Roses. A liberal and progressive salary will be given to an energetic and trustworthy Man, who can undertake the general routine of this Department.—Apply, stating testimonials and wages required, to Mr. GEORGE PRINCE, Market Street, Oxford.

WANTED, in a large Nursery, a thoroughly experienced MAN, to take the MANAGEMENT of the Growing Department. Liberal wages will be given, and a good house and garden found.—Apply, by letter only, giving references as to capability and character, to "X. Y.," care of Messrs. Barr & Sugden, King Street, Covent Garden, W.C.

WANTED, in a large Nursery, a young MAN who has had some experience in Hard and Soft-Wooded Propagation, to act as SECOND to a very experienced Man.—Apply by letter only, giving last place and references, to "X. Y.," care of Messrs. Barr & Sugden, King Street, Covent Garden, W.C.

WANTED, a GROWER of Pelargoniums, Chrysanthemums, Cinerarias, Primulas, and Soft-wooded stuff generally; one accustomed to Grow for Market preferred.—Apply, stating wages required, to JAS. GARAWAY AND CO., Durdham Down, Bristol.

WANTED, in a Provincial Nursery (where a large business can be done), a thoroughly practical GROWER of PLANTS for Market and Winter and Spring Blooming. To a Man who can direct labour well and is a good Salesman liberal wages will be given, and to a really first-class Man no objection to wages and Commission on Sales.—MIDLAND, *Gardeners' Chronicle* Office, W.C.

WANTED, a first-class MAN, to Grow Plants for Market. Wages £2 2*s.* per week to commence with. None need apply except those who have had similar situations.—Apply personally, or by letter, to Mr. R. BULLEN, Woodland's Nursery, Lewisham, S.E.

To Rose Budders.

WANTED, an expert ROSE BUDDER, for a few thousand Stocks.—Address, stating terms, to G. BOLTON, Wyddial, near Buntingford, Herts.

WANTED, a successful ROSE BUDDER.—Apply, stating experience and wages required, to GEORGE PRINCE, 14, Market Street, Oxford.

WANTED, ONE or TWO young MEN, accustomed to Plants. Permanent employment and liberal wages given to industrious deserving Men. Personal application only.—Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

MESSRS. JAMES VEITCH AND SON REQUIRE, for their Seed Department, a young MAN who has had some experience in the trade.—Apply in the first instance, in own handwriting, stating full particulars, to Royal Exotic Nursery, King's Road, Chelea, S.W.

WANTED, for a London Retail Seed Business, an experienced Seedsman as HEAD SHOPMAN, of good address.—Communicate full particulars as to age, experience, and salary, B., *Gardeners' Chronicle* Office, W.C.

WANTED, a SECOND SHOPMAN, for a London Seed Warehouse. He must possess a good general knowledge of Plants, and be a good Salesman.—State age, experience, and salary, S., *Gardeners' Chronicle* Office, W.C.

WANTED, a good COUNTERMAN.—Messrs. VEITCH and SONS require the services of a really efficient Man in the above capacity.—Apply in the first instance, in own handwriting, stating particulars of experience and salary required, to Royal Exotic Nursery, King's Road, Chelsea, S.W.

WANTED, in September, a CLERK and BOOK-KEEPER. He must have a thorough knowledge of Book-keeping, be Correct at Figures, and a good Correspondent; one having a knowledge of the trade preferred.—State age, experience, and wages expected, THOMAS KENNEDY AND CO., Seedsmen, Nurserymen, and Florists, Dumfries, N.B.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

Situations.

THE REGISTER for LAND-STEWARDS, GARDENERS, and FORESTERS, contains the NAMES of well-qualified MEN open for Situations. No name admitted without strict investigation as to character and ability. Recommendations will be attended to.—The LAWSON SEED and NURSERY COMPANY, Edinburgh and London.

GARDENER (HEAD).—JOHN MACDOUGAL, Gardener at Hampton Lodge, Farnham, Surrey, wishes for a re-engagement as above. Twenty years' experience in good Establishments. Recommendations for Managing a larger Garden.

GARDENER (HEAD).—Age 31, married, one child; understands the profession in all its branches.—J. P., Gardener, Glasshayes, Lyndhurst, Hants.

GARDENER (HEAD).—Age 39, married; thoroughly understands the profession in all its branches. Leaving through death and change of hands. Seven years' good character.—H. S., Post Office, Grays, Essex.

GARDENER (HEAD).—Age 28, single; understands Gardening in all its branches. Good references; no single-handed place accepted.—S. E., 81, Sunnyside Road, Hornsey Rise, London, N.

GARDENER (HEAD).—Age 35, married, two children; thoroughly versed in Early and Late Forcing, Pines, &c., also Land and Stock if required. Seven years' good character.—H. E., Post Office, Bracknell, Berks.

GARDENER (HEAD).—Age 45, married; has had great experience in every branch of Gardening, also in Stock and general Farming. Can be well recommended.—Apply by letter to A. H., Sion Nursery, Thornton Heath, Croydon.

GARDENER (HEAD), age 30, married, two children.—JOHN HILL, Gardener, Bishopstowe, Torquay, is in want of a situation as above. Has a thorough practical knowledge of Gardening in all its branches. Will be disengaged on July 24. Please state particulars, &c.

GARDENER (HEAD).—Has had good practice in the Cultivation of Pines, Grapes, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants, Kitchen and Flower Gardening, and the general Management of a Gentleman's Place.—H. N., 1, Orkney Street, Lower Wandsworth Road, S.W.

To Noblemen and Gentlemen.

GARDENER (HEAD).—Age 38, married, one child; thoroughly practical in every branch of the profession, including Early and Late Forcing of every description. Has been a successful Exhibitor in Plants and Fruits. Twenty-four years' experience, and can give the highest testimonials.—J. N. A., Post Office, Woodlesford, near Leeds.

GARDENER (HEAD, or SINGLE-HANDED).—Age 36; thoroughly understands the profession. Good character.—T. G., Post Office, Frant, near Tunbridge Wells.

GARDENER (UNDER), in a Nobleman's or Gentleman's Establishment.—Married, no family. Wife as Head Laundress. Four years' good character.—O. M., 6, Redman's Row, Mile End, E.

GARDENER (UNDER), or FOREMAN.—Single. Total Abstainer. Good character.—C. MILTON, Broadlands, Clapham Common, S.W.

FOREMAN, in a Nobleman's or Gentleman's Garden.—Has a good knowledge of the profession, and can be highly recommended.—W. T., 15, Brook Lane, Chester,

PROPAGATOR, or FOREMAN and PROPAGATOR.—Has a thorough knowledge of Azaleas, Camellias, Clematises, Coniferæ, Roses, Rhododendrons, &c. Good references.—R.H., Royal Nurseries, Ascot, Berks.

To Nurserymen, &c.

PROPAGATOR (SECOND), in a large Establishment.—Age 23; eight years' practical experience in Clematis, Roses, Rhododendrons, Conifers, &c. Two years' good character from present situation.—J. G., Post Office, Dorcas Terrace, Hammersmith, W.

To the Nursery and Seed Trade.

SALESMAN, &c.—A respectable married MAN, aged 31, will be disengaged during the present month. Has had 17 years' experience in the Nursery and Seed Trade, and a good knowledge of both, including Herbaceous and Alpine Plants; possesses good address and is a capital Salesman. Can be highly recommended, character unexceptionable.—DELTA, *Gardeners' Chronicle* Office, W.C.

To Seed Merchants.

SHOPMAN (ASSISTANT).—Age 21. Six years' experience. First-class references.—B., Post Office, Peterborough.

IMPROVER, in a leading Nursery, where a general knowledge could be obtained.—A respectable young Man. Five years' experience. Reference if required.—G. M., 13, Earl's Court Road, Kensington, W.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W., and of all Chemists throughout the World.

PURE AERATED WATERS—ELLIS'S RUTHIN WATERS—Soda, Potass, Seltzer, Lemonade, Lithia, and for GOUT, Lithia and Potass.

Corks Branded "R. ELLIS AND SON, RUTHIN," and every label bears their trade mark. Sold everywhere, and Wholesale of R. ELLIS and SON, Ruthin, North Wales.

LONDON AGENTS:—W. BEST AND SONS, Henrietta Street, Cavendish Square.

ROYAL SOCIETY'S SHOW, BEDFORD—STAND 335

VIEW OF STAND AT UNIVERSAL EXHIBITION AT VIENNA, 1874.

JAMES GIBBS AND COMPANY,

SOLE MANUFACTURERS OF THE

PATENT AMMONIA-FIXED GUANO

AWARDED SEVEN MEDALS (as under)

1874.—International Agricultural Exhibition ..... BREMEN.
SILVER MEDAL—HIGHEST IN CLASS.

1873.—International Exhibition ..... LONDON.
PRIZE MEDAL.

1873.—Agricultural Exhibition, Groningen ..... HOLLAND.
SILVER MEDAL—HIGHEST IN CLASS.

1873.—Universal Exhibition ..... VIENNA.
(1.) GRAND MEDAL OF MERIT.
(2.) GRAND MEDAL FOR PROGRESS.
(3.) GREAT SILVER MEDAL OF SOCIETY OF ARTS AND MANUFACTURES, VIENNA.

1868.—International Exhibition ..... HAVRE.
SILVER MEDAL—HIGHEST IN CLASS.

GIBBS' BONE, BLOOD, AND SPECIAL MANURES OF THE BEST QUALITY

AND IN THE HIGHEST CONDITION.

PARTICULARS OF

JAMES GIBBS AND COMPANY,

WORKS—VICTORIA DOCKS, LONDON, E., and CATTEDOWN, PLYMOUTH.
OFFICES—16, MARK LANE, LONDON, E.C.

And at Stand No. 335, Implement Shed, Show-yard, Bedford.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, July 4, 1874.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 28.—Vol. II. {New Series.} SATURDAY, JULY 11, 1874. {Registered at the General Post Office as a Newspaper.} Price 5d. Post Free, 5½d.

CONTENTS.

Absorption of ammonia from the air by plants, on the 38
Bollea Lalindei 33
" Patini 34
Books, notices of 43
Changes of climate in Scotland, verses on the .. 47
Cinchonas, on coppicing .. 36
Colchicum luteum .. 34
Cossus ligniperda, rearing larvæ of 48
Culinary notes 40
Cut flowers 33
Farm, the 42
Forest distribution in Victoria, the 40
Fungi of charcoal beds, the 37
Garden operations .. 54
Grape cure 47
Greenhouse plants; their culture and management—XII. 34
Hollyhock disease .. 46, 47
How to cook Cauliflowers 40
Iris Kæmpferi (with cut) 45
Italian gardens 34
Ivy (with cut) 36
Leicester Square, cost of . 48
Market gardening in West Cornwall 39
Mercury, Chenopodium Bonus Henricus .. 48
Natural history 42
Natural phenomena .. 46
New boiler (with cut) .. 46
Ophrys apifera 48
Palazzo Orengo, near Vintimiglia (with cut) 34
Peaches, the three earliest 48
Persia, the fruits of .. 38
Pine, the Smooth-leaved Cayenne (with cut) .. 41
Plants, new garden .. 33
Potato disease .. 46, 48
Potatos, new American .. 48
Rabbits 42
Ripley Queen Pine .. 49
Roses and their cultivation 36
Royal Gardeners' Benevolent Institution, dinner of the 46
Societies:—
Midland Counties .. 49
Royal Botanic 52
West Kent Horticultural 52
Tulip tree, the 41
Viola cornuta 48
Weather, the 53

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION *to the* GARDENERS' CHRONICLE, *including postage to the United States, is* £1 6*s.*

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W. — NOTICE. — SHOW of ZONAL PELARGONIUMS, &c., and FRUIT and FLORAL COMMITTEE MEETING, on WEDNESDAY NEXT, July 15, at 11 o'Clock. GENERAL MEETING at 3 o'Clock. Admission 5*s.*, or by Tickets, bought before the day, by Fellows only, 3*s.* 6*d.*

THE ANNUAL SHOW of the FROME ROSE CLUB will be held on THURSDAY, July 16. Prizes open to all. Twenty-four distinct varieties, three blooms each: First prize, £15; second, £5; entrance, 5*s.* For the best twelve blooms of any one variety, £2, added to a sweepstake of 5*s.* each. A. R. BAILY, Hon. Sec.

GRANTHAM and SOUTH LINCOLNSHIRE HORTICULTURAL SOCIETY. ANNUAL SUMMER EXHIBITION, in connection with the Lincolnshire Agricultural Society's Great Show, at Grantham, JULY 23 and 24. LAST DAY of ENTRY, JULY 17. Schedules (£250 three Silver Cups) and Entry Forms, including valuable Prizes for Collections of Plants, Dinner-table Decorations, Roses, &c., may be had of Mr. LYNE, Bookseller, Grantham.

LOUGHBOROUGH HORTICULTURAL SOCIETY.—WEDNESDAY, July 15. Prizes amounting to £250 for PLANTS, FRUITS, and VEGETABLES, and Special Prizes, open to all England. For 72 Roses, 72 varieties, 1st prize, £6 6*s.*; 2d, £4 4*s.*; 3d, £3; 4th, £2 10*s.*; 5th, £1 10*s.* For 48 Roses, 48 varieties, 1st, £3 3*s.*; 2d, £2 2*s.*; 3d, £1 10*s.*; 4th, £1 1*s.* For 24 Roses, 24 varieties (Gentlemen's Gardeners and Amateurs only), 1st, £2 2*s.*; 2d, £1 10*s.*; 3d, 15*s.*; 4th, 10*s.* For Schedules and further information apply to W. PALLETT, Secretary.

GLAMORGANSHIRE HORTICULTURAL SOCIETY.—The TWELFTH ANNUAL SHOW of PLANTS, FLOWERS, FRUITS, &c., will be held at Cardiff, on WEDNESDAY, August 19. About £300 will be given in prizes. Twelve Stove and Greenhouse Plants, in pots, £15, £10, £5; Roses, blooms, eighteen varieties, £3, £2, £1; Dahlias, blooms, twenty-four distinct kinds, £3, £2, £1; Gladiolas, two spikes, twelve distinct varieties, £2 10*s.*, £1 10*s.*, 15*s.*; Roses, Tea-scented, £2, £1, 15*s.*; Hollyhocks, £2, £1 10*s.*, £1. Schedules, &c., upon application to Cardiff, July 1. HENRY BOWEN, Hon. Sec.

WORCESTERSHIRE AGRICULTURAL SOCIETY.

MEETING at DUDLEY, on AUGUST 25, 26, and 27.

President—The Right Hon. the Earl of Dudley.

A GRAND HORTICULTURAL EXHIBITION, in connection with the above, will be held in the SHOW GROUND, at Dudley, when Prizes to the amount of nearly £200 will be offered.

Prizes are also offered for competition to all Cottagers residing in Worcestershire and within 12 miles of Dudley. Entries close August 18.

For Schedule of Prizes and Rules, &c., apply to ALBERT BUCK, Secretary, Worcester; or to J. S. HAYWOOD, Nurseryman and Seed Merchant, 26, Broad Street, Worcester, Hon. Sec. to Horticultural Show.

Carter's Grass Seeds.

JAMES CARTER AND CO. prepare MIXTURES of GRASS SEEDS by a system of suiting the Seeds to the geological formation of the soil, which has proved eminently successful. Estimates free.
237 and 238, High Holborn, London, W.C.

AGRICULTURAL, VEGETABLE, and FLOWER SEEDS.—Special quotations, and advantageous offers of the above on application to ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

FOR SALE—Half an acre of DRUMHEAD SAVOY PLANTS. Apply to Thillsbrook Farm, Leyton, Essex, N.E.

CABBAGE (Glen Dwarf Drumhead).—The Subscribers have a few Hundredweights of the above, OF THEIR OWN SAVING, to dispose of. Price on application. W. P LAIRD AND SINCLAIR, Seed Merchants, Dundee.

The Best Hardy Bedding Plant.

CLEMATIS JACKMANNI.—Flowers rich purple, 4 inches across, and so profuse as to completely cover the bed. Begins to bloom in June, and continues until severe frost. It is perfectly hardy, and the stools improve annually. The only secret of success is a rich soil, to keep up free growth. 12*s.* per dozen. Other sorts of Clematis and Climbers in great variety. Descriptive LIST on application. RICHARD SMITH, Nurseryman, Worcester.

British Fern Catalogue.

ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7. Foot's Cray Nursery, Sidcup Hill, Kent.

To the Trade only.

A. M. C. JONGKINDT CONINCK is now preparing his WHOLESALE LIST, including a fine Stock of Maiden Apples, Pears, and Plums, Moss Roses, Dwarf, Half-standard, and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants.

CATALOGUES will be sent post free on application. Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

HYACINTHS, TULIPS, CROCUS, GLADIOLI, LILIES, IRIS, NARCISSUS, COLCHICUMS, HELLEBORES, PÆONIES, &c.

Our English CATALOGUE of the above for 1874 is now ready, and will, as usual, be sent post-free to all applicants.

ANT. ROOZEN AND SON (late Ant. Roozen), Overveen near Haarlem, Holland.

Hyacinths, Tulips, Crocus, &c.

BUDDENBORG BROS.', FLORISTS, Hillegom, Haarlem, Holland, WHOLESALE CATALOGUE of the above may be had free on application to Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application. RICHARD SMITH, Nurseryman, Worcester.

Trade only.

ROSES—20,000 Dwarfs, on Manetti Stocks, worked immediately underground, all leading best sorts, finest Plants in the Trade, at 30*s.* per 100; £14 10*s.* per 1000, for cash only. Orders booked now and executed in autumn. R. LOCKE, Alexandria Nurseries, Red Hill, Surrey.

To the Trade, &c.—Roses! Roses! Roses!

EWING AND CO. are now offering very fine plants of the best varieties in cultivation. The new varieties of 1874, in fine well-established plants, sent, carriage and package paid, to any Railway Station in the United Kingdom, on receipt of Post Office Order for 31*s.* 6*d.*

Descriptive and Priced CATALOGUES, and further information, gratis and post free on application. The Royal Norfolk Nurseries, Norwich.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1*s.* per bushel, or 6*d.* per bushel for quantities of 20 bushels and over.

DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE, sifted and carefully prepared, invaluable for Forcing and Plunging Plants in. Price 9*d.* per bushel; 20 bushels, 5*s.*; larger quantities less.

JAMES STEVENS, Fibre Works, York Terrace, High Street, Battersea, London, S.W.

WANTED, FLORIST'S SHOW-HOUSE, 55 feet by 17, in good condition. Send particulars to A. B., 241, Edgware Road, W.

WANTED, fine handsome CONSERVATORY PLANTS and TREES.—The Pine-Apple Nursery Company having a great demand for large Conservatory Plants, are open to purchase to any extent large well grown specimens of an ornamental character. Please address, with full particulars, to

Mr. JOHN BESTER, the Manager, Pine-Apple Nursery, Maida Vale, W.

MESSRS. TEUTSCHEL AND CO., Colchester, can offer majestic trunks of the very elegant CYATHEA SMITHII and DICKSONIA SQUARROSA, 3 to 7 feet high, also very fine clumps of TODEA SUPERBA, just arrived from New Zealand in capital condition.

PRIMULA SEED, of the finest strain, is offered, in packets of 2*s.* 6*d.* and 5*s.* each, or 42*s.* per oz., by W. H. ROGERS, Seed Merchant, Southampton.

For Present Bedding.

ALTERNANTHERA MAGNIFICA, Echeveria secunda glauca, Iresine Lindeni and Herbstii, Double and Single Petunias, Heliotropes, Dwarf Ageratums, Cineraria maritima, Blue Salvias, Mesembryanthemum cordifolium variegatum, Ivy-leaved Geranium (La Elegante), Purple, Crimson, and White Verbenas, Cupheas, Konigas, &c., all at 2*s.* 6*d.* per dozen, basket included, for cash. JAMES HOLDER, Crown Nursery, Reading.

ADIANTUM FARLEYENSE.—For Sale, a few thousand FRONDS weekly. Price on application to W. CLARK, The Nurseries, Wallington, Surrey.

DOUBLE FLOWERED CINERARIA, as exhibited at the Royal Horticultural Society, Kensington, supplied in Seed Packets, at 3*s.* 6*d.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each. Also CALCEOLARIA, PRIMULA, CYCLAMEN, and CINERARIA, of extra quality, mixed, or in separate colours, in 1*s.*, 2*s.* 6*d.*, and 5*s.* packets. E. G. HENDERSON AND SON, Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.

EPIPHYLLUM TRUNCATUM, good grafted plants, of the best varieties, 9*s.* per dozen, 65*s.* per 100. The New Double CINERARIA, strong plants, 9*s.* per dozen, 70*s.* per 100. Strong CINERARIAS of Messrs Standish's fine strains, 2*s.* per dozen. STRAWBERRY RUNNERS, in great variety, 2*s.* per 100. Terms cash. WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Cineraria, Primula, Calceolaria, and Cyclamen.

WM. CUTBUSH AND SON very highly recommend their choice strain of the above, which always gives satisfaction. In packets, 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.*, post free. Highgate Nurseries, London, N.

Cineraria, Calceolaria, Primula.

LUCOMBE, PINCE, AND CO., have just harvested their magnificent strains of CINERARIA, CALCEOLARIA, and PRIMULA, and they will be glad to send good packets, post free, at 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* each. Also PRIMULA JAPONICA, new seed, at 1*s.* 6*d.* and 2*s.* 6*d.* per packet. Exeter Nurseries, Exeter.

Splendid Herbaceous Calceolaria Seed.

WOOD AND INGRAM beg to offer the above, selected from the finest varieties of Neill's superb strain, in packets post free for thirteen penny stamps each. The Nurseries, Huntingdon.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing. Second sized Archangel, 100*s.*; Petersburgh, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

TANNED GARDEN NETTING, to protect Fruit from Birds and Blight. Suitable for Poultry, 1*d.* per square yard; whole Nets, averaging 600 yards, £2 2*s.*; widths cut from 1 to 12 yards, any length over 50 yards. C. COTTON, Potter Street, Worksop.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

GREENHOUSES, VINERIES, ORCHARD HOUSES, &c., erected in any part of the Country. Every description of HOT-WATER WORK and PLANTHOUSE FITTINGS made and fixed. PLANT PRESERVERS, neat, useful, and portable. PLANS and ESTIMATES supplied without charge.—WILLIAM JAMES RIVETT, Horticultural Builder, Stratford, London, E.

ROCKERY STONE.—A large quantity of water-washed Derbyshire Spar, White and Red Veined, for Sale. A very choice lot, and large lumps. For particulars, price, &c., apply to T. C. PART, Derwent Mills, Derby.

TREE FERNS.—The largest and best Stock in Europe. Prices moderate. An Inspection is invited by

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

NEW QUEEN ONION.

THE EARLIEST IN CULTIVATION.

Sown now will produce nice Onions, fit for use, this year, and will keep late into next spring. Seed per ounce, 2*s.* 6*d.*; per packet, 1*s.*

Also the following choice varieties for present sowing:—ITALIAN TRIPOLI, GIANT ROCCA, WHITE TRIPOLI, and GIANT MADEIRA, each 1*s.* per ounce; 6*d.* per packet, cheaper by the pound. WHITE LISBON, a fine Onion for spring use, 4*d.* per ounce. EWING'S No. 1 CABBAGE, one of the earliest in cultivation, a fine selected stock, per ounce, 1*s.* WHEELERS' COCOA-NUT ditto, per ounce, 1*s.* 6*d.*; per packet 6d.

For other Choice Seeds for Autumn Sowing see our "Illustrated Guide for Amateur Gardeners," price 1*s.*; gratis to Customers.

DANIELS BROTHERS,

The Royal Norfolk Seed Establishment, Norwich.

TO PURCHASERS OF

CHOICE AND RARE PLANTS.

Amateurs, Gardeners and Nurserymen will find the advantage of purchasing from

JOHN H. LEY,

EXOTIC NURSERY,

LANSDOWNE ROAD, CROYDON;

Who can supply the choicest varieties of STOVE and GREENHOUSE PLANTS, FERNS, PALMS, ORCHIDS, AZALEAS, CAMELLIAS, ERICAS, ROSES, GLOXINIAS, CALADIUMS, ACHIMENES, &c., in clean and healthy plants, and at half the prices usually charged. When the selection is left to J. H. L. even greater advantages can be offered, and this course is to be recommended to those just starting new glasshouses, or to those who have not a large variety. No useless sorts are ever included, and all good novelties are continually added (besides those of J. H. L.'s own introduction).

General CATALOGUE with special LIST of Collections will be sent post free. Prices for any List of Plants sent by return of post.

All goods are delivered free to the various stations in London, and plants are added to pay for carriage beyond. All packages gratis for "Cash with order."

An inspection of the stock is invited. The Nursery is reached in twenty minutes from London Bridge or Victoria (London, Brighton and South Coast Railway), and in seven minutes' walk from West, East, or New Croydon Stations.

J. VAN DER VELDT,

NURSERYMAN, SEEDSMAN and FLORIST,

No. 302, WAGENWEG, HAARLEM, HOLLAND

BEGS LEAVE TO ANNOUNCE THAT HIS

CATALOGUE OF DUTCH BULBS AND FLOWER ROOTS,

And all Sorts of TUBERCULOUS PLANTS, for 1874, is now ready, and may be had gratis and post free on application, by any one who has not received it.

He also begs to call particular attention to a LIST of NEW HYACINTHS which is added to the Catalogue. Among the sorts therein mentioned, exhibited by Messrs. James Veitch & Sons, King's Road, Chelsea, London, several received First Prizes, with First-class Certificates of Merit at the Great Flower Shows in London and Manchester, this year.

These New Hyacinths can only be had from me, who am sole possessor and grower of them.

First Prizes and First-class Certificates received:—

Single White	Anna	Single Mauve	Von Schiller
,, ,,	Mr. Plimsoll	,, Blue	Cavaignac
Single Blue		Minister Thorbecke.	

JAMES VEITCH & SONS' FRUIT PRIZES FOR 1874.

MESSRS. JAMES VEITCH AND SONS, gratified at the Competition for the Fruit Prizes offered by them last year, have the pleasure to announce that they have again arranged with the Council of the Royal Horticultural Society to offer the following Prizes, to be competed for at the Gardens at Kensington, on the 15th inst. (Pelargonium Show):—

The following List of Prizes has been decided upon:—

		1st Prize.	2d Prize.	3d Prize.
1.	For the best COLLECTION of FRUIT, in ten distinct kinds ... In this Class only one variety of Pine, Melon, or Strawberry will be admitted; but Black and White Grapes, Black and White Cherries, and Black and Yellow Plums, will be considered distinct.	£15	£10	£7
2.	For the best COLLECTION of FRUIT, in six distinct kinds ... The same exhibitor cannot compete in classes Nos. 1 and 2.	£9	£6	£4 10s.
3.	For the best Dish of WHITE GRAPES, consisting of 3 bunches of one or more kinds ...	£6	£4	£2
4.	For the best Dish of BLACK GRAPES, consisting of 3 bunches of one or more kinds ...	£6	£4	£2
5.	For the best three PINE-APPLES ...	£6	£4	£2
6.	For the best six FRUIT of PEACH, one kind ...	£4	£2	£1
7.	For the best six FRUIT of NECTARINE, one kind ...	£4	£2	£1

The competition for these Prizes is limited to the *bonâ fide* Gardeners of Great Britain.

All entries to be made at once to Mr. GEORGE EYLES, at the Royal Horticultural Gardens, South Kensington.

In all cases the decision of the Judges to be final.

These Prizes are quite distinct from the "Veitch Memorial" Prizes.

☞ In the event of any Exhibitor not being able to attend personally, Messrs. JAMES VEITCH & SONS will be happy to Stage any Fruit that may be sent to their care.

THE ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

PHALÆNOPSIS INTERMEDIA.

HUGH LOW & CO.

Have pleasure in offering fine vigorous growing plants of the very beautiful PHALÆNOPSIS INTERMEDIA—the extreme rarity of which in collections it is unnecessary to enlarge upon. The plants vary considerably in appearance, both in colours, size, and form of the leaves; and there are amongst them noble specimens, with leaves 12 to 14 inches in length, 3 inches in width. From the diversified appearance of the plants there is every probability the varieties will be numerous and distinct.

Also on sale good plants of PHALÆNOPSIS LUDDEMANNIANA, splendid plants of PHALÆNOPSIS SCHILLERIANA, of various sizes, amongst them many very fine specimens.

H. L. & Co. have received recently very large consignments of ORCHIDS from their Collectors, and many species of first-class merit hitherto rare, can now be offered on favourable terms. A few of the names are appended, and H. L. & Co. respectfully invite amateurs of Orchids to inspect the plants:—

CATTLEYA INTERMEDIA AMETHYSTINA
,, LEOPOLDI
CŒLOGYNE (PLEIONE) REICHENBACHIANA
CYPRIPEDIUM CONCOLOR
,, PARISHII
,, VILLOSUM
DENDROBIUM AGGREGATUM MAJUS
,, ADUNCUM, fine variety
,, BENSONIÆ, splendid varieties
,, CAPILLIPES
,, CRYSTALLINUM
,, DALHOUSIANUM
,, DIXANTHUM
,, EBURNEUM

DENDROBIUM FORMOSUM GIGANTEUM
,, INFUNDIBULUM
,, JAMESIANUM
,, MACROPHYLLUM GIGANTEUM
,, PARISHII
,, PIERARDI LATIFOLIUM
,, PYCNOSTACHYUM
,, SPHÆGIDOGLOSSUM
,, TAURINUM
,, THYRSIFLORUM
EPIDENDRUM FREDERICI GUILIELMI
,, MACROCHILUM ATROPURPUREUM
,, PRISMATOCARPUM
LÆLIA PURPURATA

MASDEVALLIA AMABILIS
ONCIDIUM CHEIROPHORUM
,, NUBIGENUM
,, MACRANTHUM
,, TIGRATUM
PHAIUS (THUNIA) BENSONIÆ
,, ALBUS SUPERBUS
,, (THUNIA) MARSHALLI
PHALÆNOPSIS GRANDIFLORA
SACCOLABIUM AMPULLACEUM
,, BLUMEI, varieties
,, GIGANTEUM
VANDA CŒRULESCENS
,, BENSONI
WARSEWICZELLA DISCOLOR.

CLAPTON NURSERY, LONDON, E.

Sutton & Sons

ARE PREPARED TO OFFER

NEW SEEDS

OF THEIR CHOICE STRAINS OF

FLORISTS' FLOWERS

FOR PRESENT SOWING.

Post Free.

SUTTONS' SUPERB CALCEOLARIA.

SUTTONS' SUPERB CALCEOLARIA.

SUTTONS' SUPERB CALCEOLARIA.

Our Stock of this favourite Greenhouse Flower has been saved from the finest strains only. Price, 2*s.* 6*d.* per packet.

DOBSON'S, JAMES'S, THOMAS'S,
And other Strains can be supplied at the advertised prices.

The following can also be supplied :—

SUTTONS' CHOICE CINERARIA, 2*s.* 6*d.* per packet.
SUTTONS' CHOICE PRIMULA, 2*s.* 6*d.* per packet.
SUTTONS' CHOICE CYCLAMEN, 6 varieties, 5*s.*

Complete particulars of other CHOICE FLOWER SEEDS for present sowing, gratis and post free.

SUTTON and SONS,

SEEDSMEN BY APPOINTMENT TO THE QUEEN AND PRINCE OF WALES,
ROYAL BERKS SEED ESTABLISHMENT,
READING.

SUTTONS' CABBAGE SEED

FOR PRESENT SOWING,

FOR SPRING AND SUMMER USE.

The best Cabbage for Spring and Summer use is

SUTTONS' IMPERIAL.

This popular Cabbage is the finest in cultivation, and the earliest for Autumn, Winter, and Spring use. Good heads may also be cut from the stems during Summer. The heads are somewhat cone-shaped, remarkably large and firm, of mild flavour, and do not readily run to seed. Sow about the middle of July for Spring use.

Price 1*s.* per oz.

Suttons' Imperial Cabbage.

The following Sorts are also suitable for present sowing :—

EARLY YORK.
NONPAREIL.
WHEELER'S IMPERIAL.
ENFIELD MARKET.
EARLY BATTERSEA.

Further particulars of Seeds for Summer and Autumn Sowing on application.

Sutton & Sons

THE QUEEN'S SEEDSMEN, READING.

NEW PLANT CATALOGUE 1874,

Gratis and Post Free.

B. S. WILLIAMS'

NEW PLANT AND GENERAL

CATALOGUE OF NURSERY STOCK

Is now ready, and will be forwarded to all applicants.

It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

"THE ROYAL SEEDSMEN"

CARTER'S

PRIZE MEDALS
PARIS, 1867. LONDON, 1862.
HAMBURGH, 1869. WIGAN, 1870.
BLACKPOOL, 1870. &c., &c.

GENUINE SEEDS.

DESCRIPTIVE LISTS
GRATIS, POST FREE
5 PER CENT DISCOUNT
FOR CASH.

CARRIAGE FREE

237, & 238, High Holborn,
LONDON.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—
CORN MANURE, for the spring.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.

6, Fenchurch Street. E. PURSER, Secretary.

NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED).

Consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.

Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c. TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3*d.* per yard, or 100 yards, 20*s.* ; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard ; 4 yards wide, 1*s.* per yard ; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard. TIFFANY, 6*s.* 6*d.* and 7*s.* 6*d.* per piece of 20 yards.

EATON & DELLER, 6 & 7, Crooked Lane, London Bridge.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable, at 1*d.* per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.

EDGINGTON'S RICK CLOTHS for 69 years have maintained their celebrity as the best.

EDGINGTON'S MARQUEES for Hire are the most elegant and capacious.

EDGINGTON'S CRICKET and GARDEN TENTS are the prettiest.

TIFFANY, SCRIM CANVAS, and every other kind of NETTING.

Be particular—FREDK. EDGINGTON AND CO., Rick Cloth, &c., Manufacturer to Her Majesty, 52, Old Kent Road, London, S.E.

A quantity of good Second-hand Government TENTS for Sale, Cheap.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace ; Royal Gardens, Kew ; Professor Lindley for the Horticultural Society, &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes.

THE CHEAPEST AND MOST DURABLE
SHADING.
"FRIGI DOMO" CANVAS.

Two yards wide	1*s.* 10*d.* per yard run.
Three yards wide	3*s.* per yard.
Four yards wide	3*s.* 10*d.* per yard.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.

E. T. ARCHER, Stanstead and Brockley Roads, Forest Hill, London, S.E. All goods carriage free to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

RENDLE'S PATENT
SYSTEM OF GLAZING.

Extract from the "TIMES," *June* 27, 1874.

ROYAL COUNTIES SHOW AT READING.

"*To Horticulturists the Specimens of Rendle's Patent System of Glazing, and the Portable Glass Protectors for Walls, proved attractive.*"

"*Their distinctive features are that all the work is done without Putty.*"

"*It is asserted that* 1500 *square feet of Glass can be put in the building in one hour by one man, and any damaged glass can be replaced without calling in the aid of a Glazier.*"

"*All the Wood and Paint are Covered by the Glass, and the system was well and satisfactorily tested by the heavy showers on Wednesday, there not being the slightest leakage of water to the interior.*"

Catalogues and Book of Design can be obtained from the Inventor and Patentee,

Mr. WM. EDGCUMBE RENDLE,
3, Westminster Chambers,
Victoria Street, London, S.W.

☞ *Rendle's Patent System of Glazing will be exhibited at the Meeting of the Royal Agricultural Society at Bedford next week.*

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.
HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horicultural Builders and Hot-water Engineers.

MILDEW.

The best and most easily applied composition for the Prevention and Destruction of Mildew is

EWING'S INFALLIBLE COMPOSITION.

Can be had retail through all Seedsmen and Florists, in bottles holding about ¾ pint, sufficient to produce 8 gallons of fluid fit for use, at 1*s.* 6*d.* per bottle ; or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, carriage paid to any Railway Station in the United Kingdom for 24 penny postage stamps.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES ; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT.

Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

FUEL FOR HOT-WATER BOILERS.

THE COST OF FUEL REDUCED FROM 25 TO 30 PER CENT.

BY THE USE OF

WEEKS' PATENT DIAPHRAGM

AND

FUEL ECONOMIZER.

FOR PARTICULARS OF SAME APPLY TO

J. WEEKS & CO.,

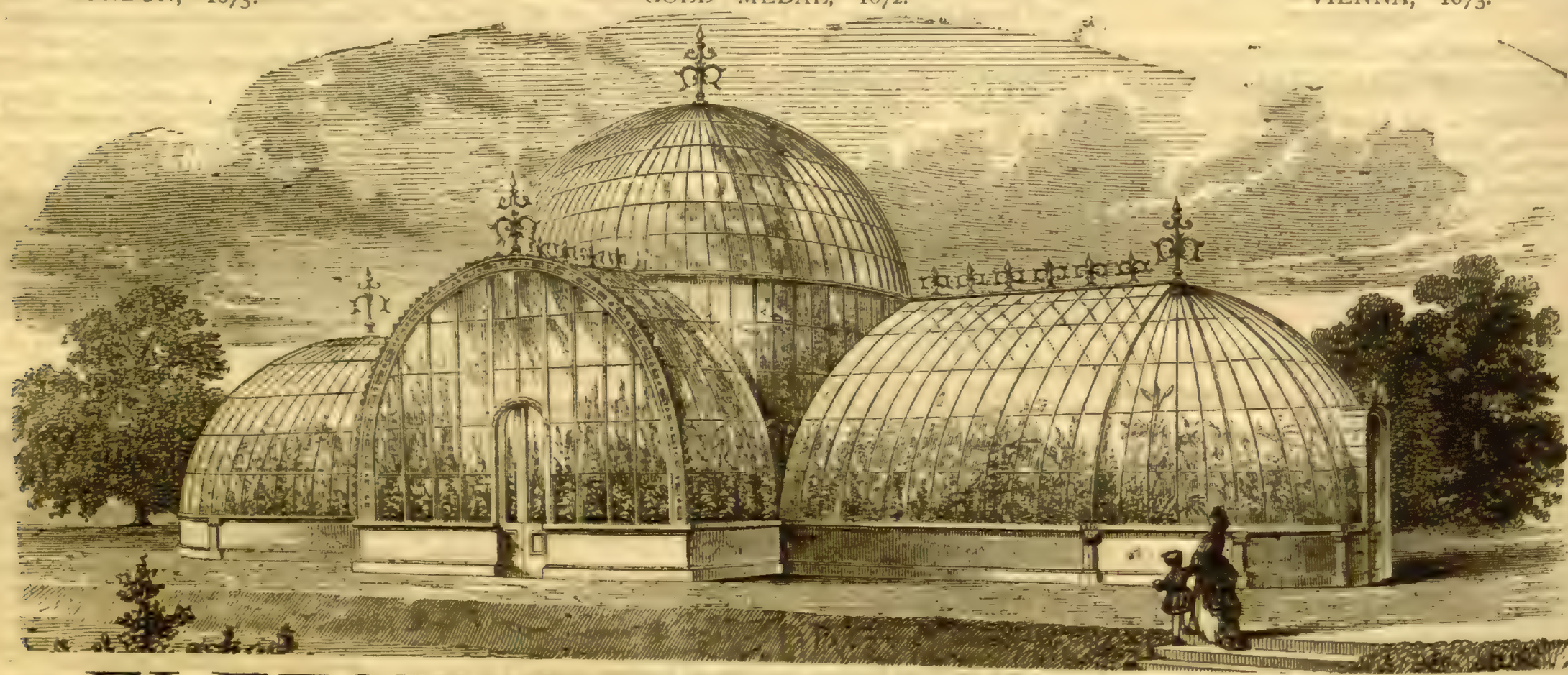
HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS,

KING'S ROAD, CHELSEA, LONDON, S.W.

LONDON, 1873.

GOLD MEDAL, 1872.

VIENNA, 1873.



FLETCHER, LOWNDES & CO.,

13A, GREAT GEORGE STREET, WESTMINSTER,

PATENTEES AND MANUFACTURERS OF WOOD AND IRON CONSERVATORIES, VINERIES, &c.

Messrs. F., L. & Co. beg to draw particular attention to their CURVILINEAR PRIZE HOUSES, constructed with their PATENT TUBULAR RIB, unrivalled for UTILITY, STRENGTH, LIGHTNESS, and ELEGANCE. No Bent Glass used. Also of the

VAPORISING AND VENTILATING HEATING APPARATUS.

By which perfect PURITY of ATMOSPHERE is secured, and a GREAT SAVING of FUEL effected.

☞ *Full particulars on application.*

ORCHIDS.

SUCH LARGE IMPORTATIONS and Consignments of Orchids are constantly arriving at Mr. WILLIAM BULL'S Establishment, that he is able to offer the following at the low prices annexed:—

	Each.—s. d.	s. d.
CATTLEYA TRIANÆ	7 6	and 10 6
„ DOWIANA	31 6	and 42 0
ODONTOGLOSSUM TRIUMPHANS	15 0	and 21 0
„ PESCATOREI	15 0	and 21 0
„ ANGUSTATUM, new and handsome	21 0	and 31 6
BROUGHTONIA SANGUINEA	7 6	and 10 6
ONCIDIUM MACRANTHUM	42 0	and 63 0
DENDROBIUM BENSONIÆ	15 0	and 21 0
„ THYRSIFLORUM	42 0	and 63 0
„ AMŒNUM.—This pretty Dendrobium, the flowers of which are white tipped with pink, and scented like Violets, has lately received a First-class Certificate, both from the Royal Horticultural and Royal Botanic Societies	31 6	and 42 0
SACCOLABIUM VIOLACEUM	15 0	and 21 0
„ BLUMEI MAJUS	15 0	and 21 0
PERISTERIA BRUCHMULLERIANA	21 0	and 31 6
CYPRIPEDIUM NIVEUM	21 0	and 31 6
„ PARISHII	31 6	and 42 0
ANGULOA CLOWESII	10 6	and 15 0
AERIDES AFFINE ROSEUM	10 6	and 15 0
„ CRISPUM	10 6	and 15 0
„ LINDLEYANUM	15 0	and 21 0
CATTLEYA EXONIENSIS		8 and 10 gs.
DENDROBIUM SENILE	21 0	and 31 6
CALANTHE VESTITA LUTEO-OCULATA	5 0	and 7 6
„ „ RUBRO-OCULATA	5 0	and 7 6
ODONTOGLOSSUM CITROSMUM	7 6	and 10 6
„ „ ROSEUM	10 6	and 15 0
BIFRENARIA AURANTIACA	15 0	and 21 0
PLEIONE MACULATA	15 0	and 21 0
„ REICHENBACHIANA	15 0	and 21 0
„ WALLICHII	7 6	and 10 6
PHALÆNOPSIS GRANDIFLORA	31 6	and 42 0
ONCIDIUM WELTONI	21 0	and 31 6
ODONTOGLOSSUM HASTILABIUM	21 0	and 31 6
„ GRANDE		6 and 10 6
LIMATODES ROSEA	5 0	and 7 6
LÆLIA PURPURATA	15 0	and 21 0
EPIDENDRUM DICHROMUM	10 6	and 15 0
DENDROBIUM PIERARDII	7 6	and 10 6
„ PARISHII	10 6	and 15 0
„ JAMESIANUM	15 0	and 21 0
„ DEVONIANUM	7 6	and 10 6
VANDA LAMELLATA.—This scarce and beautiful Vanda has lately received a First-class Certificate both from the Royal Horticultural and Royal Botanic Societies	31 6	and 42 0
CYPRIPEDIUM LONGIFOLIUM	21 0	and 31 6
HOULLETIA LINDENIANA	10 6	and 15 0
ODONTOGLOSSUM LINDENI	21 0	and 31 6
ONCIDIUM CUCULLATUM	7 6	and 10 6
„ TRULLA	10 6	and 15 0
CATTLEYA CHOCOENSIS	15 0	and 21 0
PLEIONE LAGENARIA	15 0	and 21 0
ONCIDIUM KRAMERIANUM	15 0	and 21 0
VANDA BENSONIÆ	15	and 21 0
SCHLIMIA JASMINODORA	31 6	and 42 0
ODONTOGLOSSUM PHALÆNOPSIS	21	and 31 6
DENDROBIUM INFUNDIBULUM	15 0	and 21 0
„ CHRYSANTHUM	7 6	and 10 6
LYCASTE HARRISONÆ	10 6	and 15 0
ONCIDIUM SPHACELATUM	7 6	and 10 6
„ OPULENTUM, new and handsome	31 6	and 42 0

And quantities of other Orchids at equally low prices.

Choice Collections of Orchids made at 6, 9, and 12 gs. per dozen.

By sending names of those already possessed, different varieties can be given, and purchasers will have a good selection made for them.

WILLIAM BULL, F.L.S.,
Establishment for New and Rare Plants,
King's Road, Chelsea, London.

SATURDAY, JULY 11, 1874.

CUT FLOWERS.

(*Concluded from p.* 6.)

CONTINUING my notes of observation, I may remark that the small grey-blue flowers of Eryngium maritimum (Sea Holly), those of the pinkish Anemone hybrida, and the black Privet-like berries of Actea spicata (Herb Christopher), looked well with suitable green. At the same time (August), Zigadenus, Clematis Jackmanni, and Scarlet Pelargonium, Dr. Lindley, formed a beautiful combination.

In November long pieces of Fuchsia gracilis variegata give slight pinkish spikes of foliage for a high glass. A large glass of different Asters, such as large blue A. bessarabicus, small lilac A. dumosus (almost white), A. multiflorus, with a few sprays of the sulphur Achillea serrata (Milfoil), and two or three bright flowers of a yellow Rudbeckia, make a nosegay that will not fade, or spoil the water after being two weeks in the room. The little Virginian creeper, Ampelopsis Veitchii, of a lovely red in November, makes a charming trailer for this combination. Two other fine trailers, although not strictly hardy, are Maurandya Barclayana and Sedum carneum variegatum. This last for a stove basket is unexceptionable, and has outlasted two crops of various Tradescantias. The lowest leaves do not turn brown, and it hangs as if weighted, not turning up to the light, as so many basket plants will do, thus spoiling one's plans. This way of hanging is most desirable for water, in which it also roots, and lasts for several changes of flowers.

In September a simple glass may be composed of the foliage of Ribes aureum (yellow flowered Gooseberry), then of a fine dark red colour; pale yellow-flowered Lysimachia ciliata, whose shoots are of a good brown when first coming up in spring, and a few leaves of Corydalis solida. Late in the season small trailing pieces of the wild Vicia Cracca (tufted Vetch) look well; also Hippocrepis aurea (Horse-shoe Vetch) for foliage, which may be used instead of Acacia lophantha, for which it is often taken.

I do not know why Gypsophila so seldom expands its tiny blossoms with us. The plants were received some direct from Germany and others from Salter's at Hammersmith, and are loaded with flower, but they open so sparsely that they are practically useless, and therefore we have to fall back upon the neat little Allium ciliatum for the same effect, or upon Peucedanum gallicum (Sulphur Wort), and wild Umbelliferous plants, which one can have in variety from May to November. At Mr. Ellacombe's suggestion we tried and found the buff buds and stalks and white feathery flowers of Bocconia cordata very handy. The little dark brown Galium pusillum (Ladies' Bedstraw), is more like gauze than a flower in a glass; it and the black Veratrum nigrum, and black Ranunculus, are the three blackest flowers we use.

Aster Tradescanti, with small white flowers and Heath-like leaves, makes in November and December a famous light foundation for a glass, supporting anything dotted through it. The side shoots of Aster multiflorus are very dark, almost black, and look well among bright flowers and green foliage. The cut-leaved Myrica spatulata (Gale), when coloured in autumn, makes excellent foliage; also Rosemary-leaved Box, the smallest and narrowest-leaved of all the Box tribe. Heuchera leaves (brown), double lilac Colchicum, and Symphoricarpus racemosus variegatus (gold variegated Snowberry) make a good flat glass. Other combinations may be effected by the use of the following, as may be convenient:—Small Irises—white streaked sibirica, blue versicolor—and dark Ranunculuses. The beautiful white Libertia grandiflora, and the real dark blue Tradescantia virginica (Spider Wort); Hypericum orientale, blue branching Larkspur, and Anemone Honorine Jobert or vitifolia; Inula, clear yellow; Gladioli in variety, and Agapanthus umbellatus (blue) may also be used. Pale blue semi-double Delphinium (the single herbaceous Larkspurs soon drop their petals, and are, therefore, troublesome); Heuchera leaves and Viola stricta alba, which latter has firm long stalks, and a thick lasting flower, make a beautiful glass: as do also blue and white Aconite (Monkshood), and dwarf double Sunflowers. Souvenir de la Malmaison, Gloire de Dijon, or such-like Roses, and the top-shoots of Rubus laciniatus may also be used. The Bramble leaves, lasting longer than many fresh Roses, may be used with advantage. Lomatia leaves for a change also last very long. Ornithogalum pyrenaicum, pale yellowish green, to hang round either a tall or low glass and Ribes, white or double red, also answer well for this purpose. Anemone Honorine Jobert, Clematis Jackmanni and Variegated Currant, Acer Negundo or Variegated Rue, and Acæna millefolia for foliage; white Campanula coronata, magenta coloured Gladiolus byzantinus, and white Veronica spicata, also look well.

A note-book in which these combinations with their suitable foliage are jotted down I find very useful to refresh my memory; every season adds to one's store, and possibly alters and enlarges one's ideas and fancies.

Occasionally I have in these hints compared a hardy plant to a tender one. This is simply because I believe my readers will understand better what the plant looks like. A wild Vetch leaf is as beautiful as an Acacia—a tree Mallow as an Aralia—an Arbutus flower as a Cape Heath: I might go on *ad infinitum*.

I often hear the expression, a "worthless plant," "not worth growing," *i.e.*, not worth knowing and studying. What I understand to be meant by a worthless plant is one that does not happen to suit our artificial (puerile at the best) plans. We are always limiting Nature's boundless variety, because we ourselves are contracted in our ideas by this or that style of garden decoration.

I would strive to check such cramping contraction in myself, and in those who work with me; and it seems to me that the surest way to gain this end is to pause before we throw aside any plant as being unworthy of our notice, and to remember that when given to us by the Great Creator it was pronounced "very good."
F. J. Hope, Wardie Lodge, Edinburgh.

New Garden Plants.

BOLLEA LALINDEI.*

The colour of this species is beautiful bright violet. The tip of the upper sepal is green; the inferior halves of the lateral sepals are brownish purple. The lip is deep orange, and the column deep purplish. It appears to be far superior to any variety of the old Bollea violacea, Rchb. f. The discovery of this species is due to Mr. Lalinde, the Orchidophilist architect of Medellia in New Grenada, who for so many years kindly assisted the New Grenadan travellers and Orchid destroyers without being the least acknowledged in Europe. Finally, the gentleman appears to have settled

* Aff. Bolleæ violaceæ, Rchb. f.; foliis anguste cuneato-ligulatis acutis; floribus solitariis; sepalis latis oblongo-triangulis, tepalis latis oblongo-triangulis planis, labello a basi hastato triangulo antice utrinque implicito, hinc quasi grosse tridentato, sinubus inter dentes obtusangulis, callo in disco multisulcato, sulcis rugosis, columna angustiori, utrinque angulato, angulo deorsum verso.—*Zygopetalum Lalindei.*

his mind by sending himself living Orchids to Europe, and he began to do so, assisted by his young Belgian friend, Monsieur Patin. I have to thank the latter for the materials I used for the description for the *Flore des Serres* of our excellent veteran, Monsieur Van Houtte. In the meanwhile I accept the fresh flower from Messrs. Veitch, and give the description in the *Gardeners' Chronicle. H. G. Rchb. f.*

BOLLEA PATINI.*

Flowers larger than in B. Lalindei, yet not nearly so bright in colour. Sepals and petals pallid blue. Tip of upper sepal and inferior halves of lateral sepal yellow, like the lip. The column is bright violet, and the anther purplish. The history is quite the same as that of B. Lalindei, but I have not seen fresh flowers. I have at hand coloured photograhs, dry flowers, and a dried plant. The plant has been named in honour of Monsieur Patin, the young Belgian collector. May he remember that, if the living plants give sometimes acceptable material, yet good dried specimens brought for the service of science give a sure passport for immortality. *H. G. Rchb. f.*

COLCHICUM LUTEUM, *Baker.*†

This is a very distinct and striking species of Colchicum, which has long been known in this country in the shape of dried specimens, but which has never been named and described and never introduced in a living state. As it would be a great acquisition to our stock of cultivated Colchicums I notice it here, in the hope and expectation that calling attention to it may lead to its introduction. As it inhabits the temperate region of the western Himalayas, it would no doubt be found to be perfectly hardy in our English gardens. All the other species of Colchicum are purple, running off into white; but in this the flower is of as bright a yellow as in a Dutch Crocus or Sternbergia. There are numerous specimens in the Kew herbarium, gathered in 1848 by Dr. Thomson, at an elevation of from 5000 to 7000 feet in Kashmir, where it flowers in June. It was also gathered in the same district by Dr. Henderson on his expedition to Yarkand. Dr. Aitchison has lately sent from Hazara a plant of rather more slender habit, which he reports as growing at an elevation of 4000 feet, and flowering in December and January. The different flowering time would seem to indicate a different species; but I cannot make out any clear botanical difference between the Kashmir and Hazara specimens. It belongs to that section of the genus in which the flowers are produced at the same time as the leaves in spring, not independently of the flowers in autumn, as in C. variegatum and autumnale. This is a group which contains several Eastern and Mediterranean kinds, which our cultivators have greatly neglected. The plant may be described as follows:—

Corm ovoid, 9—12 lines thick, the numerous coats membranous and chestnut-coloured, the inner one produced 2—4 inches above the surface of the soil as a sheath round the tuft of leaves; leaves 3—4 to a corm, linear-ligulate, glabrous, fleshy, blunt, channelled down the face, falcate and shorter than the flower at the flowering time, finally half a foot long, 3—4 lines broad; flowers 1—3 to a corm; tube 2—3 inches long, whitish tinged with purple; limb of the flower 1—1¼ inch long, bright yellow on the inside, paler yellow, pure or slightly tinged with purple, on the outside; the oblanceolate blunt divisions 2—4 lines broad; stamens from the throat and reaching two-thirds of the way up the segments, the linear basifixed yellow anthers three or four times longer than the filaments; styles thread-like, yellow, reaching as high as the anthers or overtopping them; capsule ovoid, ¾—1 inch long, the three brown leathery carpels narrowed gradually into the styles and separating from one another in the upper quarter or third. *J. G. Baker.*

GREENHOUSE PLANTS.—XII.

THEIR CULTURE AND MANAGEMENT.

ERIOSTEMONS.—These plants, natives of New Holland and New South Wales, are in every way deserving of general cultivation; they are comparatively easy of growth, not subject to die off suddenly, or get out of health; they are profuse flowerers, and their pink buds and white flowers render them well adapted for associating with other plants in flower or otherwise. Their natural season of blooming is March, April, May, and June, according as they have been prepared by retarding or otherwise; yet, if required, they can be brought into flower much earlier in the winter, as they will stand moderate forcing, more especially the Box and Oleander-leaved varieties, E. buxifolius and E. neriifolius; they also will bear treatment and grow under conditions that would be fatal to many hard-wooded plants, rendering them very suitable for beginners in the cultivation of hard-wooded greenhouse plants. They flower freely in a small state, and consequently are well adapted for conservatory decoration, where, if allowed sufficient room by not cramming them too closely in amongst other things, they will receive little injury during the time they are in flower. Even when not in bloom, if well grown, their dense fresh green foliage renders them at all times interesting. They are the freest rooting of New Holland plants, and cannot bear cramping for want of pot-room in the early stages of their existence; consequently, in selecting plants, care should be taken to pick out such as are young, free, and vigorous, and have not been stunted for want of root-room. This is of vastly more importance than mere size, as these Eriostemons take longer than most plants of a similar nature to recover from such a condition, and rarely make good healthy progress if they have been at all pot-bound. They will bear without injury a continuous lower temperature during the winter season than most plants, but in their early stages they should never be submitted to such treatment, as it has a tendency to check root-action. Young plants in the usual-sized pots—6 or 7 inches—should be moved at the end of March or beginning of April, giving them a 3-inch shift in good fibrous peat, to which one-sixth sand may be added.

It is not necessary for these plants to break the peat so small as in the case of some more spare and tender-rooted subjects, but let the sand be well mixed with the peat, as these, like all other plants that have a greater comparative amount of leaf surface, require more water, and consequently must have the soil in which they grow in such condition as will admit of the water passing through it without danger of getting in the course of time too retentive. If the plants have any over-strong shoots, these should be cut well back, or they will draw the sap from the branches near the base of the plant so as to completely spoil them. Bring down to the rim of the pot all the strongest central branches, leaving such as are weaker upright, in which position they will gain strength, and thereby equalise their growth. With Eriostemons it is necessary to be more particular in the matter of training than with most plants, as they have a natural disposition to push these over-strong branches that rob the weaker ones. Place them in a house where they will be kept at a night temperature of not less than 45°. Close the house early; keep the atmosphere in a state conducive to free growth by a liberal use of water on the stages and paths. As the weather gets warmer in May syringe the plants overhead every afternoon. This not only promotes growth, but keeps in check red-spider, by which they are sometimes attacked.

By about the end of June these plants will take pots 3 inches larger, using soil of a similar description to that recommended for the first potting. Pot hard, and leave sufficient depth from the rim of the pot for watering. The sun at the time of this potting being powerful, the plants will require slightly shading for a fortnight, after which let them be gradually exposed, continuing the use of the syringe every afternoon until the end of August, after which they should be gradually hardened off by a drier atmosphere, and the admission of plenty of air night and day through the following month. Eriostemons are not subject to mildew, consequently there is no necessity at this stage of their growth to expose them in the open air with a view to hardening them, and this more especially as the object for the coming season will not be the production of flowers. Winter them in a temperature similar to that advised for the preceding season, this will keep their roots from getting quite dormant, and will enable the plants to move into growth freely in the spring; pot them at the end of March, giving a 3-inch shift, and encourage free growth by giving little side air and shutting the house completely, early enough to enclose a good amount of sun-heat. As the season advances again commence to use the syringe every afternoon. Attend well to their training, so as to keep them dense and well furnished at the base of the plants; upon attention to this in the early stages of their growth depends their after condition, as, if they are once allowed to get bare of foliage at the bottom, it is not easy to get their strong upright-growing branches down so as to furnish them as they ought to be; and bare naked bottoms are at all times intolerable. A second potting the same season will not be necessary or advisable, as they will, if all has gone well with them, be large enough to make nice decorative plants the following spring.

Such as are required for flowering should be fully exposed to the open air from the middle of July until the end of September. This open air ripening cannot be dispensed with, if a dense sheet of flower is expected, and these plants, unless profusely bloomed, this way, from the small size of the individual flowers are not sufficiently attractive. By the end of Septemb they must be brought indoors, and do not require be placed in the best position in the house as to li by reason of their making no growth during winter; but they must on no account be placed close together, or the bottom leaves will suffer a fall off prematurely. A temperature of 40° at night w be sufficient to winter them in; they will come in flower during March or April, when they can removed to the conservatory, where they will attractive for several weeks. After they have flowere the seed-pods must be at once picked off, or they w seriously retard the growth of the plants.

If the object is to grow them on quickly to large size, they should not be turned out in th autumn but be kept under glass, as advised the firs season, and wintered a little warmer, giving them 3-inch shift again in March, and growing them freel all through this their third summer until the middle of July, when they must be turned out, as before recommended for such as were required to flowe Remove them under glass before there is any danger of frost, and keep them cool during the winter if the object is to induce them to flower late. If they are required for exhibition they should, when removed under cover in the autumn, be at once placed in the north house, where they will do well through the winter: here they will come on much more slowly than in the ordinary hard-wooded house. It is necessary to treat them so when wanted for showing, as unless retarded all the winter they come into flower too soon, and their blooming will be half over before they are required. The plants will need little difference in their treatment to keep them in good condition for two or three years, when they may be potted again, giving them 4 or 6 inches more room, after which when the soil becomes at all exhausted they must be assisted with manure-water during the growing season.

They are not very liable to the attacks of insects, although they are sometimes affected with red-spider, which the use of the syringe, as before recommended, will keep down. White and brown scale will also live upon them; if affected with the white insect it is a difficult matter to destroy it, as the leaves are unable to withstand any application sufficiently strong to kill the insect. Stevenson's "Abyssinian mixture," or "Fowler's Insecticide," at 5 ounces to the gallon, will destroy brown scale on these plants without injuring their leaves in the least. They should be thoroughly washed with the mixture twice within ten days immediately after flowering, before growth has commenced. The way this insect principally injures the plants is by its excrement coating over the upper surface of the leaves, as if they were varnished, clogging the pores, and causing them to prematurely turn yellow and fall off. This washing has also a beneficial effect in removing dust that adheres to the foliage and becomes fixed in the small drops of glutinous fluid that are secreted by the flowers. The following species are deserving of cultivation, and all require similar treatment:—

E. neriifolius.—The best of the family; good in constitution and habit; a very free flowerer, the individual blooms large, and produced in great quantities. A profusely-flowered plant of this sort is very effective on the exhibition stage.

E. intermedius.—This has larger flowers than the other kinds, but is not so good a grower, never pushing such a number of branches, and having a much thinner appearance; nevertheless, it makes a nice, moderate-sized plant.

E. cuspidatus is a more upright grower than either of the preceding, has moderate-sized leaves, is a free-flowering and desirable plant, when strong, producing its flowers in bunches of five or six at every leaf.

E. pulchellus is a weaker-wooded plant, yet grows very close and compact, not forming so large a specimen as some of the others, neither are its flowers so conspicuous.

E. linearifolius forms a nice companion plant to the last named variety. It is a very free grower, its flowers are smaller, and more hidden by the leaves than in the more robust-growing sorts.

E. buxifolius.—This is one of the best known and commonly grown species; it is a free grower and profuse flowerer. *T. Baines.*

ITALIAN GARDENS.

PALAZZO ORENGO, NEAR VINTIMIGLIA.

A FEW miles from the gardens at Monaco, which we figured and described in a former number (vol. i., p. 819, 1874, figs. 170 172), is the little village of La Mortola. This is situated on the famous Corniche road, midway between the towns of Mentone and Vintimiglia. Strictly speaking, we ought to call it Lower Mortola, for higher up the mountains is perched another little village of the same name, distinguished by the epithet "upper."

* Aff. B violaceæ, Rchb. f., foliis late cuneato oblongo-ligulatis acutis: floribus solitariis, sepalis oblongis attenuatis, tepalis triangulo ligulatis paulo undulatis, labello a basi hastato triangulo antice utrinque replicato, callo transverso in disco multisulcato, jugis rugosis, columna amplissima, medio utrinque extrorsum obtusangula.—*Zygopetalum Patini.*

† Cormo ovoideo: tunicis castaneis membranaceis, interiori tubulato 2—4-pollicari; foliis 3—4 linearibus synanthiis vernalibus lineari-ligulatis obtusis flore brevioribus demum semipedalibus, 3—4 lin. latis; floribus 1—3; tubo 2—3-pollicari purpurascente; limbo 12—15 lin. longo, intus splendide luteo, extus concolore vel leviter purpureo tincto; segmentis oblanceolatis obtusis 2—4 lin. latis; antheris luteis linearibus 6—8 lin. longis basifixis filamento 3—4-plo superantibus; stigmatibus luteis antheris æquilongis vel superantibus; carpellis 9—12 lin. longis, in stylos sensim attenuatis, superne inter sese liberis.

FIG. 7.—VIEW IN THE GROUNDS OF THE PALAZZO ORENGO, LA MORTOLA.

Our business lies not so much with the village as with the grounds around the Palazzo Orengo, now occupied by Mr. Thomas Hanbury. Placed in a situation very similar in character to the projecting cape on which Monaco is situate, and almost equally lovely in its surroundings, this garden is one of the most interesting, from the richness and variety of its contents, that can be seen in any country. It occupies the slope of a hill trending toward the sea, is protected in part by the mountains which rise behind it, but must be exposed to certain winds which rush from the north down a deep gorge on the western side of the garden. This gorge, from the side of which our illustration (fig. 7) is taken, descends from the top of the mountains to the sea, and its sides are planted with Olives and Pines. This ravine adds greatly to the picturesqueness of the garden, and, together with the rocks in its vicinity, furnishes a perfect treasure-house of wild plants. Fancy the delight of gathering wild Myrtle with one's own hand, and Wild Oleander, and yet in Europe! Coriaria myrtifolia is also a characteristic plant, and so is the pretty Smilax aspera, whose spotted leaves and zig-zag clusters of pink berries are of a very ornamental character. Lavender, Rosemary, and Thyme grow abundantly on the rocks. Convolvulus althæoides is one of their gayest ornaments. The Caper flourishes on the walls. A species of Moricandia comes up everywhere in the neighbourhood as a weed, but is one of those plants whose distribution is entirely confined to a narrow area on this coast, it not being found elsewhere. A species of Asparagus, A. acutifolius, is by no means inelegant; Daphne Gnidium grows here in some profusion; the Alaternus, so familiar to us at home, fruits abundantly; Globularias abound on the rocks; Euphorbias are very characteristic, in particular a little spiney species, E. spinosa, and a really grand shrubby species, E. dendroides, which forms large bushes, not only under the Olives, but also springing from the clefts of the rocks close to the sea, where little else will grow.

An admirable selection from these native plants—admirable not only for the judgment with which they have been selected, but also for the faithfulness with which they have been represented, and the interest that has been thrown around them—is given in Mr. Moggridge's *Flora of Mentone.*

From the nature of the site it occupies, the garden is naturally on different levels. Moreover, much of it was formerly occupied by terraces for the growth of Olive trees, some of which have been allowed to remain. The soil also is of varied character, being in places sandy, in others rocky. Water has until lately been deficient in the summer months, but this defect will speedily be remedied—a huge tank to receive the mountain torrents, and into which a spring pours, being in course of construction.

The climate of this lovely region has been pretty fully descanted upon in our columns in Dr. Bennet's

series of articles on the climate and vegetation of the Mediterranean region, some of which have been reprinted in his charming book entitled *Winter and Spring in the Mediterranean.* Moreover, the list of plants observed in flower in this very garden in January last, as published in our columns in our number for January 24, p. 122, will tell its own tale. It is, therefore, not necessary to enter into detail now on that subject, particularly as the plants we shall have occasion to notice furnish the best test of the climate. We have, for instance, mentioned the Olive.

The Olives here are fine patriarchal trees of large dimensions, not unlike large Willows (Salix alba), but with dark grey foliage. Elsewhere in Italy, as near Florence, for instance, the Olives are small scrubby trees, with little to recommend them after the novelty of their appearance has passed off. A similar remark applies to the tree as seen in the South of France. The traveller leaving Marseilles loses sight of the Olives before he gets to Lyons, and he is not sorry to do so, for, however valuable their products may be, their appearance becomes exceedingly stunted and shabby.

The picturesqueness of the Olive reaches its maximum in the Riviera; there the traveller may see fine old trees, gnarled and rift into three or four separate trunks or perforated by large holes. Still the trees live on, apparently as hale as ever; if cut down, they sprout again, and often throw out false roots—as Virgil long ago noted:—

"Quin et caudicibus sectis, mirabile dictu,
Truditur e sicco radix oleagina ligno."

Indeed, the number of plants mentioned in Greek and Latin authors strikes one forcibly here—the Asparagus, the Daphne, the Olive, the Myrtle, and scores of others.

Another tree yet more sensitive than the Olive to climatal vicissitudes is the Lemon. Even near Genoa the Lemons are grown as low bushes or trained on trellises espalier-wise, or even on walls; but here at La Mortola, and in the vicinity of Mentone generally, the Lemon is grown as a small orchard-tree, and from the value of its crop it forms the staple agricultural product of the district. So valuable is it, indeed, that we are assured that Lemon ground in the neighbourhood of La Mortola was valued at £1000 an acre with the trees. Even here it is only in sheltered nooks that the Lemon is entirely able to hold its own, for here and there we noticed the young shoots and leaves blackened by frost (May 22).

In summer in this district the heat is torrid, and this, joined to the dryness of the soil and the scanty supply of water, naturally favours the growth of certain descriptions of plants to which we shall afterwards refer. With little or no frost, a mild equable winter temperature, "growing weather" in spring, and a hot, fierce summer sun "to ripen the wood," it is not wonderful that many plants thrive here with a vigour and force which we are quite unaccustomed to see in the same plants grown under glass in Britain. Mr. Hanbury has taken advantage of these favourable circumstances to constitute his garden a so-called "garden of acclimatisation." From Australia, from China, from Japan, from the Cape of Good Hope, from Mexico, from Chile, from Peru—from any quarter of the globe whose climate assimilates to that of the Genoese Riviera, Mr. Hanbury has got together a vast assemblage of plants. Making allowance for the necessary difference of circumstances and surroundings, we may aptly compare this collection of plants with that amassed by Mr. Wilson Saunders, of Reigate.

When the plant lover is set down amid such a vast profusion of novel and interesting plants, his first impression is pretty sure to be one of bewilderment. How can he note all these things? how remember them? Will not the impressions of the one be effaced by those of the other? And when the attempt has to be made to convey some idea of all these riches to others, the embarrassment becomes even greater. As it is, we must defer to a following number a second illustration and remarks on the contents of this garden.

(*To be continued.*)

COPPICING CINCHONAS.

Coppicing is that part of the science of arboriculture known as the preservation of underwood. The word copse is Norman, *coupiz*, and derived from *couper*, to cut. The explanation in northern latitudes is wood of small growth, called brush or underwood, cut at stated periods for implement handles, fire-wood, &c. Trees used for this purpose are known to the woodman from the readiness with which they form fresh shoots from the stumps when cut down. It may be as well to direct attention to the words in northern latitudes, as the subject under consideration, coppicing Cinchona trees, finds us in a perfectly different situation, so much so that the meaning of coppicing might, in a great measure, be altered so as to mean the preservation of certain trees in tropical latitudes. The coppicing of Cinchona as a practical means of enhancing their value in a commercial point of view, is at present undergoing a rather undefined discussion. From what has been written on the subject it is rather difficult to lay hold of a fixed idea as to what the groping about in the twilight of uncertainty means. With reference to coppicing and what it is, we are told that it is cutting the trees down near the ground, cutting them 6 inches from the ground, likewise cutting no trees down other than such as have shoots upon them. It is also said that only small wood is the result derived from coppicing. The above modes of procedure may or may not result in producing small wood; all that can be said regarding them is that they are not coppicing Cinchonas, which is a practical operation, about which there is no uncertainty. In order to put the matter in as clear a light as possible, an explanation of coppicing Cinchonas will be given, and the results of such practice, leaving it to be contradicted by any one who chooses. Coppicing is thinning out a plantation by cutting down such trees as are required for bark. The process of cutting is definite, viz., with a saw, gently sloping the cut—the saw entering the trees as close to the ground as it can be worked, afterwards smoothing the top of the stump with a sharp knife. From the stumps will spring young shoots all round, these, when a few inches high, are thinned off, leaving only three of the strongest equally distributed, if possible, round the stump, always giving the preference to the shoots nearest the soil. The results are that the shoots, being close to the ground, speedily form fresh roots, with the aid of which, and the parent roots still active, the rapid transformation of the shoots into young trees is a matter anent which there need be no cavilling. By this mode of treatment trees are produced in about three and a-half years, measuring in circumference at 6 inches from the ground 14½ to 15½ inches, and averaging in height from 18 to 25 feet. In order to corroborate the satisfactory out-turn of growth from coppicing, the case of the Teak, Tectona grandis, which possesses the power of reproducing itself from shoots, may be taken as an example. Dr. Brandis, in his remarks on the growth of this tree says, that "in the forests of Kjoonchoung nine sprouts from Teak stumps, estimated at twenty-five years old, had an average girth of 4 feet 5 inches, which girth Teak trees only attain in 35 years." Here then is an actual gain of ten years in twenty-five, proving satisfactorily enough that something other than small wood is procurable from coppicing. There may be other and better modes of procedure in the treatment of Cinchonas, but anything else hitherto suggested is hardly worthy of consideration. *A. T. Jaffrey, British Sikkim.*

ROSES AND THEIR CULTIVATION.

Much has been written in modern times regarding the culture of the Rose, and fresh, and in some instances new, suggestions emanate from some of the many cultivators of so universal a favourite. Even Pliny referred to varieties of it at a very long distance of time past; and one of the varieties, as I take it, which that Roman writer referred to, is worthy of far more consideration than most modern hybridists have afforded it. We are always searching for constitutional vigour, and a forced robustness of growth; hence, I repeat, it seems to me an oversight that the Cabbage Rose—even of Pliny's age—should not be induced, in connection with some other kind possessing at once a hardy constitution, fine blooms, and the utmost possible fragrance, to give us a batch of seedlings. If it be said "some of our present varieties originated from the old Rosa centifolia," I answer still, cross it again with some of our best known garden varieties—give, if possible, to them a like constitution possessed so universally by it. Where the old Cabbage Rose is planted there it will exist, even if under trees or in the most adverse situation, for a hundred years or more to come, and when it flowers the blooms will constantly be of average merit. Now, as I take it, this is the very property a good and useful Rose should, and might be induced to, possess.

We are constantly being informed of the great advantage possessed by this or that kind of parent stock. The Manetti was to work a complete revolution in all dwarf Rose culture. The additional vigour it was to infuse into the most delicate varieties was lauded to the skies, and what is really the issue? Simply that it is a great trade aid. The Manetti will root and grow readily; it will lend its aid to the budder, and, worse than all for the amateur cultivator, to the grafter. Save me from grafted Roses on the Manetti! Yet our newer kinds of Roses must be procured in quantity to meet a large demand, and where wood is produced by the autumn of the year, the quickest plan is to graft with the autumn rest, to push into growth in very early spring, and issue the new-made plants towards May or June. Of all processes this is the worst for future success. Budded on to the Manetti they may be admissible if every bud be taken out of the cutting when it is placed in the ground (and the buds upon Manetti Roses are as thick as they are upon Rhododendron pontic—not otherwise, as root suckers will otherwise pe in pushing up, to the too certain utter injury of foster bud, even if they be regularly removed as t show above ground. But the worst concerning Manetti has to be told. It will grow vigorous k most vigorously, whilst weaker kinds will not su upon it. Take the fine but seldom-met-with Col. Rougemont as an illustration. As against stock we have yet another innovation, this tim pure Oxonian. Seedling Dog-rose Briars are become the *multum in parvo* of all cultivators' desi There is much on the face of this latter idea to c mend it. Of all stocks for standard Roses we aware none can in anywise match this same Dog-r Briar, hence we may infer that what is good for upper growth would equally suit the more lowly.

I am, however, in common with a vast number growers, much in favour of Roses upon their o roots; and I surmise that with a more rational syste of culture we shall find them do far better grow in this way than when either of the other systen is followed, and permanent Rose "bushes" are th main desideratum. I am perfectly aware th we cannot look for such in newer varieties, but th may be secured in all the older sorts. By the "m rational system of culture" referred to above I me a more natural one. It is a fact beyond controve that we totally impoverish the root base of our Ro (standards or dwarfs) by the very severe mode pruning which we follow—a system of the m reprehensible and unnatural kind. That such a systen does not conduce to redundant growth of a flowering kind and of meritorious quality we are too surely made aware of, by the fact that the finest growths an the best blooms are produced from maiden bud worked on Briars, possessing, as we know, generall few small feeding roots of a season's formation. I following this lead, and permitting the head to exte to a more liberal, yet still a moderate limit, we co duce to a more extended illustration of some effects.

Now I will come to the more immediate inte tion I started with when I contemplated th paper. If we would have fine dwarf Ros firstly procure strong promising young plants o their own roots; start them in their permane positions precisely as you would a red or whi Currant tree; stake out after the first season's growt four, five, or six main shoots, previously encourage to form the nucleus of a future well-shaped bus Do not cut them back so severely as is usually th case; but, by leaving each about 1 foot in leng afford the means for a moderate base to start wit By, perhaps, a little subsequent summer pinchin during the first following summer a perfect miniatu of the future plant will be formed. The increase size will engender roots to support the head, and i will be readily seen what an incentive to future bloom display will exist, so different to the cruel "cut to bud or two" so universally practised. I will promi the operator who may follow these suggestions n only finer plants, more abundant blooms, and lastin successions, but also finer flowers individually. *Wm Earley.*

IVY AS A DECORATIVE PLANT

Gardeners are beginning to appreciate more fu than they used to do the value of Ivy for a variety purposes. Connoisseurs, too, have begun to colle study, and classify the many varieties. Mr. Shirl Hibberd has written one of the most pleasant a valuable garden monographs concerning them. To squares are largely decorated with them, a practi we borrowed in great measure from our Fren neighbours, and one we hope to see extended a improved upon, as few plants do better in confin spaces and dirty atmosphere than the free-growi sorts of Ivies; in fact, the Ivy is a most accommodati plant, as our French friends have discovered. fig. 8, for instance, is an illustration of a movab tent, or sun-shade, formed of Ivy, and which we co from a recent number of the *Revue Horticole.* Patie and time are required to make such a veritable "u brella" as this. It was exhibited at the Paris Ex bition of 1867, and has now a straight, clean st more than 6 feet in height. The spread of branches, if fully extended, would be about 10 me (between 32 and 33 feet), but they are trained in arching manner so as to leave an opening about metres (about 23 feet) in diameter. The branches well furnished with leaves, and, as the plant is gro in a tub, it can be removed from place to place, may be required, and may be made to serve a most agreeable summer-house. The facility of tra port is still further increased by the fact that t branches are trained over wires which can be fold up umbrella-fashion.

The plant is now in the possession of M. Rouss landscape gardener, 16, Chaussée du Maine, Pa but we are not informed to whose patient skill we a indebted for this work of art. It is obvious that a decorators might take many a hint from this *tour de force.*

THE FUNGI OF CHARCOAL BEDS.*

THROUGHOUT the vegetable world there are few things more remarkable than the curious habitats of fungi. In no other class of plants do we find so varied a choice of material on which to grow, or so wide a geographical range through which to flourish. They inhabit nearly every plant known to botanists, from the humble moss to the giant Oak, both in its living and decaying state; in one case seating themselves on the leaf, in another on the stem, and in a third on the roots. Six hundred genera of plants, to say nothing of species, are enumerated by authors as the victims of parasitic fungi, and this list is far from complete. They do not confine themselves to vegetable substances, for, as some one has happily said, "they are carnivorous in their tastes;" they fix themselves on horn, leather, hair, undressed hides, and on a considerable number of animal tissues, in some cases even before vitality has forsaken those tissues, and hence many of the most fatal diseases to which "flesh is heir" have been regarded as arising from these parasites. Nearly every kind of food used by man is subject to their growth as well as a variety of pharmaceutical compounds and poisonous mixtures. Even the hard surface of minerals is not proof against their invasion, for they have been known to grow on iron and glass. Their range of situation is no less remarkable. They enter into our houses and find a lodgment in every room—the library, the wardrobe, the cupboard, the cellar. They thrust themselves into notice in our best kept gardens, they spread themselves over the most highly cultivated farms; they develope in the depths of the deepest mines, and are observed throughout all elevations of the earth's surface up to 18,000 feet above the level of the sea. Such, in a few words, is the broad area over which these strange plants extend themselves.

There are, however, certain particular spots and materials which are more frequented by their presence than others, where they appear to find some special food they most prize. Quoting from the lists above referred to, I find on the Beech (Fagus sylvatica) as many as 220 species have a habitat, on the Oak (Quercus Robur) 290 species, and even on those minute plants, mosses, there are said to grow 45 species. Amongst animal substances there are given, as found on various materials derived from our domestic bull (Bos Taurus) 57 species, on insects 35 species, and on birds 9 species.

Although we are not able to present a long list as inhabiting charcoal beds and burnt ground, we claim for such places the character of being favourable spots on which some interesting plants are discovered. For a long time it has been observed that the growth of fungi follows the action of fire on wood and earth. The Rev. Mr. Berkeley tells us in his introduction to *Cryptogamic Botany*, p. 292, that "in Germany Morels affect more especially those places where wood has been burnt, and the collection was so lucrative as to induce the peasantry to destroy the forests by fire with a view to favour their growth; a practice which was at length checked by the enacting of special laws." In his introduction to *The Outlines of Fungology* we are also informed that "a certain Polyporus used for food in Italy is raised on Hazel stumps by simply charring them partially and then supplying them with a proper quantity of water." In M. Rouniguére's work (*Cryptogamie Illustrée*) we are informed that Captain Durieu, "when crossing some plains in Algeria which had lately been burnt by the Arabs during the war in that country, was able to collect a great number of fungi upon grass stubble partly consumed, and upon wood the bark of which had been charred by fire." The same author also says that large species of fungi are found on charcoal beds in the forests of France. Those who have been in the habit of searching the woods of Shropshire and Herefordshire for fungi could not have failed to observe many corresponding facts. These counties supply large quantities of timber for building, and the practice of landowners of felling it at certain periods, when charcoal is usually made, ensures a succession of these beds of various ages.

It is a matter of surprise that any living organisms should find a *pabulum* after the ordeal of fire which these spots undergo; yet it is a fact that, very shortly after their being used, a growth of fungi makes its appearance, while yet the surface consists of nothing more than loose fragments of charcoal several inches in depth. Some conditions are produced highly favourable to the growth of mycelium arising from spores which have either escaped the action of the fire or been conveyed by the wind or animals and deposited in their place of growth. I may here mention a fact that came under my own observation in the early part of last year, which tends to show that at least one species of lichen may take possession of a similar habitat. While in North Wales, in the month of April, I saw on the side of a public road a space of burnt ground some 12 feet in circumference, probably the recent encampment of gipsies, nearly the whole surface of which was covered by a beautiful Collema, its thallus thickly strewn with dark brown apothecia, the finest growth of the kind I ever witnessed. An interesting question naturally occurs here, which we cannot pass over without a remark, namely, How are these phenomena to be accounted for? Why should there exist this singular sequence of fire and fungi? The most probable explanation—the one most consonant with our knowledge of vegetable growth—is that the chemical constituents of the ground become so altered as to supply the ingredients most appropriate to the sustenance of fungi. I must content myself with bringing before your notice one fact only in confirmation of this view. Professor Church has given us in the *Journal of Botany* a very careful analysis of Lycoperdon giganteum, from which it appears that the ash of that fungus yields the following ingredients:—

In 100 parts.	
Phosphorous pentoxide	46.19
Potash	35.48
Soda	6.95
Lime	2.47
Ferric oxide	1.08
Silica	0.66
Other substances and loss	7.17
	100.000

Now, these very substances are all present in great abundance in charcoal beds, and wherever wood, straw, and other vegetable matter has been consumed by fire. If we take Lycoperdon giganteum as being a fair representative of the chemical composition of fleshy fungi, we need not be surprised to find burnt ground productive. Should it be urged that the Ash does not represent more than 1 per cent. of the whole plant in its living state, the reply is, that it may easily obtain its 90 per cent. of water elsewhere, but not so readily its mineral constituents, and they are indispensable. Thus, it is seen that these beds supply a table in the forest spread richly with all those delicacies that fungi love to feed upon.

The following is the list of species observed to grow on these places, as far as I have been able to ascertain, but doubtless it can be largely supplemented by those who have made fungi their study:—Agaricus fumosus (Fr.), politus (Fr.), laccatus, atratus, umbelliferus, fibula, scaber, carbonarius, decipiens, sapineus, canobrunneus (Batsch.); Lactarius quietus (Fr.); Russula nigricans (Fr.), adusta (Fr.), ochroleuca (Fr.), fragilis (Fr.); Cantharellus umbonatus (P.), radicosus (B. and Br.); Polyporus perennis (Fr.); Thelephora laciniata, Typhula, Lycoperdon saccatum (Vahl), gemmatum (Fr.); Reticularia applanata (B. and Br.); Rhizina undulata (Fr.); Helvella crispa, lacunosa; Peziza cochleata (Hud.), trachycarpa (Curr.), leiocarpa (Curr.), carbonaria (A. and S.), pustulata (Pers.), melaloma (A. and S.), rutilans (Fr.), subhirsuta var. macrocystis (Cooke), schizospora (Phillips), omphalodes, violacea; Ascobolus Crouani (Cooke), atrofuscus (N. S.); Hynotria Tulasnei (B. and Br.); Sphæria (N. S. ?). Amongst the white spored in this list, Agaricus atratus deserves notice because of its inconspicuous character, having a pileus much the colour of the ground on which it grows, therefore easily overlooked, and its close resemblance to Cantharellus radicosus. On closer examination its thin broadish gills will at once enable us to distinguish it from the last-named, which has narrow raised ribs rather than gills. This is not very common in Shropshire. Among the brown spored the two commonest are Agaricus scaber and A. carbonarius. They abound in the Wrekin woods and the Whitcliffe woods. Neither is difficult to recognise, A. scaber having a fibrous, tan-coloured pileus and stem, and A. carbonarius a tawny viscid pileus, squamulous stems and clay-coloured gills. This last species often thrusts itself up through the charcoal as if it had attained a considerable development before showing itself on the surface. A. decipiens, which is nearly allied to this species, I have never yet found in Shropshire. Passing to the ascigerous fungi—that is, to those which have their sporidia enclosed in asci or sacs—we find several interesting denizens of the charcoal beds. Rhizina undulata has not been found in Shropshire or Herefordshire, though it is said to be not uncommon where heath has been burnt down. The genus Peziza is somewhat largely represented. Peziza trachycarpa of Mr. Currey is very common in Shropshire, but owing to its dark colour it requires to be searched for attentively, otherwise it may be overlooked. The sporidia are very beautiful, and make an interesting object for the microscope. P. leiocarpa, Curr., I have never been fortunate enough to find in Shropshire. A large irregular Peziza occurred this (last) autumn on the charcoal beds of the Ercal—an outlier of the Wrekin—which being a rare species requires notice, viz., Peziza pustulata, Pers. Some of the specimens measured 1 inch across. It is not an uncommon circumstance to find large masses of bright scarlet or dull red on the surface of the charcoal, which on close inspection are found to consist of a species of Peziza crowded into layers extending to the size of a square foot or more. One of the most common is Peziza melaloma, but not easily distinguished from some neighbouring species. P. omphalodes is another common one, appearing in large patches. This is more easily recognised by a white tomentum generally surrounding its base, which, although fugacious, may be generally found on the younger individuals. A variety of P. subhirsuta, named by Mr. Cooke var. macrocystis, also assumes a crowded growth. I am not quite satisfied with this species being referred to subhirsuta, and venture to suggest that it should have a specific rank. P. schizospora is not common, but may be easily recognised by its smooth spherical sporidia and the tendency of the epispore to split and discharge a nucleus. I now wish to call your attention to a very beautiful Ascobolus, which there is every reason to believe is new to our flora if not new to science. This occurred in company with P. pustulata. The whole plant when young is of a dark brown colour, and on maturing the disc becomes nearly black. The sporidia are broadly elliptical and roughly granulated on the exterior. The nearest species to it is that figured by M. Boudier in his excellent monograph on this genus under A. viridis, Curr. An interesting tuber, Hynotria Tulasnei (B. and Br.), has occurred once, a single specimen, immature. The last plant in the list is a minute Sphæria, found on burnt soil in Altringham Park. The ostiolum alone is visible above the surface of the ground, the perithecium being below, surrounded by a densely entangled mass of septate transparent

FIG. 8.—A LIVING TENT.

* A paper read by Mr. Phillips, of Shrewsbury, at the annual meeting of the Woolhope Club.

threads. The sporidia are almond-shaped, black, with a hyaline tip at the lower end. I have not yet been able to identify this with any published species, and should it be new it is proposed to call it S. carbonaria.

THE FRUITS OF PERSIA.

Persia, if we may give credence to ancient authors, was at one time the most fruitful portion of the earth's surface, showing signs of the earliest efforts at cultivation made by the human race. From Xenophon we learn that the Persian kings derived especial pleasure from their gardens, and that Cyrus, in whatever part of his dominion he was located, took care to fill the "paradises" with everything both beautiful and useful that the soil could produce. Plutarch tells us of Lysander, who found the Persian monarch in his garden at Sardis, and upon its being praised by the Spartan general, the king avowed that he had planned, disposed, and arranged the whole himself, and planted a considerable portion of the trees with his own hands. The vale of Mervdasht, watered by the Araxes, Cyrus and Medus, was known to have been most famous for its luxuriant cultivation, which enabled it to support a population of fifteen hundred villages, besides the once celebrated city of Persepolis.

The picture, has, however, greatly changed, for with the exception of the provinces bordering along the Caspian that are noted for their fertility even at the present day, the general feature is that of vast dreary deserts, intersected with huge chains of bare, sterile mountains, with spots of green at long intervals where water is to be found. According to the verdict of modern travellers there is nothing whatever to call to memory the scenery of Europe—no green plains or grassy slopes, no parks or inclosures, no hedges or woods, no magnificent country seats nor comfortable looking cottages, and, excepting in spring, even the cultivated portion around the villages can hardly be distinguished from the brown arid expanse that everywhere meets and fatigues the eye. The towns and villages are few and far between, consisting mostly of heaps of dismal ruins, enclosing and nearly concealing the habitable portions. No fine buildings are to be seen, except a few old palaces and edifices falling into ruin for want of repair; the roads through the country are mere tracks, the lodgings for travellers comfortless caravanserais, the people mostly civil to strangers, but not to be trusted or believed in the least particular. The only trees to be seen are in the gardens of villages, or on the banks of streams, where they are planted for the purpose of affording the little timber used in building. But the contrast which these gardens, spotting the grey and dusty plain with their dark green appearance, produce, is more melancholy than pleasing. In some provinces there are hundreds of fine aqueducts that would give fertility to the soil but which lie choked up and buried in ruins. The genius of the ancient Persian for cultivation is no longer present, or the precepts of that religion of the fire-worshipper according to which it was accounted a meritorious act to plant a tree, to bring water to a field, and to make a barren spot of earth produce grain; whilst his successor, the Mahometan, seems to have no liking for improvement, or even to preserve what his ancestors have built or planted. Instead of the fairy-like visions conjured up by the tales of the *Arabian Nights*—that will probably always remain associated with Persia—in stern reality everything appears crumbling to decay, as though the land itself were under some stupendous and overwhelming curse.

The climate varies to the greatest possible extent in different provinces; the heat in the south is almost insupportable, while the cold of winter in the north equals that of Canada and Russia; and the statement of the younger Cyrus, that one extremity of his father's dominions stretched into the climates that were uninhabitable through heat, and the other into those uninhabitable through cold, is nearer the truth than might be supposed. The skies are clear and the atmosphere dry; some rain falls in spring and autumn, none in summer, and there is a good deal of snow in winter. Even in the north the heat in summer is so great that all who can leave the towns and villages on the plains in the months of June, July, August, and September, and resort to temporary lodgings or to tents in the mountains. In the provinces on the Caspian the heat, though great at that time, is not so excessive as in the south—due, perhaps, to the evaporation that takes place, as well as from the sea breezes.

The state of the country is such that the cultivator rarely expects to reap the fruit of his labours. His lands and houses are liable to be plundered by the retainers of every petty chief, and he and his family may in an instant be deprived of all their little capital, and reduced to beggary and want. The high roads, the only safe ones for travellers, are constantly denuded of necessaries by the passage of high officials and troops; and upon such occasions the people simulate poverty and bury what money they possess, in order to prevent being seized upon for contributions. Under these circumstances anything connected with the cultivation of the soil must necessarily be in the most deplorable state possible. No improvement is ever dreamed of, only the most easily worked portions are cultivated, and the implements of husbandry are of the rudest and most primitive construction. Such, however, is the fertility of the land that, despite the want of skill and attention on the part of the husbandman, wherever the means of irrigation exist the returns are ample. This is, indeed, the great business of the Persian cultivator, and one that he well understands, it having been practised from the remotest antiquity; the most barren ground, when moistened with a plentiful supply of the precious element, being productive and fruitful with a rapidity almost miraculous. It has been truly remarked that water in this country is not silver, but gold. The watercourse, or *kanat*, is an artificial channel, by which water is conveyed underground from a remote spring, perhaps miles distant, to the plain or fields to be irrigated, where it issues upon the surface, and the water is distributed in streams above ground, leading in all directions required. To form one of these watercourses the peasants search for a spring, and when they find a likely spot they sink a well, 3 or 4 feet in diameter, and deep enough to reach the water. They then dig a number of these wells, varying from 20 to 50 yards apart, in the direction whither the water is to be conveyed, and connect them altogether by a subterranean passage leading from well to well, through which the body of water flows. In places where the ground is soft, the wells and passage are sometimes bricked. In this way the water is gradually brought to the surface of a plain from a spring which may be distant only a few hundred yards, but which may be several miles off. The great advantage in having the water thus conveyed underground is, that it is not evaporated and wasted by the heat of the sun. *Kanats*, marked by the long line of well-mouths, may be seen in most of the plains and valleys in the country, but great numbers of them are now useless, dry, and choked up, bearing evidence of former prosperity and present neglect and ruin.

The greatest part of the land is the property of the State, and is farmed out to cultivators on the following terms: the Government bears the expense of watering and manuring the soil, and furnishes seed corn to the cultivator, who has nothing to provide except the oxen and the plough. When the harvest is gathered in, one-fourth of the crop goes to the cultivator, and three-fourths to the State. When land which is farmed for a rent in money—as many of the gardens are—is let out to any Armenian, he is generally obliged to pay much more than a Mussulman. Manure is very rarely applied to corn land; near cities the Melon, Cucumber, and vegetable Gourds are enriched with manure from the soil of the caravanserais, and in the neighbourhood of Ispahan pigeon-dung is highly valued in the cultivation of the Melon. The latter is collected by means of pigeon towers, which are numerous in the fields and gardens, and are very singular structures. They are high round towers, slightly tapering upwards, with several small pointed domes on the top, full of apertures, by which the pigeons enter. The exterior is usually white-washed and painted with fanciful cornices and all manner of strange devices, producing a quaint and picturesque effect. These towers are designed for the purpose of collecting the pigeons' dung as manure for the Melon gardens. The whole interior is divided into thousands of little triangular niches in which the pigeons make their nests and rear their young. A few domesticated pigeons are first put into the tower, and they soon attract the wild ones, which come in myriads, and establish themselves in the domiciles prepared for them. They are all of a slaty blue colour, like our common wood-pigeon. The only entrance for man into the pigeon tower is a door near the bottom, which is closed up for the greater part of the year during the periods of incubation, and when opened the bottom of the tower is found filled with the precious manure to the depth of several feet.

The Melons of Ispahan are the finest in Persia, and probably the best in the world. They are of all sorts and sizes, from the *Germeck*, a fruit scarcely larger than a cricket-ball, to the *Goorganbee*, an enormous Melon, two of which are a load for a stout donkey. The greatest care and attention are paid to the culture of the Melon. The seeds are sown in the beginning of April, the ground having been previously ploughed, watered, and laid out in ridges. While the soil is moist, little holes are made in the ridges, about 3 inches deep, and a span apart from each other, and in these the Melon seeds are dropped, after being first soaked in water for six or seven hours. Three or four seeds are inserted in each hole, and it is filled up with fine mould unmixed with sand. The Melon ground is then watered once every three days, until the plants shoot forth: and after these have appeared for some days, one hardy plant is left growing in each hole, all the other less promising shoots being weeded out and cast away. Pigeon manure is then applied, and the ground is afterwards watered every other day. As the plants increase in size, they are trained along the ground, partly covered up with soil, and sometimes a little saltpetre is sprinkled o the beds, but this custom is not universally lowed. The first yellow flower which the plant forth withers in two or three days; the top of plant is then cut off, and other flowers soon their appearance from the sides of the shoot, w in process of time become Melons. Two or should be left on each plant to ripen, and the o plucked off and thrown away. In the best gar they are placed on tiles and turned round sev times a day in order that each side may ripen equ in the heat of the sun. The Melons thus grown esteemed a great delicacy in Persia, and are sent presents not only to the cities of the interior, but e to Bagdad and the holy places of Kerbeh and Ne in Arabia. The Quince is another fruit for wh Ispahan is noted, where it grows to a larger size th elsewhere. Cucumbers are largely eaten by common people. Sweetmeats are sold in eve bazaar, and consumed in vast quantities. One kin from the manna of the Tamarisk, is made in great pe fection. In the course of the autumn it falls lil dew, during the night, upon the leaves of th Tamarisk plant, and is collected by the people in the morning. The ground beneath the bushes is swe clean, and cotton cloths spread over it, the bushe are then well shaken, and the manna, which is whit like snow, falls off and is collected in the cloths. I is passed through a sieve to clear it of dust and drie leaves, and sent to the markets, where it sells fo nearly a shilling a pound. It is made into sma round cakes, sometimes mixed up with split Almon and Pistachio nuts. There is another kind of sweet-meat which is in great favour, made of pounded Almonds, butter, and refined sugar, like the under-crust of a bridecake.

The gardens or "paradises," which greatly resembl each other in different parts of the country, are la out in parterres planted with Orange, Pomegranate and other fruit trees, and divided by straight walk lined with rows of the Cypress and Chenar. There are water tanks, and the watercourses are planted along their borders with trees, including two or three species of the Willow, the Chenar, the grey and white Poplar, the Ash, or a tree much resembling it in the shape of its seeds, which hang in small clusters, and a species of Jujube, not unlike the Olive in appearance. At Ispahan all the firewood used comes from the gardens and plantations, and is rather scarce and dear. Although Persia cannot boast many relics to her ancient glory, she can claim many of our finest and most favourite fruits, and more care devoted to their culture than is bestowed by other Eastern nations. Her native poets have celebrated the produce of each district: Isaphan is famed for the best flavoured Musk Melons; Holwan for the most luscious Figs; Kermanshah for the best Apricots, and Shiraz for the finest Grapes and most delicious wines. *E. T. B.*

(*To be continued*).

ON ABSORPTION OF AMMONIA FROM THE AIR BY PLANTS.

It is generally agreed that the ammonia diffused in the atmosphere may be directly absorbed by the leaves of plants, and serve as nitrogenous food to them. This process of assimilation, a French observer, M. Schloesing, has recently attempted to verify experimentally. His results, which are of an instructive nature, are communicated to the *Comptes Rendus* for June 15.

The experiment consisted in cultivating two plants of the same species, under like conditions, with this difference only, that the one developed its foliage in an atmosphere to which ammoniacal vapour was supplied, the other in an atmosphere without such vapour. Analysis would afterwards show if the former were richer in assimilated nitrogen than the latter.

To be able to regulate the quantity of ammonia furnished to the aërial organs, it was necessary to enclose these in a limited atmosphere, renewable and perfectly separated from the soil. This latter precaution was necessary to avoid all chance of absorption of ammonia by the roots.

M. Schloesing had an apparatus made which satisfied these conditions. The plant selected was Tobacco; its straight stem allowed of its being conveniently enclosed in a receiver. The apparatus consisted each of a wooden case containing 75 kilogs. of earth; a circular basin placed on the case (the stem passing through it), and a glass jar of 250 litres inverted on the basin. All the joints were carefully luted. The atmospheres were continually renewed to the extent of 1200 litres of air in twenty-four hours; this air contained about 1 per cent. of carbonic acid.

As regards the ammonia to be added to one of the atmospheres, it would have been difficult to introduce it continuously in the gaseous state, and the author preferred to obtain it by covering the bottom of one of the basins with a very weak solution of sesquicarbonate of ammonia, renewed daily. Determining the volume and strength of the liquids extracted and

introduced, it was easy to calculate the ammonia diffused in the atmosphere of the receiver. The tension of the ammonia should be strong enough to bring to the leaves an appreciable quantity of azotised food, but not so strong as to injure them. M. Schloesing, after experiments, fixed on 0 900 grammes of sesquicarbonate per litre of water as a suitable strength of liquid. The plants were grown in an earth of poor subsoil, so as to render more prominent the influence of the gaseous aliment.

The experiment commenced July 31, and was continued till September 14.

The leaves, shoots, stem, and roots of each plant were taken separately, dried, and weighed. The nitrogen was determined by combustion of the organic matter—separately in the different parts, then in each entire plant, by composing the mixture to be analysed of fractions proportional to the weights of the different parts.

The following is a portion of the author's *résumé* of his experiments :—

Ammonia volatilised in the atmosphere of Apparatus I. from July 31 to September 14, 1.327 gr. = 1.093 gr. nitrogen.

The volume of air which passed into the receiver being about forty-five times 1200 litres, or 54 cubic metres, we find that each cubic metre contained on an average 25 millegrammes of ammonia, or, in round numbers, $\frac{2}{100000}$ of ammonia to 1 of air, by weight :—

Total weight of No. 1 (fed with ammonia) ..	146.9 gr.	
" No. 2, no ammonia	139.0 "	

Nitrogen in the Entire Plants.

3 gr. of No. 1 gave 66.44 m.g. nitrogen, or	2.22 per cent.
3 gr. of No. 2 gave 53 13 m.g. nitrogen, or	1.77 "

No. 1 had obtained the normal quantity of nitrogen which a plant of its species acquires in the natural conditions of vegetation. No. 2 had remained considerably under this quantity, the nitrogenised aliment being wanting to it. The soils being identical, it is reasonable to suppose that the ammoniacal gas supplied to the first was the complement of its alimentation. According to analysis—

The entire 146.9 gr. of No. 1 contained	3.260 gr. nitrogen.
The entire 139.0 gr. of No. 2 contained	2.460 "
Difference	0.800

Attributing this excess of nitrogen to the gaseous ammonia furnished to No. 1, we find that of 1.093 gr. of nitrogen, offered in the state of ammonia, the Tobacco had assimilated 0 800 gr., or about three-fourths.

The ammonia absorbed must have formed organic compounds ; analysis did not recover it in the plant, either in the state of alkali or of nitric acid. The sum obtained on adding the nitrogen of the ammonia to that of the nitric acid was, for No. 1, 68.4 m.g. ; for No. 2, 65.5 m.g. The former sum is far from the amount, 800 m.g., which represents the nitrogen absorbed by No. 1 in the form of ammonia.

The author inquired also if the absorption of ammonia by the leaves had had any influence on the production of nicotine. The leaves of No. 1 contained 1.87 per cent of nicotine ; those of No. 2, 1.78 per cent. It would appear, then, that this influence is nil.

The azotised compounds derived from the assimilated ammonia did not remain wholly in the leaves of No. 1—they were distributed throughout the entire plant. *A. B. M.*

MARKET GARDENING IN WEST CORNWALL.

I wish to state at the outset that most of the following information has been kindly furnished to me by a friend who has been a market gardener near Penzance for many years, and has had a practical experience of the business, so that the correctness of the remarks may be considered trustworthy. Market gardening has been carried on in this neighbourhood for generations, but not until the railway pierced the country did it gain, in a commercial point of view, the prominent position it has since attained.

Previous to the Potato disease the chief products of the neighbourhood were late Potatos, Onions, Cabbages, and Broccoli. Fruit, however, was grown at about the same extent as at present. This business—market gardening—underwent a considerable change in consequence of the Potato disease ; the gardeners had to adopt other and more expensive methods of cultivation in order to meet the losses sustained by that calamity ; indeed early Potato growing originated here in the endeavour to get the tubers fit to dig before the disease took them, so that when they were dug another kind of crop might be planted early in the same soil. Before I proceed further I shall say something about what market gardening was, and how it originated. Onions, which was formerly one of the most profitable crops to grow, used to be taken as part ballast, and at a cheap rate, by coal vessels to the Welsh markets. But about the time the Potato disease made its first appearance an opposition sprung from the French, whose importations soon ruined the Onion trade of this vicinity, and which made that world-wide calamity, the Potato disease, more severely felt. The Onion and also the Cabbage trade, which was once good, is now merely local.

The opening up of the market gardening trade with large cities was gradually done in the old "coaching" days. One friend sent another a present of early vegetables. A visitor took back with him a parcel of them to "town." After a while a few enterprising gardeners began to send by coach to Falmouth, and thence by steamer to London, small quantities to Covent Garden. Broccoli was sent loose on deck from Hayle to Bristol by packet. When it became known that early Potatos were in demand in London and other large markets, Cornish people turned their attention more particularly to their growth as well as to the growth of other early vegetables, until the trade reached its present extent. At the present time the average quantity of Potatos sent away is something like 3000 tons a season, and Broccoli is sent away to the extent of from 5000 to 6000 tons a season. Land favourable to the growth of early Potatos soon became greatly enhanced in value. Sheltered nooks which, before early Potato growing was thought of, were considered next to worthless, were soon found most valuable, and many people who were at other trades found it profitable to take up the spade and become gardeners. But the idea that people can grow what they like, and as early as they like, on this bit of land "poked" out into the sea, is a notion which in practice has led many to disappointment. The few who have prospered are men who have gone through the ordeal of self-denial, hard and constant work, and gallant submission to reverses—reverses which, in some seasons, amounted to loss of outlay and crop as well as labour.

Those who have started in the business having pecuniary advantages over many who were engaged with them, but who trusted to climate as the agent of success, have utterly failed. The fact is, like most other harvestings, the results depend upon the right use of wit as well as weather.

"I well know the value of watching the weather at night," said a friend to me. "I well remember on one occasion, when on the look-out for frost, sticking some branches of Furze into some turves which had already been provided, and on the approach of frost in the morning setting fire to them all over a piece of Potatos, and," added he, "I saved my crop in this way."

The earliest Potatos are now brought from the Scilly Isles. The late Mr. Augustus Smith told me some years ago that he had been for some time previously convinced of the importance of establishing market gardening amongst his people, as he called them, and had done all he could towards that end. The fact that the sea air acted as a protector to the numerous tender plants he had planted out-of-doors led him rightly to suppose that early Potatos would receive little or no harm, even if sharp frost occurred on the mainland. Serious opposition is now also encountered by Cornish growers of early vegetables from the Channel Islands and Algeria.

Broccoli, &c.

In my endeavour to give an outline or a description, as far as my materials will allow, I shall begin with the Broccoli crop, as that will show an arrangement of cropping the soil with other things as well. Broccoli are produced from home-grown seed, every grower saving his own. In some instances the best flowers are left all over the field for that purpose, at other times a quarter, or perhaps half an acre is left for seed : the bad plants, if any, are then taken out. The saving of the seed is a precarious part of the business. The early variety grown here is so delicate that often before the seed is formed the seed-bearing plant becomes rotten or withered. The growers are so careful over their seed that seldom, if ever, any Broccoli seed is got out of the neighbourhood. In parting with seed from one grower to another they charge enormous prices, £10 and upwards have been known to have been paid for 1 pint of seed. They sow in the month of March ; this sowing comprises both early and late crops, which are planted out from May to July. When in a young state the plants require much care. Hail showers often destroy them : slugs and fly devour them. Broccoli are planted generally in fields devoted entirely to them, but sometimes they occupy the sides of Onion beds, and are grown between other crops. The land is manured at a cost of £7 per acre. After the Broccoli are out Potatos are planted, the ground being again manured for them at the rate of £15 per acre, and Broccoli follow Potatos again. If this land be intended for a Gooseberry plantation, the Broccoli is planted 2 feet 3 inches apart from row to row, and about the same distance from plant to plant, the Gooseberry bushes planted in every alterate row. After the Broccoli crop is out the same ground is sown with Onions, alleys formed midway between the bushes, occupying the centre of the Onion beds. The cost of the preparation of this Onion crop is from £18 to £20 per acre. The following year two rows of Mangels are planted between each row of bushes, in the place of what was occupied by the Broccoli and the Onion crops, and grow to an extraordinary size. These Gooseberry bushes go on profitably on an average seven years. In some seasons 40 to 50 gallons of fruit are picked by a single person in one day. If no Gooseberry bushes are planted, and Onions alone occupied this land, late Broccoli is planted in the following June on each side of the Onion beds. The under leaves of the Broccoli plants as they grow are then trimmed, to give light and air to the Onions, until the latter crop is taken away ; the clipping or trimming of the leaves, however, interferes with the productiveness of the crop. Early Peas are sometimes, therefore, sown about Christmas in every alternate row, or rather in the centre of the beds from which the Onion crop was taken. When the Broccoli is cut the leaves are dug under and the Peas sticked. When the Peas are out the land is again manured, and planted with Broccoli. Land cropped in this way does not get such heavy manurings as when Gooseberry bushes are planted, unless Strawberry plants are put in, then it is much the same. The Strawberry plants are planted in April, just after the first weeding of the Onions, every Onion bed taking three rows of plants. This Strawberry crop remains from three to five years without the interference of any other crop. The plants are destroyed immediately after the fruit is picked the last year, and the ground well manured and planted with late Broccoli. In some instances the land is broken up and well manured with rags and guano for Cabbages, which are planted in October or November ; this crop is followed by Mangel Wurzel. In cutting the Broccoli about Christmas, very few leaves are left about the flower ; they are left on the field for manure, it being considered better than anything else. The crates are brought into the field and the Broccoli heads are packed in them at the rate of eight or twelve dozen in a crate, and sent off by rail the day they are cut. Broccoli are also largely grown on the farm. A lea field is ploughed up in the month of May and manured at the rate of 40 loads of farmyard dung to the acre, and 2 cwt. of guano to the acre for Broccoli. That crop goes to the market in February or March following, when Potatos are planted, or Mangel Wurzel sown or transplanted in the same ground. After the Mangel or Potato crops are out Wheat is sown. In some instances Wheat stubble would be treated in the same way as a lea field. It is only the best of the land, however, that will stand cropping the second time with Broccoli, with Mangels, or Potatos in succession. Some people after breaking lea for Broccoli as above, sow Mangels, and after that crop is out sow Wheat, and then follow the ordinary course of farming. Farmers also find the leaves and stumps of the Broccoli plants valuable manure ; indeed it is found to answer better than any other manure for Mangels or late Potatos, which would follow the Broccoli crop. Of course, if wanted for cattle, the leaves are not ploughed down. Two to three hundred acres of Potatos or Mangels are grown in this way, and over 300 acres of Broccoli—the total amount of Broccoli grown in the neighbourhood being from 500 to 800 acres. The growth of Broccoli on the farm does not in the least interfere with the ordinary farming operations.

Early Potatos.

Early Potato growing is still one of the leading features of market gardening at Penzance. The seeds or sets of early Potatos were formerly obtained from London—a kind called Early Shaws ; they, however, became degenerated. For some years past the sets have been purchased in Somerset, the kinds called Early Creepers, Ashleaf, Jackson's Kidney, and Myatt's Kidney ; but, although fresh "seed" is obtained every year, these varieties are also fast becoming degenerate.

Placing early Potatos for sprouting is done by women at 8*d.* a sack (a sack is 240 lb.). The sets are put on shelves in a room used expressly for that purpose. Too much light cannot be admitted into this room. Unless the sets have plenty of light they make tender growths, and often damp off after planting. A description of this room is best given by saying it is full of shelves from top to bottom, with a space of 14 inches between the shelves. The best condition in which to have the sprouts is, a stout shoot an inch long the size of the top of one's little finger.

Potatos, as a rule, follow a Broccoli crop, the soil after that crop is considered best adapted to their growth. The ground is dug over with square shovels or long-handled spades ; indeed, all the market ground is dug with them. All the waste leaves of the Broccoli, as before stated, are dug under. The Potatos are planted or drilled in with these shovels. The operation is performed in most instances by women as well as men. The rows are only 1 foot apart, and only 4 inches allowed from set to set. In some instances rags—from 3 to 4 tons an acre—are used and put under the sets, and 10 to 12 cwt. of guano put in with the sets. Hoeing, which is only once performed, is done with a prong called a

"digger." No earthing-up is practised here. There are different times for planting early Potatos, extending from January to the end of March. The earliest Potato is the last to be put in the soil. These, if sprouted, are in about ten weeks fit for market. The square shovel is also used for digging up the tubers. Both women and men are engaged, at from 3*d.* to 5*d.* a perch, or, more correctly speaking, a "lace," which is 18 feet square, the men getting the highest figure. The tubers are put into baskets, containing when full about 1 cwt. each. Buyers come from Manchester, Birmingham, and bargain for quantities of them on the spot; the rest are sent to London and other markets to be sold on commission.

Manures, and their comparative merits for Potatos, are given as follows:—Seaweed stands first, guano second, rags third, farmyard manure fourth; fifty loads of the first, 1 ton of the second, 4 tons of the third, and sixty loads of the fourth, are used to an acre, when one kind is used alone.

Gooseberries.

Something has already been said about Gooseberry growing; but, in order more fully to give the method adopted, we will start with cuttings. These are prepared from 1 foot to 15 inches, leaving three or four eyes at the top for shoots. When ready they are planted in beds, seven rows in a bed. In the second or third year of their growth the best plants are taken out, and planted, as before stated, in connection with the Broccoli and Onion crops. The kinds chiefly grown are the Golden Drop, Rough Red, and Crown Bob. The last variety is getting more in favour for selling in a green state to supply the great markets, while the two former are allowed to ripen for sale at the local markets. In consequence of the Strawberry crop not being so remunerative as in days gone by, the first variety is more largely cultivated these last ten or twelve years. Pruning the Gooseberry bushes is performed by men about mid-winter, who use hooks and knives to thin out the branches. All weak or spent branches are cleared away and the young branches thinned, leaving the young shoots for bearing all their length. The caterpillar is by far the worst enemy this crop has. If they badly attack a plantation two years in succession, they have all to be destroyed. Fifteen acres have been known to have been destroyed in one place—every leaf stripped from them in a few days. They seem to come all at once. In some instances, after clearing the lower branches only, they disappear all at once. All the known antidotes have failed. Acres are still attacked, and acres are still destroyed. Singularly enough, in some seasons none are seen, while at other seasons they seem to come in showers, and sometimes leave again quite as suddenly and singularly. Bullfinches are not so mischievous here as in some places. Screens in the shape of Poplar hedges are used to shelter the bushes in spring. Plots of an acre are thus enclosed. A nursery is kept to rear Poplar plants for that purpose. *H. M.*

(To be continued.)

THE FOREST DISTRIBUTION OF VICTORIA.

A very interesting map, showing the areas occupied by the various forest trees and scrubs of Victoria, has just been completed by the Mining Department. It is probably unique in its way, as, although occasionally the distribution of some particular class of forest trees has been marked on maps, no attempt has been made to apply the system to the whole area of a country. In India the Teak country has been marked on the Government maps, and a somewhat similar plan has been carried out in Canada to show the areas where the Pine forests abound, but the Mining Department of Victoria have gone much further than this, for the map they have just issued shows at a glance what kind of forest or scrub will be found in every part of the colony. Now that it is proposed to legislate for the conservation of our State forests, the information afforded by this map will be of great value. It has been compiled by Mr. Arthur Everett, of the Mining Department, from the record maps in the office of the Surveyor-General and other authentic sources, under the direction of Mr. R. Brough Smyth, Secretary of Mines. In 1867, a Board, consisting of Mr. C. W. Ligar, Mr. R. B. Smyth, Mr. W. Wardell, Mr. T. Couchman, and Mr. C. Hodgkinson, was appointed to inquire into and report on the best means of securing the permanency of the State forests of Victoria. After careful inquiry the Board sent in a report in which they made numerous suggestions, and at the same time intimated that a coloured map, showing the distribution of the forest trees, would be prepared. From a variety of reasons the completion of that map has been delayed, but the delay has been partly beneficial, as it has enabled accurate information to be obtained respecting parts of the colony that were some five or six years ago almost unknown even to the Government surveyors. The map prepared by Mr. Everett shows, by means of coloured dots, the positions of the principal descriptions of trees, though of course it has been impracticable to give every species and variety. For instance, the position of Stringy-bark is indicated by emerald-green dots, Box (Eucalyptus amygdalina) by cobalt, Messmate by carmine, Gums (red Gums and white Gums of various kinds, Eucalyptus) by burnt sienna, Mallee and other scrubs by neutral tint, Wattle (Acacia) by vermilion, Murray Pine by Indian red, Iron-bark by sap-green, Honeysuckle by Indian blue, Lightwood by purple, &c. The white spaces indicate treeless or nearly treeless plains. The whole of these varied colours are made to harmonise remarkably well, care being, however, taken to give due prominence to the importance of the forests depicted. A glance at the map shows that the forests properly so-called are confined to the clay slate country and the areas occupied by the granite and carbonaceous rocks. In the clay slate country the chief timber consists of Gums Stringy-bark, Box, and Messmate. The large tract of country in the western district occupied by volcanic rocks is nearly treeless, except where patches of palæozoic rocks occur, when the Gums immediately appear. The tertiary plains in the north-west part of the colony are either treeless or are occupied by Mallee scrub or Murray Pine. On the borders, just where the tertiaries overlap the clay slates, the Box (Eucalyptus amygdalina) flourishes. It is noticeable that the red and white Gums appear to follow the course of the streams. The old course of the Wimmera River to the Murray can, it is said, be still traced by the lines of Murray Pines that once fringed its banks. A similar fact is mentioned in connection with Lalbert Creek. In the eastern part of this colony, Stringy-bark, intermixed with Messmate, is met with; while near the Colac, Camperdown, the Hopkins, and on the Dartmoor in the western districts, patches of Lightwood frequently occur. The principal gold-fields may be said to be approximately marked on the map by the bright sap-green dots which indicate the presence of the Iron-bark forests. It is a curious fact that this tree is popularly regarded by miners as an indication of the presence of gold. It is, however, met with in localities where auriferous deposits have not yet been found, notably at Jan Juc and at Loutitt Bay. According to a statement which is contained in the report of the State Forest Board previously referred to, the approximate areas occupied by forest trees and scrubs in Victoria are as follow:—

	Square Miles.
Large white Gums of various kinds (Eucalyptus amygdalina, &c.)	5,000
Red Gum (Eucalyptus rostrata)	3,000
Stringy-bark and Messmate	30,000
Iron-bark	500
Kinds of Eucalyptus of comparatively small dimensions—Box, yellow Box, colonial Apple tree, Peppermint, &c.	14,000
Lightwood	1,900
Oak—Murray Pine	500
Sassafras, Beech, and other umbrageous kinds of trees in sheltered mountain gullies	300
Honeysuckle, Wattle, and other low-sized trees not otherwise specified	500
Mallee scrub	14,000
Tea-tree scrub	200
	69,000

The extent of open country is about 18,000 square miles.—*Australasian.*

CULINARY NOTES.

HOW TO COOK CAULIFLOWERS.

Where gardening ends kitchening begins, and as the gardener is the cook's provider he has the right to demand at her hands fair treatment of the articles which have cost him so much time and pains. Without that supply the cook is at a standstill, and has little call for her saucepans and boilers. Vegetables are, in fact, the foundation of all cookery, or next to all. There are but one or two exceptions, and they only partial or apparent.

When the South American Guacho lassos a bull, slaughters him, and grills his steaks over a fire made with the bones and fat, and dines off the broil and nothing else, living on the same diet for weeks and months together, he is apparently independent of vegetables—with the slight reservation that without grass he would neither have meat, nor the means of roasting it. In high northern latitudes there may also be tribes whose fire is a lamp fed with whale or seal oil, and whose food, flesh or fish, is often eaten raw; so that their cooking is nearly limited to melting the snow which supplies their usual beverage—draughts of oil being reserved for high days and holidays as special treats. For the rest of the world, the very agent of cookery—whether coal, charcoal, wood, or turf—is vegetable, and the subjects of cookery either vegetables themselves, or of vegetable origin, more or less remote. Dishes even into which meat openly enters are, therefore, legitimately included amongst the allied subjects admissible to the columns of the *Gardeners' Chronicle.* Not to take advantage of the liberty prematurely, the bill of fare to-day shall be restricted to—

Broccoli or Cauliflower: 1. *Stewed.*—The objection to the ordinary mode of serving these vegetables, *i.e.*, plain boiled, is that they are insipid; that they are mostly sent to table whole and undivided, which is a temptation to the cook to dish them underdone, to preserve their unbroken shape and appearance, and to please the eye at the expense of the palate and the stomach. I have seen Cauliflowers set, for show, before guests so nearly raw that you could not carve them with a spoon. Whole Cauliflowers have also the disadvantage of harbouring insects, mollusks, or, in very wet seasons and place, even worms. It is not an agreeable surprise to find on your plate a boiled slug or caterpillar delicately masked with melted butter. Spring Broccoli, come in early, are less subject to the invasion. The opinion may also here be ventured that the Broccoli, of whatever variety, is a superior vegetable to the Cauliflower. The latter is acceptable as a substitute when the former is not to be had. The purple and the green Broccoli are first-rate to eat; no villa kitchen garden whose mistress likes to have really good things on her table, should be without them. They are neglected now and out of fashion because they are small, inferior in appearance to their culinary merits, and make no show and take no prizes at horticultural exhibitions, which, while they have given us many excellent productions, have also thrown some deserving vegetables into the shade.

Cut up your Cauliflower into sprigs of a convenient size to serve with a table-spoon, and throw them into cold water an hour before cooking. To stew them have a stout iron stewpan, white enamelled inside—an ordinary tin saucepan or boiler will hardly do. Put a large lump of butter into your stewpan as you set it over a gentle fire: instead of butter you may use the fat taken from the top of cold roast-meat gravy—that of beef or veal is preferable to that of mutton. As the grease melts stir into it an Onion, chopped very fine, and a little flour and water; continue stirring till the whole is nicely browned; then put in your sprigged Cauliflower, adding only just enough water or broth to cook it; season lightly with pepper and salt and a very slight dust of grated nutmeg, if not disapproved; let it stew gently till perfectly tender, when done, the gravy should be so reduced as to be no more in quantity than is wanted to serve as sauce with the vegetable; for this reason the salt must be used with great moderation, otherwise, by concentration, the gravy would be converted into brine; transfer the Cauliflower from the stewpan to a hot dish, and pour the reduced gravy over it.

Note that by this method nothing is lost. The natural and nutritive juices of the vegetable, the sugar and albumen, are retained, instead of being drawn out and diluted by boiling in several pints of water, and consequently wasted and thrown away.

Note also that this recipe is founded (like the directions for many other good dishes) on the *roux*—flour browned in butter—which is one of the grand elements in French cookery, and which demands and deserves special attention, as it affords the means of making a savoury dish out of many a neglected remnant. In any future recipes I shall adopt the word; and instead of directing "Put butter in a stewpan, &c.," shall say "make a *roux.*" Pronounce the word "roo," exactly as in the English word "room." No language is so complete in itself as to be independent of every other; and to object to the use of foreign technical words, when employed for brevity and convenience and not through affectation, is simply absurd and childish.

To make a *roux*, put into a stewpan a piece of butter proportionate to the quantity to be prepared; let it heat gradually; when on the point of boiling add the quantity of flour requisite to bring it to the thickness you want, and stir it round rapidly, so as to thoroughly amalgamate the flour with the butter, till it be of the proper colour, which must be obtained by slow degrees. The *roux* so made will keep for some time; but it is usual with cooks to make their *roux* as wanted for the basis of any dish. It need not necessarily be made with butter—other kinds of fat or grease will serve. For instance, to hash mutton, you may make your preliminary *roux* with the fat from the gravy of the cold roast mutton; the same of veal or poultry. To have a light-brown or a dark-brown *roux*, you leave it on the fire until it has acquired the colour desired. With a *roux* made for immediate service, you arrest the colouring at the required point by pouring in hot water or broth. It is evident that for making *ragouts* of dark meats, as duck, goose and hare, you would employ a browner *roux* than for hashed roast veal or turkey.

No doubt the National School of Cookery will, in their course of instruction, give to the *roux* the place its importance claims for it. To exemplify its usefulness, we have only to compose a brown sauce, thus. Make a *roux*; the time you will let it remain on the fire will depend on the degree of colour you wish to give to your sauce. While stirring it add gradually good broth, pepper and salt. If to be served with vegetables (with stewed early Carrots, for instance, an excellent dish, or with stewed Onions) you can put in a small bunch of Parsley, or a bouquet of various sweet herbs, while it is doing; but it is evident that

FIG. 9.—SMOOTH-LEAVED CAYENNE PINE.

in making this brown sauce, you can give it whatever flavour you please. Hence its usefulness and its wholesomeness consequent on its adaptability to every taste.

BROCCOLI OR CAULIFLOWER: 2. *Browned, or au Gratin.*—Divide the heads into sprigs as before; throw them into a saucepan containing just enough boiling water to cover them, with a teaspoonful of salt in it; boil them galloping till tender, to be ascertained by taking out a sprig with a fork and tasting it; turn them out into a cullender to drain for a few minutes, then reverse them from the cullender on to the dish on which they are to be served; pour over them a small quantity either of the brown sauce described above, or of good English melted butter, or of butter melted and made quite hot; sprinkle over them biscuit raspings and grated cheese; set the dish in a briskish oven or under a smart red-hot salamander; when the surface is nicely and evenly browned, send to table. Yesterday's cold Cauliflower can be warmed in a little butter or sauce, and reappear to-day, renovated, *au gratin.*

Cold Cauliflower is perfectly producible as a cooked salad, in combination with other cold vegetables, and garnished with capers, strips of anchovy, &c. Paris changes the style of its salads as often as the forms of ladies' hats and dresses. This salad was all the fashion there during the summer in which the last war was declared. *Coquinus.*

THE SMOOTH-LEAVED CAYENNE PINE-APPLE.

IF this excellent variety, represented in fig. 9, was termed an all-the-year-round sort, as some other vegetable products are, it would not be a misnomer, as, under suitable conditions, it will furnish a supply of good ripe fruit at any season. Although we possess numerous sorts of this noble kind of fruit, yet few of them are extensively cultivated, the selection being restricted to a few sterling sorts, amongst which this variety maintains its place, as may be seen by the proportion of plants of this kind which are to be found in most Pine growing establishments. No variety in cultivation is more easily managed than this, by reason of the plant possessing a robust constitution. The elongation of the leaves represented arises from the plant having to make growth through the winter months, which is a matter of necessity in the case of fruiting young plants at all seasons. This fruit was selected from amongst others which were suckers started in September, 1872, and fruited after December, 1873, and onwards, the fruits averaging from 7 to 8 lb. each—that on the plant represented having weighed 8 lb. The pot is represented disproportionately large. *G. T. M.*

THE TULIP TREE

(LIRIODENDRON TULIPIFERA).

THIS handsome tree, which is remarkable not only for the beauty of its flowers but also for the peculiar form of its leaves, is not unfrequently met with in parks and gardens, where it sometimes attains a large size. It is a native of North America, whence it was introduced to England by John Tradescant; the earliest specimen on record being one which grew in Lord Peterborough's garden at Parson's Green, near Fulham, where it reached the height of more than 70 feet. This tree "died of age by gentle decay" in 1756, when it was supposed to be about 100 years old. When the Tulip tree was first introduced, it was treated with great care, being raised in pots and housed during winter: this treatment resulted in the loss of many examples.

Evelyn, misled by the popular American name of

the Tulip tree, classes it among the Poplars. He says: "They have a Poplar in Virginia of a very peculiar shaped leaf, as if the point of it were cut off, which grows very well with the curious amongst us to a considerable stature." It seems strange that a tree which has so little resemblance to the Poplar, except perhaps in habit, should have usurped its name in the New World; but Michaux says that it is known as the Poplar wherever it abounds, and throughout the United States. In Connecticut, New York, and New Jersey, it is also known as White-wood and Canoe-wood, and also, though more rarely, by that of Tulip tree, which we in England have chosen as its title among us.

The development of the leaves of the Tulip tree is somewhat peculiar, and is thus described by Michaux:—"Leaf-buds in general are composed of scales closely applied one upon another, which in the spring are distended by the growth of the minute bundle of leaves which they enclose, till they finally fall. On some trees these buds are without scales, as for instance on the Butternut (Juglans cinerea). On the Tulip tree the terminal bud of each shoot swells considerably before it gives birth to the leaf; it forms an oval sac which contains the young leaf, and which produces it to the light only when it appears to have acquired sufficient force to endure the influences of the atmosphere. Within this sac is found another which, after the first leaf is put forth, swells, bursts, and gives birth to a second. In young and vigorous trees five or six leaves issue successively in this manner from one sac. Till the leaf has acquired half its growth it retains the two lobes which composed the sac, and which are now called stipulæ."

The beautiful, and, on well-grown trees, very numerous, flowers of the Tulip tree are generally admired, and are sold in the spring in the markets of New York. Much of the beauty of the tree is also due to its straight trunk, which sometimes attains the height of 140 feet, with a circumference at 5 feet from the ground of between 22 and 23 feet. Its blossoms are not produced until the tree is twenty or thirty years old.

Kalm gives a good account of the tree in his *Travels in North America*, and speaks of the various uses to which it is put. He says that the wood is used for canoes, boards, planks, bowls, dishes, spoons, doorposts, and all sorts of joiner's work; and that he had seen a barn of considerable size the walls and roof of which were made from a single tree split into boards. It, however, contracts very much in hot weather, and on this account is objected to by some. Two varieties are recognised, one of which is yellow within, while the other is white. The leaves are crushed and applied to the forehead as a remedy against headache, and a decoction of the root has been employed in cases of fever; but the list, ample as it is, by no means exhaust the uses to which the Tulip tree has been put. It is especially the "Yellow Poplar," as the yellow-wooded variety is termed, which is employed in the construction of houses. In North Carolina shingles of Poplar wood are employed for covering roofs, and are preferred to those of any other wood because of their durability, and also because they are not liable to split upon exposure either to severe frost or intense heat. One of the principal purposes for which the wood of this tree is employed is the manufacture of panels for coaches, as they receive paint well, and admit of a high polish. Cattle troughs, seats of chairs, fence-rails, and wooden bridges, all are made of Tulip-tree wood, and its name, canoe-wood, sufficiently indicates the purpose to which it was applied by the Indians, many tribes of whom selected it for raft and canoe making, on account of its lightness and strength, a canoe made from a single trunk being capable of containing as many as twenty persons. The charcoal prepared from Tulip-tree wood is very good, and is extensively employed.

A decoction of the bark has been employed in American medical practice with considerable success, and in Paris a spirituous liquor is prepared from that of the fresh roots, which, when sweetened, is said to be very agreeable. *B. M.*

Natural History.

Rabbits.—Where there are children in a country family, be they boys or girls, a sure fund of amusement, and probably a very useful domestic supply, may be furnished by keeping tame rabbits. Some few of the matters of management require to be left to other powers, but many little bits of attention which add much to the prosperity of the animals, and which no time can be found for in regular household work, may be got from the petting of the children, and the rabbits be thus made a source of pleasure as well as profit.

A little room is required, so that the rabbits (as they are not altogether pleasant neighbours in a confined space) may not cause annoyance or ill health; but where this is procurable, as well as waste leaves from the garden, their management is easy and the result very satisfactory.

In my own experience the animals were kept in hutches, placed in two rows one above the other, so as to form a narrow brick lean-to with a slated roof in front of a stone wall, each hutch being about a yard square every way, and the upper row, with the additional air gained by the slant of the roof above the cubic yard, affording much more enjoyment to their tenants from the quantity of amusement they could find by jumping to and fro into the roof.

The doors were simply of open wirework, or of fine grating, about half the width of the hutch and its full height, thus allowing plenty of air and light, and keeping the little rabbits from tumbling out, which they are only too apt to do, if the matter can possibly be managed.

For a constant moderate supply the produce of one buck rabbit and four does answers well, and during a long course of years, with due renewal of these, I never knew it fail, till either from the wish of those who superintended the arrangements to procure as rapid a succession of litters as possible, or some coincidence, the health of the rabbits entirely gave way, and they were given up.

When the does are about to make their nests (which is obvious by their carrying the hay, which they should be supplied with for bedding, to the shady corner of the hutch in their mouths) they should on no account be disturbed. If let alone they will probably heap together a good sized mass, line it for the reception of the young ones with fur pulled from their own coats, and in due time the little rabbits may be expected to make their appearance; but if meddled with the doe is greatly annoyed, and it is more likely than not that she will destroy the nest and scatter the young in all directions. Sometimes the nest may be remade and the little ones replaced by some gentle hand that the doe is accustomed to; but it is much more probable she will resent all interference and mangle and gnaw her own progeny to death.

For regular food I usually found two meals a day answer well: the first about nine o'clock in the morning, of bran with a small quantity of Oats well mixed in it, given in the proportion of one child's handful of bran and Oats to each growing rabbit, and rather more for the heads of the family,—this placed in V shaped wooden troughs, with square ends like miniature pig troughs, which cannot be easily upset, and if thoroughly painted are not very liable to be gnawed by the rabbits. The second meal was given about two in the afternoon, and was usually of waste Cabbage leaves, Turnips, Carrots, or anything that could be spared from the garden refuse or kitchen trimmings; but always keeping watch that the vegetables were healthy and fresh, and likewise noticing that no decaying pieces of vegetables are left from day to day in their hutches. Perhaps a little food again in the evening is sometimes desirable; but those I knew throve well without it, and being always bedded on hay had a resource at hand if hungry.

In very warm weather or under peculiar circumstances, such as when the does have young to support, a little fresh milk, or milk and water, adds much to their comfort, but this should be given and the dish at once removed, so as not to risk an upset into the hutch, or to allow the milk to go sour.

A small quantity of hay supplied to the rabbits keeps them comfortable and clean, on a brick or slate floor, and the habits of the animals being methodical and tidy, a cleaning of their hutches twice a week is quite enough, under ordinary circumstances, to keep them in proper order.

The supply of fresh vegetable food costs little where there is a garden at hand, for such outside leaves as are usually thrown to the litter heap will answer well for food, as long as care is taken that they are freshly gathered and free from decay, withered pieces or dirt; and similarly with roots or other pieces of vegetables, any broken or waste bits will serve if clean and fresh and free from disease.

In the bran and Oats the rabbits soon learn, if indulged, to look in preference for the Oats, and are apt to scatter the supply of food broadcast in their researches, but if only allowed a small addition of Oats to the bran, as a regular thing, they will be glad of the food as they get it, and usually take it without disturbance.

If the hutches can be arranged so as to open on some little protected lawn or grassy court, where the rabbits can be let out for an occasional run, it tends much to their well-being; they are able to find a little variety of food for themselves, and a good turn at burrowing not only affords wholesome exercise, but from the pleasure with which they rub their chins in the fresh earth, may be presumed to remove a deal of irritation in the skin. It is, however, prudent not to loose more than the tenants of one hutch at a time, or a fight is pretty sure to ensue; and once begun in open ground it is no easy matter to separate the combatants.

For a similar reason it is well to be certain that no communication exists between hutches arranged continuously beneath a long line of roof, for a rabbit straying into a neighbouring family is usually mercilessly received, and though probably not seriously injured, yet the headlong and interminable hunt round and round the hutch, and the mouthfuls of fur torn out in the process, are detrimental and disturbing to all concerned.

The destructive gnawing propensities of the animals have sometimes to be guarded against; probably, from the nature of their teeth, it is almost essential to their to have some hard substance to exercise them on at times, but it is not the less vexatious occasionally to find what has been selected for dental purposes totally destroyed, and a few small bits of boughs renewed now and then in their hutches might save a deal of trouble.

Much is said of the comparative value of different breeds of rabbit; but what is known as the common tame rabbit answers well, without any selection of colour or otherwise, beyond choosing healthy specimens when it is desirable to renew those kept for stock, and also occasionally introducing some different breed for a change.

In my own experience the white ones were avoided (as keeping rabbits), and the lop-eared variety did not answer nearly as well as the others; but with this exception the rabbits throve well for a long course of years under the treatment I have described, the only disease that was troublesome being diarrhœa, apparently from the green vegetable food being given sometimes in an unwholesome state or in too great quantity; and the partial withholding of the green food, and the addition of a proportionate quantity of bran and Oats, acted as a remedy. *O.*

The Farm.

On Small Farms.—There can be no greater mistake than to suppose that the small farmer must of necessity produce a greater amount of food per acre than the large farmer, and it is an equally great mistake to infer that a renter of 5 acres can either make it produce more than a farmer could, or that the possession of so much land would be profitable to its occupant.

We have been led to make these remarks because it has been somewhat hastily assumed that large farming is wasteful on the one hand and that small farming on the other would be a never-failing remedy for all country evils. Nay, more, we are told that every labourer should have his 5 acres of land, when it is asserted that he would be more independent and better off. Now dwellers in most country villages will be aware that some little tradesman, it may be a tailor or a shoemaker, is usually the clerk of the parish, and, in virtue of this position, he often gets to rent a slice of the glebe-land; the end of this, however, in as far as our experience goes, is that the "tailor by trade" soon neglects his legitimate calling, his bit of a farm takes all his time and more than all his money. The land gets sadly "out of track," and if we wish to find out the poorest and the worst cultivated bit of ground in the parish we should instinctively inquire for that in the occupation of the smaller tradesmen; and, further, if we wished to become acquainted with the poorest and most dependent men in the parish, we should be safe in applying to the homes of these smaller holders.

It is not generally known that to farm a large farm successfully a capital of from £10 to £15 an acre at least will be wanted, and it is the very want of this that makes the small holdings look so wretched as they usually do; but besides this, it requires a greater proportional stock of horses, more dead stock, and more money, just in proportion to the smallness of the farm. Small farming, then, is scarcely an occupation for the struggling poor man. To those, however, who can afford a good country house, the acquisition of a bit of land may add to their happiness and increase their comforts, but these comforts, like the good house, will have to be paid for. The home-made butter, the poultry, the paddock-fed mutton, &c., all cost money—as much, if not more, than they can be got for in the market; still it will be our endeavour to show how best these enjoyments can be indulged in, but we wish it to be distinctly understood that they can only be attained by considerable expenditure both of time and money. To those who can pursue health by such means it is doubtless, in that sense, both agreeable and profitable.

It is said that our peasantry should occupy from three to five acres of land, but if so, would it not be with them, supposing they had the required capital, much as we have shown it to be with the smaller tradesmen? The labourer must neglect his work, as his own farm would want attention just at the same time as his master's. He must do it all by hand-work, or hire or borrow machinery. In fact, as a labourer he would

become a nuisance, and it remains to be seen whether his condition would be bettered thereby.

Now be it recollected that we are speaking of a man who is to pay rent. If he has not money half his time, some one or other part of his plots would be covertly sublet to those who would crop it, and thus, where labour is constant and good, with a fair cottage, and a good, but not too large a garden or allotment, or both, the labourer will be better off without his 5 acres than with it.

We venture to say that the most wretched hovels, and the most wretched occupants of them, are those of what are called squatters. They have somehow become possessed of a bit of land, upon which they build a mud hovel; they either cannot, or will not, do regular work; their families are thus badly brought up. How often too do we witness in the parishes of England a poor tradesman not able to pay his rent, which is excused, but he still remains poor. As a small proprietor he would have no rent to pay, but, inasmuch as small farming is a luxury, requiring money to purchase it, and he is without the necessary means, so he is poorer than the man who supplies his daily wants by his labour. We speak thus confidently upon this point, not only from a wide range of observation, but from having offered land to labourers who had saved enough capital for such a venture, but we could not get them to risk it in so insecure an undertaking as managing a 3 acre or 5 acre piece.

We take it for granted, then, that much of the nonsense talked about this matter is not for the good of the really industrious and saving labourer; he of all men will know better, as he will see most clearly that the margin for profit is really very small, where money and the best appliances are at command.

WHEAT PROSPECTS.—We are glad to be able to state from both observation and inquiry that at present the Wheat crop is freer from blight of every kind than usual; the ears and stems are unusually clean, and neither insects nor blights have shown themselves to any extent.

Barley is somewhat smutted, as we observe an occasional black ear from the attack of Uredo segetum, but it is by no means so general as we have seen it in other seasons.

Notices of Books.

A Treatise on Watch-work, Past and Present. By the Rev. H. L. Nelthropp, M.A., F.S.A. With Illustrations. London: E. & F. N. Spon, 48, Charing Cross. New York: 446, Broome Street.

If we were to ask our readers, "Why is Horticulture like Horology?" they might think that, laying down our dignity for awhile, we were amusing them with a conundrum. But instead of being a conundrum, it is a stubborn fact, that, to be carried on successfully, they both are greatly dependent on climate—that is, on the important part which temperature plays in forming climate; for clocks and watches, as at present constituted, do not suffer from droughts (though clepsydræ might), and are indifferent to the annual amount of rainfall, so long, at least, as they are out of the reach of it.

Alpine plants and watch-work thrive side by side. Amidst the immense variety of Swiss scenery there are localities especially suited to the production of watch-work, exactly as there are others where Grapes will make good wine, others where Gentians bloom, others where nothing taller than grass will grow, and others whose grand staple is ice and snow. This suitability of climate to the fabrication of delicate machinery has raised up prosperous populations in spots unlikely to be enriched by cash sprinkled by admiring tourists. They have their interest, but not of a kind to make them the fashion or to attract the crowds who render a Swiss trip such a terrible scramble. The principal of these industrious mountain retreats is Chaux-de-Fonds, on the Jura range, in the canton of Neuchâtel, which contains a population of 18,000 souls, who all live, directly or indirectly, by watch-making. Other Swiss are supported by their views; they, on the other hand, are maintained by their peculiarly manufacture-favouring climate. You may reach Chaux-de-Fonds from the town and lake of Neuchâtel by a railway about 5 miles in length, which had, we believe, when made, the steepest gradient hitherto known; but now that there is a railway to the top of the Righi, has been a railway up Mont Cenis, and one of these days will be a railway to the summit of Mont Blanc, Chaux-de-Fonds ceases to take pride in her rail, and rests her reputation solely on watches. Mr. Nelthropp, however, informs us that the visitor, on going there, will be disappointed to find that there are no factories or buildings in which a watch is made from beginning to end. The Chaux-de-Fonds houses are, strictly speaking, watch finishers, some doing an extensive business—20,000 watches a year—and having a large capital; others but in a small way, and doing only cheap work. The various parts of a watch, including its case and movement, are all made separately in different villages (enjoying like climatal advantages), and in what may be called factories, where complex, beautiful, and expensive machinery is employed, but only adapted to each particular part for which it is designed, the genius of man not yet having been able to invent a machine which will turn out a watch complete in working condition, like pins or horseshoe nails, ready to hand. The Chaux-de-Fonds watch finishers have in stock the several parts, which they give out generally in a dozen or two-dozen box at a time to each class of work-people, to be returned when the portion of work which is their speciality is completed, for each work person (man or woman) always does only one and the same class of work.

The chief hotel of the town—the Fleur-de-lys—is frequented by purchasers, commercial travellers, often from every part of Europe and America. On certain days the small finishers call at the rooms of each traveller, who hangs a large card with his name and address on the outside of his door. If trade is brisk, watches bring a good price; if depressed (as during the American civil war), they are offered at a ridiculously small profit for cash. The sellers offer to their customers work according to their requirements; for watches are prepared to suit every market—European, American, Oriental. The large and wealthy finishers receive the travellers in their counting-houses, and exhibit samples of watches varying in price from 25 to 1000 francs when taken by the gross. As a rule, they do not sell single watches; that belongs to the retail trade.

In Locle, a village a short distance off, three miles by rail, a vast number of watches are produced. But Locle cannot, as the saying goes, hold a candle to its neighbour. Many have a dislike to Locle work: nevertheless, good watches have been made there; but, for style of work, our author holds, for finish and beauty of cases, temper of metal, it is not possible to find any place in the whole of Switzerland which can venture to challenge a comparison with the real Geneva-made watch. The Geneva houses are more properly watchmakers, according to English ideas. They employ skilled hands, and only put their names to work which will bear strict investigation of its merits.

Mr. Nelthropp was, for several years, chaplain to the British Legation at Berne. Not thinking it part of the duty of man to break his neck up peaks or down crevasses, he devoted his leisure to the study and collection of watches, remembering the rule, whatever you do, to do it with all your might. And so completely have timekeepers entered our author's soul, that he ranks them next after our babes, if not before them. A good watch should never be allowed either to catch cold or to suffer from heat. "Ill usage," he says, "will destroy the finest regulated watch, and the wearer is too frequently to blame—not the maker." "It must be especially noted," he insists, "that a watch is much like a child—requires uniform treatment; that is to say, plainly, should not be over-indulged to-day and neglected to-morrow. A watch should be, firstly, as much as possible kept in one position, suspended by the bow which is attached to the handle or pendent; secondly, it should be kept to one temperature as nearly as conveniently possible. When worn during the day next the body, the temperature is very high, ranging from 75° to 86°; at night, when hung to a stand, the difference is extraordinarily great, and can be still further increased by carelessly selecting a part of a bedroom where the influence of cold is extreme; for instance, on a table next the window, or on the chimney-piece. Note—he ungallantly, but truly, notes—that as a rule, ladies seldom pay attention to their watches, and consequently are always finding fault with the maker. Sometimes they forget to wind, often they borrow a key just as occasion offers, and too frequently move the minute-hand with a finger or pin. But regularity is absolutely necessary if the watch is expected to do its duty regularly. It is well, perhaps, that the world should know what ill-used things poor watches sometimes are.

Mr. Nelthropp's knowledge of watch-work is not confined to Swiss art, but is extended by observations in France and England. Being an amateur, he has time at his disposal, and being independent he ventures (we may whisper it to gardeners) to call a spade a spade—which is not agreeable to all parties. He maintains that a circular snuff-box containing springs and wheels, is not a chronometer. He sticks up for the veracity of trade marks, and opines that a watch-seller ought not to put his name on a dial-plate when the interior is not fabricated in his own workshop. He warns purchasers, with disapproval of the practice, that "many watches bear 'Geneva' on the plate, or dome (the gold or metal covering of the movement), but have nothing beyond the name in common with Geneva." In short, Mr. Nelthropp's volume is a book to consult, whether preparatory to a visit to the South Kensington Museum, or to avoid absolute ignorance respecting the constitution and liabilities of the watch one carries. To everybody punctuality is important; and although our horticultural friends cannot make the seasons keep accurate time, they can at least do their best to keep time themselves, to which Mr. Nelthropp will greatly help them. To inquiries about books we are sometimes compelled to reply, "We know of no work which will exactly suit you," but to the curious in horology we can safely recommend the perusal of *A Treatise on Watch-Work, Past and Present.*

The Seven Ages of a Village Pauper. By George C. T. Bartley. (Chapman & Hall.)

This little book is "dedicated to one million of Her Majesty's subjects, who names are now unhappily and almost hopelessly inscribed as paupers on the parish rolls of England." We very much fear that the subjects in question will never read the book, or, reading, profit by it; still, others may, and be the means of influencing for good those for whose benefit the book is specially intended. As may be gleaned from the title, the little book before us sketches in hard outlines the infancy, childhood, youth, manhood, prime, decline, and decay of the village pauper. The object is to show the evil results which arise from the Poor-law system, which, in place of fostering and encouraging thrift and self-dependence, holds out a premium to indolence and shiftlessness.

The evil is notoriously great, and various are the remedies proposed for its cure or its alleviation. One of the most objectionable features about it is illustrated by the contrast with which the really deserving poor—those, on the one hand, broken down by age, infirmity, or calamity, not of their own making, and the shiftless, improvident ones on the other—regard it; the one looking upon parish relief in any shape and form with horror and self-humiliation, the other practising deceit of all kinds in order to avail themselves of it. How to alter this state of things is one of the great problems of the day. Mr. Bartley's proposal is to make thrift the condition of outdoor relief. Those that can show that they have taken precautions against poverty by becoming members of clubs, by investing in savings banks and the like, should be relieved in case of need, and those that have made no such provision for a rainy day should "keep off the parish altogether as best they can, and in old age they would have no choice but to go into the union house." We fear that the same feeling of pride which under present circumstances prevents many worthy poor from applying for relief when they need it, would operate with even greater force were Mr. Bartley's proposals acted on, and the union house would become fuller and fuller of the dissolute, thriftless, and vagabond part of the population—would become a huge casual ward in fact. We should of the two prefer to see thrift made the condition of indoor relief, and that indoor relief should be administered in such a way that it should not be looked on as it is by the worthy poor with dread and accepted by them at last with humiliation and loss of self-respect, but that it should to a certain extent be claimed as a right—a right earned by a life of providence and care. For outdoor relief labour should be the test, and care should be taken to remove the impression that such labour was necessarily dishonourable. But all such proposals do but scratch the surface of things, the great desideratum seems to be to adopt such measures as will enable the lower classes to have a real personal interest in the wealth of the country and in the welfare of their employers, either as landed proprietors on a small scale in the shape of allotment gardens, owners of houses, partners on the co-operative method in the farms, gardens, factories, or what not in which they are engaged. If it were once a general thing for the working classes to have "a stake in the country," and community of interest with the employer, we should hear less and less of pauperism, of conflicts between capital and labour, and so on. Mr. Bartley's many publications indicate one way in which this may be brought about, but we much doubt whether the mere saving of small sums of money and putting them out to interest is either the easiest plan for the poor to adopt, or the most beneficial if adopted. It would seem to foster a narrow unwholesome spirit rather than a profitable development of the resources of mind and body.

—— The *Pictorial World*, a newly established, well got up, and cheap illustrated paper, has in its last number a fine illustration, from the pencil of Mr. Harrison Weir, of a group of Roses, taken from those exhibited at the late Crystal Palace Rose Show. As might have been expected, the form of the varieties is admirably given, and the colour is even suggested, but the woodcut does not lend itself so well to the representation of texture—one of the chiefest charms of a Rose. Mr. Shirley Hibberd is also, we perceive, a contributor to the pages of this journal.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES for JUNE, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

HENRY ORMSON, HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS have the most PERFECT SYSTEM of VENTILATION combined with COMPLETE PROTECTION from the WEATHER. They are forwarded, ready glazed and painted, carriage paid and safe, to any part of the United Kingdom.

Apply for particulars, enclosing stamp, to W. RICHARDSON AND CO., Horticultural Builders and Hot-water Engineers, DARLINGTON; or (for London and South of England) to W. H. LASCELLES, Steam Joinery Works, 121, Bunhill Row, London, E.C.

MARENDAZ AND FISHER, RUSSIA MAT MERCHANTS, 9, James Street, Covent Garden, W.C., Importer of RAFFIA FIBRE, TANNED GARDEN NETTING, &c.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

WANTED.—Some Second-hand IRON WIRE for Fencing, and some Second-hand IRON HURDLES in good condition.—Address, with price and all other particulars, L., care of Messrs. Dawson & Sons, 121, Cannon Street, London, E.C.

TO BE LET, EIGHT ACRES of excellent LAND (most advantageously situated, close to the Railway Station, Bishop Stortford), suitable for Horticultural Nursery or Market Gardening, part in cultivation.

For further particulars apply to D. NEWTON, Engineer, Bishop Stortford, Herts.

Farms in Devonshire.

TO BE LET, for seven or fourteen years, from Michaelmas, together or separately, THREE FARMS, of 173, 132, and 85 Acres respectively.

For particulars address G. W. M., care of Mr. W. Abbott, 46, Eastcheap, London, E.C.

Leighton Buzzard, Beds.

TO BE SOLD, the unexpired term in a LEASE (upwards of 40 years to run, at a moderate ground rent) of FOUR substantially-built and well-arranged RESIDENCES, with good gardens, in a healthy locality, standing on an eminence, commanding extensive views, and in the centre of a hunting district, within an easy distance of London, and 15 minutes' walk from the London and North-Western Railway. Full particulars to be had on application to

Mr. J. DOUGLAS DICK, Secretary's Office, Royal Horticultural Society, South Kensington, S.W.

SALES BY AUCTION.

Bedford Hill House, Balham, S.W.

STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.

MR. J. C. STEVENS has received instructions from James Brand, Esq. (in consequence of the expiration of the lease, and the land being required for building purposes), to SELL by AUCTION, on the Premises, Bedford Hill House, Balham, S.W., on TUESDAY, July 21, and following days, the STOVE and GREENHOUSE PLANTS, consisting of magnificent specimens of Eucharis amazonica, large and beautifully trained Camellias and Azaleas, Tree Ferns, Palms, including some of the finest plants in the country; Dracæna regina and others, Adiantum farleyense, &c. Also the choice Collection of ORCHIDS, consisting of Dendrobes, a very fine lot of Phalænopsis, a beautiful plant of Angræcum sesquipedale, the finest variety of Anthurium Scherzerianum, Epidendrum vitellinum majus, Odontoglossum Bluntii, O. Alexandræ, a large number of O. pulchellum, Cattleyas, &c.

On view the day prior and mornings of Sale, and Catalogues had of Mr. HOWARD, the Gardens, Bedford Hill House; and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Third Great Sale of the Meadowbank Orchids.

MR. J. C. STEVENS has been instructed by the Executors of the late Mr. Thomas Dawson to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, THURSDAY, and FRIDAY, August 5, 6, and 7, at half-past 12 o'Clock precisely each day, the third portion of the great Collection of ORCHIDS grown at Meadowbank. Among these will be offered some of the largest specimens of the collection, and some species and varieties of rare and beautiful character. Most of the lots to be offered are in superb health; many of the plants (both as regards health of plant and quality of flower) are quite unique. There are 900 lots included in this sale, and are all to be sold without the least reserve.

Full particulars and detailed Catalogues to be had on and after July 20, of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Bedfont, Middlesex.—To Gardeners and Others.

MR. W. GOUGH is directed to SELL by AUCTION, at the Railway Hotel, Feltham, on WEDNESDAY, July 15, at 4 o'Clock, a valuable Enclosure of First-class FREEHOLD MARKET GARDEN GROUND, well stocked with standard Fruit Trees and Gooseberry Bushes of the choicest sorts, forming a valuable fruit plantation, in the highest state of cultivation, with the iron building thereon, comprising cart-house, stable, and loft, admirably situate on the south side of the high road from Bedfont to Staines, about a quarter of a mile from the church, containing 2A. 2R. 27P.

May be viewed and particulars, with Conditions of Sale, had at the place of Sale; of Messrs. RUSTON, CLARK AND RUSTON, Solicitors, Brentford; and of Mr. W. GOUGH, Auctioneer, Surveyor, and Land Agent, Sunbury, Middlesex.

On Tuesday, July 21, and three following days.

SALE of the valuable Collection of EXOTIC PLANTS of Robert Corkling, Esq., most of which have been imported and established by him, comprising, in ORCHIDS, fine specimen and half-specimen plants of Cattleyas, Lælias, Oncidiums, Odontoglossums (including upwards of 100 plants of Bluntii and Alexandræ), Trichopilias, Cœlogynes, and Pleiones; also a few good EAST INDIAN ORCHIDS, viz., Vandas, Aerides, Saccolabiums, Dendrobiums, and Cypripediums; a fine Collection of STOVE PLANTS and FERNS, amongst which may be named Adiantum farleyense, from 2 to 3 feet across; also a Collection of the best JAPANESE CONIFERÆ, consisting of all the principal varieties, numbering about 1500 plants, and including specimen Retinospora, 5 to 6 feet high, and 2 to 3 feet in breadth; together with a number of GREENHOUSE PLANTS, CAMELLIAS, AZALEAS, &c.

MESSRS. CAPES, DUNN, AND CO., respectfully announce the receipt of instructions from Robert Corkling, Esq., to SELL by AUCTION, on TUESDAY, WEDNESDAY, THURSDAY and FRIDAY, July 21, 22, 23 and 24, commencing at 12 o'Clock prompt each morning, at his residence, Alder House, Whalley Range, near Manchester, the whole of his exceedingly choice Collection of ORCHIDS and STOVE and GREENHOUSE PLANTS.

Catalogues (price 6*d.* each, to admit two) are in course of preparation, and will be issued several days prior to the Sale. May be viewed on the Friday, Saturday and Monday preceding the Sale.

The specimen EVERGREENS in the grounds being too crowded, the surplus quantity may be purchased at once, deliverable either now or in the autumn.

N.B.—The HOUSE to be SOLD by Private Treaty, or to be LET, furnished, with immediate possession. For cards to view and to treat, apply to Messrs. HEWITT AND PAUL, Dickinson Street, Manchester.

Ferns—Exotic and Native.

THE LYNTON NATIONAL SCHOOL FERNERY is now in a position to supply the above for cash, in any quantity, on very moderate terms.

Hampers of well-established plants, carefully packed and named, will be depatched on receipt of Post Office Order or Cheque.

The Guinea Hamper will contain seven Exotics in pots, including rare and well-grown Adiantums; and twenty well-selected Native Ferns, including A. Capillus-Veneris, &c.

For further information, estimates, &c., address Mr. JAMES SORTON, National School Fernery, Lynton, North Devon.

New Pelargonium.

PELARGONIUM QUEEN VICTORIA.—This new Pelargonium is now being sent out for the first time. To say that it is handsome conveys but an inadequate idea of it, for it is the most marvellously beautiful and novel variety ever offered. The flowers have peculiar crispy petals; they are not really double, but from their fulness of form and extra number of petals have the appearance of being so. The colour is a rich vermilion; all the petals broadly margined with pure white, and the upper ones blotched with maroon. The contrast of the broad white margin with the vermilion ground-colour makes the flower extremely pleasing and attractive. Price One Guinea each.

One dozen choice handsome flowered Pelargoniums, including the beautiful P. Queen Victoria, for three Guineas.

A drawing of Pelargonium Queen Victoria, by Macfarlane, can be had on application, price 2*s.* 6*d.* each.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

Choice Seeds of Prize Flowers (Post free).
SOW NOW.

MR. WILLIAM BULL recommends the following:—

	Per packet.—*s.*	*d.*
PRIZE PRIMULA SINENSIS, Red and White.. each	2	6
PRIZE PRIMULA SINENSIS, Fern-leaved, Red and White .. .. each	2	6
PRIZE PELARGONIUM, Gold and Bronze	2	6
PRIZE CINERARIA	2	6
PRIZE CALCEOLARIA	2	6
PRIZE GLOXINIA..	2	6
PRIZE BEGONIA, handsome-flowered..	3	6
PRIZE AURICULA, Alpine	2	6
PRIZE CARNATION	2	6
PRIZE COLEUS	2	6
PRIZE FUCHSIA	2	6
PRIZE PETUNIA	2	6

Establishment for Choice Seeds and New and Rare Plants, King's Road, Chelsea, London, S.W.

CHOICE SEEDS
for present sowing.

CABBAGES.—Brunning's Improved Enfield, one of the earliest and finest varieties in cultivation, 8*d.* per ounce; Wheeler's Cocoa-nut, very early and of excellent flavour, 1*s.* per ounce; Beck's Premier, extra fine early variety (our stock of this we specially recommend), 6*d.* per ounce; also the following varieties, true stocks, at 4*d.* per ounce—Early Battersea, Early York, Enfield Market, Nonpareil, Wheeler's Imperial, &c.

ONIONS.—New Queen, a very nice silver-skinned Tripoli Onion, as remarkable for its keeping qualities as the rapidity of its growth; 1*s.* 6*d.* per packet. The following well-known older kinds can also be supplied:—Giant Rocca (the largest in cultivation), Large Blood-red Italian Tripoli, Large Flat White Italian Tripoli, Early White Italian Tripoli, each 1*s.* per ounce; also Flat Italian, Red and Globe Tripoli, each 8*d.* per ounce; White Lisbon (suitable for drawing green in spring), White Spanish, Deptford, each 4*d.* per ounce.

Twelve varieties of HARDY ANNUALS, suitable for autumn sowing and spring blooming, 1*s.*; post free, 14 stamps.

Any of the above post free at the prices quoted, on receipt of stamps.

For other varieties of choice seeds suitable for present sowing, see our general Descriptive CATALOGUE, gratis and post free.

ISAAC BRUNNING AND CO., Seed Merchants and Nurserymen, 1, Market Place, Great Yarmouth.

ROYAL BOTANIC SOCIETY

SPECIAL EVENING FETE.

JULY 8, 1874.

AWARDS of the JUDGES.

LARGE SILVER GILT MEDAL.

Mrs. Soden, Frieze Hill Farm, South Weald, Brentwood, for Floral Decorations arranged for a Dinner-table.

SILVER GILT MEDAL.

Mrs. Gardner, Park House, St. John's Wood, for Floral Decorations for a Buffet.

Mr. W. L. Buster, St. Mary Cray, Kent, for Floral Decorations for a Dinner-table.

Mrs. W. Seale, Vine Nursery, Sevenoaks, for Floral Decorations for a Supper-table.

SMALL SILVER GILT MEDAL.

Miss L. Blair, 50, Upper Bedford Place, Russell Square, for Floral Decorations for a Buffet.

Miss L. Blair, for Arch of Cut Foliage and Flowers suitable for a Sideboard.

LARGE SILVER MEDAL.

Mrs. E. Burley, Brentwood, for Floral Decorations arranged for a Dinner-table.

Miss L. Blair, for Floral Decorations for a Buffet.

Mrs. Gardner, Park House, St. John's Wood, for Arch of Cut Foliage and Flowers arranged for a Sideboard.

Mrs. Hudson, Champion Hill, Camberwell, for Epergne (furnished).

Mr. James Hudson, The Gardens, Champion Hill, Camberwell, for Floral Table Decorations for a Dinner-table.

Messrs. Claudet-Houghton, 89, High Holborn, for Floral Decorations for a Buffet.

Mr. J. Hudson, for Floral Decorations for a Supper-table.

Messrs. J. Mortlock & Co., 204, Oxford Street, for Arch of Cut Foliage and Flowers suitable for Sideboard.

Mr. J. Hudson, for Epergne (furnished).

SILVER MEDAL.

Mrs. E. Burley, for Floral Decorations for a Buffet.

Miss E. Harris, for Arch of Cut Foliage and Flowers suitable for a Sideboard.

Mrs. F. Gardner, for Epergne (furnished).

Messrs. J. Mortlock & Co., 204, Oxford Street, for Floral Decorations for a Dinner-table.

Messrs. Mortlock & Co., for Floral Decorations for a Buffet.

Mr. W. L. Buster, for Floral Decorations for a Supper-table.

Messrs. Dick Radclyffe & Co., for Arch of Cut Foliage and Flowers suitable for a Sideboard.

Mr. J. Bolton, Gr. to W. Spottiswoode, Esq., Sevenoaks, for Epergne (furnished).

Mr. Hepper, Gr. to C. Ledward, Esq., The Elms, Acton, for Rustic Standing Basket.

Mr. W. Cole, Gr. to T. Budgett, Esq., Ealing Park, for Rustic Standing Basket furnished with Plants.

Mr. Joseph Wheeler, Gr. to J. Phillpott, Esq., Stamford Hill, for Hanging Basket with Growing Plants.

Messrs. Williams & Bach, Floral Decoration for a Buffet.

SMALL SILVER MEDAL.

Messrs. Barr & Sugden, King Street, Covent Garden, for Hanging Baskets with Growing Plants.

Mr. W. Cole, for Hanging Basket with Cut Flowers, &c.

LARGE BRONZE MEDAL.

Mrs. Bolton, for Hand Bouquet (tied).

Mr. J. Hudson, for Arch of Cut Foliage and Flowers, &c.

Mr. W. L. Buster, for Epergne, furnished.

Messrs. J. Bromwich & Co., 8, Victoria Buildings, Belgravia, for Bridal Bouquet.

Messrs. J. Bromwich & Co., for Ball-room Bouquet.

Mr. W. Cole, for Hanging Basket with Growing Plants.

Messrs. Dick Radclyffe & Co., for Rustic Standing Basket.

Messrs. Barr & Sugden, for Rustic Standing Basket.

Miss E. Harris, for Epergne (furnished).

BRONZE MEDAL.

Miss E. Harris, for Table Bouquet (not tied).

Mrs. Hudson, for Hand Bouquet (tied).

Messrs. Chas. Wood & Son, High Street, Manchester Square, for Bridal Bouquet.

Messrs. Chas. Wood & Son, for Ball-room Bouquet.

CERTIFICATE.

Mrs. E. Burley, for Table Bouquet (not tied).

Mrs. E. Burley, for Hand Bouquet (tied).

Mrs. W. Seale, for Bridal Bouquet.

Mr. J. Bolton, for Ball-room Bouquet.

Messrs. Radclyffe & Co., for Hanging Basket with Cut Flowers, &c.

CHOICE FLOWER SEEDS for present Sowing, post free.

	Per packet.—*s.*	*d.*
LEE'S CHOICE CALCEOLARIA, extra fine	2	
LEE'S CHOICE CINERARIA, extra fine	2	
LEE'S CHOICE CYCLAMEN, extra fine	3	
NEW DOUBLE CINERARIA, choice mixed	2	
PRIMULA FIMBRIATA, choice mixed..	2	
PRIMULA, Fern-leaved, choice mixed	2	
PRIMULA, Fern-leaved, double white	2	
PRIMULA FIMBRIATA, double carmine	2	
PRIMULA FIMBRIATA, double white	2	

JOHN AND CHARLES LEE, Royal Vineyard Nurseries and Seed Establishment, Hammersmith, W.

Noteworthy Horticulturists and Botanists.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6*d.* each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.
W. WILSON SAUNDERS, F.R.S.
Rev. M. J. BERKELEY, F.L.S.
M. DECAISNE.
G. F. WILSON, F.R.S.
Dr. MOORE, of Glasnevin.
Professor REICHENBACH.
Rev. S. R. HOLE, M.A.
E. J. LOWE, F.R.S.
JAMES MCNAB.
ROBERT HOGG, LL.D.
Dr. REGEL.
JAMES BATEMAN, F.R.S.
BERTHOLD SEEMANN, Ph.D.
ARCHIBALD F. BARRON.
Hon. MARSHALL P. WILDER.
JOHN GIBSON.
Professor ASA GRAY
I. ANDERSON-HENRY.
Professor KARL KOCH.
Baron VON MUELLER.
JOHN SMITH (Kew).
Professor WESTWOOD.
Dr. THWAITES.
Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W.C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5*s.* 11½*d.* | Six Months .. 11*s.* 11*d.*
Twelve Months .. £1 3*s.* 10*d.*

FOREIGN SUBSCRIPTION.

£1 6*s.* *for* 12 *months, including postage to*—
STRALIA | CANADA | JAMAICA | WEST INDIES
GIUM | FRANCE | NEW ZEALAND | UNITED STATES

£1 10*s.* 4*d.* *for* 12 *months, including postage to*—
ERIA | HOLLAND | PORTUGAL | SPAIN
A | INDIA | PRUSSIA | SWITZERLAND

£1 14*s.* 8*d.* *for* 12 *months, including postage to*—
RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, JULY 11, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	July 13	Royal Agricultural Society's Country Meeting at Bedford commences.
WEDNESDAY,	July 15	Royal Horticultural Society: Meetings of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.; General Meeting, at 3 P.M. Oundle Flower and Poultry Show. Brighton and Sussex Summer Exhibition. Loughborough Horticultural Exhibition and Rose Show.
THURSDAY,	July 16	Flower Show at Great Yarmouth. Brighton and Sussex Summer Exhibition. Rose Show in the Zoological Gardens at Clifton.

ONE of the most superb flowers exhibited of late is undoubtedly the variety of Iris known as Iris Kæmpferi var. Edward George Henderson. This was shown at the last meeting of the Floral Committee by Messrs. E. G. HENDERSON & SON, of St. John's Wood, and to those gentlemen we are indebted for cut flowers. Considered as a garden flower, we have few which can vie with it for gorgeousness of colouring. Mr. SMITH'S figure (fig. 11) will serve to convey an idea of its form and size, and as to its colouring, we may fitly compare it to Clematis Jackmanni, adding, moreover, that the base of each of the flower segments is occupied by a broad band of golden colour. The combinations of rich violet-purple and gold colour gives, as may readily be imagined, a superb aspect to the flower. We understand that Messrs. HENDERSON have several other varieties of a similar character and of various shades of colour. Here, it may be remarked, we have a hardy border flower, of easy culture, and of beauty fit to vie with the choicest Orchid or stove plant; so that the gardener with modest means need not envy those with longer purses or more complete modern appliances.

Iris Kæmpferi of gardens is not altogether a new plant. It was, we believe, introduced from Japan by the late VON SIEBOLD, and several varieties of it are in cultivation in the Dutch nurseries, as also in our own. Some of these, too, have been figured in various journals, particularly in OUDEMAN'S *Neerland's Plantentuin*, tab. 8, 33, 34, where, among others, a large white variety of great beauty is represented. These varieties, however, many of which are cultivated by Messrs. HENDERSON, have, for the most part, smaller blossoms than the one to which we now call attention, while the form and arrangement of the parts of the flower are like those usually met with in Irises, and especially in Iris lævigata, to which I. Kæmpferi nearly approaches, if, indeed, it be not a variety of that species.

It is surprising to see how many persons are capable of recognising beauty of form and colour, and yet do not perceive that higher beauty—beauty of purpose and adaptation. They see a botanist picking a flower to pieces and they think it little less than sacrilege. They laugh at his "barbarous binomials" and uncouth expressions, but they do not realise all the time that he has, what they have not, a keen sense of delight in reverently tracing, so far as his faculties permit, the purpose and plan of the Creator, as manifested in the humblest weed.

To the arrangement of the floral segments in the variety of Iris called by the name of E. G. Henderson we may, therefore, briefly allude, as it is of considerable interest, both from the florist's and from the botanist's point of view.

In Irises in general we have the flower composed of six coloured segments, three outer ones bent downwards, three inner ones somewhat smaller, often different in colour, and ascending to arch over the central organs of the flowers. Within these segments of the perianth are three stamens, concealed by three large petal-like styles, and generally not visible till these are turned aside or removed. The ovary, or young seed-vessel, is below the flower segments, as in Narcissus, Orchids, &c.

In the Iris of which we are now speaking the arrangement is different — the three outer segments are flat and spread horizontally, the three inner ones are of similar form, colour, and direction. The result of this is a flat flower of nearly circular outline, such us rejoices the eye of the lover of the so-called "florist's flowers." More than this, the three stamens concealed between the outer floral segments and the petal-like styles show a tendency to emulate the styles and themselves become petal-like, and the way in which they do this is also noteworthy. An ordinary Iris stamen consist of a filament or stalk, on the upper part of which is, on either side, an anther-cell containing the pollen; the two anther-cells are separated one from the other by what is called the connective, which is in this case nothing but the direct continuation of the filament. In the flowers before us the summit of the anther is surmounted by a trumpet-like tube, coloured purple, and divided into three lobes at the free edge. Tracing these lobes downwards it may be seen that two of the three are directly continuous with the anther-lobes, while the third is similarly a petal-like prolongation of the "connective." In addition to these three stamens, which (apart from their slight tendency to assume a petal-like condition), perfectly represent the ordinary stamens of an Iris, there are, in the variety before us, three additional stamens opposite to the petals, but these supernumerary organ are almost entirely petal-like and correspondingly unlike anthers. The styles and ovary present nothing materially different from the usual structure of Iris flowers.

To sum up, then, we may say in brief that while an ordinary Iris has an irregular flower, this variety has a regular one; 2, an ordinary Iris has three stamens, not petal-like, this variety has six stamens, in two rows, and all are more or less petal-like. Technically speaking, then, this flower affords an example of that form of peloria called regular peloria, and of the increased number and petal-like development of the stamens.

Florists, however, will be more concerned with the fact that they have here a flower of circular outline, regularity of proportion, and marked tendency to become double.

But more than this, our Iris has a great interest for those who like to see things botanically ship-shape, or if they are not so to know the reason why. In these matters botanists are as great sticklers for regularity as the florists. Their interests are, indeed, to a large extent identical, though the reverse is sometimes falsely asserted. An ordinary Iris is not botanically ship-shape, owing to the irregularity of its flowers, to which we have above alluded. The aim and object of this irregularity is without doubt to facilitate the transfer of the pollen from one flower to the stigmas of another by means of insects, and it is only one of a thousand different ways in which the same end is obtained. Take the common Iris germanica, for example, and watch how beautifully contrived and adapted the flower is for the purpose we have indicated. The outer flower segments are bent downwards, and have a tuft of yellowish hairs near the base. The anther, as we have seen, is concealed between the base of the outer flower segment and the petaloid style; these two parts form, in fact, a box in which the anther is concealed. An insect visiting the flower is attracted by the reflected segment with its bright tuft of hair: it alights upon it as a bee does on the landing-board of a hive. It gets entangled amid the bush of hairs as it endeavours to open the box and rifle the flower of its honey. In so doing it must necessarily remove the pollen from the anthers, which, it should be stated, open downwards and outwards just in the direction to favour the deposit of the pollen on the intruding insect. The pollen-dusted insect ultimately escapes, pays a visit to another flower, and there the stigma (on which the pollen must be deposited ere the seeds can be formed) is placed exactly where it is most favourably situate to receive the pollen from the insect's back. The stigma of Irises, in fact, has the form of a transverse band on the lower surface of the style.

We have so far shown how an ordinary Iris is not botanically ship-shape, and we have endeavoured to give a rational explanation of the deviation from the general rule. We have still another point to allude to. A flower, to be regular in botanical terminology, must not only have its several organs of the same size and colour, according to their several natures, but their arrangement must also be in regular order. That regular order consists in this: that the parts of one row shall alternate, or come between those of another row; for instance, if there be three flower segments on the outer side of three inner ones, then each of those inner ones will be placed between, or "alternate with," two of the outer ones. In this way the three stamens of an Iris alternate with the inner flower segments, and are opposed, as already explained, to the outer ones. Following this rule out in the case of an ordinary Iris we come to an exception in the position of the styles and stamens. They should alternate; they do not.

We have seen the advantage of this arrangement in detaining insects, but we have still to furnish an explanation of it from a purely constructional point of view. That

explanation is founded on the assumption that a second row of stamens, which should be placed opposite to the petals, is in this case suppressed or not developed. The botanist assumes this from his knowledge of other flowers, as well as from direct observation in the embryo state of the particular blooms, and from analogy, just as the astronomer is able to assert confidently that a particular star must be in a particular place at a given time, though he cannot see it, and, indeed, need not trouble himself to do so unless he please; for if his method of investigation be correct, the result must be so also. Another, as has often happened, may be the one actually to discover the existence of what his predecessor, reasoning from analogy and legitimate inference from ascertained facts, predicted must exist. That which is an assumption in an ordinary Iris is a fact in the variety of Iris Kæmpferi now before us. The second row of stamens is present, and so the regularity of the flower is thereby vindicated.

Crocuses probably owe the relative position of their stamens and styles (which is the same as in Iris) to a similar cause. At any rate, double-flowered Crocuses are often seen, in which the normal arrangement of parts is restored by the appearance of a second row of stamens alternating with the first.

—— The Thirty-first Anniversary Dinner of the Gardeners' Royal Benevolent Institution took place at the London Tavern, Bishopgate Street, on July 2, under the Presidency of Alfred de Rothschild, Esq., supported by Mr. Alderman and Sheriff Whetham, Rev. Mr. Rogers, A. Smee, F.R.S., Majors Stone and Snell, Messrs. Peacock, Shirley Hibberd, Wrench, W. H. Collingridge, C. Shaw, Davidson, Kellock, P. Palmer, Porter, &c., and many leading nurserymen, seedsmen, horticulturists, &c. The room was tastefully decorated with plants and cut flowers, which had, as is usual on these occasions, been very liberally contributed by the principal nurserymen, gardeners, &c. Excellent contributions of fruit were sent by several gentlemen and their gardeners. The health of Her Majesty the Queen and the rest of the Royal Family having been proposed and responded to, the Chairman proposed "the toast of the evening," viz., "Prosperity to the Gardeners' Royal Benevolent Institution." Mr. Rothschild said he felt a diffidence in taking the chair on that occasion, until, judging by the feelings of the influential assembly of the friends of the Institution, who had so promptly met to further its aims and intentions, he perceived that the duty he had undertaken was a far simpler one than he had anticipated. It had been expected that he should say something in favour of this Institution, however, and he felt that the very fact that it had already accomplished such an amount of good, through the means already placed at its disposal, and that it continued to progress most favourably in the same path, was an assurance than which nothing he could say would prove to them a greater recommendation. Not only had the subscriptions and the number of pensioners constantly increased, but so also had the funded property. They did not intend to rest here, however, because he trusted the hands of the committee would be further strengthened in their labours by liberal subscriptions from all who were present that evening. In reference to gardeners generally, something of what they did and could do to advance the comforts of life was seen by the way in which the results of their skill and industry, as seen in the plants and flowers around, had turned the London Tavern into a veritable "ladies' bower," and he was happy to see that "bower" so well filled. All naturally appreciated the aroma of the Violet and the perfume of the Rose, but the total gain that all derived from gazing upon flowers did not end there; nor yet by investing the hero with Laurels or the bride with Jessamine and Orange-blossoms. Everything that is good and worth striving for here is bedecked with flowers, or the higher results of the gardener's art, because these eclipse all in their purity and their beauty. To such perfection has the art of the English gardener attained that one is forced to believe that the acme of the art, so striven for, has been reached. It was by the gardener's assiduous industry and care alone that this has been so far achieved, and this too often at the sacrifice of his own health. Can it be then, said the Chairman, that the hand which produces for you and for me these wonderful glimpses of joy shall lie by in old and enfeebled age, in sickness and in sorrow, uncared for? Though I have spoken to you (continued the speaker) of the success of this Institution during the past, I am bound to say its continued success rests with you to-night. I feel confident I shall not appeal to you in vain. Let your aid make up for my shortcomings, and so will the permanent prosperity of so very deserving an Institution be the more assured. "The Botanical and Horticultural Societies" having been proposed by Mr. Davidson and responded to by Mr. Kellock, Mr. Sheriff Whetham, in a humorous speech, next proposed "The Ladies." The Rev. Mr. Rogers then proposed that of "The Chairman of the Evening," which was followed by that of "The Secretary, Mr. Cutler," who, in reply, said "the donations of the evening exceeded £750, the largest result yet attained at an anniversary festival." The entertainment was very satisfactory, not the least so the musical part of it, during which Miss Jessie Royd gave Bayley's florists' song, "Under a Hedge," with great effect. A good illustration of the use of a word in season has lately been afforded in the proceedings of this Institution, which has received a legacy of £1000 from the late Mr. Barnet, of Macclesfield. This gentleman, it appears, only heard of the Society through a gardener about the time of one of the annual festivals. The amount of funded stock standing in the Society's name is thus increased to £10,000, a sufficient guarantee for the future.

—— Messrs. Dennis, of Chelmsford, have submitted to our inspection Plans of a New Boiler invented by them. The boiler, as may be seen at fig. 10,

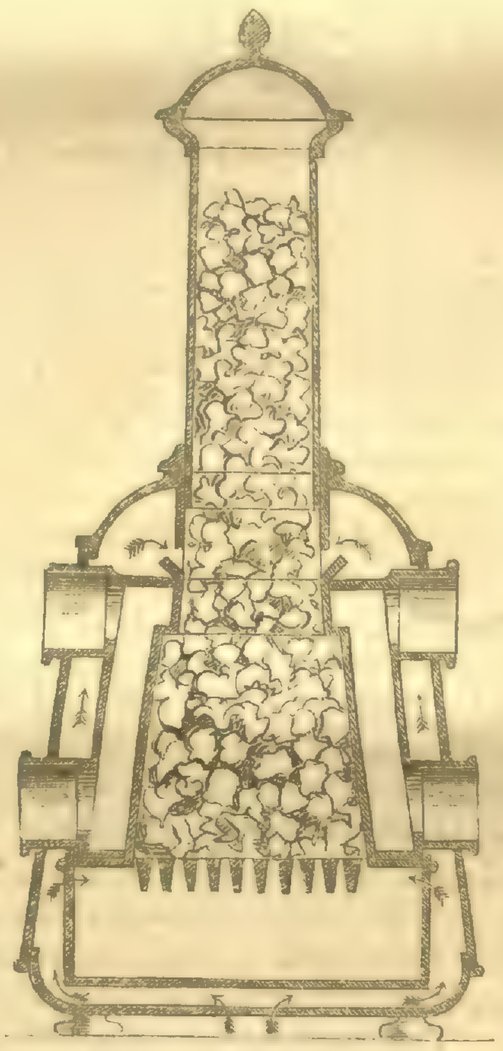


Fig. 10.—Messrs Dennis' new boiler.

is surrounded by an air-casing. This serves various purposes—first, it is an excellent "lagging," for it is an acknowledged fact that a casing of atmospheric air is the best preventive of radiation; then, as will be seen by the arrows, part of the air required by the fire is allowed to enter by way of the fire-bars; the remainder traverses the casing, becoming in the meantime heated, and is drawn into the fire above the fuel. In practice it is found that by these means a red heat is maintained at the top as well as at the bottom of the fuel. Between the two the combustion is almost perfect, so that, while burning nearly the whole of the smoke is but an incidental result, the prevention of radiation and economy of fuel are the main gains. The combustion is so perfect that almost anything can be burnt with this boiler, which, moreover, requires no adjusting, and, with the feeder at the top, will burn for many hours without attention, and during the whole time develope the maximum amount of heat in the water-pipes. Messrs. Dennis are now engaged in adapting this invention to their large boilers, so as to produce a boiler suitable for large establishments, one which, in their opinion, requires no brickwork—in which combustion is perfect, which checks radiation, and which economises fuel as much as is consistent with efficiency.

—— The Council of the Meteorological Society recently resolved to organise a system of observations of Natural Phenomena connected with the return of the seasons, as well as of such branches of physical inquiry as tend to establish a connection between meteorological agencies and the development of vegetable life. As a preliminary to carrying out this intention, they invited the various societies before which such subjects most naturally come, to nominate delegates to join a committee by whom the whole question, as bearing upon agriculture, horticulture, &c., should be considered, and to whom also any written communications should be submitted. The first meeting of this joint committee was held at the office of the Meteorological Society, 30, Great George Street, on Thursday, July 2, when delegates were present, and promises of co-operation read from the Royal Horticultural, Royal Botanical, Royal Agricultural, and other Societies. After the subject had been fully discussed, the Rev. T. A. Preston, of Marlborough College, was requested to prepare a list of plants to be observed, and also to draw up a report on the same. Other gentlemen were requested to prepare lists of insects, birds, and animals.

—— We understand that, at the request of several leading exhibitors at the great Show at Birmingham, a report of which will be found in another column, Messrs. Lythall & Clarke will hold a sale by auction, this day (Saturday). The sale will include many lots of choice stove, greenhouse and hardy plants, fruit trees, &c., exhibited in the Lower Grounds, Aston Park.

—— It is now many years since a pamphlet was published by Mr. Smee attributing the Potato Disease to the action of an Aphis. This was a good deal laughed at at the time, but it merely shared the obloquy which was vented against every one who attributed the formidable malady to any intelligible cause. This was especially the case in France, and even Dr. Montagne, who went so far in the investigation of the parasite, which is now admitted by all really scientific observers to be the true cause, however it may be favoured by peculiar conditions of the atmosphere, quailed for a time under the prevailing ridicule, though he returned after all to his first opinion. It is merely necessary to cast a glance at various varieties of Potato in my garden to see that, though Mr. Smee's explanation was not correct, it was quite as good as multitudes which were put forth, and, indeed, was far in advance of them, as the dead condition of the plants was sufficient, under the existent state of the question, in great measure to justify him in assigning the aphis as the cause, especially as there was at the time the greatest disinclination to admit the possibility of fungi attacking living organisms, the prejudice running in favour of the notion that they were the consequence and not the causes of disease. My Potatos are, at this time, in quite as bad a condition as those attacked later in the year by the Peronospora; and I am afraid the effect on the produce, as regards quantity, though possibly not on quality, may be very serious, if the experience of others is like my own. *M. J. B.*

—— The University of Oxford has done itself honour by appointing Mr. Prestwich as Professor of Geology, in place of the late Professor Phillips, who was himself originally an outsider.

—— The following letter from Mr. W. G. Smith, relating to the Hollyhock Disease, will be perused with interest. Let not the facts he brings forward, however, stop the prudent measures of precaution we have always advocated:—

"For some years past I have had two healthy Hollyhock plants in my garden, and when the Hollyhock murrain first appeared I thought I should like to infect them with the new disease. With this purpose in view, I secured all the infected leaves of Mallow and Hollyhock which came in my way, and carefully tied one-half the specimens to the stems of my healthy plants, and buried the other half just under the surface of the ground at their base, with no effect whatever in the way of propagating the disease. This year the murrain has been far more common and widespread, but my Hollyhocks came up as usual in the spring, as healthy as ever. Owing to the commonness of the pest I have had a great deal more of the new disease forwarded to me this year than before, and every infected leaf received I have at once either carefully folded round and tied to the stems or buried at the base of the plants, with (at present) no result whatever. An accident recently laid one plant low, but the remaining one is in perfect health, with the scarecrow remains of the Puccinia-infested leaves still attached to its stem. After a careful search I cannot find a single pustule, or sign of one, on any of the leaves or on any part of the stem, and I think this fact clearly proves that under certain conditions of health (often very difficult to understand) both animals and plants, though never "disease proof," are able to some extent to withstand infection."

Mr. Smith does not tell us whether the climatal conditions under which he made his experiments were in all cases similar.

—— At Brentford, a few days since, an unlucky tradesman was fined 40*s.* and 8*s.* costs for selling a can of preserved Green Peas Adulterated with Copper. From all that appears the vendor had no more to do with the introduction of the copper than the man in the moon, and it seems hard to throw the onus upon him when it is the manufacturer who is in fault. The object of the copper was, no doubt, to give a

bright green colour to the Peas. We advise our readers to eschew preserved Peas if of a bright green colour, and to reject pickles similarly artificially dyed.

—— Mr. R. A. PRYOR sends us specimens of LATHYRUS SPHÆRICUS found near Cole Green, Herts. As the plant is a native of Central France and Southern Europe, it is doubtless an accidental introduction. It might well be passed over for Lathyrus Nissolia.

—— The new cryptogamic parasite, PUCCINIA MALVACEARUM, above referred to, is now infesting the Hollyhock in that part of England where this flower has been most cared for—the Eastern Counties—to such a degree that there seems much danger of losing it altogether. An eminent raiser of many new varieties lost during the autumn and winter a very large portion of his propagated plants. He states that when the old stools or plants were lifted at the end of the summer, and planted out in cold frames according to the usual practice, they appeared to be in the best health. The young growth which springs from the base of the flower-stem was taken off as usual, and struck as cuttings, and it was as soon as the plants were getting established that the disease laid hold of them. Batch after batch of plants succumbed to it, and the grower found himself face to face with a new and terrible foe, that baffled all his efforts to subdue it. He tried many remedies; one of these was that of carefully dusting the leaves of the plants with sulphur, but it was of no avail; and, infinitely worse than the disease that was wont to assail the plants a few years ago, it would not be subdued. As usual there has been a large demand for the Hollyhock, but it has only been able to be supplied in small part. Choice seedlings kept over for another year's trial have suffered equally; some are altogether lost. In the nursery may be seen plantations of this favourite flower beginning to break into vigorous growth, consequent on the rain, but unfortunately showing traces of the spread of the parasite. What, says a correspondent who communicates these particulars, if, at the drawing to a close of a busy and eventful life, in which he has seen his favourite flower improved to an extent that could scarcely have been conceived a quarter of a century ago, he should see it almost entirely destroyed by an insidious agent that can only be stayed by the utter destruction of the plants it attacks!

—— We learn that the number of IPECACUANHA PLANTS and cuttings established up to April 1 at Rungbee, British Sikkim, amounts to 63,000. Good progress this.

—— National Schools do not, in general, indulge in commercial speculations, but that such a course is occasionally open to them appears from an announcement that the LYNTON National School Fernery is in a position to supply exotic and native Ferns at moderate cost. We doubt whether this example is good enough to be generally followed, and trust that it may be hedged round with restrictions to prevent the uprooting of the rarer species, and the impairment of the natural beauty of the country.

—— The *Lancet* gives the following particulars concerning the "GRAPE CURE":—

"The headquarters of this remedy are at Meran, in the Tyrol, of which province it was some time the capital. Apart from the specific benefits of the 'cure,' Meran has much to recommend it in the way of climate, to which, we suspect, the Grape treatment owes not a little of its efficacy. In August, September, and October, its population of 4500 is considerably reinforced by German, Russian, and Italian visitors, who, with a sprinkling of English and Americans, have come for the 'cure.' Accommodation is comfortable and cheap—cheaper, while not less comfortable, than in most of the Italian and French places of resort. Invalids suffering from chest affections—bronchitis or consumption in its pretubercular stage—are the chief subjects of the Grape treatment. Less than 3 lb. of Grapes a day is not enough for efficacy. The patient begins with 1 or 2 lb. per diem, dividing the quantity into three portions—one taken an hour before breakfast, the next before dinner, which comes off at 12.30 or 1 P.M., and the last in the afternoon or evening. The Grapes are eaten *sub Jove frigido*, and after two or three days the quantity is increased by half a pound until it reaches 3 lb. or 4 lb. This amount often suffices the patient, who finds, as a rule, that he gains in weight and in strength also. Chronic liver complaints, especially when due to excesses in wine-drinking, are, it is said, markedly relieved by the 'Grape cure,' the potash salts in the fruit supplying the element which the wine, in the process of manufacture, has lost. Hepatic dropsy has been known to be mitigated in this way. Patients should not be discouraged if, after the first day or two, they feel not so well as they were before; while one signal point in favour of the 'cure' is this, that no special diet is enforced. Indeed the Grapes themselves become so satisfying that indulgence in other food is hardly necessary. Before trying the cure, however, the patient should have his case thoroughly examined by his physician, who will tell him how and to what extent he may avail himself of the 'Natur-therapie' of Meran."

FIG. 11.—IRIS KÆMPFERI VAR. (SEE P. 45—FLOWER NATURAL SIZE).

—— We extract the following lines from some verses by Mr. I. A. HENRY relating to the alleged CHANGE OF CLIMATE in Scotland which has occupied so much of our space lately, and which were submitted to the members of the Botanical Club at their meeting at Easter Duddingston Lodge, on July 3:—

"M'Nab was the first men's attention to draw
To the baleful effects of some unobserved law—
In the fruits that once ripened, but ripen no more
In our northern climate. Whereas we had store
Of Ribstons, Green Gages, Figs, Peaches, and Pears,
All matured in the *open* in long bygone years,
Which with fifty things more I can't specify here,
Were brought to our markets and shows year by year;
But now though we pettle such things on the wall,
'Tis rarely we get one ripe fruit after all.
As of fruits, so of vegetables, *ex. gratia*, Tomatos,
Once reared in the borders as we still do Potatos,
Have, with Mushrooms and Capsicums, all out of order,
Bid Scotland good-bye, and passed over the Border.
Change, change, nothing but change.

On facts such as these M'Nab took his position,
And proved our poor climate in a back-going condition.

Now, facts being stubborn, with so many to back him,
He feared not, and cared not, whoe'er might attack him,
While an editor high, both on gardening and climate,
And on all cognate subjects acknowledged as Primate,
Held the case as made out by facts *ad galorem*,
With a surplus to spare of those put before him.
Then Naudin struck in with evidence clear,
That like changes in France were experienced as here.
Yet with many concurrents, it may not be denied,
There was something to say on the opposite side;
And a chap signing "Frutex" made a very fair case,
On the Tables of Chiswick in the main for his base;
But whether by these or the Cycles of Schwab,
He failed, to my thinking, to damage M'Nab;
For cycles no longer than Schwab's in duration
Are wholly inadequate for the occasion.
Perhaps they may help to some key to the weather,
Taking three or four of them on end all together.
'Tis matter for Buchan; let him take up the subject,
'Twill make him immortal if he gain the grand object.
And a thought I may offer formed in my simplicity,
The key to solution lies in Electricity.
Change, change, nothing but change."

—— We extract from the *Builder* the following details of the cost of transforming LEICESTER SQUARE (see *ante*, p. 15):—

Iron railing, gates, and lamps, executed by the Coalbrook Dale Company, painted and gilded by Messrs. Thorn & Co., with silicate oxide paint; cost about	£1,400 0 0
The marble kerb, executed by Messrs. Thorn & Co.; about	800 0 0
Asphalte pathway and new granite kerb; about ..	450 0 0
The marble fountain, consisting of the basin and surrounding consoles and vases, executed by Messrs. Walker, Ernley & Beall; the pedestal and foundations by Messrs. Thorn, the statue by Signor Fontana, the dolphins by Mr. Daymond, and the waterworks by Messrs. Easton & Anderson; about	4,500 0 0
The four granite pedestals for busts, executed by Macdonald, Field & Co.; about	150 0 0
The four marble busts; say	1,400 0 0
Laying-out and planting of garden, executed by Mr. Gibson; about	4,000 0 0
Garden seats and iron bordering to grass, executed by Messrs. Kennard & Co.; about	250 0 0
Laying on gas and water; about	200 0 0
Sundries	1,100 0 0
	£14,250 0 0
Cost of land, about	13,000 0 0
Total	£27,250 0 0

The time occupied in these works has been very short—in some respects, we have no hesitation in saying, unprecedentedly so. The area, it may be remembered, is a little over one acre. We trust that in the ensuing autumn some of the evergreens will be removed and their place supplied by deciduous trees or shrubs, which would have a fair chance of surviving. The plots of turf might also be re-arranged with advantage, and if the central statue rose from a circular bed of turf, all the better. A town garden must necessarily be architectural in its character, but not to such an extent as to disguise the fact that it is intended as a garden.

Home Correspondence.

Potato Disease Artificially Produced.—In order to try an experiment with regard to the effect of wet and dryness in the culture of this esculent, previous to the period when the disease generally makes its appearance, I planted, about the middle of February last, one tuber each of an early sort in six 10-inch pots, all treated alike in every respect, which were then placed in my greenhouse. They soon began to sprout vigorously, and remained there till April 10, when the whole were transferred to a cold frame, plunged up to the rim, and carefully protected from frost, the sashes being taken off on all favourable occasions, but replaced at night whenever the thermometer indicated externally less than 40° Fahr. In such way no injury by frost was sustained, and all grew in a robust state of health, water having been given only when it became absolutely necessary to prevent the plants from flagging. This treatment was continued to May 7, from which date three of the pots were kept constantly saturated with wet. Early last month the plants therein began to display symptoms of rot in the haulm, just as it occurs with regard to the prevailing epidemic, except that the precursory black spots were not observable on their leaves. The plants in the other three pots, moderately watered, continued their healthy growth until, through ripeness, they turned yellow. On the 22d ult. I emptied the whole of the pots, and did not find among nineteen tubers, obtained from the latter three, an unsound one; whereas, out of seventeen produced from the former three, two only appeared to be exempt from entire corruption, and these, when cooked, were exceedingly watery and ill-flavoured, while the others, grown in the dry state, boiled very mealy, and tasted deliciously. Not being able myself to determine whether, in the rotten tubers thus produced, the fungus exists that we are told accompanies the real malady, I herewith send you a sample of them for your investigation, and shall feel greatly obliged by your reporting the result of the research. If it be the same as the prevalent disease, I think ample proof is in such way adduced of the effect being chiefly attributable to excessive moisture, against which the contaminated condition of the tubers used for sets, that have been a length of time in cultivation, are unable to contend. I do not remember having ever witnessed, since the disease first appeared in 1845, such a splendid crop of Potatos as is growing this year both in my garden and field. Not only have the plants displayed a profusion of blossom, but a great portion of them are now loaded with large bunches of berries, just in the same way as was wont to be the case in former time. Last week I dug up, perfectly ripened, and free from any attack in the haulm, a considerable quantity of Gloucester Kidneys and Milky-white varieties—in my opinion two of the best early kinds that are grown—without finding among the whole lot a single bad tuber. This circumstance I attribute to the long period of dry weather we have had; very little rain having fallen here between April 9 and the 30th ult. Although many of the crops in the neighbourhood were much injured by late frosts, mine suffered but little therefrom, owing to the situation being so well sheltered. I take a great interest in raising annually new varieties from seed, and find that these are much less liable, in unfavourable seasons, to be attacked by the disease than the sorts that have been for several years in cultivation. Since writing the foregoing, on looking at the rotten Potatos that were taken out of the pots on the 22d ult., I find they have become a mass of corruption, but I nevertheless send them as they are. *J. L., Whitland, Carmarthenshire.* [We forwarded the samples in question to Mr. Worthington Smith, but, like ourselves, he was not able to detect the Peronospora. He writes:—"The Potatos sent on to us were in a highly diseased condition, with the external surface covered with mycelial threads (one set crimson), evidently belonging to diverse fungi. We saw no trace of Peronospora infestans in a recognisable condition; this fungus, of course, is seldom seen in fruit on the Potato itself, but generally on the foliage and stem, which latter parts were not forwarded to us by our correspondent. His letter adds one more proof to the well-known fact, that if any plant or animal is thrown out of health, it is more likely to succumb to disease than similar plants or animals in a healthy or natural state. We imagine the fact of so many Potato plants bearing neither flowers nor fruit is a certain sign of an impaired constitution: we have recently been examining the pollen of Potato flowers, and have commonly found it aborted, and evidently impotent. *W. G. S.*"]

Viola cornuta.—This hardy and beautiful Violet does not, I fear, hold that position in the flower garden at the present day it occupied a few years ago; yet, when judiciously intermixed with other plants, I think it is one of the most useful bedding plants we have. It is not adapted for a bed by itself, as it is inclined to grow too much in the autumn months. Indeed, in damp soil I have seen it grow out of all proportion to the width across the bed in which it was planted. This evil is usually remedied by cutting all the young shoots over; but, though new flowers are soon produced after the operation, a blank is created at the time the reverse of agreeable. For edging this plant is very useful, and as effective as many of the plants now employed for that purpose. It produces the best effect, however, when intermixed with such plants as Mangles' variegated Pelargonium, Blue Bonnet Verbena, &c., surrounded by Coleus Verschaffelti, with an edging of Tropæolum elegans. Beds planted after this manner produce a most pleasing effect. We have now many plants possessing colours suitable for forming gay and gaudy beds in our flower gardens; but for beds of a soft and quiet beauty, a beauty untiring to the eye, we have no shade of colour in any other plant can rival that possessed by this hardy Violet. *W. McR.*

Climate of Central France.—I send you an extract from a letter from Mont Dore, Puy de Dôme, Central France, showing that we Britons have not a monopoly of bad climates:—"The peasants suffer dreadfully at Mont Dore in winter. We have just met one whose feet and hands are all frostbitten. The women are frequently days without leaving their cottages." *East Somerset, July 1.*

Rearing Larvæ of Cossus ligniperda.—A want of success in rearing captive Cossus larvæ up to their full development can rarely be matter for regret, excepting temporarily to the disappointed experimenter, and in the present case happily elicits a very interesting note from "N. B.," p. 13, on the pupal stage. The difficulty, however, did not lie in a similarity between winter nests and cocoons (a point necessarily well known to those accustomed to study the habits of the Cossus), but in the health or surroundings of the larvæ, which even when full-sized and furnished with an ample supply of wood from the same tree on which they had been feeding, usually pined and came to nothing. The pupæ also (when the pupa change was accomplished) perished before the exclusion of the moth. I have known the larvæ reared very successfully in other localities, but in my own case, and in some similar attempts by another collector which I watched, in my own (then) neighbourhood, there were no results, and the only point of interest in the matter was why, with every possible care to effect natural surroundings, there should have been such a total failure. The only explanation appeared to me (as regarding the pupæ) to lie in the extreme dampness of the climate, which, affecting the fragments of wood containing the pupæ, was possibly also the cause of their destruction. *O.*

The Three Earliest Peaches.—The experience of this season confirms the opinion I had previously formed on the respective merits of Mr. Rivers' three earliest seedlings. As the matter concerns growers for the market, as well as amateurs, it is worth recording. Early Beatrice, which I see others recommend as the best early, I cannot think so after six years of careful observation, made on about a dozen trees trained variously and exposed differently—under glass I mean. It is a fine Peach; carries a splendid colour and is of good flavour, but it is generally too small here. If others had mentioned the circumference we might have compared notes. Early Rivers has so far been the very earliest; this season it ripened without fire-heat, on diagonal cordons, by June 14. It is a very fine Peach, of large size, exquisite flavour, prolific, and to be relied on as a setter. All these are cardinal virtues in the Peach for the purposes of sale, and it is for market growers that this notice is intended. But the stone too often decays within, allowing passage to insects. This defect is owing to some tenderness of habit, or some imperfection in the fructification, which is inexplicable to me, considering its healthy foliage and general vigour. Some artificial means might be adopted; these might well form the subject of consideration, for the Peach is a most valuable one. Early Louise is the third of the very early Peaches, and, on the whole, I am inclined now to give my vote for its being the best in its season. It is of a great size here, well coloured, and healthy, flavour excellent, and altogether a telling market fruit. It is about a week later than Early Rivers and Early Beatrice. This is, of course, a disadvantage. Had Early Rivers been of a constitution equal to Early Louise, it would have proved the greatest acquisition made to the Peach grower during the last twenty years; as it is, I like it extremely. We want a very early Nectarine, not too small. Hunt's Tawny is our earliest here, but it is extremely subject to mildew, which dwarfs the foliage and renders the fruit small, unless carefully watched and thinned. *Thomas Bréhaut, Guernsey.*

Mercury: Chenopodium Bonus Henricus.—This plant is known by many names, as, for instance, the Angular-leaved Goosefoot, English Mercury, Good King Henry, and Wild Spinach. It is thought much of in this part of the country, and is often taken to my employer's table, where it is much esteemed. I have never met with it in any garden establishment before, therefore I think it is not generally known or appreciated, although it may used as a good substitute for Spinach or Asparagus; the leaves being eaten as Spinach, and the stems being peeled are eaten as Asparagus; of course, the plants are allowed to make good stems. In wet seasons it is in use here all the summer. The seeds should be planted in October. *G. Ferris, Nottingham.*

Ophrys apifera (p. 830).—A somewhat similar instance to that recorded by your correspondent from Ely has come under my notice within the last few years in this neighbourhood (Hatfield, Herts). In this case the Orchises occur on an artificial bank that was raised to shut out the high road from the railway at the time of the formation of the latter, some five-and-twenty years ago. I have only noticed them recently, but they appear to be yearly increasing in abundance. The tubers in many cases are growing in lumps of the stiffest possible clay. It is difficult to account for their origin, as there is no natural locality in the immediate neighbourhood. The bank was at one time planted with Cherry Laurels, Turkey Oaks, &c., but it is hardly likely that the Orchises were introduced in their company. Ophrys apifera was long ago recorded by Gerarde for "Hatfield, near St. Albans;" but I was not aware that it had since been observed, and it is not probable that the localities were in the same spot. *R. A. Pryor, Hatfield, Herts.*

The New American Potatos.—In spite of the high price asked for some of the newest American kinds of Potatos last winter, they were widely sold, and no doubt they will largely figure on our exhibition tables during the present season. I have thought it would prove interesting if I were to note just a few of the haulm characteristics of these kinds, as purchasers will be doubly satisfied if assured that they have the true sorts. I have samples of all of them, with many other kinds, growing under exceptionally favourable conditions on a broad border

where the ground was specially prepared and dressed as described by me in these pages in the spring. The rows are 3 feet apart, are now well ridged up, and many of the kinds have a wonderful dense branching haulm-growth, strong and healthy, in some cases 2½ feet across along the whole line. Should they not materially suffer from disease they promise to repay trebly the little extra cultivation bestowed. All Potato growers are now thoroughly familiar with the appearance of the haulm and foliage of the American Early Rose; to this the foliage of the Extra Early Vermont bears a close resemblance, the only difference being that it is rather dwarfer and more compact, and is quite flowerless. Those who are growing both kinds will soon be enabled to test the matter of earliness to ripen. Early Gem, which is another of the Rose family, and not to be in any way confounded with Mr. Fenn's certificated Little Gem, appears to be a duplicate of Extra Early Vermont, and I question whether it ought to have been sent out with that variety. Late Rose has a haulm that is more erect, and grows 6 inches taller than that of the Early Rose, although the foliage is similar; it also flowers freely, the blooms being white. Vermont Beauty has a tall erect growth, much like that of the Late Rose, the flowers are white in colour and freely borne; the foliage is, however, of a rather deeper shade of green. In the report of the Potato trial at Chiswick last year this sort is mentioned as having "small haulm, about 1½ feet in length." With me, although growing in three different places, in each case the haulm is among the tallest and most robust that I have. I am disposed to believe that the growth at Chiswick last year was cut by the late frost, and that its true habit was not afterwards shown. Compton's Surprise has a wonderfully robust haulm and immense leaves, probably larger than can be found in any other kind. The haulm is of a dark green hue, and the upper sides of the leaf and stems are tinted with red. The growth is rather spreading than erect, and indicative of a large crop of tubers. These are, however, exceedingly deep-eyed and coarse in appearance, and will not, I think, commend themselves to our more refined Potato tastes. Lastly, Snowflake, the 12*s.* per lb. kind, has a light green shining foliage of moderately robust growth, and bears a close resemblance to that of Bresee's Prolific. It has a neat habit and appearance, and is much more taking than the haulm of gross kinds. It produces small white blossoms, but they fall before full expansion. Perhaps this arises from the fact that the seed tubers were cut small to increase the produce, and it may carry flowers from larger sets. *Alex. Dean, Bedfont.*

Ripley Queen Pine.—Allow me to correct an error in your report respecting a Ripley Queen Pine exhibited by me on Wednesday, the 1st inst., before the Fruit Committee of the Royal Horticultural Society at South Kensington:—"Mr. Perkins, gr. to Charles Keyser, Esq., Warren House, Stanmore, sent a handsome Ripley Queen Pine, weighing 5 lb. 13 oz., the produce of a rooted sucker planted in August last." This should be "the produce of a rootless sucker, planted August 17, 1873." My object in exhibiting the Pine was to show its quick production, being less than eleven months from the rootless sucker; whereas, had it been a rooted plant at the time of its being planted in August last, I should not have considered there was anything particular in the production, and should therefore probably have not troubled myself about exhibiting it. *Thomas Perkins.*

Reports of Societies.

THE MIDLAND COUNTIES GRAND HORTICULTURAL EXHIBITION.

BIRMINGHAM: *July* 7, 8, 9, *and* 10.—The Midland Counties Exhibition, which has been held during the present week at the Lower Grounds, Aston Park, Birmingham, may be pronounced a great success from the horticultural point of view, and as the weather proved most auspicious for the opening the attendance was also good. This, indeed, was to be expected from the liberal spirit in which the exhibition had been planned, and in which all its arrangements have been carried out by Mr. Quilter, who has in this case, as in others, done good service to horticulture. The grounds, though showing, as all gardens do, the lateness and ungenial character of the season, were in very good condition. Indeed they are in themselves no inconsiderable attraction to visitors, and are well adapted for the purpose to which they have been now applied, there being ample room for promenade.

The exhibition occupied considerable space. A permanent tent, 300 feet long, part of the structure erected for the Royal Horticultural Society in 1872, and a large oval tent, 136 feet long by 75 feet broad, were devoted to the collections of stove and greenhouse plants, Orchids, Ferns, Pelargoniums, Clematises, and other choice flowering and foliage plants. The Roses, of which there was probably the best display of the present year, nearly filled the centre table of a fine tent, 320 feet long, the collections of Fuchsias being very effectively ranged down the centre; the boxes of Roses were, however, set up in the usual way, without reference to the general effect. In this tent were also some capital stands of Picotees and Pinks, from Slough and elsewhere. A portion of the glazed division of the Royal Horticultural Society's tent was occupied by an excellent display of fruit, the array of Pine-apples probably never having been exceeded. Two separate tents, collectively 210 feet long, were well filled with vegetables, while the margin of the show-ground was well filled by the stands of exhibitors of machinery, boilers, &c. This brief summary of the space occupied will give some notion of the great extent of the exhibition.

The quality of the materials shown was generally good for the season. Stove and greenhouse plants were of course effective, and the flowering division even more so than was to be expected—thanks, probably to the generally backward season. Ferns and Palms were also shown in capital trim; some of the former, from Mr. Brown, gr. at Elmdon Hall, and T. M. Shuttleworth, Esq., were exceedingly well grown, especially a beautiful Gymnogramma peruviana argyrophylla from the former, and some Gleichenias from the latter. Among the Orchids was a specimen, from Mr. Williams, of Aerides odoratum, at least 5 feet high and 4 feet through, well flowered, and reminding us of the Orchid specimens of former days. The Jackman collection of Clematis made a splendid central group, and was greatly admired; and a fine Nepenthes Rafflesiana, with large and splendidly-coloured pitchers, from Mr. Williams, was most effective. In reference to the Roses, we may note the fine effect of the stands of twelve trusses of one variety—some of the best sorts, as Marie Baumann, Madame la Baronne de Rothschild, La France, Maréchal Niel, &c., being selected for the experiment. This is a feature which proved very effective also at South Kensington, and might be extended with advantage.

NEW PLANTS.

The classes for new plants were freely contested, Mr. Williams being 1st, with a group consisting of Adiantum gracillimum, which we have several times referred to; × Sarracenia Williamsii, a well-marked hybrid, resembling S. flava major, but with a broadewing; Agave Taylori, Scolopendrium vulgare cristatum viviparum, a pretty South African Anthericum, with white-edged leaves an inch wide; and a ragged-looking Gymnogramma, supposed to be a hybrid of G. lanata. The second group, from Mr. Cypher, consisted of Adiantum peruvianum, Aralia Veitchii, Anthurium cristatum, Dracæna splendens, Dipladenia insignis, and × Ixora Cypheri, the latter bearing pale salmony-orange flowers. Other exhibits came from Messrs. Felton & Sons, Mr. F. Perkins, and Mr. W. Turner. In the next class for six new and rare plants, sent out in 1872-74, Mr. Williams was again 1st, with Cyathea Burkei, a nice specimen; Gymnogramma decomposita (figured in 1874, vol. 1, p. 607), Dracæna amabilis, and D. imperialis, two of the newest sorts, with creamy and rose-coloured variegation; Anthurium crystallinum, and Kentia Canterburyana. Mr. W. E. Dixon came in 2d, and showed a large plant of Dieffenbachia Bausei, Phyllotænium Lindeni, Croton Weismanni, Anthurium crystallinum, Aralia Veitchii, and Pteris serrulata cristata Dixoni, the last an intermediate crested form, taller than cristata.

A considerable number of novelties received First-class Certificates. Amongst these were the following:—From Messrs. Veitch & Sons, of Chelsea: × Sarracenia Stevensii, a pretty new hybrid side-saddle flower; Ficus Parcellii, with showily-blotched leaves; Croton ovalifolium, with oblong blunt-ended leaves, prettily veined with gold; Dracæna Hendersoni, and D. hybrida, the former streaked with yellow and rose, and the latter strongly coloured with similar tints; Tillandsia mosaica, the leaves of which are transversely marked with dark green; Adiantum Zahnii, with pinnate fronds, and remarkably large pinnæ; A. Veitchii, a very neat and elegant bipinnate form, and A. amabile, one of the most elegant of the feathery species; Abutilon Sellowianum marmoratum, with large cordate leaves, handsomely blotched; Begonia Vesuvius, with large vermilion flowers; Gloxinia Marquis of Lorne, a variety with large drooping flowers, lilac, with a clear white bar on the lower lip, around which the ground colour is deepened into purple; Gloxinia Miss Hannah de Rothschild, also a finely-shaped drooping variety of large size, French white, with a broad maroon-purple bar on the lower part. Mr. Standish had a similar award for the golden Taxus fastigiata aurea; Mr. B. S. Williams, for Vanda limbata; Mr. J. E. Mapplebeck, for two new Athyriums—A. Filix-fœmina pulchella-plumosa, a handsome variety with plumosa-like cutting, and dilated apices to the pinnæ; and A. F.-f. Quilterianum, a narrow laminate form, with a very much branched apex; Mr. T. Laxton, for double Pelargonium Prince of Orange, a distinctly-coloured sort, with pale orange-scarlet flowers, similar to those of Jewel in form and character; Mr. H. W. Williamson, for Houlletia chrysantha, with prettily spotted flowers; Mr. J. Croucher, for Echeveria Peacockii, Mammillaria Roezliana, Agave Richardsii, and Agave Gilbeyi, the latter a close-growing plant, with a pale green stripe on each leaf; M. Pfersdorf, for Opuntia monacantha variegata, the broad flattened divisions of the stem pallid, with dark green markings; Mr. B. S. Williams, for × Sarracenia Williamsii and Adiantum gracillimum, both previously noticed; and Mr. C. Turner, for Pelargonium Crown Prince, a dark-tipped variety of remarkably vigorous stocky habit, and Constance, a soft salmony pink.

STOVE AND GREENHOUSE PLANTS.

These were shown much better than could be expected at this season in ordinary years, and proved of the usual attractive character. The competition for the Challenge Cup, for sixteen flowering plants, took place in a large handsome oval tent—a grand collection shown by Messrs. E. Cole & Sons, Withington, Manchester, and which well won the cup, forming a striking feature opposite the entrance. This collection consisted of Messrs. Cole & Sons' wonderful Erica Cavendishiana as a centre-piece in the back row, flanked on either side by large and well-flowered specimens of Azaleas Brilliant and Chelsoni, a well-flowered, large, and showy plant of Allamanda nobilis, and a first-rate Ixora coccinea; and in front were large specimens of Erica Candolleana, Phœnocoma prolifera Barnesii, a noble plant in size, and nicely flowered; Statice imbricata, Erica Parmentieriana rosea, Allamanda grandiflora, Dipladenia amabilis, very good, and a very large and full-flowered Aphelexis humilis rosea, the only poor plant in the lot being a small Dracophyllum gracile. Mr. James Cypher came in 2d with smaller but highly creditable examples; and a neat group from Mr. J. E. March, gr. to J. O. Bacchus, Esq., Norwood House, Leamington, came in 3d. The finest specimen greenhouse plant was a nicely flowered example, from 3 to 4 feet through, of Phænocoma prolifera, shown by Mr. B. S. Williams. The rest in this class were only moderate; but for the best specimen stove plant in bloom there was an excellent competition—equal 1st prizes being awarded to Messrs. E. Cole & Son, for a superbly flowered Dipladenia amabilis; and to Mr. J. Webb, gr. to J. Gulston, Esq., Stoke, Coventry, for a remarkably fine specimen of Stephanotis floribunda, perfect in foliage and flowers. Mr. B. S. Williams was 2d with a very good example of Anthurium Scherzerianum. A large and full-flowered Erica venosa, shown by Messrs. E. Cole & Sons, and a similar sized specimen of E. obbata, from Mr. B. S. Williams, were the best in the class for the single specimen greenhouse Heaths. In the amateurs' class, for ten stove and greenhouse plants in bloom, Mr. Chapman, gr. to J. Spode, Esq., was well 1st, showing capital examples of Clerodendron Balfourianum, Erica Parmentieriana rosea, E. Candolleana, Statice profusa, Ixora javanica, Phœnocoma prolifera, &c. The 2d prize went to Mr. F. Perkins, Leamington, who had in his collection a well-flowered large plant of Cassia corymbosa. Messrs. Cole & Son also took a 1st prize for a similar number.

FINE-FOLIAGED PLANTS.

Amongst nurserymen, in the class for six fine-foliaged plants, the best came from Mr. W. Heath, College Nursery, Cheltenham, consisting of large fresh and clean specimens of Croton interruptum, Cordyline indivisa, Pandanus Veitchii, Latania borbonica, &c. In the corresponding class for amateurs, the 1st prize went to Mr. J. E. March, who had an effective group, his best specimen being of Croton variegatum and C. angustifolium, both very fine in colour. An immense Cycas revoluta, shown by Mr. W. Heath, was the best single specimen, and next to it came a fine Pandanus Veitchii, contributed by Mr. Croucher, gr. to J. T. Peacock, Esq., Sudbury House, Hammersmith. If Pitcher-plants are admissible in a broad classification of fine-foliaged plants, we may state here for convenience that some very fine examples were contributed. First in the class for three was T. M. Shuttleworth, Esq., Howick House, Preston, with in all respects high-class specimens of Nepenthes Rafflesiana, N. Hookeri and a species of Sarracenia, followed closely by Mr. B. S. Williams with similar examples of Sarracenia flava, S. purpurea, and Nepenthes phyllamphora. The best single specimen was a noble Nepenthes Rafflesiana, with about twenty pitchers, exhibited by Mr. B. S. Williams; a very fine Sarracenia Drummondi alba, from T. M. Shuttleworth, Esq., coming 2d. Mr. B. S. Williams put up a grand lot of Palms, and took the 1st prize in the open class for six, consisting of Chamærops Fortunei, Cocos Weddelliana, Livistonia borbonica, Phœnicophorium seychellarum,

Acanthophœnix crinita, and Areca lutescens. Mr. Croucher was 2d, with his handsome young specimens. In the class for six Palms in 8-inch pots, nice examples were staged by Mr. Vertegans, Chad Valley Nursery, Edgbaston; and Mr. W. E. Dixon, Beverley. Messrs. Cole & Sons put up a beautiful specimen of Croton angustifolium, in the class for a single specimen, and took the first award, followed by Mr. W. Heath with a good C. pictum, and by Mr. Chapman, gr. to J. Spode Esq., Hawkesyard Park, with a nice C. variegatum; a neat C. irregulare was staged by Mr. James Cypher. In the nurserymen's class for nine fine-foliaged plants there was a good competition between Messrs. Cole & Sons and Mr. B. S. Williams, the former coming in 1st, with a very fine group, the best plant in which was probably the finest in England of Cocos Weddelliana. Other very good specimens were of Crotum pictum, Dasylirion gracile, Cycas revoluta, Eurya latifolia variegata. Mr. W. Heath was 3d. An extra prize was also awarded to Mr. W. E. Dixon, Beverley, for an excellent group, which arrived too late to be staged in time for competition. In the corresponding class for amateurs, T. M. Shuttleworth, Esq., was 1st, showing large specimens of Cycads, Ferns, Crotons, Encephalartos, and Dasylirion; whilst in another class for six, the best came from Mr. B. S. Williams.

Ferns.

These, both hardy and exotic, were shown well and in good numbers. The best eight stove and greenhouse Ferns, amongst nurserymen, came from Mr. B. S. Williams, and consisted of some of his largest plants of Thamnopteris nidus, Gleichenia flabellata, G. rupestris, Lomaria intermedia, Adiantum farleyense, Cibotium regale, &c.; 2d came Mr. James Cypher, who had amongst others Adiantum farleyense and A. trapeziforme in good condition. Amongst amateurs, in a similar class, T. M. Shuttleworth, Esq., was 1st with large specimens of well-known kinds; the 2d prize going to Mr. W. Brown, Elmdon Hall, who put up an excellent collection, including very nice medium-sized plants of Gleichenia hecistophylla, G. semivestita, Davallia Mooreana, Gymnogramma peruviana argyrophylla, very fine; Todea superba, very fine; Adiantum farleyense, and the Elmdon variety of Gymnogramma Wettenhalliana. The best Tree Fern shown by a nurseryman was one of Cyathea Burkei, from Mr. B. S. Williams. Hardy Ferns were almost a show in themselves. The best twenty, a remarkably fine group, came from J. E. Mapplebeck, Esq., Woodfield, Moseley; among the more remarkable plants were Polystichum angulare proliferum, Athyrium Filix-fœmina var. coronatum, and the variety of the same Fern—torto cristatum, Osmunda regalis var. cristata, Polystichum angulare var. cristatum Jacksoni. Mr. Edward Ingram, Cheltenham, was 2d, showing a grand mass of Trichomanes radicans, fine plants of Athyrium Filix-fœmina var. plumosa, and the varieties Elworthii and orbiculata of the same form. Messrs. Ivery & Son, Dorking, were 3d, with an excellent group. Other, but smaller collections, came from Mr. Coleman, gr. to W. Bayliss, Esq., Walsall, and Messrs. R. Wilson & Sons, Warwick. The Lycopodiums were for the most part small, and included no novelties.

Orchids.

Orchids were only represented in limited numbers, Mr. Williams showing some very large and fine specimens, and having it all his own way in the classes for ten and six respectively. His ten were a grand lot of plants, consisting of large healthy plants of Vanda suavis, V. tricolor Russelliana, Aerides odoratum majus, with about twenty fine spikes; Vanda tricolor flava, a beautiful plant with three spikes; Epidendrum vitellinum, large and well-flowered; Anguloa Clowesii, an immense plant with fourteen grand flowers; a mass of Cypripedium barbatum superbum, Cyrtochilum stellatum, with over two dozen spikes; Disa grandiflora, &c. Aerides affine superbum and Lælia purpurata, with four beautiful spikes, were contributed, amongst other fine examples, in the class for six. The best single specimen was a splendid plant of Aerides odoratum majus, 5 feet high and 3 feet through, with twenty-three spikes arranged in three tiers; this also came from Mr. Williams. The second best ten came from Mr. Mitchell, gr. to Dr. Ainsworth, Lower Broughton, Manchester. These were small plants, the best being of Cattleya Mendelii, with eleven beautifully coloured flowers; Odontoglossum Schlieperianum, Cattleya labiata pallida. Mr. Mitchell was also 1st for six (amateurs), with similar sized plants of Odontoglossum Bluntii var. Ainsworthii, a broad-flowered, well-marked variety; Miltonia Moreliana, Dendrobium McCarthiæ, Saccolabium Rheedii, &c.

Cut Roses, &c.

The show of cut Roses on Tuesday was a very good one, occupying the greater portion of a long tent. The Challenge Cup for seventy-two was won by Messrs. Paul & Son, whose flowers are only now coming in, thanks to spring frosts and a late season. Their best flowers were of Horace Vernet, Madame G. Schwartz, Madame Lacharme, Louis Van Houtte, Paul Néron, Dr. Andry, and Centifolia rosea. Mr. B. R. Cant came in 2d, with large and fine flowers of Madame Lacharme, Gloire de Vitry, Marie Rady, Francois Michelon, Marquise de Mortmart, Duke of Edinbargh, Camille Bernardin, President, &c. Mr. J. Cranston was 3d, and Mr. Turner 4th. Mr. Keynes, Mr. H. Merryweather, Southwell, and Messrs. Curtis & Co., Torquay, also competed. For forty-eight, three trusses of each, Messrs. Paul & Son were also 1st, with a grand lot of flowers, prominent amongst which were Etienne Levet, André Durand, Marie Baumann, Louis Van Houtte, Monsieur Noman, and Horace Vernet—all superb flowers. Mr. J. Cranston was 2d in this class, which also included fine collections from Mr. Cant and Mr. Keynes. Messrs. Paul & Son again came to the front in the class for twenty-four hybrid perpetuals, three trusses of each; followed by Mr. B. R. Cant, Mr. G. Prince, Oxford, and Mr. Perkins, Leamington. The best twenty-four single trusses amongst nurserymen came from Mr. H. Merryweather. The Challenge Cup, given in the amateurs' class for forty-eight single trusses, went to Mr. Thomas Staite, gr. to Rev. C. Evans, Rectory, Solihull, who had a very nice lot, including large and good blooms of Charles Lefebvre, Marie Rady, Maréchal Niel, Etienne Levet, Achille Gounod, Dupuy Jamain, &c. Mr. R. Draycott, gr. to Sir Charles Cunard, Hallerton Hall, Uppingham, was a good 2d. Amongst amateurs the best twelve came from Mr. W. Brown, gr. Elmdon Hall; and the finest twenty-four from Mr. Mayo, Corn Market Street, Oxford, a fine lot of flowers. Mr. J. Parnell, Brookfield, Rugby, came in 2d. From Mr. G. Prince, Oxford, came a splendid dozen blooms of Marie Baumann, which took the 1st prize in that class. The best twelve blooms of Alfred Colomb came from Mr. Turner, who also had the best dozen of Duke of Edinburgh. Baroness Rothschild was splendidly shown by Mr. B. R. Cant, who came in 1st. Mr. Cant had also by far the best blooms of La France, Maréchal Niel, and Devoniensis—the latter a very taking lot of flowers.

Cut flowers were well shown; but being so very similar to what one always sees, require no special comment. There was an excellent competition for bouquets and pieces for table decoration. A very pretty ball or opera bouquet, shown by Mr. Perkins, Leamington, was placed 1st in that class, and the best bridal bouquet also came from the same gentleman—Mr. C. E. Turner, St. John's Market, Liverpool, coming in 2d. Many of these were very creditable specimens of the art, running more on the side of abundant materials than of bad taste. The centre and other pieces for table decoration were of the usual description, neither better nor worse; so that it must suffice to say that the best centre-piece came from Mr. James Cypher, and decidedly the best three pieces came from Mr. C. Cooke, gr. to Mrs. Abercrombie, Cheltenham.

Florists' Flowers.

Fuchsias and Pelargoniums were the principal attractions in this department, the latter especially being a good feature. The Fuchsias were staged down the centre of the Rose tent, but amongst them were no plants with any pretensions to the rank of 1st class. Large and fancy Pelargoniums were both numerous and good for this late season; and the zonals were also very satisfactory. Mr. J. Parker, Rugby, sent the best six double zonal varieties, plants about 2 feet over, with plenty of foliage, dwarf, and well-flowered. The best nine zonals and an excellent lot of plants too, came from Mr. J. E. March, followed by Mr. Cox, Madresfield Court. Mr. Turner had the best collection of twenty show varieties, which included good well-flowered plants of such bright showy kinds as Highland Lassie, Ruth, Achievement, Blue Boy, Conquest and Sunray. In the open class for six Mr. Turner was 1st, and Mr. Quarterman 2d—the first-named having well-flowered and brightly-coloured plants of Conquest, Prince of Prussia, King Charles, Sunshine, and Blue Bell. Tricolor Pelargoniums were exceedingly well-shown by Mr. E. Ford, Baginton Hall, and Mr. J. E. March—six plants from the first-named being especially fresh and nice. Messrs. G. Jackman & Son sent ten large and magnificently flowered Clematis, and well won the 1st prize. The varieties were Lady Bovill, Thomas Moore, lanuginosa nivea, Jackmanni magnifica, Mrs. James Bateman, rubella, lanuginosa candida, Lady Caroline Nevill, Alexandra, and rubra grandiflora.

Agaves, Cacti, &c.

These were shown in the permanent house, and the Cacti, especially a large group of the small plants so familiar to visitors to Covent Garden, and sent by Mr. Pfersdorff, formed an attractive item to many. Mr. Croucher, gr. to J. T. Peacock, Esq., had the best twelve Agaves—a very handsome lot of plants, and including A. filifera nigricans, schidigera, Gilbertii, Peacockii, filifera superba, Regelii macrodonta, applanata Richardsii, perbella viridissima, and Besseriana glauca. Mr. Croucher had also the best collection of Cacti and succulent plants; Mr. Pfersdorff being 2d in both instances, and both showing fine specimens of the more curious of these extraordinary plants. Mr. Pfersdorff's large collection of miniature Cacti and succulents formed a never-ending source of attraction to the young people.

Fruit.

The display of fruit, in conjunction with the cut flowers, bouquets, and table decorations, was held in the south end of the glazed portion of the large tent of 1872, and in many respects it was a very satisfactory one, though the numbers put up were not so many as the entries made. There were four competitors for the Silver Challenge Cup and liberal added money, which was won in good style by Mr. Coleman, gr. to Earl Somers, Eastnor Castle; Mr. Bunerman, gr. to Lord Bagot, being 2d; and Mr. J. H. Goodacre, Elvaston Street, Derby, being 3d. Mr. Coleman's eight dishes consisted of grand bunches of Black Hamburgh Grapes, fine in berry and colour and well finished off; good bunches of Muscat of Alexandria Grapes, wanting only in the rich golden colour essential to perfect finish; a large Eastnor Castle Green-fleshed Melon, good Royal George Peaches, and Elruge Nectarines, excellent Figs and President Strawberries, and a nice Pine. Mr. Bunerman had a good Queen Pine, good Black Hamburgh and Foster's Seedling Grapes, Fig, Royal George Peaches, Downton Nectarines, Golden Perfection Melon, and President Strawberries—all fruit of excellent quality. Mr. Goodacre also staged a creditable collection; the other competitor was Mr. T. Allen, gr. to Lord Hatherton. There were ten competitors in the class for two Queen Pines, Mr. James Harris, gr. to Mrs. Vivian, Singleton, Swansea, taking the 1st prize with handsome, well-ripened fruits, the weights of which were not stated. Mr. T. W. Bond, gr. to G. A. Smith, Esq., Weybridge, was 2d, with specimens weighing 4 lb. 7 oz. and 4 lb. 13 oz. respectively. The 3d prize went to Mr. Sandford, gr. to the Earl of Bective, Kirby Lonsdale. A capital pair of Smooth Cayennes won for Mr. David Wilson, Castle Hill, South Molton, the 1st prize in that class. For one Pine-apple, of any other variety [exclusive of Queens and Cayennes], there were six competitors, five of whom were disqualified for showing Queens, the 1st prize being awarded to a Prince Alfred, shown by Mr. A. Bruce, gr. to James Tildesley, Esq., Edge Lane, Chorlton-cum-Hardy. For "six Pine-apples, not necessarily distinct," there was a very strong competition amongst eight exhibitors. A well-finished lot of large, even-sized Queens, shown by Mr. James Harris, came in 1st; Mr. T. W. Bond being 2d with a lot of Queens but little inferior, and averaging over 5 lb. each. Mr. D. Wilson was 3d, with specimens of good size and finish; and a 4th award was made to Mr. G. T. Miles for a collection in which the heaviest weighed 5 lb. 10 oz, and the smallest 4 lb. 4 oz.

Twelve competitors put in an appearance to compete with three bunches of Black Hamburgh Grapes; and the best came from Mr. Coleman—large and highly-finished examples, equal in all respects to those staged for the Challenge Cup. The 2d prize went to Mr. R. Fleming, gr. to R. Houghton, Esq., Sandheys, Waterloo; and the 3d to Mr. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, the former having good-sized, very compact bunches of well-coloured berries, and the latter smaller bunches with fine berries carrying a beautiful bloom. Mr. Cox, gr. to Earl Beauchamp, Madresfield Court; Mr. E. Gillman, gr. to Lady Edwards, Wooton Hall, Ashbourne; and Mr. Henderson, gr., Cole Orton Hall, Leicestershire, also sent very good examples. Excellent specimens of Venn's Seedling Black Muscat, shown by Mr. Sweeting, gr. to T. Y. Venn, Esq., Sneyd Park, Bristol, was placed 1st in the class for any other variety; Mr. Henderson being 2d with Black Mammoth. Mr. J. Foster, gr. to E. Greaves, Esq., Avonside, Warwick, sent three nice bunches of beautifully coloured Muscat of Alexandria Grapes, and took the 1st prize in that class; the 2d going to Mr. Cox, Madresfield Court, for larger bunches, but wanting in colour; and the 3d to J. Haynes, Millichope Park, Church Stretton, Salop. Mr. Cox was 1st in the next class, which was for the best three bunches of Buckland Sweetwater, and which were large in bunch and berry, and well finished. Mr. J. Douglas was 2d with first-rate but smaller examples; and Mr. Cushon, gr. to W. Wiley, Esq., Erdington, 3d. Mr. Douglas showed the Golden Champion, not large in bunch, but good in berry and well ripened, in the class for any other white variety, and came in 1st, followed by some first-rate White Frontignans from Mr. Coleman. The best collection of six varieties of Grapes was contributed by Mr. Douglas, consisting of Muscat of Alexandria, Black Hamburgh, Golden Champion, Royal Ascot, Buckland Sweetwater, and Seedling

(White) Frontignan; 2d came Mr. Henderson, and Mr. Bannerman 3d.

The judges had twenty dishes of Peaches to examine, and awarded the 1st prize to Mr. G. T. Miles, who had Bellegarde, large and finely coloured; Royal George, fine, and rich in colour, from Mr. Bannerman, coming in 2d; and Violette Hâtive, fine in size and colour, from Mr. G. Jackson, gr. to J. Tyer, Esq., Tiscall Hill, Stafford, 3d; an extra prize being awarded to Mr. Coleman, for a very good dish of Bellegarde. Of Nectarines there were thirteen exhibitors, and so close was the competition that equal 1st prizes were awarded to Mr. Bannerman and Mr. J. Haynes, who both showed Elruge, not over large, but splendidly coloured. The same variety was also staged by Mr. Coleman and Mr. Henderson, who were respectively 2d and 3d. Two dishes only of Apricots were put up, the best coming from Mr. E. Smith, Cheltenham. Mr. Bannerman had the best Figs, and Mr. Miles the best dishes of Black and White Cherries, the latter being magnificent fruit of Bigarreau Napoleon. Mr. Cox was 2d in the former class, and Mr. Douglas in the latter.

Of green-fleshed Melons there were nineteen to taste before it was found that a large and well-ripened Golden Gem, shown by Mr. Cox, was the best; a smaller fruit of the same variety, shown by Mr. Herbert Nott, gr. to J. Anderson, Esq., Ankerwycke House, Staines, being 2d; and Colston Bassett Seedling, shown by Mr. W. Gardiner, gr. to Sir E. Phillips, Bart., 3d. Read's Hybrid, a good-sized, well-netted, scarlet-fleshed Melon, won all the prizes in that class, being shown by Mr. John Read, Arley Hall, Northwich; Mr. J. Malcolm, gr., Cholmondeley Castle, Nantwich; and Mr. Coleman, who took the prizes in the order named.

VEGETABLES.

These were staged in two large tents on the left-hand side of the cricket ground, and though there was a brisk competition in every class, the amount of space allotted to them was out of proportion to the number of exhibitors who put in an appearance, resulting in an apparently thin, though really a good exhibition. The Peas were a show in themselves, being staged in unusual numbers and, for the season, in excellent condition. The competition for the Challenge Cup brought out a splendid lot of vegetables. The required number from each exhibitor was ten dishes (Cucumbers and salading excluded), and the best came from Mr. Miles, who had, for the season, a marvellous collection, consisting of White Strap-leaf Turnips, Canadian Wonder Beans, 9 inches long; good Mona's Pride Potatos, splendid Globe Artichokes, James' Scarlet Intermediate Carrots, Walcheren Cauliflowers, James' Prolific Peas, large red Tomatos, good Asparagus, and Early White Naples Onions, twelve of which weighed 17¾ lb. The 2d prize went to Mr. John Turk, Tewkesbury Road, Cheltenham, with first-rate samples, smaller than Mr. Miles', but similar as to variety, the only difference being in the substitution of Mushrooms and Vegetable Marrows for Carrots and Turnips. Mr. John Holder, Battledown Nursery, Cheltenham, was 3d. Commended: Mr. James Bain, gr. to Sir C. Rouse Boughton, Bart., Dunston Hall, Ludlow—all showing the results of high-class culture. Mr. J. Read, Arley Hall, Northwich; Mr. T. Allen, gr. to Lord Hatherton, Teddesley Park; Mr. W. Brown, gr. to Mrs. Alston, Elmdon Hall; and Mr. Chard, Clarendon Park, Salisbury, also competed. In the smaller class for eight dishes the competition was even stronger. Here Mr. Gilbert, gr. to the Marquis of Exeter, was 1st, showing Climax Potatos, Tomatos, Vegetable Marrows, Supplanter Peas (a new variety of Mr. Laxton's, not yet sent out), White Naples Onions, Globe Artichokes, Cauliflowers, and French Beans, none over large, but of first-class table quality. Mr. Oliver Arkell, gr. to A. Z. Shinner, Esq., Cheltenham, was 2d, with Vegetable Marrows, Globe Artichokes, Giant Asparagus, Tomatos, Ne Plus Ultra Peas, Cauliflowers, James' Intermediate Carrots, and Potatos—every dish being of excellent quality. Mr. E. Ford, gr. Bragenton Hall, Coventry, was 3d, with a cleanly grown nice collection. Mr. H. Holder, of Prestbury, and Mr. John Baker, Bampton, Oxon, also showed well.

There were thirteen sets of three dishes of Kidney Potatos, all of a quality above second-rate for the season. Early Purple, Red Emperor, and Early Kemp—nice cleanly-grown samples—shown by Mr. John Baker, Bampton, Oxon, were 1st; and Early Coldstream, Early Handsworth, and Climax, from Mr. Gilbert, 2d; Mr. G. Baggaley, Syerston, Newark, was 3d. In the corresponding class for round varieties Mr. J. Baker was also 1st, amongst thirteen competitors, with Rivers' Royal Ashleaf, Early Blush, and a handsome, smooth variety, name not known. Mr. H. Biddles, Park Lane, Loughborough, was 2d with Prince of Wales, Prince Arthur, and Lapstone. The best single dish of kidney Potatos was one of Prince Arthur (in the style of Prince of Wales), shown by Mr. Biddles; and the best round variety was Rector of Woodstock, a nice clean sample, from the same exhibitor. Of Peas the show was remarkably good. The best three varieties, half a peck of each, amongst sixteen lots staged, were Laxton's Supplanter, Carter's G. F. Wilson, and Laxton's Fillbasket, shown by Mr. Gilbert. The two last named varieties and the Cook's Favourite, contributed by Mr. J. Richardson, Boston, came in 2d,—equal 3d, Mr. Cox, Madresfield Court, with G. F. Wilson, Laxton's Supreme, and Omega; and Mr. J. Turk, with Hundredfold, or the Cook's Favourite, and Laxton's Fillbasket and Omega. The best half peck of any one variety out of nineteen lots exhibited consisted of G. F. Wilson, shown by Mr. Miles. In the class for one dish of twelve Onions there were twelve competitors, but the judges' awards gave so much dissatisfaction that we can only say they awarded them to Mr. E. Smith, Mr. John Turk, and Mr. O. Arkell. The best brace of Cucumbers was one of Tender and True, shown by Mr. Douglas. There were twenty-one competitors in this class, and the fruits ranged from 12 inches to 30 inches in length, and through all degrees of ripeness. The Celery was very good; Tomatos, fine; Lettuces, large, but only second-rate; Broad Beans, good; Cauliflowers, poor; and Turnips, poor. Three special prizes were offered by Thomas Laxton, Esq., for fifty pods of any four of a stipulated set of Peas raised by him, and the 1st was taken by Mr. Richardson, Boston; the 2d by Mr. Gilbert, and the 3d by Mr. Miles. Popular, Omega, Fillbasket, and Superlative, were the winning varieties.

Since writing the above, it has been ascertained that, in several cases, the strict wording of the schedule was not followed, though this was not discovered by the judges in the first instance, and consequently, several alterations in the awards were afterwards made.

THE LAWN MOWER CONTEST.

The National Lawn Mower Competition, for a series of medals, was carried out on Wednesday in the walled-in Spring Garden, and created considerable interest amongst a large portion of the visitors. The judges were Mr. Lowe, of Wolverhampton; Mr. Hassall, Birmingham; Mr. Fleming, Cliveden, and Mr. Bennett, Hatfield; and the competitors, Messrs. Crowley & Co., Manchester; Messrs. Green & Son, of Leeds and London; Messrs. Hartley & Sugden, Halifax; Messrs. Barnard, Bishop & Barnard, of Norwich; and Mr. Harris, of Birmingham. The conditions under which the trials were to be made, as given at vol i., 1874, p. 797, were read by Mr. Badger, and the contest begun on thoroughly satisfactory ground about 12 o'clock. Messrs. Green & Son competed with their new Royal Guinea machine, which has been made of various sizes larger than the one figured at vol. i., 1874, p. 147. Messrs. Crowley & Co. had Edwards' Invincible, a cog-action machine. Messrs. Hartley & Sugden had the Windsor, which has also cog-action. Mr. Harris had Green's well known Silens Messor, chain-action; and Messrs. Barnard, Bishop & Barnard the Silent Ratchet, which has also cog-action. Where it was possible three or four sizes of each machine were tried in various ways, which gave, of course, various results. A 30-inch Green's new mower, worked by two men, did not cut close enough, and tried with a pony did not make good work, ribbing the grass to a considerable extent. A 20-inch machine of the same pattern also failed to give satisfaction, but a silent chain-action tool of the old type cut close but ribbed the grass; and the same was the case with the 12 and 14-inch patterns. All these machines were set too low. Barnard & Co.'s 30-inch Silent Ratchet, tried with a pony, showed close work on level ground, but ribbed where it was the least uneven. The driving wheels in the Green's machine are much wider than usual, so that when tried to work up to and round a pedestal it could not cut to within 6 inches, whereas Barnards' machine, the noisiest of the lot, cut to within 2 and 3 inches, which the Green's could also do in the case of ordinary-sized trees and small pedestals. Barnard & Co.'s 20-inch machine, with two men, was hard to work, but cut close and fairly clean. Messrs. Hartley & Sugden's cutter, of a like size, was also hard to work. Green's chain-action machine cut very close, but not so clean and regular. Edwards' Invincible was the easiest to work, and the cleanest cutter of tis size, and made, considering its cog-action, very little noise. With the smaller machines similar results were obtained, the Invincible here, too, making the best and easiest work.

After luncheon, the grass was thoroughly wetted with the hose, and the whole of the machines were tried again. Green's new machine proved to be heavy to work, though cutting well. Green's chain cut very closely, but was set too low, and consequently ribbed the grass until this was altered. Hartley & Co.'s machine went very hard, the knives being too close to the ground. The Invincible made very good work, cutting close and regular, and throwing the grass well forward—a condition which the other machines also well performed. Green's chain-action also made very good work, having been better set, and cutting fairly easy and close. The judges afterwards had one of each style of machine taken to pieces and the special merits claimed for each explained by the respective exhibitors; and the verdict subsequently given was as follows:—The gold medal to Edwards' Invincible, exhibited by Messrs. Crowley & Co.; the silver medal to Green's silent chain-action machine, exhibited by Mr. Harris; and the bronze medal to Messrs. Hartley & Sugden.

Messrs. Green & Son also won the silver medal for a verge cutter, with a handy contrivance attached either to a machine or to a sort of iron roller. It made very fair work, but must be considerably improved before it will be able to compete with a handy man and a pair of long shears. It is to be regretted that other makers of these machines did not compete.

IMPLEMENTS.

We must defer a full report of this department of the show till next week; meantime we may say that the collection was unusually varied and interesting. Messrs. Hartley & Sugden showed lawn mowers, boilers, and other horticultural implements; Mr. Cowan's limekiln system of heating was also represented; Messrs. Felton, of Birmingham, showed garden seats and implements; Mr. Walter Peters also had an extensive display of the same kind of subjects.

The following is the list of awards given in this department of the exhibition:—

For the best collection of garden furniture (not including rusticated): Silver medal, Mr. W. Peters, Carr's Lane, 26, Birmingham.

For the best collection of rusticated garden furniture: Silver medal, Mr. H. Inman, Rose Bank, Stretford, Manchester; silver medal, Messrs. Felton & Sons, High Street, Birmingham.

For the best collection of garden furniture and vases: Silver medal, Messrs. Mapplebeck & Lowe, Bull Ring, Birmingham.

For the best display of garden wirework: Silver medal, Messrs. G. Baker & Co., Chester Street, Birmingham.

For plant protector or garden frame: Bronze medal, Mr. J. Clarke, Longlands, Stourbridge.

For sliding wall shield: Silver medal, Messrs. Cranston & Luck, Birmingham.

For exhibition tents: Silver medal, Mr. G. Griffin, Cambridge Street, Birmingham.

For dining-room fire-grate, with water bars for heating coil in tent, conservatory, or elsewhere: Silver medal, Messrs. Hassall & Singleton, Freeman Street, Birmingham.

For Polytechnic barometer: Silver medal, Messrs. J. Davis & Co., 92, Crampton Street, London.

For garden pottery ware: Silver medal, Mr. J. Matthews, Royal Pottery, Weston-super-Mare.

For cheap garden seats: Bronze medal, Mr. William Sawney, Beverley, Yorkshire.

For garden hose reel: Bronze medal, Mr. Josiah Pumphrey, Broad Street Corner, Birmingham.

For watering appliance for garden and other purposes: Bronze medal, Messrs. Ball & Purser, Carr's Lane, Birmingham.

For hot-water Valves: Bronze medal, Messrs. Jones & Rowe, Broad Street, Worcester. Highly commended: the principle of the compensating heating apparatus of the Dromore Heating Company (Limited).

Peat and sand for horticultural purposes, exhibited by Messrs. James Fraser & Co., Leighton Buzzard, Bedfordshire.

THE DINNER.

This took place on Wednesday evening, under the presidency of the Mayor, who, in proposing success to the exhibition, spoke in appropriate terms of the skill of British gardeners and the enterprise of Mr. Quilter.

The other toasts were "the Exhibitors," proposed by Mr. E. W. Badger, and responded to by Mr. Williams (Holloway), Mr. Geo. Paul (London), and Councillor Lowe. Mr. Heynes gave "the Judges," to which Mr. Shirley Hibberd, Mr. Cutbush, and Mr. Lowe replied. "The Patrons and Patronesses," coupled with the name of the Mayor, was next given, and after toasting "the Horticultural Press," and "the Ladies," the meeting separated.

The Mayor subsequently distributed the medals awarded to the exhibitors of implements.

THE ROSE SHOW.—(*By Telegraph.*)

July 9.—Owing to the intense heat experienced on Tuesday and Wednesday, the supplementary Rose show proved a welcome addition to the programme for to-day, the fresh flowers reviving the fast-fading ranks of floral beauty in the Rose tent proper. There were not so many flowers staged to-day as on Tuesday, which may be accounted for by there being no class for seventy-twos. The quality of the flowers, however, was even better, especially the blooms from Cheshunt and Colchester, the bright sunshine having added greater brilliancy to their colours and given a higher degree of finish to their well developed forms. The Cheshunt Roses are just now at their best, but they were twice beaten to-day by the flowers sent from Colchester, by Mr. B. R. Cant. The largest class was for forty-eight, three trusses of each, and here Messrs. Paul & Son stood 1st with, amongst others, splendid blooms of Paul Néron, Devoniensis, Louis van Houtte, Marie Baumann, Duchesse de Caylus, Henry Leslie—the latter a fine well-built new Rose, raised at Cheshunt, and much resembling the last-named in general character; Madame Margottin, Alfred Colomb, Niphetos, Madame Lacharme, and Monsieur Noman; large, fresh, and beautifully-coloured flowers of Madame Jacquier, Madame Caroline Koster, a fine

yellow Noisette, and Horace Vernet; Mr. John Keynes came in 3d, and Mr. Turner 4th. For twenty-four hybrid perpetuals, three trusses of each, Mr. Cant was 1st, Messrs. Paul & Son 2d, Mr. Keynes again 3d, and Mr. Turner 4th. Superior flowers were the order of the day, those of Etienne Levet, Madame Lacharme, Annie Laxton, Richard Wallace, Lælia, and Madame Noman, being especially so—the most beautiful blooms of the latter being in Mr. Cant's stand.

Mr. Cant again came to the front with thirty-six single trusses, the best of which were Maréchal Niel, Madame Noman, Monsieur Noman, Madame Vidot, Niphetos, Marguérite Dombrain, and Rubens. The 2d prize stand, which came from Mr. Cranston, of Hereford, also contained a good lot of flowers. Mr. Turner was 3d. The Tea-scented and Noisette Roses shown by amateurs were rather poor, the hybrid perpetuals being much better; the best twelve of the latter came from Mr. Brown, gr., Elmdon Hall—a very nice lot of the better-known sorts. These were followed by a neat fresh collection from Mr. J. Wightman, of Nottingham. The competition in twenty-four single trusses (amateurs) was very strong. The 1st prize was taken by Mr. T. Staite, gr. to the Rev. C. Evans, Solihull, who also stood well in the previous series. Next came Mr. G. H. Fewkes, Tamworth Road, Tyburn, and, 3d, Mr. Evans, gr. to C. N. Newdegate, Esq., M.P.; equal 4th prizes being awarded to Mr. J. Mark and Mr. J. Sheldon.

As on Tuesday, prizes were offered for twelve blooms of stated varieties, and Mr. Cant stood 1st with Alfred Colomb, Duke of Edinburgh, Marie Baumann, Maréchal Niel, and Devoniensis — all flowers of superior merit. Mr. Cant took the 2d prize — the only one awarded — for Baronne de Rothschild, and the 1st for twelve Tea-scented and Noisette varieties, having Devoniensis, Madame Willermoz, Triomphe de Rennes, and Souvenir d'Elise, very fine.

The bouquet competition was quite as strong as on Tuesday, and the cardinal error of using too much material was still apparent, though in a less degree. Mr. Perkins of Leamington was again 1st, with an opera bouquet, and the best bridal bouquet came from Messrs. Pope & Son, King's Norton. Mr. Perkins also sent an excellent selection of eighteen bunches of hardy border flowers, and secured the 1st prize in that class.

Some very fine Carnations and Piccotees were contributed by Mr. Turner, and a meritorious collection came from Mr. Hooper, of Bath.

The weather was brilliant, but excessively hot. More than 30,000 persons have visited the exhibition up to the present time (Thursday night).

Royal Botanic Society: *July* 8.—Favoured by fine weather the evening *fête* of this Society came off with great *éclat* on Wednesday evening. The principal avenue and many of the minor paths were festooned with lamps, reminding the visitor of the Champs Elysées at Paris. The large tent was lit by the lime light, and the conservatory by the electric light. Altogether the display was of the most brilliant and satisfactory character. The floral furnishing and decorations were provided by Mr. Wills, while Mr. Wm. Paul supplied a charming exhibition of cut Roses, disposed artistically, and of which we shall probably give a plan on another occasion.

Floral Table Decorations, &c.—The warmest day of the season up to the present date was the least favourable day that could have been selected for a display of cut flowers. This, of course, could not be helped; nevertheless, it told very heavily on the flowers on this occasion, because, instead of being arranged early in the morning, when the air is comparatively cool, they were arranged during the hottest part of the day, and were submitted to the criticism of the judges at 4 P.M. instead of at 10 A.M. Owing to the large extent of the exhibition, and the placing of the exhibits under two tents, which were upon opposite sides of the gardens, and owing to several of the classes being some under one roof and some under another, there was naturally considerable delay in the awarding of prizes; and when, about 10 o'clock, the prize-cards were at length placed against the names of the fortunate exhibitors, the crowd of visitors was so great that it was impossible to prepare for our readers the detailed remarks with which we have been accustomed to furnish them, and we must content ourselves with a few general observations.

The display undoubtedly was an exceedingly fine one, and in spite of the other attractions of the evening was worth going a long way to see. There was less sameness about the table decorations than is usually seen, although there was nothing strikingly novel in anything that was considered worthy of a prize. It is not an easy matter to arrange flowers well in the tops of tall trumpet vases, and in this branch of the art we must unhesitatingly place Mr. Buster in advance of every other exhibitor, although on this point Mr. Hudson ran a close 2d to him more than once. In the arrangements of flowers in dishes at the foot of tall vases the happiest effects were produced by Miss L. Blair and Mr. Hudson, who succeeded in bringing out bold and distinct groupings with a small supply of materials. The arrangements of Mrs. Seale ran into the opposite extreme, for the pretty and pleasing effects which she produced were the result of a combination of a great variety of light and many-coloured flowers with a sparsity of foliage. Amongst her flowers we noticed pieces of Gillenia trifoliata, a hardy perennial Rosaceous plant, well worthy of more general cultivation. There is no doubt that a well-arranged arch is a very suitable decoration for a side-board, and it was a good idea to offer prizes for this class of ornament, but an arch is not at all an easy thing to make out of cut foliage and flowers, and as probably many of the competitors never tried their hands at it before, it was not surprising that they did not succeed so well as they might have done. Those which took the 1st prize in each class were dressed with variegated Cobœa upon iron wires, with flowers at the bases of the arch and in small hanging baskets. There are, however, many climbing plants which would have produced a much lighter effect, and which would keep longer without flagging than Cobœa, such as Myrsiphyllum, Lygodium, Ampelopsis trifoliata, and several others that we could name.

The plants used on the buffets, supper and dinner tables were the most elegant we have ever seen exhibited; amongst these special notice must be made of a pair of Cupanias, with Mimosa-like foliage of apple-green colour, used by Mr. Chard, of Clarendon Park, Salisbury; and the Palms used by Mr. Hudson, gr. to Im Thurm, Esq., Champion Hill, which consisted of Cocos Weddelliana, Euterpe edulis, Areca lutescens, and Chamædorea graminifolia, all beautiful specimens. There was excellent competition for an epergne, or centre table decoration, but, owing to the crowded way in which they had been placed one behind another, and the faded condition of the flowers generally, it was very difficult to imagine which had looked best when they were all freshly arranged.

An arrangement of a very tall trumpet vase with Water Lilies and their leaves at the foot of it, and a few light and pendent sprays of small Orchids at the top, with some graceful climbers entwined round the stem, was probably the most uncommon of all the examples shown of this class of decoration. These very tall slender vases seem to be now coming into fashion, and with them the use of finer and more delicate flowers and grasses than were formerly employed, and it is doubtless a move in the right direction. The manner in which several of these were dressed by Mr. Hudson and Mr. Buster cannot be too highly praised.

The hand bouquets were not well arranged, being generally too crowded and too smooth on the surface; the best of them all was the ball-room bouquet with which Messrs. J. Bromwich & Co. took the 1st prize, and which consisted of white flowers from amongst which little pieces of scarlet Bouvardia and Maidenhair stood up and broke the surface very prettily; but even here the flowers were too crowded. The hanging baskets, both those with plants and those with cut flowers, were very creditable; they were hung in the large exhibition tent, and we fear were passed over (or, rather, passed under) by most of the visitors without being seen at all, since Mr. W. Paul's grand display of bedding-out with Rose-blooms on the ground attracted all eyes here. The long distances which intervened between these baskets, and indeed between the exhibits in the classes generally, made it almost impossible on this occasion to indulge in the amusement of criticising the judgment of the judges.

Mr. Cole, gr. at Ealing Park; Messrs. Barr & Sugden, and Messrs. Dick Radclyffe & Co., obtained awards for rustic baskets furnished, but the 1st prize was not awarded in this class. The same exhibitors contended in the two classes for hanging baskets with Mr. Wheeler, who carried off the 1st prize in one class, while Mr. W. Cole had equal success in the other. There were many other competitions, which we must leave over for want of space.

West Kent Horticultural Society: *July* 4.—The fourth annual show was held at Chislehurst, in the park of the ex-Empress of the French, and fully maintained the reputation of previous years, for although contributions were sent by Messrs. J. Veitch & Sons, Rollisson & Sons, J. Carter & Co., Downie, Laird & Laing, Morse of Epsom, and Lee of Croydon, the bulk of the exhibition was furnished by private growers, resident in the neighbourhood, and proved that horticulture is not standing still on that side of London. The exhibition was held in three tents, of 300, 200, and 100 feet in length.

The least satisfactory part of the show was the cut Roses, but for their poor condition this year the gardeners are not responsible. The 1st prizes for forty-eight and for twenty-four fell to Paul & Son, Mr. Cant, of Colchester, taking 2d in both classes; but in the boxes of twelve blooms of one variety of Rose these exhibitors changed places.

In twelve stove and greenhouse plants, Mr. J. Morse, Epsom, was 1st; and Mr. D. Bain, gr. to J. Scott, Esq., Bickley, was 2d. In the former group were good specimens of Clerodendron Balfourianum, Bougainvillea glabra, and Dipladenia splendens; in the latter, of Allamanda cathartica and Dracophyllum gracile.

The display of fine-foliage plants was very creditable and much admired. Mr. Trewell, gr. to Mrs. Sargood, was 1st for nine; and Mr. Crane, gr. to J. Green, Esq., was 1st for six, amongst which were well coloured specimens of Caladium Belleymei and Crotons angustifolium, Hookeri, and undulatum. In the other collections the most conspicuous plants, besides Crotons, were Latania borbonica, Areca lutescens, Geonoma pumila, Cycas revoluta, and Theophrasta imperialis, all fine.

Orchids were not numerously represented, nevertheless some fine specimens were exhibited, particularly a plant of Dendrobium formosum, with seventeen spikes of four to seven flowers on each; and a plant of Lælia purpurata, with two spikes of three blooms and two of five blooms on each, both shown by Mr. King, gr. to J. Batten, Esq.

Amongst plants rarely seen at flower shows may be mentioned a nice specimen of Beaufortia purpurea, a bushy Myrtaceous shrub, with tufts (or bottle-brushes) of crimson flowers; and two plants of the curious Aroid, Amorphophallus Rivieri—the former shown by Mr. Ambler, gr. to J. Ritchie, Esq., and the latter by Mr. Flowers, gr. to S. Mahony, Esq.

Fuchsias, as usual at this show, were very good. There were also some fine displays of Gloxinias, Sweet Williams, and Zonal Pelargoniums, and a large boxful of bunches of the old striped crimson Sweet Pea (to which a new name had been appended) attracted considerable attention.

The 1st prize for specimen Ferns was awarded to Mr. Gammon, gr. to C. Boosey, Esq., for a large Gymnogramma named Bickleyana; he also bore off the 1st prize for six exotic Ferns—the 1st prize for hardy kinds being awarded to J. Baker, gr. to T. R. Watts, Esq., Chislehurst.

The best fancy Pelargoniums were shown by J. Neighbour, gr. to Geo. Wythes, Esq., Bickley Park, who also carried off the 1st prize for the best six zonals in flower, showing amongst the latter good plants of Vesuvius, Mrs. W. Paul, Jean Sisley, and Princess Christian. Tricolors were shown in quantities, but none of them were well coloured. In double flowering Pelargoniums the 1st prize was awarded to H. Cole, gr. to F. A. Mitchell, Esq., for nice specimens of Madame and Victor Lemoine, Gloire de Nancy, and three others.

Fruit and vegetables were largely exhibited and creditably grown, though generally not very remarkable for great size. For collections of fruit, six kinds, S. Moore, gr. to W. C. Pickersgill, Esq., was 1st, with a good Queen Pine, black and white Grapes, Peaches and Nectarines, and Melons; J. Baynam, gr. to Mr. Gladstone, Bexley, being 2d. The prize for three bunches of Black Hamburghs was taken by J. Robinson, gr. to W. W. J. Strode, Esq., Chislehurst; for Muscats by G. Hazel, gr. to B. Booth, Esq. The best Peaches and Strawberries were exhibited by J. Neighbour; collections of ditto by W. Clark, Esq.; and three dishes of ditto by Rev. A. Rawson, of Bromley Common. Mr. T. R. Watts showed a beautiful vase of dried grasses, which were prettily arranged.

The arrangements of cut flowers generally were scarcely equal to those seen at previous shows, except in bouquets for the hand (in which improvements were apparent in size, grouping of colours, and making up): the 1st prize fell to R. Biggs, Esq., of Lewisham, for a bouquet of mixed colours; and an extra prize was awarded to Mr. Noble, gr. to Mrs. Betts, for a pleasing mixture of Stephanotis and white Rose buds with Forget-me-not, which, however, would have taxed the grasping powers of any lady who had not been blessed with a very large hand. The vases of cut flowers were much too crowded, and the colours were not well arranged; in the two winning vases there were flowers enough to have filled five or six such vases, if a due proportion of foliage had been provided. Miss Mahony was 1st, and Miss A. M. Lovibond was 2d, for the best arrangement of three buttonhole bouquets. In table decorations the 1st prize went to Miss Lovibond, and the 2d to Mrs. T. R. Watts. The following was the arrangement on the 1st prize table:—The centre was a tall trumpet vase, with two dishes, one above the other. Cissus discolor twined up the stem to the top, which was nicely arranged with grasses and a double Fuchsia with red sepals and white petals; on the upper of the two dishes were scarlet Pelargonium and white Begonia, and in the lower dish three large white Cactus blooms with scarlet Pelargoniums, the whole judiciously intermixed with Maidenhair. The end vases were also trumpet-shaped, in a dish of scarlet and white Pelargoniums and Maidenhair, and at the top were Fuchsias, with long white tubes and sepals and

pink corolla, mixed with grasses—that beautiful species, Agrostis nebulosa, being very freely used. Four small dishes of fruit, Strawberries, Cherries, black and white Grapes, were placed in a line down the middle of the table, and the whole was enclosed in a border of glass troughs containing Selaginella denticulata.

The Empress was present, and accepted a bouquet provided by Mr. Harry Veitch. The Prince Imperial subsequently went through the tents with some of the committee, whom he requested before leaving to accept and divide among the most horticulturally-deserving cottagers the sum of a hundred francs, as a slight mark of his appreciation of their garden products.

Linnean Society: *Anniversary Meeting, May* 25.—G. Busk, Esq., Vice-President, in the chair. After the usual preliminary business the Treasurer read the financial statement, which was of a satisfactory character. The Secretary announced the death of twelve Fellows of the Society and stated that twenty-seven had been elected during the past year.

The Chairman announced, on the report of the scrutineers appointed for the purpose, that the following gentlemen were elected officers of the Society for the coming year, viz.:—President, G. J. Allman, M.D.; Treasurer, Daniel Hanbury, Esq.; Secretaries, Frederick Currey, Esq., and St. George J. Mivart, Esq; that Robert Braithwaite, M.D., J. D. Hooker, C.B., M.D., J. G. Jeffreys, LL.D., Daniel Oliver, Esq., and W. W. Saunders, Esq., were removed from the Council, and the following five gentlemen elected in their place, viz.:—Major-General Strachey, W. T. T. Dyer, Esq., J. E. Harting, Esq., W. P. Hiern, Esq., J. J. Weir, Esq.

It was moved by Mr. Busk, seconded by Mr. Carruthers, and carried unanimously:—"That the secretaries be requested to convey to Mr. Bentham the cordial thanks of the Society for his invaluable services throughout the thirteen years during which he has occupied the President's chair; to express to him the regret with which the Fellows contemplate the loss of his services, and to assure him that the zealous interest which he has taken in the welfare of the Society and the great efforts which he has made, with so much liberality and success, to increase its prosperity and usefulness, will always be held in grateful remembrance."

It was moved by Mr. Busk and unanimously resolved:—"That the thanks of the Society be also given to Mr. Stainton on his retirement from the office of Secretary, with an expression of the Society's deep regret on losing his valuable services in that capacity."

June 4.—G. J. Allman, M.D., President, in the chair. The President exhibited a number of living specimens of Firefly (Luciola italica), recently taken by himself in the neighbourhood of Turin, calling attention to the remarkable synchronous emission of flashes of light by numerous individuals, and pointing out that the phosphorescence is a phenomenon not of darkness merely, but of twilight or night.

Dr. W. G. Farlow exhibited and described microscopical preparations made in the botanical laboratory of the University of Strasburg, illustrating a remarkable asexual development from the prothallus of Pteris serrulata. In the centre of the cushion, or thickest part of the prothallus, were a number of scalariform ducts, the prothallus bearing a number of antheridia, but no archegonia. From these ducts a leaf is developed directly, after which a root is also developed, and last of all a stem-bud. A comparison was drawn between this growth, which was observed in this species only, and the buds indirectly produced from the protonema of a Moss. Normally the prothallus of a Fern is entirely destitute of vascular tissue of any kind.

Professor Thiselton Dyer described the structure of the flowers of Pringlea and Lyallia, which had recently been sent to this country for the first time by Mr. Moseley, and which had been analysed by Professor Oliver and subsequently by himself. Pringlea possesses no petals whatever. The stamens are normal, with flattened filaments, gradually narrowed upwards. Glandulæ are altogether absent. The stigma is flattened and hairy. Lyallia has the flowers solitary in the axils of the overlapping leaves. The pedicel is furnished with two subopposite lateral bracts. The perianth consists of four free membranous leaflets arranged in two decussating pairs. The stamens are variable, but commonly there is one anterior and two posterior, with minute gland-like swellings of the torus between their insertion. The bifurcation of the stigma is apparently oblique to the median line of the flower. The ovary is one-celled, with about three erect basal ovules. First placed in Portulaceæ, and subsequently amongst the Polycarpeæ in Caryophyllaceæ, its final place would probably be found to be in Alsineæ near Colobanthus.

Dr. Hooker then stated that whereas in a former communication he had pointed out that two of the peculiar plants of Tristan d'Acunha reappeared in nearly the same latitude in Amsterdam Island, he had now to call attention to the no less remarkable latitudinal extension, more to the south, of that very remarkable plant, Pringlea. Mr. Moseley had had the good fortune to get this on Marion Island more to the west, and on Heard Island more to the east of any known station for it. They had specimens in the Kew Herbarium from the Crozets. He thought that these facts were very important additions to the geographical botany of the great southern oceanic region. He could not agree with Mr. Bennett's suggestion that the Tristan d'Acunha plant had been introduced by human agency into Amsterdam Island. Several peculiarities in the structure of Pringlea, the absence of petals and of the usual glands between the bases of the stamens, the exserted anthers, and the papillæ of the stigma extended into a tuft of hairs, appear to point to this plant (a native of a country where there are no winged insects) being a wind-fertilised member of a class of plants that are ordinarily fertilised by insects.

The following papers were then read:—

1. "Contributions to the Botany of the 'Challenger' Expedition," presented by Dr. J. D. Hooker, C.B., Pres. R.S.

No. XII*a*. "'Challenger' Lichens" (Cape-Verdes). By Dr. J. Sturton.

No. XVII*a*. "Letter from Mr. H. N. Moseley to Dr. Hooker, dated Cape Otway, Australia, March 16, 1874. On the Botany of Kerguelen's Land, Marion, and Heard Islands."

No. XVIII. "List of hitherto unrecorded Species from Kerguelen's Land, Marion, and Heard Islands, with a Note on Lyallia kerguelensis, Hook. f." By Professor Oliver, F.R.S.

"Synopsis of the Mosses of the Island of St. Paul." By W. Mitten, A.L.S. (Appendix to Dr. Hooker's paper "On St. Paul's Island Plants.")

2. "On the Restiaceæ of Thunberg's Herbarium." M. T. Masters, M.D., F.R.S.

3. "On Napoleona, Omphalocarpum, and Asteranthos." By J. Miers, Esq., V.P.L.S.

All the specimens of Napoleona are reduced to two species by the authors of the *Genera Plantarum* and to one only by Professor Lawson; but in the present memoir many differences are pointed out, in the habit of the plants, in the form and character of the leaves, the colour and size of the flowers, the number of parts in their whorls, the thickness of the pericarp in the fruits, the number of cells, the shape of the seeds, the presence of pulp (said to exist) in many, and its total absence in others—which constant differences point to the existence of seven good species, here described in detail.

Upon the evidence thus brought together concerning Napoleona, the author remarks that there is nothing in its structure to show the slightest relation to Myrtaceæ, that it is equally irreconcilable with the Barringtonieæ and with Lecythideæ; and in consequence of these negative results we must search elsewhere for its true affinity. This led the author to examine Omphalocarpum, a genus from the same region as Napoleona, and whose flowers and fruit, of similar form, grow upon the trunks of the trees. This genus has been generally regarded as belonging to Sapotaceæ, but the authors of the *Genera Plantarum* place it in Ternströmiaceæ. A full analysis of its flowers, and also of its fruit and seeds, is here shown in detailed drawings, which seem to prove beyond question that the genus belongs to Sapotaceæ. On comparing this structure with that of Napoleona, many unexpected points of analogy present themselves. Napoleona cannot, however, belong to Sapotaceæ, but it offers many points of resemblance, and as it cannot find a place in any known natural order, it must remain the monotype of a distinct family, to be placed in juxtaposition with Sapotaceæ.

In regard to Asteranthos, the author shows by analytical figures that it bears no resemblance in any of its features to Napoleona, except in its orbicular corolla, which is differently constructed; the calyx is quite dissimilar in form, the flowers show no trace of a corona, there is no analogy in the form, structure, or positions of the stamens; the ovary is superior, not inferior, it has a long slender style, and an extremely different stigma; its fruit is unknown. A strong resemblance exists in the form of its calyx to that represented by Wight in an Indian species of Rhododendron. There seems nothing, therefore, to separate Asteranthos from other genera of Rhododendreæ, except its more rotate corolla.

June 18.—G. J. Allman, M.D., President, in the chair. Mr. D. Hanbury, Treas. L.S., exhibited branches of Olive grown in the open air at Clapham, some bearing flowers, others nearly ripe fruit; also a specimen of Rheum officinale, Baill., now grown in this country for the first time, the source of the true medicinal Turkey Rhubarb, and pointed out the characters in which it differs from other species of the genus.

Professor Thiselton Dyer exhibited a young Oak plant with three cotyledons, which had been sent to him by Mr. Cross, of Chester; also a pitcher-like development of a leaf of the common Cabbage, from Harting, Sussex, sent by Mr. H. C. Watson to the Kew Museum.

Mr. A. W. Bennett exhibited drawings of the style, stigma, and pollen grain of Pringlea antiscorbutica, Hook. f., describing the remarkable manner in which the pollen of Pringlea differs from that of other nearly allied Crucifers, being much smaller and perfectly spherical, instead of elliptical, with three furrows. This he considered a striking confirmation of Dr. Hooker's suggestion that we have here a wind-fertilised species of a family ordinarily fertilised by insects, an hypothesis which is again confirmed by the total absence of hairs on the style of Pringlea.

An extract was read of a letter from Harry Bolus, Esq., F.L.S., to Dr. Hooker, dated Graaf Reinet, April 4, 1874, in which he comments adversely on some of the reasonings contained in Grisebach's *Vegetation der Erde* in favour of the theory of "independent centres of creation." Grisebach, relying chiefly on an observation of Burchell's, makes the Orange River the boundary between the Cape and Kalahari provinces, a boundary which Mr. Bolus shows to be untenable, at least in certain portions. Grisebach unites the Karroo flora with that of the Cape province, while Mr. Bolus doubts whether it does not differ more from this than from the Kalahari. The Roggeveld, and indeed the whole Karroo, by its predominence of shrubby Composites, seems to incline more to the desert type of plants than to the richer Cape flora.

The following papers were then read, viz.:—

1. "On the Resemblances between the Bones of Typical Living Reptiles and the Bones of other Animals." By Harry G. Seeley, Esq., F.L.S.

2. "On the Auxemmeæ, a new Tribe of Cordiaceæ." By J. Miers, Esq., V.P.L.S.

3. "A Revision of the Suborder Mimoseæ." By G. Bentham, Esq., LL.D., V.P.L.S.

4. "On some Fungi collected by Dr. S. Kurz in Yornah, Pegu." By F. Currey, Esq., Sec. L.S.

5. "Notes on the Letters from Danish and Norwegian Naturalists contained in the Linnean Correspondence." By Professor J. C. Schiödte, of Copenhagen.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JULY 8, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall
July	In.	In.	°	°	°	°	°	°			In.
2	29.70	−0.12	86.7	54.3	32.4	69.3	+ 8.2	62.1	78	S.W.	0.00
3	29.86	+0.04	75.9	57.1	18.8	63.4	+ 2.1	53.6	71	WSW	0.00
4	29.91	+0.10	73.8	54.5	19.3	60.4	− 1.1	51.7	73	WSW	0.03
5	30.05	+0.24	74.9	50.7	24.2	61.8	+ 0.1	50.4	66	W	0.00
6	30.09	+0.28	75.1	47.5	27.6	60.9	− 0.9	49.7	67	NE: E.	0.00
7	29.95	+0.14	76.6	48.0	28.6	61.1	− 0.8	49.0	65	E.: S.E.	0.00
8	29.93	+0.11	86.0	49.0	37.0	68.1	+ 6.4	53.0	59	E.S.E. S.W.	0.00

July 2.—A fine day; light clouds generally prevailed.
— 3.—A fine day; partially cloudy till evening, then cloudless
— 4.—Variable; occasional showers of rain.
— 5.—Partially cloudy. A fine day.
— 6.—A fine day; light clouds were generally prevalent.
— 7.—Fine and partially cloudy till evening, then cloudless.
— 8.—A very fine day; small amounts of light cloud were present during the day. Cloudless at night. The temperature of the air was 74° at 9 A.M., was 85° before 1 P.M., decreased to 83° by 3 P.M., and was for a short time at 86° between 3 and 4 P.M.; it decreased to 67° by 9 P.M., and the lowest temperature during the following night was 55°. The day was hot and close.

—— In the vicinity of London the reading of the barometer at the level of the sea increased from 29.66 inches at the beginning of the week to 29.97 inches by mid-day on June 29, decreased to 29.90 by the evening of the same day, increased to 30.05 by noon on July 1, decreased to 29.87 inches by the morning of the 2d, remained at this reading till the afternoon, when an increase set in, which continued till the end of the week, the value then being 30.14 inches. The mean reading for the week was 29 97 inches, being 0.12 inch higher than the preceding week.

The highest temperatures of the air, at 4 feet above the ground, ranged from 86¾° on July 2, to 63¾° on June 28, with a mean for the week of 74½°. The lowest temperatures at night were all between 50° and 60°, the extreme readings being 57° on June 30 and July 3, and 51° on June 29. The mean daily range of temperature was 20°. The mean daily temperatures of the air, with departures from their respective averages, were as follows:—June 28, 56°.1, −5°.4; 29th, 58°.8, −2°.6; 30th, 65°.3, +4°.2; July 1, 59°.1, −1°.8; 2d, 69°.3, +8°.2; 3d, 63°.4, +2°.1; 4th, 60°.4, −1°.1.

On June 28 a thermometer, with blackened bulb in vacuo, placed on grass in the full rays of the sun, did not read higher than 81°, whilst on June 29 and July 2 the maximum readings of this instrument were 145° and 151° respectively. The lowest readings at night of a thermometer on grass, with its bulb fully exposed to the sky, were 43¼° on June 29, 46¼° on July 1, and 46° on July 2.

The average direction of the wind was W.S.W.; its strength was gentle, except on July 3 and 4, on which days brisk breezes prevailed, and the maximum pressures on the square foot were 6.6 lb. and 5.1 lb. respectively.

The weather was generally cloudy and showery, but at times bright and fine. Rain fell on five days, and the amount measured was two-tenths of an inch.

In England the extreme high day temperatures ranged between 86¾° at Blackheath, and 75° at Newcastle-on-Tyne, the general average over the country being 80¾°. The extreme low night temperatures varied from 52¼° at Liverpool to 43° at Newcastle-on-Tyne, with a general average of 47¾°. The mean range of temperature in the week was 33°. The mean high day temperatures ranged from 74½° at Blackheath to 67¼° at Newcastle-on-Tyne, with an average value of 71°. The mean low night temperatures varied from 54¼° at Blackheath to 49¼° at Eccles and Newcastle-on-Tyne, the general average being 52¼°. The mean daily range of temperature in the week was 18½°, varying from 22½° at Hull to 13¼° at Liverpool. The mean temperature for the week was 60°, the highest being at Blackheath, 61¾°, and the lowest at Newcastle-on-Tyne, 56½°. The amount of rain measured at the several stations varied from seven-tenths of an inch at Eccles, to one-tenth at Sunderland; the average fall over the country was four-tenths of an inch nearly. The weather during the week was cloudy and showery, but generally fine.

In Scotland the highest temperatures ranged 75° at Dundee, to 68½° at Greenock and Paisley; the lowest temperatures ranged from 49° at Leith to 42° at Perth; their averages being 71¼° and 44¾° respectively. The mean temperature for the week was 59°, the highest being at Dundee, 60½°, and the lowest at Paisley, 57½°. The fall of rain during the week varied from 2¼ inches at Greenock, to half an inch at Aberdeen; the average fall over the country was 1¼ inch.

At Dublin the highest temperature was 72¾°, the lowest 40¼°, the mean 60¼°, and the rainfall 0.74 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season.]

PLANT HOUSES.

Greenhouse Hard-wooded Plants.—Let the treatment of the general stock in this department be regulated by the weather. If favourable, give plenty of air early in the day, and maintain the atmosphere in a healthy condition by a liberal use of water under and on the stages. This is a matter that does not receive sufficient attention when we reflect that plants growing naturally in the open air are always subject in clear bright weather to the influence of imperceptible, yet continuous moisture, drawn up through their leaves and branches by capillary attraction. Plants confined under a glass roof are in a vastly different condition in this respect. Here the enclosed space, if it is composed of material that will absorb water, such as sand, ashes, or natural soil (as it always should be, except the paths), is deprived of the water which it would receive from rain were it not for the glass covering. In many cases it receives little more than the small quantities that run from the plants in the operation of watering. It frequently happens that the whole of the enclosed space in a house gets for many feet in depth as dry as possible, producing thereby a most unnaturally dry condition of the atmosphere, in which the plants have to struggle for existence through the growing season. This state of the air surrounding the plants is just what we want in the winter, but it is the very opposite of what the well-being of the inmates demands during the season of growth. The whole of the space inside the house during the summer should be kept, not merely sprinkled, but as wet as the ground naturally is outside; then in sunny weather there would be a continuous healthy moisture rising amongst the plants, materially lessening the excessive evaporation which goes on in the dry atmosphere plants are too often subjected to. Where they are large and stages are used, the latter should be composed of strong trelliswork, that will admit of the moisture rising amongst them from the damp earth underneath. For small growing stock these open trellis-stages are objectionable by reason of the air circulating through them, acting upon the comparatively small body of soil enclosed in the little pots and drying them up too quickly. These younger plants should always stand upon some moisture-holding material, such as a mixture of sand and fine ashes kept always damp through the growing season. This necessary moist condition of the air not only promotes growth of a description never to be got in the dry murky atmosphere too often met with in plant-houses, and which is conducive to nothing but the increase of red-spider and other plant pests. If the houses in which young plants are grown happen to be very light, a thin movable shade will be of service during very bright weather. Continue for some weeks yet to shut up the house sufficiently early to enclose some sun-heat. By this treatment the plants will make as much progress in a month as they would be able to do in double that time where the closing is delayed until late in the evening, or the houses altogether left open.

For room decoration nothing is so well adapted as *Greenhouse Palms*, whilst in a small state. It is surprising what a time they will keep in good condition if fairly attended to; one great advantage is that they increase in size so little whilst in a dwelling-house that it is long before they get too large for the situation. They will also do with less light than most plants. It is to be regretted that the species that will submit to greenhouse treatment are comparatively few in number. The following will answer the purpose well:—*Corypha australis, Livistona humilis, L. sinensis, Ptychosperma gracilis, Areca sapida, Kentia Canterburyana, K. Fosteriana, Latania aurea, Thrinax tunicata, Sabal Adansoni.* To the above may be added *Dracæna Draco, D. australis, Abutilon Thompsoni, Aralia crassifolia, A. quinquefolia, A. reticulata, A. Sieboldii*, and its variegated variety; *Beaucarnea recurvata, Yucca filamentosa variegata* and *Y. filamentosa, Y. quadricolor* and *Y. quadricolor Stokesii, Grevillea robusta, G. rosmarinifolia, G. alpestris, Lomatia filicifolia, L. heterophylla, L. ferruginea, Eurya latifolia variegata.* All the hard-wooded plants here enumerated are particularly well adapted for purposes of indoor decoration, more especially for table decoration. The Fern-like foliage of the *Lomatias* and *Grevilleas* is of the most elegant description, yet these plants will not bear being kept continuously in a dwelling-house, like the Palms, as they lose their leaves. They will not, however, suffer by being occasionally brought from the greenhouse, and returned without being kept too long in the too dry atmosphere of a room.

Pay every attention to *Pot Roses* for winter forcing, by encouraging them to make all the growth possible. These plants should be plunged, not too close, in ashes in the full sun; the surface of the pots should be mulched with rotten dung. Attend to them well with manure-water twice a week, never allowing them to get too dry. If any trace of mildew appears dust with sulphur, or wash with sulphur-water, for if the parasite is allowed to get possession of the plants now, it will be very troublesome when they are started into growth in the winter. Do not allow them to suffer through the ravages of aphides or red-spider, and if such make their appearance, take measures at once for their destruction, as the Rose, when its roots are confined in a pot, more especially for forcing, requires every attention to insure its flowering well.

Soft-wooded Greenhouse Plants.—No time should now be lost in preparing a quantity of Zonal Pelargoniums for winter flowering in a little heat, for which they are well adapted, if properly prepared. The most frequent mistake in the preparation of these plants for winter flowering is growing in too large pots; being naturally vigorous growing plants, unless confined to very small pots, when submitted to heat they run all to leaf instead of flower. The smallest leaved and more weak-growing varieties are the best suited for this winter work. As a scarlet nothing is better than *Vesuvius*, which is a free-flowering and small-leaved sort, standing forcing much better than most others. Plants struck last autumn are the best to use for this purpose; such plants, if not already so treated, should without delay be placed in 6-inch pots, in good loam, to which should be added a little sand, and one-sixth part of rotten dung: pot as firmly as possible, and then plunge the plants into ashes out-of-doors in the full sun, taking care to nip out all flower trusses as soon as formed, so that all the energies of the plants may be directed to making growth and storing up strength in thoroughly well ripened wood. Stop the plants so as to keep them in shape, and do not allow them to root through into the plunging material, or to suffer for want of water. The double flowered kinds are indispensable for winter blooming: for bouquets the flowers of the pink varieties associated with white Camellias make a combination unsurpassed, they also have the advantage that the flowers last much longer than those of the single varieties. Pink: *Impératrice Eugénie, Madame Lemoine, Marie Crousse.* Scarlet: *Wilhelm Pfitzer, Victoire Lemoine, Beauté de Poitevin.* These should be prepared by full exposure out-of-doors, as in the case of the single varieties; but older plants are to be preferred, these having a freer disposition to flower than young ones. Attend well to *Sal[illegible] gesneræflora*, and *S. fulgens.* The plants, if not already done, should without delay be placed in the flowering pots. Good loam, well enriched with rotten dung, is the best material to grow them in. Plunge them in coal ashes out-of-doors in the full sun, and never allow them for a single hour to suffer for want of water, or they will lose their bottom leaves. Stop the plants, so as to keep them in shape.

Encourage *Chrysanthemums* by the use of liquid manure every other time they require water, and as soon as their roots have got fairly hold of the pots after being placed in their flowering pots. There are few, if any, plants grown that will bear it in so strong a state and in such quantities as the *Chrysanthemum*. Plunge the pots, and on no account allow them to get dry. In the case of all the above winter-flowering plants not a day should be lost in giving them the necessary attention, as upon their present treatment depends their ability to make the indispensable autumn and winter display. *T. Baines.*

Succulents.—Agaves that have been repotted must be watered with care; others should get frequent waterings, and the air should be kept as moist as it can with free air night and day; those in the open air will do with water once a week. If there are any in a sickly state, expose them to the sun and keep them dry until they make roots. This they will sooner do dry than wet. Cacti should be kept in a moist atmosphere during this month, to induce growth; if well exposed to the sun and moderate air there is no fear of rotting; but the sickly ones, or imported plants, are best on a shelf near the glass. Keep a good eye on the bugs; they are best got rid of by clean water syringing. I believe there are more of these plants killed by the different compounds applied, than by the insects they are intended to destroy. *Crassulas* and *Echeverias* will thrive with a drop of manure-water once a week. Plants of *Echeveria retusa* and *E. fulgens* intended for winter flowering should be treated liberally for the next two months. The Aloe tribe want as much care in watering now as during winter, or they lose their roots. Newly imported Aloes must have all the sun possible, and be kept perfectly dry until they show new growth, or they are almost sure to rot. It should always be borne in mind that we cannot give them such dry air as they get in their native habitat. *Mesembryanthemums* are best exposed in the open air; it is not a good plan to keep them over three or four years, as the young plants flower best. They are fond of a strong soil, therefore give them manure-water frequently. *J. Croucher.*

Orchids.—This is a good time to pot *Cattleyas, Mossiæ* and *Lælia purpurata*, as these plants will be starting into fresh growth; let it be done with care so that the eyes be not damaged. If the potting of East India plants be completed I recommend the planting about the pots and baskets of the small growing *Selaginellas*, whose elegant form of growth renders them very suitable for this purpose. The Orchids should not require disturbing again for five or six months; if the *Selaginella* be planted at once it will soon hide the Sphagnum or peat it is planted in. *Selaginella denticulata* and *S. arborea* are easily procured, and are free growers; there are several other varieties which are suitable. Many of the *Anæctochilus* will also do remarkably well for the same purpose, such as *A. argenteus, A. striatus, A. xanthophyllus, A. Dawsoni*; it will be found they will grow more robust than when grown in a frame or under bell-glasses. The *Anæctochilus* when growing and in good health should have plenty of water, those grown under bell-glasses should have a crock placed so as to keep the glass tilted, to admit air; if this is not attended to the plants are liable to rot off: it is also a good plan to remove the glass for two or three hours every morning. Ventilate the houses about seven o'clock in the morning, and close them about four. Syringe all blocks and plants overhead, especially after a hot day; use every available means to keep the *Odontoglossum house* cool by sprinkling plenty of water about the floors, and ventilate freely; the bottom ventilators should be left open all night. *Geo. Baker, Clapham Common.*

FLOWER GARDEN, &c.

Hardy Ornamental Trees and Shrubs.—Bud all ornamental trees and shrubs that it may be desirable to increase in that way, and be careful to tie up and preserve those budded last year, to prevent their being destroyed by wind or any other violence. The taste for the numerous sorts of variegated trees is spreading rapidly, especially in the neighbourhood of large towns. Many of them are as vigorous and free of growth as the natural types, and their beautiful tints of foliage are better appreciated in the small gardens which are now so numerous in the neighbourhood of very populous places, and in which the best and brightest of everything, to such extent as there is space for it, should be gathered together. Now is the time to observe and make notes of all such, while the foliage is fresh and striking, so as to be prepared

to procure them at planting time. Propagate by layering all hard-wooded shrubs that are best done in that way. Trim shrubs and trees that are trained in any artistic manner. Regulate those which naturally grow in rigid or graceful symmetry, taking care that the individual character of each kind is preserved. Competing leaders and unequal lateral growth should in all such cases be kept in check. Maintain order and cleanliness in shrubberies, and at all points in connection therewith. *W. Sutherland.*

FRUIT HOUSES.

MELONS.—Seeing that varieties of Melons are now almost as plentiful as Blackberries in autumn, I have thought it wise not to recommend any special kind as possessing any particular merit. So much of the character of the ripe Melon depends upon the treatment it receives, and the conditions under which it is grown, that it is quite wrong to recommend a certain kind as always possessing a peculiar merit. I have, in previous Calendars, pointed out what I believe to be the best means of obtaining that desideratum—high flavour—no matter in what variety. It is a fact, much to be regretted, that Melons with new names, for the most part, predominate over older established kinds on the exhibition table, and often at the expense of the flavour. As the result of a careful and impartial test, I have not found any of the new kinds to supersede such old kinds as *Scarlet Gem*, *Bromham Hall*, and the like, when grown side by side and under the same conditions. But Melon judging is a vexed question. It is now important that the late plants should be got in without much delay—continue, therefore, to clear out exhausted plants, and prepare for a fresh start at the earliest opportunity. Maintain a good bottom-heat of 90°, or thereabouts, for young growing crops, and a moist atmosphere; shade only for an hour or two at mid-day; let a moderate dusting of flowers of sulphur be thrown over and amongst the foliage about once a week; still apply lime if any signs of canker are manifest; syringe freely, excepting when the fruits are setting or ripening, and be careful not to allow one or two fruits on individual plants to take the lead. Attend to past directions. *Thomas Simpson, Broomfield.*

CUCUMBERS.—Now is a good time to sow a few seeds for autumn fruiting. It will at this season take from three to four weeks to secure nice sturdy plants, therefore make the necessary preparations by way of collecting and preparing the dung and soils, thoroughly cleansing the house in the meantime. No fire-heat is now required in this department, but in the case of making new beds a nice gentle bottom-heat, either by means of dung or tan, should be secured. Be careful to well test the heat of the bed before planting, and do not plant till the heat is found to be on the wane. Earth-up from time to time those plants which have been in bearing for a few months, and maintain a firm condition about the roots. To effect this desideratum worms must be expelled or kept down by means of weak lime or soot-water. Give copious doses of liquid manure once or twice a week, and maintain plenty of atmospheric moisture in hot weather. Syringe fairly, and close the ventilators about 4 P.M. Apply a liberal dusting of flowers of sulphur about once a week. Fumigate occasionally, and use the knife freely. Continue to drain and earth-up plants in pits and frames, and remove the lights for a few hours on showery afternoons. Water over the foliage, and close the lights about 4 P.M. Beware of greenfly in the points of the growths and beneath the foliage. Let ridge Cucumbers be regularly attended to by way of watering in hot, dry weather, and pegging-out the growths. *Thos. Simpson, Broomfield.*

THE ORCHARD HOUSE.—The ventilators in this structure may now be left open by night as well as by day; but if the house contain Cherries approaching a state of ripeness, visits may be expected from the blackbird, the thrush, the blackcap, and sundry other feathered depredators, who, if not prevented, will speedily diminish the crop of this fruit, as well as spoil what portion they may leave. If the house be a span-roofed structure, and if the side and end lights or ventilators have been so hung as to be easily removed altogether, it is advisable to do so now, and to replace them by Haythorn's hexagonal netting, as this admits a free circulation of air and effectually excludes birds and injurious insects of all sorts. There are several sorts of this netting manufactured, and the sort known as No. 5 is well suited for this purpose, while No. 20, or the Chiswick netting, is still better. But whichever sort be used, it should be strengthened by having strong tape sewed to its margin, to receive the tin-tacks by which it is secured to the woodwork; by taking this precaution, and by keeping the netting dry when not in use, it will last for many years. In the case of *Cherry trees* syringing must be discontinued, to prevent injury to the ripening fruit. If the black-fly (Aphis Cerasi) is not thoroughly subdued, the house should at once be fumigated with strong tobacco-paper, and it must be done effectually, as these black pests are exceedingly hard to kill. Although they may be kept in check by the continuous use of the syringe, they will nevertheless increase with extraordinary rapidity whenever this is discontinued; and the mere dipping of the ends of the infected shoots into tobacco-water or any other poisonous liquid, is of little use, as fluids of all sorts appear to run off their bodies with much the same facility as water leaves a duck's back, leaving no trace whatever of moisture behind. By the following process, however, tobacco-water may be used with considerable effect:—Let the operator (in order to have both his hands at liberty) have suspended before him a small watering-pot or paint-can containing strong tobacco-water; in this he should frequently well wet his fingers while he continues to unfold the curled leaves containing the aphis, carefully crushing the latter at the same time, taking care also to injure the leaves as little as possible in the performance of this operation. Another person with a powerful syringe or garden engine should follow close upon the heels of the former, and wash off the bruised and narcotised insects, before they have time to recover themselves. One determined attack of this sort will be found to be much more effectual, in cleansing the trees, than any amount of washings of the trees by the syringe or garden-engine. The fruits of the *Peach* and the *Nectarine* should now be thinned out where required, if this has not been already done. Whether the trees are in pots or planted out in prepared borders, the soil may in some instances have become hard and firm; and when such is the case, let it be loosened or stirred up to the depth of 2 or 3 inches, while a fresh surface-dressing or moulding of some enriching material should be given, together with occasional doses of weak manure-water, as the present is the proper time to encourage the trees by liberal treatment, especially in cases where they may be carrying a heavy crop of fruit. Regulate the growth of the various trees in this structure by judicious stopping and pinching, and by the same means assist in the development and formation of young specimens. Keep down red-spider by the incessant use of the syringe and a moderately moist atmosphere, and supply abundance of moisture to the roots of growing trees carrying crops of fruit. *P. Grieve, Culford, Bury St. Edmunds.*

HARDY FRUIT GARDEN.

Notwithstanding the very unfavourable weather of the months of May and June, the fruit crop is now found to be in a more satisfactory state than might have been expected, with the exception of the *Apple* crop, which is nearly, if not altogether, a failure. On walls about this neighbourhood *Pears* and *Plums* are in abundance. *Apricots* are a somewhat light crop, but the fruit is fine, and the same may be said with regard to *Peaches*, *Nectarines*, *Cherries* and *Figs*. As regards bush fruit, *Raspberries* are exceedingly abundant and fine. *Red* and *White Currants* are plentiful and good, while *Black Currants* are a light crop, and the fruit small. *Strawberries* are abundant, and the fruit finer than might have been expected. *Apple trees* in this country have seldom the advantage of a wall accorded to them, although some of the finer dessert sorts are well worthy of such a position; and at this place during the present season there will be few, if any, dessert Apples, with the exception of the product of trees trained to a low wall facing the west, while the small portion of fruit furnished by orchard or standard trees will consist chiefly of the more hardy kinds of culinary varieties. In pyramidal trained trees of various sorts of *Pears*, *Plums* and *Cherries* an abundant crop of fruit had set, all of which has been destroyed by the frost and cold of the last two months. Continue to carry out former directions as regards the stopping or removing of superfluous or foreright shoots, and the nailing, tying-in, or securing to the wall in some way the necessary supply of young shoots, so as to admit increased air and sunshine to ripen the wood and buds. *Vines* trained to walls in the open air should now be closely nailed in, in order to economise every advantage in the way of increased temperature which the wall may afford, as all this will be necessary to secure the ripening of the fruit during the present season. *Figs* on the open walls should also have similar attention, and the points of all the shoots should be pinched out before they are nailed or secured to the walls, excepting those of leading shoots. Many out-door fruits are now approaching a state of ripeness, and should be protected by nets, or in some other way, from the ravages of birds. Ground may now be prepared for new plantations of *Strawberries* by being well manured and trenched, or at least by being deeply dug. It is usual to layer a sufficiency of runners in small pots for this purpose as well as for forcing during the ensuing winter and spring. This practice, however, is attended with some inconvenience, as it renders it necessary to go frequently among the ripening fruit for the purpose of watering such pots. Although it may be to some extent advisable to adhere to this practice in the case of a few plants required for very early forcing, for the general supply of young plants for the purpose of forcing, as well as for forming new plantations, the runners may, however, be allowed to root into the soil, from which they should be carefully raised with a trowel, and potted into small pots, and placed in a close shaded frame for a week or ten days, when they may be fully exposed to the open air and well supplied with water. When they have well filled their pots with roots they are in a fit state to form a plantation, or to be transferred into their fruiting-pots if intended for forcing. When the forced fruit has been gathered from them, they are also then in excellent condition to form a plantation in the open air. Such plants seldom fail to produce abundant crops during the two succeeding seasons, when they should be trenched into the soil, and be succeeded by other and more recently formed plantations. *P. Grieve, Culford, Bury St. Edmunds.*

KITCHEN GARDEN.

The continuance of hot and dry weather makes it extremely difficult to keep up a succession of young vegetables, and this can only be done where a timely and liberal supply of water is given. *Peas*, especially, come rapidly to maturity, with a probability of a scant supply from late sown crops. Continue to clear and prepare ground as fast as possible for the planting of late winter and spring *Broccolis*, *Cauliflowers*, &c. Of the latter a good breadth shonld be got out as soon as convenient. It need scarcely be added that all plants now planted must be well attended to as to watering, otherwise they are better on the beds until rain comes. Make a first sowing of White Naples and Tripoli *Onions*; if large bulbs are in demand, the ground should be well manured before sowing the seed. A first sowing of early kinds of *Cabbage* may also be made, and a last sowing of *Early French Horn Carrot* should be sown on a sheltered border, for drawing during the early spring months. Late-sown *Turnips* will require attention, to preserve them from the ravages of the Turnip-fly. A dusting during the early morning with fresh slaked lime or soot is the best preventative. Continue to layer *Strawberries* in small pots as fast as runners can be obtained; those layered earlier may, if well rooted, be taken off and placed in a sheltered spot for a few days, to strengthen, before potting into fruiting pots. *Tomatos* on walls or grown to stakes should be well attended to in stopping all lateral growths, and when a sufficiency of fruit is set stop the leading shoots, so as to direct all the energies of the plant to the maturation of the fruit. *W. Cox, Madresfield, Malvern.*

FORESTRY.

In ground which has been apportioned off for winter planting, and in which fences and necessary drains have been marked out, roadways should now receive attention; a central track of ready access in those of small dimensions, with curves diverging as may be best suited to the ground, will suffice; whilst in those on a large scale, of 100 acres or upwards in one block, divisions should be marked off at every 150 yards square, leaving a breadth of 9 feet between for roads, in order to facilitate the egress of timber, and otherwise simplify the operations during the process of thinning. It is occasionally necessary in large forests, irrespectively of these squares, to form a leading roadway. The former may be compared to feeders as the streamlet is to the river. If such be necessary, the position and form is easily settled before the space is formed into woodlands, and should therefore not be left, as is sometimes the case, for after consideration. A general inspection of soil and subsoil should next be made, and a record marked upon the plan of the allotted space of any part not suited for the class of trees intended to form the plantation, as well as the sorts for which it is best adapted. A very large portion of the failures of *Larch* over the kingdom which has been planted during the present century may be attributed to their being planted over a subsoil uncongenial to their requirements; whereas those of older date, which are commonly found healthy and sound when felled, were more kindly treated by being planted in more favourable situations. Whenever a tree becomes unhealthy, it is subject to blight and insects; and amongst hardy trees there is, perhaps, none more punished in this way than the Larch. The *Adelges Laricis* is its common enemy in this country, and seems to make its attack for two or three years in succession, and then leave for a period. Larch succeeds best on a light loamy soil resting upon clay, free from stagnation, and not waterlogged. Cut off tops of Thistles, Docks, and Ragweeds before seeding, in open places in forests; keep the hoe at work in all fine weather wherever required. *J. Webster.*

Notices to Correspondents.

BEDDING PANSIES. Messrs. Dicksons & Co. write as follows:—"Those referred to at p. 16, were not sent to Chiswick by Dickson & Sons, Edinburgh, but by Dicksons & Co., Waterloo Place, Edinburgh, and we shall feel much obliged by your being kind enough to make this correction, as mistakes frequently occur

through the similarity in the names of the firms. *Dicksons & Co., Waterloo Place, Edinburgh.*"

CUCUMBERS: *W. J.* It is a clear case of the common Cucumber disease, for which, as far as we know, no remedy has yet been found, nor has the cause been discovered. There is, however, a peculiarity in your case which we have not observed before. In those portions, where in consequence of the disease the cuticle is broken up, the exposed patches are covered with a minute species of white Fusarium; but whether this has been developed since the specimens were packed or not, we are unable to say. The fungus in question is an undescribed species. *M. J. B.*

GLOXINIAS: *J. C.* The flowers are large, but there are so many better that we can only advise you to try again.

INSECTS: *A. H.* It is the caterpillar of the goat moth (Cossus ligniperda). Hook them out with a bent wire and destroy them.—*Aphis.* The aphis on Peach shoots is the common Aphis persicæ, which must be attacked in the usual way. *I. O. W.—Camjee.* The black insect found in the pith of an Ash tree is a little wood-boring wasp (Crabro leucostoma or assimilis), which makes the burrow in order to bury therein flies or aphides for the support of her progeny. The Ash leaves have the remains of a Psylla on them. *I. O. W.*

LAWN: *W. B.* Send us a specimen of the fungus.

LOLIUM: *H. G.* Branched varieties are not very uncommon.

NAMES OF PLANTS: *C. W. D.* 1, Hypericum perforatum (hold the leaves up to the light); 2, Linum catharticum. — *Nomenclature.* Linaria purpurea.—*Lotus.* Polystichum angulare var. grandidens.—*R. B.* Rosa nitida, a North American species. *J. G. B.—A. W.* 1, Inula glandulosa; 2, Phlomis Samia; 3, Artemisia Stelleriana.—*J. C. & Co.* Lychnis Viscaria.—*E. R.* 1, Agrostemma coronaria; 2, Muscari comosum, Feathered Hyacinth.—*A. W.* Agrostemma githago. — *Constant Reader.* The Begonia we cannot undertake to name; the other plant is Coccoloba platycladon.—*D. D., Langport.* Lilium Martagon.

PEARS: *J. P. M.* There can be no difficulty in at once distinguishing those Pears which are attacked by the little fly. Instead, therefore, of waiting for their fall, they should at once be carefully picked and burnt.

SEEDLING PELARGONIUM: *Raiser.* We cannot say much in its praise: there are so many better.

WINDOW GARDENING: *F. S.* See *Gardeners' Chronicle*, 1862, p. 956; 1864, pp. 461, 558; 1866, p. 1242; 1870, pp. 530, 562; and 1872, pp. 1001, 1033, 1722. Mr. Niven, of Hull, may give you further information.

ERRATUM: *Staking Trees* (see p. 13). Figs. 4 and 5 were transposed. Fig. 5 represents a tree fastened to a pliable stake which gives with the wind, while fig. 4 represents a tree improperly staked with a stake that is too thick and rigid.

CATALOGUES RECEIVED.—Ant. Roozen & Son (Overveen, near Haarlem, Holland), Catalogue of Hyacinths, Tulips, Crocus, Gladioli, Miscellaneous Bulbs, Plants, &c.

COMMUNICATIONS RECEIVED:—R. A. P. (with thanks).—H. A.—R. T. Stewart.—J. L.—J. B.—G. F.—A. W.—O. H. M.—J. J.—E. B.—Antoine (with thanks).—Major B.—Rchb. f.—G. B.—L. M. S.—T. P.—W.—E. R.—R. T. S.—H. H.—D. & Co.—R. S.—F. J. H.—W. P.—W. Phillips.—W. E.—A. N.—E. C. M.—E. T. B.—W. S.—A. S. & Co.—W. M.—E. S. D.—H. A.

DIED, on the 29th ult., at Lymington, Hants, Mr. MILLER, nurseryman, aged 55.

Markets.

COVENT GARDEN, *July* 9.

Large supplies of soft fruit are now coming in. Small Peaches and Nectarines can be had for 6*s.* doz.; West Indian Pines (good), 1*s.* to 2*s.* each; in consequence of which, in some cases, English Pines are quoted at lower rates than last week. Markets are well attended, and business is steady. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d. s. d.		s. d. s. d.
Cherries, p. lb.	0 6– 2 0	Nuts, Cob, p. lb.	.. ..
Gooseberries, p. qrt.	0 4– 0 9	Oranges, p. 100	6 0–16 0
Grapes, English, p. lb.	2 0– 6 0	Peaches, p. doz.	10 0–24 0
— finest, do.	8 0– ..	Pears, p. doz.	.. ..
— Muscats, do.	6 0–12 0	Pine-apples, p lb.	5 0–10 0
Lemons, per 100	6 0–14 0	Strawberries, p. lb.	0 6– 2 6
Nectarines, per doz.	8 0–18 0	Walnuts, p. bush.	20 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Horse Radish, p. bun.	3 0– 5 0
Asparagus, per 100	3 0– 8 0	Leeks, per bunch	0 2– 0 4
Aubergines, per doz.	6 0– ..	Lettuces, per doz.	1 6– ..
Beans, Broad, English, per bush.	3 0– 3 6	Mint (green), p. bun.	0 6– ..
— French, per lb.	1 6– ..	Mushrooms, per pott.	1 0– 2 6
Beet, per doz.	1 0– 2 0	Onions, young, bun.	0 4– 0 6
Cabbages, per doz.	1 3– 2 0	Parsley, per bunch	0 4– 0 6
Carrots, per bunch	0 6– 0 9	Peas, per quart	1 0– 2 0
— new do.	0 9– ..	Radishes, per bunch	0 2– 0 4
— French do.	1 6– ..	— black, Turnip, do.	– 0 6
— English	0 9– ..	Rhubarb, p. bundle	0 4– 1 0
Cauliflowers, per doz.	2 0– 6 0	Shallots, per lb.	0 6– ..
Celery, per bundle	2 0– 3 0	Salsify, per bundle	1 6– ..
Cucumbers, each	0 6– 3 0	Spinach, per bush.	5 0–
Endive, per doz.	1 0– 2 0	Tomatos, per doz.	3 0– ..
Herbs, per bunch	0 2– 0 4	Turnips, per bundle	1 0– ..
		Veg. Marrows, doz.	3 0– ..

New Potatos:—Round, 10*s.* to 12*s.* per cwt.; Kidneys, 10*s.* to 12*s.* per cwt. Old stocks quite finished.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Carnations, per doz. bunches	4 0– 9 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Corn-flower, p. doz. bunches	2 0– 6 0	Pinks, white, 12 bun.	4 0– 9 0
Eucharis, per doz.	4 0– 9 0	— mixed do.	2 0– 4 0
Escholtzia, p. 12 bun.	3 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Gardenias, p. doz.	3 0– 9 0	— Outdoor, do.	0 4– 1 0
Heliotropes, per doz. sprays	– 0 6	— Moss, 12 bun.	6 0–12 0
Mignonette, 12 bun.	2 0– 6 0	Spiræa, per 12 sprays	1 0– 2 6
Pelargoniums, per 12 sprays	0 6– 1 0	Stephanotis, 12 sprays	3 0– 9 0
		Sweet Peas, 12 bun.	4 0– 6 0
		White Lilies, p. bun.	1 0– 2 6

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Begonias, per doz.	6 0–12 0	Heaths, in var., doz.	12 0–30 0
Bouvardias .. do.	9 0–18 0	Hydrangea .. do.	9 0–24 0
Calceolarias, shrubby	6 0–18 0	Liliums, in var., each	1 0– 3 6
Cyperus .. do.	6 0–12 0	Mignonette, per doz.	4 0– 6 0
Dracæna terminalis	12 0–30 0	Myrtles .. do.	3 0– 9 0
„ viridis .. doz.	12 0–24 0	Pelargoniums do.	9 0–24 0
Fairy Roses, p. doz.	6 0–12 0	do, Scarlet .. do.	4 0– 9 0
Fuchsia .. do.	4 0–12 0	Rhodanthe .. do.	6 0–12 0

SEEDS.

LONDON: *July* 9.—Our seed markets are now thinly attended, and the business passing, as might be imagined, is extremely limited, for the articles most in request are white Mustard, Srifolium incarnatum, and winter Tares. For new French Trifolium, 2*s.* to 3*s.* per cwt. more money is now asked, and reports from Paris describe the market as very firm at this advance. For yearling and old parcels of English growth increased rates are also demanded. Sowing Rape seed, being in diminished request, can be brought on somewhat easier terms. Canary seed, on account of its continued scarcity, maintains the extravagant rates lately reached. English Linseed is still obtainable at a moderate figure. Blue boiling Peas are very scarce and dear. Other articles, in the absence of transactions, offer no subject for remark. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday there was a thin attendance, and trade was dull. English Wheat was in limited supply, and about the same in price as on the previous Monday, but the show of foreign produce was rather large, and the value of this description receded 1*s.* per qr. Barley, dealt in sparingly, scarcely realised previous quotations; malt was hard to dispose of, even at a slight decline from Friday last. The inquiry for Oats was quiet, at prices 6*d.* per qr. lower on the week. Maize was inactive, and cheaper when pressed for sale. Beans and Peas were taken off slowly on former terms. In flour there were few transactions, and no important movement took place in the price of any kind.—The market on Wednesday presented a very quiet aspect. There was little desire shown to purchase Wheat, and foreign qualities were again slightly checked in several instances; but English produce supported generally its price. Barley was dull of sale, so also was malt, and the few transactions which occurred in Oats, Maize, Beans, Peas, and flour were at rates partially below those current on Monday.

CATTLE.

At Copenhagen Fields on Monday there were on offer more English beasts than on the Monday previous, but a considerable falling off in foreign. The average quality was very middling, consequently choicest were in demand at fully late rates; but trade was dull for inferior. The supply of sheep was about the same as last week, at scarcely any alteration in price. Choicest lambs were in fair demand, but it was difficult to dispose of middling ones. Trade was rather more active for calves, with very little improvement in price. Prices for beasts ranged from 4*s.* 6*d.* to 6*s.*, for calves from 4*s.* 4*d.* to 5*s.* 8*d.*, sheep from 4*s.* 4*d.* to 5*s.* 4*d.*, and lambs from 6*s.* to 7*s.* per 8 lb.—There was a demand for choicest beasts at Thursday's market, but Monday's quotations could not be obtained. A large number of sheep were on offer, owing to scarcity of keep; lambs and calves were also plentiful. For everything prices were lower. The trade in milch cows is moving, at a small advance.

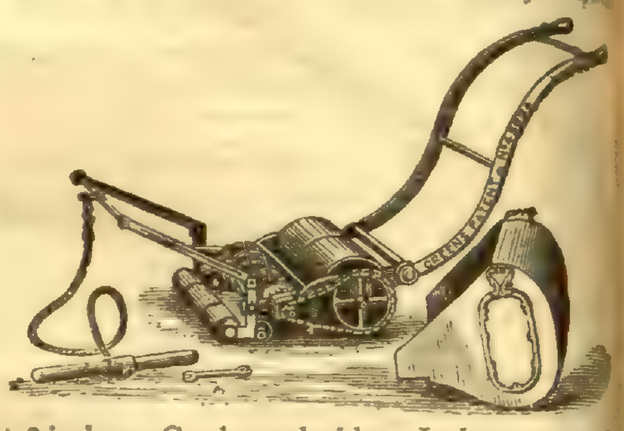
HAY.

The supplies at Whitechapel on Tuesday were smaller, and the market firm at late rates. Quotations:—Meadow hay, best, 92*s.* to 102*s.* 6*d.*; inferior, 50*s.* to 70*s.*; Clover, best, 100*s.* to 112*s.*; inferior, 70*s.* to 80*s.*; straw, 36*s.* to 40*s.* per load. From Cumberland market we have the following prices:—Superior old meadow hay, 105*s.* to 115*s.*; inferior do., 80*s.* to 92*s.*; new hay, 98*s.* to 110*s.*; superior old Clover, 108*s.* to 120*s.*; inferior do., 90*s.* to 98*s.*; new do., 88*s.* to 105*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

From the Borough and Spitalfields markets we learn that there are large arrivals of all kinds of foreign Potatos, and prices gradually weaken, but there is a good demand for these as well as English descriptions. Jersey Kidneys sell at 13*s.* to 11*s.*; round, 11*s.* to 9*s.*; St. Malo and French, 10*s.* to 8*s.*; and English, 11*s.* to 7*s.* per cwt. Last week's imports into London consisted of 2727 boxes, 10,948 baskets, 55 barrels, 1261 packages, and 162 tons. The arrivals at Southampton amounted to 24,532 packages, chief of which were from Jersey.

GREEN'S PATENT
"Royal Guinea" & "Silens Messor"
OR
NOISELESS LAWN MOWING, ROLLING, COLLECTING MACHINES FOR 1874.
The Winners of every Prize in all cases of competition.

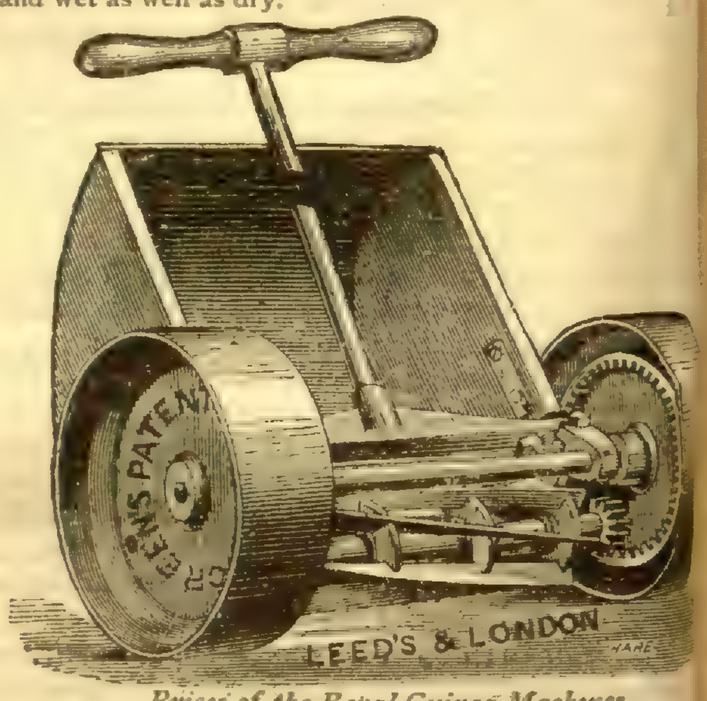


To cut 8 inches. Can be worked by a Lady ..
„ 10 „ „ „ ..
„ 12 „ Can be worked by One Person ..
„ 14 „ „ „ ..
„ 16 „ This can be worked by One Man on an even lawn.
„ 18 „ By Man and Boy .. .. ..
„ 20 „ „ „ .. .. ..
„ 22 „ „ „ .. .. ..
„ 24 „ „ „ .. .. ..
Prices of Horse, Pony, and Donkey Machines on application. Carriage paid to all the principal Railway Stations in United Kingdom.

The "Silens Messor" machines have a world-wide reputation for their superiority and excellence.

They will cut either SHORT or LONG GRASS, Berlin, &c., and wet and well as dry, advantages which no other Lawn Mowers possess. They are the only Lawn Mowers in constant and daily use in all the Royal Gardens, and in the principal Gardens and Parks throughout the Kingdom.

GREEN'S LATEST PATENT
IS THE
"Royal Guinea" Lawn Mower
which is a far superior Machine of its kind to any Lawn Mower extant, and it will cut either short or long Grass, Berlin and wet as well as dry.



Prices of the Royal Guinea Machines.

To Cut— 6 ins.	8 ins.	10 ins.	12 ins.	14 ins.
21*s.*	31*s.* 6*d.*	42*s.*	52*s.* 6*d.*	63*s.*

Delivered, carriage free, to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

And a greater fact still is, that

Every Machine is Warranted to give entire Satisfaction, and if not approved of may be Returned at once, Unconditionally, without any expense to the Purchaser.

N.B.—Those who have Lawn Mowers to repair will do well to send them either to our Leeds or London Establishments, where they will have prompt attention, as an efficient staff of workmen is kept at both places.

GREEN'S PATENT ROLLER
FOR
LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, AND GRAVEL PATHS
Suitable for Hand or Horse Power.

The above can be had from all respectable Ironmongers and Seedsmen in the United Kingdom, or from

THOMAS GREEN & SON,
SMITHFIELD IRONWORKS, LEEDS;
54 and 55, BLACKFRIARS ROAD, LONDON, S.E.

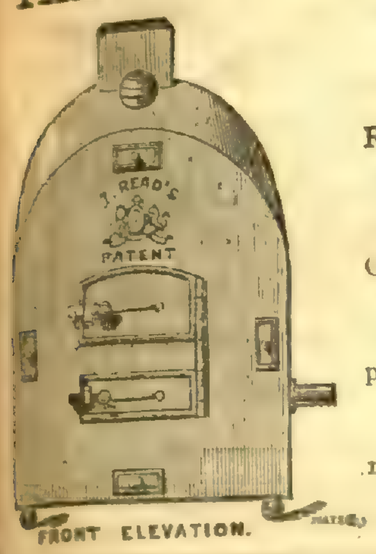
Carriage paid to all the principal Railway Stations in United Kingdom.

DESCRIPTIVE ILLUSTRATED PRICE LIST FREE ON APPLICATION.

STEVENS' TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

THE GARDENER'S FRIEND.



FRONT ELEVATION.

READ & CO.'S

PATENT

RETORT SADDLE BOILER

Portable, or for Setting in Brickwork.

Constructed for heating from 100 to 5000 ft. of 4-in. pipe.

Stamp for prospectus on application to the Manufacturers,

T. READ & CO.,
167, OLD STREET,
LONDON, E.C.

Heating by Hot Water.

PUBLIC and PRIVATE BUILDINGS, MANUFACTORIES, CONSERVATORIES, &c., heated on the most improved system, combined with perfect ventilation.

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

POLLARD AND CO. (late Bury & Pollard, Successors to John R. Peill, late Stephenson & Peill), Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Fixed at seats of Duke of Newcastle, Lord Belper, Lord Middleton, &c. At Viscount Sydney's replaced, after being twenty years in constant use. Foreign orders promptly executed. The Prince Salm Salm, the Duke de Croy, &c., recently supplied.

PRICE LISTS free by post.

Bear Garden, New Park Street, Southwark, London, S.E.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

By Appointment to H.R.H. the Prince of Wales.

BARTON'S PATENT STABLE and HARNESS ROOM FITTINGS, BRACKETS, &c.

Gentlemen altering their Harness Rooms can be supplied with BARTON'S newly-improved IRON SADDLE and HARNESS BRACKETS. They preserve the Harness, keep it in shape, are light, and very durable. The New Illustrated Catalogue for 1873 sent for six stamps.

For alteration of Stables, a competent person can be sent to any part to inspect and give Estimates.

JAMES BARTON, Ironworks, 370, Oxford Street, W.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

Have the largest and most complete Stock in the Trade of

HOT-WATER BOILERS, | PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

They are thus enabled to offer these Goods at Low Prices, notwithstanding the very great increase in the cost of all kinds of Iron.

NEW PATENT CLIMAX BOILER (1874).

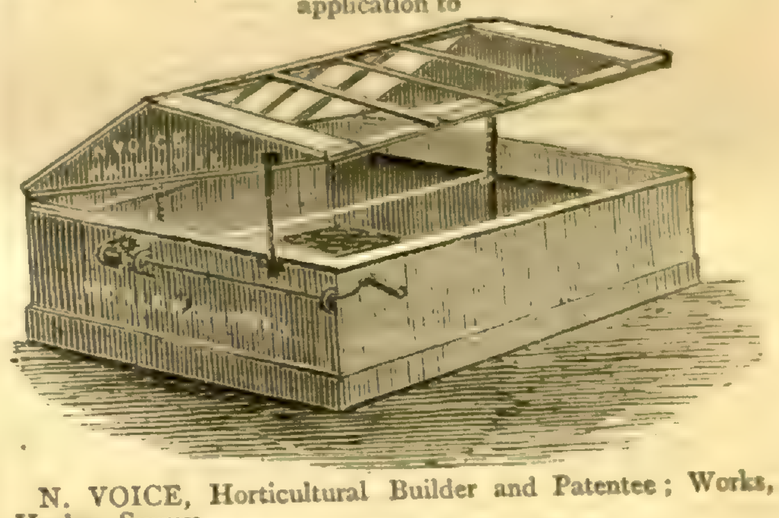
GOLD MEDAL BOILER (Birmingham, 1872).

PATENT EXCELSIOR BOILER (1871).

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE.

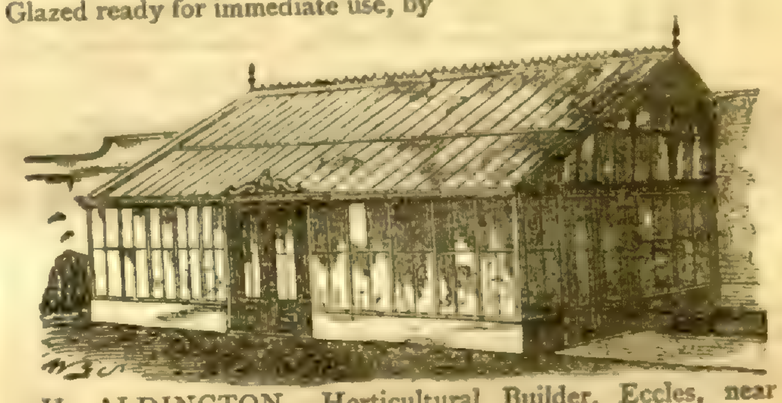
N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

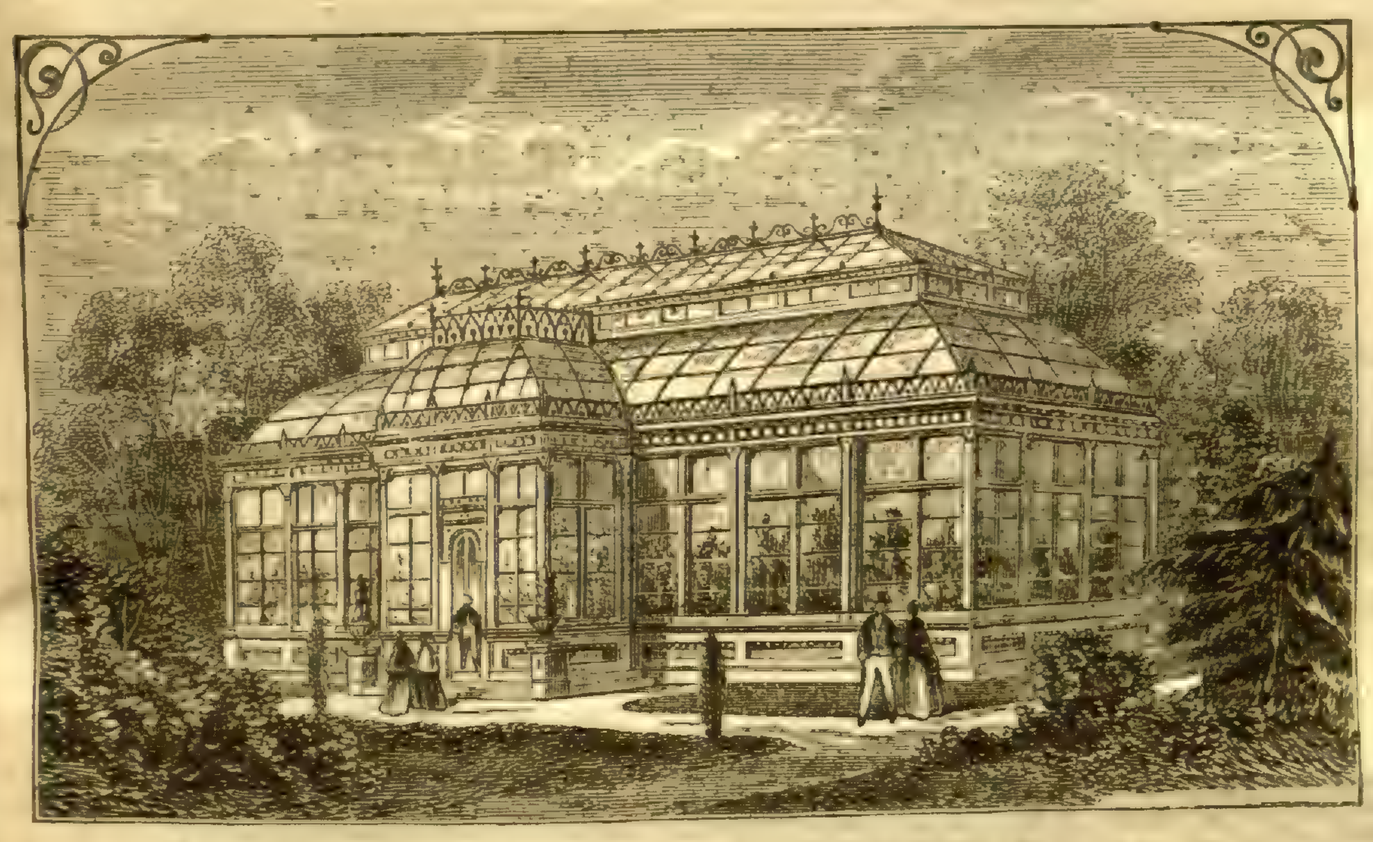
N.B.—AGENTS WANTED.

CUCUMBER and MELON BOXES, and LIGHTS, Packed and sent to all parts, Painted and Glazed ready for immediate use, by



H. ALDINGTON, Horticultural Builder, Eccles, near Manchester.

ST. PANCRAS IRON-WORK COMPANY.



CONSERVATORIES, GREENHOUSES, &c.

ARCHITECTS' DESIGNS CAREFULLY CARRIED OUT.

APPLY FOR ESTIMATES TO

OLD SAINT PANCRAS ROAD, LONDON, N.W.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

COWAN'S PATENT COMPENSATING SYSTEM

FOR HEATING HORTICULTURAL AND OTHER BUILDINGS.

SAVES THE ENTIRE COST OF FUEL.

A large number of Apparatuses in operation. Illustrated Pamphlets Post Free on application to

THE DROMORE HEATING COMPANY LIMITED,

40, LOWER ORMOND QUAY, DUBLIN.

JOHN COWAN, *Manager.*

VASES, STATUES, FLOWER POTS, FLOWER TRAYS, and BASKETS, in Terra Cotta, of various colours; also FOUNTAIN BASINS, FISH POND KERBS, GARDEN BORDER EDGINGS, PEDESTALS, BALUSTERS, GARDEN and PARK SEATS, and ARCHITECTURAL DETAILS, in Terra Cotta, warranted to stand frost.

The Stamford Terra Cotta Company (Blashfield's), Limited, 28, Berners Street, Oxford Street, London, W.—Works, Stamford, Lincolnshire.

THE PATENT VERMIN ASPHYXIATOR.

LIST of AGENTS, DESCRIPTIVE PAMPHLET, PRICES, FULL INSTRUCTIONS, and TESTIMONIALS Post Free, on application to

JOHN WATTS & CO.,
6, BROAD WEIR, BRISTOL.

SYRINGES & GARDEN ENGINES.

G. & W. PURSER'S
List of Engravings for this Season
Is now ready, and may be had, post free, on application.
Sole Makers of the Jet d'Eau.
WORKS: WARWICK STREET, BIRMINGHAM.

HARRY BUNYARD, MANUFACTURER.

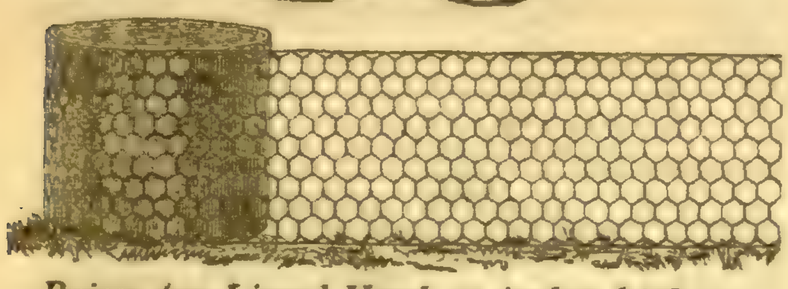
MARQUEES, ALL SIZES.
TENTS FOR CROQUET, &c. On SHOW at CRYSTAL PALACE.
FLAGS FOR DECORATIONS.
RICK CLOTHS FOR HAY, &c.
NETS FOR CRICKET, &c. SALE OR HIRE.

PRICES ON APPLICATION.

HARRY BUNYARD,
BULL FACTORY, 63 and 64, TOOLEY STREET, and SHAD THAMES, LONDON, S.E.

Messrs. J. B. Brown & Co.'s
VIENNA PRIZE WIRE NETTING.
THE MEDAL FOR MERIT
At the Vienna Universal Exhibition, 1873,

Was awarded to Messrs. J. B. Brown & Co., for "excellence and perfection in material and workmanship, large extent of production, and cheapness of produce."



Prices per Lineal Yard, 24 inches high:—

Size of Mesh.	Mostly used for	Gauge.	Or Light Quality. s.	d.	Gauge.	Or Medium Quality. s.	d.	Gauge.	Or Strong Quality. s.	d.
2 in.	Dogs or Poultry	19	0	3¾	18	0	4½	17	0	5¾
1⅝ in.	Small Rabbits, &c.	19	0	4¼	18	0	5¼	17	0	6¼
1½ in.	Smallest Rabbits	19	0	5¼	18	0	6¼	17	0	8

Price Lists of Fencing Wire, Iron Fencing, Hurdles, Fruit Espaliers, &c., on application.

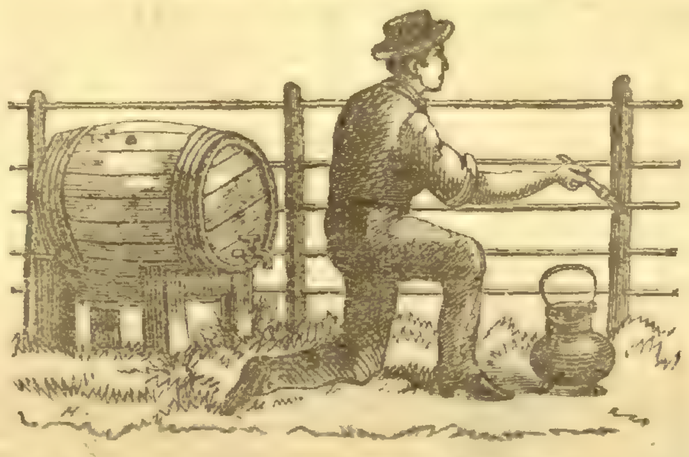
J. B. BROWN & CO.,
Offices—90, CANNON STREET, LONDON.

Is indispensable to Nurserymen, Gardeners, and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1s. and 1s. 6d., and sent post free with directions, for 1s. 3d. and 1s. 10d., by the Proprietors—

WILLIAM ROLLISSON AND SONS,
Tooting, London, S.W.

Oil Paint no Longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all outdoor work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL JUST RECEIVED.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5s., amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

Lea & Perrins' Sauce,

THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.

ASK FOR LEA AND PERRINS' SAUCE.
BEWARE OF IMITATIONS,
and see the names of LEA AND PERRINS on all Bottles and Labels.

Agents—CROSSE AND BLACKWELL, London, and sold by all Dealers in Sauces throughout the World.

CARSONS' PAINT,
PATRONISED BY THE QUEEN,
The British, Indian and Colonial Governments,
8000 of the Nobility, Gentry, and Clergy,
Railway and Canal Companies, Collieries, Ironmasters, &c., &c.,
Is extensively used for all kinds of
OUTDOOR WORK.
It is especially applicable to
WOOD, IRON, BRICK, STONE & COMPOSITION
CAN BE LAID ON BY UNSKILLED LABOUR.
Sold in all Colours.
2 cwt. free to all Stations.
Prices, Patterns, and Testimonials sent Post Free.

WALTER CARSON & SONS,
LA BELLE SAUVAGE YARD,
LUDGATE HILL, LONDON, E.C.
And 21, BACHELOR'S WALK, DUBLIN.
NO AGENTS.

Grateful—Comforting.

EPPS'S COCOA.
BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—Civil Service Gazette.

MANUFACTURE OF COCOA.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide*.

Made simply with boiling water or milk.
Sold by Grocers, only in packets, labelled
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS,
48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, N.W.

MIDLAND RAILWAY.

MEETING OF THE ROYAL AGRICULTURAL SOCIETY, AT BEDFORD,

JULY 13 to 17, 1874.

Ordinary Return Tickets to BEDFORD issued on SATURDAY, July 11, 1874, and intervening days, will be available for the Return Journey on any day up to and including MONDAY, July 20.

For the accommodation of visitors from London, additional Express Trains will be run between St. Pancras and Bedford on each of the Show days, stopping at the Temporary Station close to the entrance to the Show Yard.

The entire Service of Fast Trains between BEDFORD and LONDON, from MONDAY, July 13, to FRIDAY, July 17, will be as follows:—

MONDAY, July 13.—DOWN TRAINS.

		a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.
Moorgate Street	dep.	..	7 0	8 40	9 54	11 16	11 34	2 43	3 0	4 40	5 15	8 27	11 5
St. Pancras	,,	6 15	7 15	8 55	10 10	11 35	11 50	3 0	3 20	5 0	5 30	8 50	11 9
Kentish Town	,,	..	7 21	9 1	10 16	11 41	11 56	3 6	3 26	5 6	5 36	8 56	11 5
Bedford Show Yard / Temporary Station	arr.	..	8 35	10 9	11 20	..	..	..	4 36	..	6 50	..	..
Bedford Town Station	,,	7 26	8 40	10 14	11 25	12 47	1 3	4 9	4 41	6 8	6 54	10 6	1 2

TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, July 14, 15, 16, and 17.
DOWN TRAINS.

		a.m.	a.m.	a.m.	a.m.	a.m.	a.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.
Moorgate Street	dep.	..	7 46	8 40	9 54	11 16	11 34	2 43	3 0	4 40	5 15	8 27	11 3
St. Pancras	,,	6 15	8 0	8 55	10 10	11 35	11 50	3 0	3 20	5 0	5 30	8 50	11 9
Kentish Town	,,	..	8 5	9 1	10 16	11 41	11 56	3 6	3 26	5 6	5 36	8 56	11 5
Bedford Show Yard / Temporary Station	arr.	..	9 25	10 0	11 20	..	..	..	4 36	..	6 50	..	..
Bedford Town Station	,,	7 26	9 20	10 14	11 25	12 47	1 3	4 9	4 41	6 8	6 54	10 6	1 2

MONDAY, July 13, to FRIDAY, July 17, inclusive.—UP TRAINS.

		a.m.	a.m.	a.m.	a.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.	p.m.
Bedford Town Station	dep.	3 15	9 5	10 25	10 48	1 40	3 28	4 40	5 4	5 24	7 33	8 49	10 15
Bedford Show Yard / Temporary Station	,,	..	9 16	..	..	..	3 33	4 45	5 9	..	7 40	..	..
Kentish Town	arr.	..	10 25	11 45	11 56	2 51	4 40	5 55	6 11	6 35	8 50	9 56	11 3
St. Pancras	,,	4 30	10 30	11 50	12 0	2 55	4 45	6 0	6 15	6 40	8 55	10 0	11 3
Moorgate Street	,,	..	10 46	12 6	12 14	3 8	5 5	6 13	6 30	7 4	9 9	10 13	..

A Cheap Train, conveying Passengers at Excursion Fares, will leave St. Pancras for Bedford, on Thursday and Friday, July 16 and 17, at 8.5 a.m. each day. For Fares and Particulars see future notices.

Tickets for both Ordinary and Special Trains may be obtained at Cook's Tourist Office, Ludgate Circus, Fleet Street, and at the Stations.

Derby, June, 1874.

JAMES ALLPORT, *General Manager.*

THE AGRICULTURAL GAZETTE,
SATURDAY, JULY 11, 1874,
CONTAINS—
ORIGINAL ARTICLES on Bare Fallowing—Wheat after Lea—Agricultural Machinery (Illustrated) — My Agricultural Education—A Note from Vienna (Illustrated)—The Corn Trade—Forestry (Illustrated)—The Agricultural Lock-out—Land Titles and Transfer Bill—The Rothampstead Investigation—The Alexandra Park Horse Show—Short-horn Cattle: Shall we give Photographs or Artist-drawn Pictures of? (Illustrated)—Scottish Farms and Farmers—Suburban Farming—The Late Mr. Henry Stephens, with Portrait, &c.
HOME AND FOREIGN CORRESPONDENCE on Labour, North and South—The Women's Harvest—The Maintenance of Turnpike Roads—Canadian Farming—Farm Facts from Greater Britain—Farm Notes and Memoranda from English, Scottish, and Irish Counties, &c.
ALSO—
ILLUSTRATED REPORT of the ROYAL AGRICULTURAL MEETING at BEDFORD.
REPORTS of Agricultural Shows.—The Weather, Markets, Obituary, &c.
Price 4d.; post free, 4½d. Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

Fourth Edition, considerably enlarged, with 118 Engravings, price 14s.
THE SAILING BOAT: a treatise on English and Foreign Boats and Yachts; also on the various forms and peculiarities of sails and rig of the Boats and Vessels of every Nation, with Practical Instructions in Sailing and Management. By H. C. FOLKARD, Esq.
London: LONGMANS AND CO., 39, Paternoster Row, E.C.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.
Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.
CONTENTS:—
INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4d.; Stamped, 5d.
Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.
The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.
London .. Mr. George Street, 30, Cornhill, E.C.
Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham. Mr. R. S. Kirk, 90, New Street.
Liverpool .. Lee & Nightingale, 15, North John Street.
Bristol .. James & Henry Grace, Royal Insurance Buildings.
Edinburgh .. Robertson & Scott, 13, Hanover Street.
Glasgow .. W. Porteous & Co., 15, Royal Exchange Place.
Copies of each Journal are filed at the above Offices for the use of Advertisers.

PARTNER in the SEED TRADE.—The Advertiser is anxious to meet with a Partner in the Seed Trade. Capital required, about £1000. Business situated near the City, and in a Market Place.—Apply to M. W. F., Post Office, High Street, Borough, London, S.E.

WANTED, in a large Nursery, a thoroughly experienced MAN, to take the MANAGEMENT of the Growing Department. Liberal wages will be given, and a good house and garden found.—Apply, by letter only, giving references as to capability and character, to "X. Y.," care of Messrs. Barr & Sugden, King Street, Covent Garden, W.C.

WANTED, in a large Nursery, a young MAN who has had some experience in Hard and Soft-Wooded Propagation, to act as SECOND to a very experienced Man.—Apply by letter only, giving last place and references, to "X. Y.," care of Messrs. Barr & Sugden, King Street, Covent Garden, W.C.

WANTED, in a Month from the present, a HEAD GARDENER, who thoroughly understands the Growing of Grapes, Peaches, Stove and Greenhouse Plants.—L. 110, *Guardian* Office, Manchester.

WANTED, a young Man, aged about 20, as UNDER GARDENER, to look after a Cow and Horse, and make himself generally useful. Wages 17s. a week. Country lad preferred.—Apply to Mr. Kiff, Munster House, Fulham, S.W.

WANTED, IMMEDIATELY, a good GARDENER. Must be a Churchman, and thoroughly respectable. A boy to help. Cows and Pigs. £1 a week and cottage.—Address, with references, Rev. L., Clyffe Rectory, Rochester.

WANTED, a MAN and WIFE, without incumbrance—Man as Gardener, and Wife as Laundry-woman. Both must thoroughly understand their duties, and have good characters.—Apply, in first instance, by letter, to A. E. W., at Brown's Advertising Office, 4, Little George Street, Westminster Abbey, S.W.

WANTED, by a Gentleman, a GARDENER (a single Man, not under 24), who has been in a Gentleman's Garden, and who understands thoroughly the Management of Flower Garden, Kitchen Garden, and Greenhouse. One Man kept, under the Gardener. No Vineries. State wages received.—Apply, by letter, to Mr. G., Lord's Library, Gloucester Road, South Kensington, S.W.

To Seedsmen.
THE LAWSON SEED AND NURSERY COMPANY (Limited), Edinburgh, want an experienced HEAD SHOPMAN for the Garden Seed Department.—Apply by letter only, stating age, references, and salary expected.

Assistant Seedsman, &c.
WANTED, a young MAN, who has a knowledge of the Trade, also of Books, Accounts, and Correspondence. He must be a first-class Penman, of good appearance and address. Character must bear strict investigation.—W. TAIT AND CO., 45, Capel Street, Dublin.

WANTED, a SHOPMAN (of good address), for a Retail Seed Shop. Must write a clear hand, and do up parcels quickly and neatly.—Apply, stating age, if married, reference, and salary expected, to W. H. ROGERS, Red Lodge Nursery, Southampton.

WANTED, in September, a CLERK and BOOK-KEEPER. He must have a thorough knowledge of Book-keeping, be Correct at Figures, and a good Correspondent; one having a knowledge of the trade preferred.—State age, experience, and wages expected, THOMAS KENNEDY AND CO., Seedsmen, Nurserymen, and Florists, Dumfries, N.B.

WANTED, a JUNIOR CLERK—a good Writer and correct at Figures, with a knowledge of the Names of Plants, and used to Invoicing.—Personal application at Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

SCOTCH FARMING.—Advantageous opening for Students.—Address, R. R., care of H. M. Jenkins, Esq., 12, Hanover Square, W.

WANTED, as KITCHEN-MAID and to attend to the Dairy, a respectable young Woman, in a family residing a short distance from London.—Apply by letter, addressed Mrs. C., 38, Wigmore Street, W.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.
THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD), where two or three are kept.—Age 30, married; good practical working Gardener. Good character.—W. T., Welton-on-Trent, Burton-on-Trent, Staffordshire.

GARDENER (HEAD).—Single; thoroughly understands Gardening in all its branches. Two years' good character.—W. W., Croft, Fairford, Gloucestershire.

GARDENER (HEAD).—Age 33, married; thoroughly energetic, practical, Working Gardener, fully conversant with the profession, understands Forcing of all kinds, Fruits, Flowers, and Vegetables. Character will bear the strictest scrutiny.—H. A., Post Office, Dorking, Surrey.

GARDENER (HEAD).—Age 45, married; has had great experience in every branch of Gardening, also in Stock and general Farming. Can be well recommended.—Apply by letter to A. H., Sion Nursery, Thornton Heath, Croydon.

GARDENER (HEAD), age 30, married, two children.—JOHN HILL, Gardener, Bishopstowe, Torquay, is in want of a situation as above. Has a thorough practical knowledge of Gardening in all its branches. Will be disengaged on July 24. Please state particulars, &c.

GARDENER (HEAD).—Age 30; thoroughly understands the Management of Vines, Stove and Greenhouse Plants, Early and Late Forcing, Kitchen and Flower Gardening, Orchards, Houses, &c. Single place objected to.—A. Z., Post Office, Wokingham.

GARDENER (HEAD).—Age 28, single at present; thoroughly understands Forcing Vines, Pines, Peaches, Figs, Vegetables, &c.; also a good Grower of Gigantic Plants, both Flowering and Foliage, and a good Flower Garden Plan Drawer. Left last place through alterations. Excellent character. Salary, £70 a-year.—H. YEDNUM, Banning Street, Romsey.

GARDENER (HEAD).—Age 30, single; many years' practical experience in first-class Gardens, where the general routine of Early and Late Forcing of all choice Fruits, Flowers, and Vegetables has been carried on with spirit; well up in Stove and Greenhouse Plants. Several years in present and previous places, where references of the highest order can be obtained.—W. S., The Gardens, Grangewood, South Norwood, Surrey, S.E.

GARDENER (HEAD), in a small Establishment.—Age 46, married; understands the Culture of Stove and Greenhouse Plants, Forcing Grapes, Cucumbers, Peaches, &c., Flower and Kitchen Gardening, Meadow Land. Wife (age 47) to superintend Poultry. Nine years' character.—State wages, &c., in the first instance, to G. HAMOND, 21, Lansdown Road, Swindon.

GARDENER (HEAD, WORKING).—Age 32, married; has a thorough knowledge of the profession, also Vines, Pines, Forcing, &c. Six years' character.—A. J., 27, Clonbrock Road, South Hornsey, N.

GARDENER (HEAD, WORKING), where more are kept.—Age 40, married; thoroughly understands the profession in all its branches, and can undertake Management of Land and Stock if required. Unexceptional references.—A. Z., Messrs. F. and A. Smith, Nurserymen, &c., West Dulwich, London, S.E.

GARDENER (HEAD, where two are kept, or SINGLE-HANDED).—Age 27, single. Three years in last situation. Can be highly recommended.—A. B., Mr. Creamer Little Wood End, Erdington, near Birmingham.

GARDENER (SECOND, INDOOR), in a Nobleman's or Gentleman's Establishment, where Gardening is carried on with spirit.—E. GRIZZELLE, Clumber Gardens, Worksop, Notts.

GARDENER, in a Gentleman's place (good).—A young Man, well up in Indoor and Outdoor Gardening. Wages 24s. per week, or equal.—J. W., Post Office, Cardiff, South Wales.

GARDENER, where two or three Men are kept.—A Gentleman wishes to recommend a young Man who has been in his service four years as Under Gardener, and given great satisfaction.—X. Y., 11, Southampton Street, Strand, London, W.C.

GARDENER, where two or three are kept (age 39, married, one child—five years).—A GENTLEMAN wishes to recommend his Gardener to any Lady or Gentleman. He thoroughly understands Vines, Stove and Greenhouse Plants, and has a general knowledge of Stock. Six and a half years' good character.—T. N., Church & Son, Stationers, &c., Mitcham, Surrey, S.

GARDENER.—Age 40; thoroughly understands his work in all departments, as Flowers, Fruits, and Vegetables.—J. S., Mr. Kingsbury, Park Street, Southend.

GARDENER.—Age 26, married, one child; understands the Growing of Grapes, Melons, Cucumbers, Stove and Greenhouse Plants, Flower and Kitchen Gardening. Two years' good character.—A. B., 3, Rennell Street, Lewisham, Kent, S.E.

GARDENER (UNDER).—Age 21. Six years' experience and good character.—Address, stating particulars, to A. B., Mr. Wm. Wells, Stapenhill, Burton-on-Trent.

GARDENER (UNDER).—Age 21. State wages given.—H. B., Mr. Harman, High Street, Beckenham.

APPRENTICE.—Age 19. Can be well recommended. A small Premium will be paid.—F. B., Mr. Coleman, Eastnor, Ledbury.

IMPROVER, in a Nobleman's or Gentleman's Garden. A young MAN, can be well recommended.—T. L. C., Post Office, Woodhouse, near Sheffield, Yorkshire.

To Nurserymen, &c.
PROPAGATOR.—Age 23; has had several years' experience in Clematises, Roses, Rhododendrons, Conifers, &c. Two years' good character from present employer.—J. G., Post Office, Dorcas Terrace, Hammersmith, W.

PROPAGATOR, or PROPAGATOR and FOREMAN.—Middle-aged; first-class experience.—For particulars apply to C., 48, Brunswick Road, Highgate Hill, London, N.

FOREMAN PROPAGATOR (UNDER).—Good experience in Soft-wooded Plants.—T. W., Mrs. Wm. Croucher, Leigh Street, near Tonbridge, Kent.

NURSERYMAN (MARKET).—Situation wanted in a Market Nursery, where Plants are grown for Covent Garden.—W. WILLIAMSON, Post Office, Snow Hill, Birmingham, until called for.

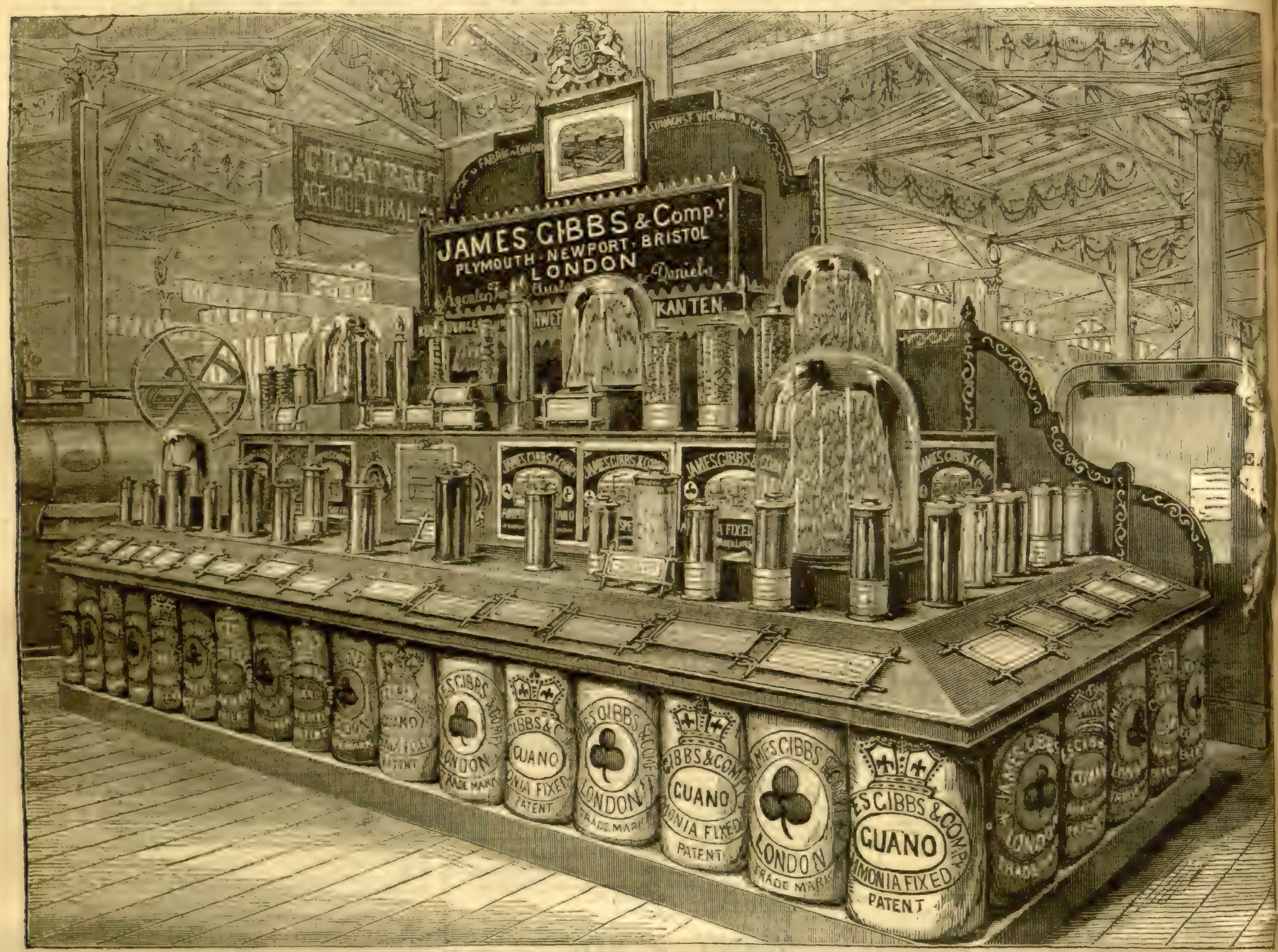
TRAVELLER.—The Advertiser, who has a thorough knowledge of the Nursery and Seed Trade, having had 18 years' experience in the London and Provincial Trade, is open to Travel for a Wholesale House either in the Nursery or Seed Trade, or both combined, for three months every year, commencing at Midsummer.—W. C., *Gardeners' Chronicle* Office, W.C.

SHOPMAN, or TRAVELLER.—H. D. MITCHELL, for nearly 18 years in the employment of James Dickson & Sons, Chester, having for several years travelled the Midland Counties, Lancashire and Yorkshire, North of England, South of Scotland and Ireland, will be glad to treat with a large House, to open up a connection on the above ground, being well known amongst Gardeners, Stewards, &c.—Address, 17, Tarvin Road, Chester.

KINAHAN'S LL WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

DINNEFORD'S FLUID MAGNESIA.
The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD AND CO., 172, New Bond Street, London, W., and of all Chemists throughout the World.

ROYAL SOCIETY'S SHOW, BEDFORD—STAND 335.



VIEW OF STAND AT UNIVERSAL EXHIBITION AT VIENNA, 1874.

JAMES GIBBS AND COMPANY,

SOLE MANUFACTURERS OF THE

PATENT AMMONIA-FIXED GUANO,

AWARDED SEVEN MEDALS (as under)

1874.—International Agricultural Exhibition ..... BREMEN.
SILVER MEDAL—HIGHEST IN CLASS.

1873.—International Exhibition ..... LONDON.
PRIZE MEDAL.

1873.—Agricultural Exhibition, Groningen ..... HOLLAND.
SILVER MEDAL—HIGHEST IN CLASS.

1873.—Universal Exhibition ..... VIENNA.
(1.) GRAND MEDAL OF MERIT.
(2.) GRAND MEDAL FOR PROGRESS.
(3.) GREAT SILVER MEDAL OF SOCIETY OF ARTS AND MANUFACTURES, VIENNA.

1868.—International Exhibition ..... HAVRE.
SILVER MEDAL—HIGHEST IN CLASS.

GIBBS' BONE, BLOOD, AND SPECIAL MANURES OF THE BEST QUALITY,

AND IN THE HIGHEST CONDITION.

PARTICULARS OF

JAMES GIBBS AND COMPANY,

WORKS—VICTORIA DOCKS, LONDON, E., and CATTEDOWN, PLYMOUTH.
OFFICES—16, MARK LANE, LONDON, E.C.

And at Stand No. 335, Implement Shed, Show-yard, Bedford.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, July 11, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MACLEHOSE & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 29.—Vol. II. { New Series. } SATURDAY, JULY 18, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

American Pomological Society 77
[illegible] Pond (with cuts) .. 78
[illegible] Pansies 80
Beekeeping 72
Benedict Roezl (with portrait) 73
Books, notices of 75
Cut flowers, to keep .. 78
Dorcas and other Biblical plants 74
Dried flowers, preserving the colours of 78
Farm, the 75
Florists' flowers 72
Forestry 80
Foxglove, a monstrous with cut 78
Garden operations .. 87
Great moth Coccus 78
Greenhouse plants: their culture and management 73
Honey-dew 78
Horticulture of the last century 79
India-rubber, new source of 71
Indian gardens 68
Lancashire garden, notes from a 70
Multum in Parvo Pea .. 80
Nemophila insignis .. 79
Open-air vegetation .. 72
Owen's College, Manchester 78
Palazzo Orengo, near Vintimiglia (with cut) .. 68
Peaches and orchard-house fruits, the size of .. 78
Peas, new 77
Persia, the fruits of .. 66
Phylloxera of the Oak, the 68
Plants of Llandudno and the Great Orme's Head 80
Plants, new garden .. 66
Plea for wild plants .. 65
Polyporus from Canada .. 81
Primroses, double 72
Puccinea malvacearum .. 79
Reed Mace, the 70
Rice disease 77
Saponaria calabrica .. 80
Season, the 79
Siphonic watering-pot, the 78
Skating Rink at Kensington 78
Societies:—
Royal Horticultural .. 83
Bury and West Suffolk 84
Gravesend Horticultural 84
Tunbridge Wells .. 84
Southgate Horticultural 85
Botanical and Horticultural of Newcastle .. 85
Royal Caledonian .. 85
Spinach, substitute for .. 78
Staking trees (with cuts) . 80
Strawberry culture .. 68
Three earliest Peaches,
Trees recently struck by lightning 67
Tunnel under Channel .. 78
Valerian, Red 78
Weather, the 87
Whitchurch Rectory, Edgware 81
Zygadenius Fremontii .. 66

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION *to the* GARDENERS' CHRONICLE, *including postage to the United States, is £1 6s.*

WESTON-SUPER-MARE and EAST SOMERSET HORTICULTURAL SOCIETY. The ANNUAL SHOW will be held on TUESDAY, AUGUST 11. £200 in Prizes.
Schedules of Prizes may be obtained of the HONORARY SECRETARY, Weston-Super-Mare.

CLAY CROSS HORTICULTURAL SOCIETY, AUGUST 11. Premiums £363. Prizes for twenty Plants, £70; do., for Collection of smaller Plants, £11; do. for Collection of Bedding Plants, £5; do., for Collection of Hardy Herbaceous Plants, £4 10s. Prizes in proportion for Fruit, Cut Flowers, &c. ENTRIES must be sent by AUGUST 3.
J. STOLLARD, Secretary, Clay Cross, Chesterfield.

GLAMORGANSHIRE HORTICULTURAL SOCIETY.—The TWELFTH ANNUAL SHOW of PLANTS, FLOWERS, FRUITS, &c., will be held at Cardiff, on WEDNESDAY, August 19. About £300 will be given in prizes. Twelve Stove and Greenhouse Plants, in pots, £15, £10, £5; Roses, blooms, eighteen varieties, £3, £2, £1: Dahlias, blooms, twenty-four distinct kinds, £3, £2, £1: Gladiolas, two spikes, twelve distinct varieties, £2 10s., £1 10s., 15s.; Roses, Tea-scented, £2, £1, 15s.; Hollyhocks, £2, £1 10s., £1. Schedules, &c., upon application to
Cardiff, July 1. HENRY BOWEN, Hon. Sec.

WORCESTERSHIRE AGRICULTURAL SOCIETY.
MEETING at DUDLEY, on AUGUST 25, 26, and 27.
President—The Right Hon. the Earl of Dudley.
A GRAND HORTICULTURAL EXHIBITION, in connection with the above, will be held in the SHOW GROUND, at Dudley, when Prizes to the amount of nearly £200 will be offered.
Prizes are also offered for competition to all Cottagers residing in Worcestershire and within 12 miles of Dudley. Entries close August 18.
For Schedule of Prizes and Rules, &c., apply to ALBERT BUCK, Secretary, Worcester; or to J. S. HAYWOOD, Nurseryman and Seed Merchant, 26, Broad Street, Worcester, Hon. Sec. to Horticultural Show.

FLORAL AND HORTICULTURAL FETE to be held on the Race-course, Northampton, in connection with the NORTHAMPTONSHIRE AGRICULTURAL SOCIETY'S ANNUAL SHOW, on FRIDAY, September 18, 1874. Silver Cups and Premiums to the amount of £200 will be offered for competition. Open to all England. Prizes to be paid on the day of Exhibition.
Presidents—The Worshipful the Mayor of Northampton, and Pickering Phipps, Esq., M.P.
Treasurer—Mr. Mark Dorman.
Hon. Secs.—Mr. John Phipps and Mr. Thos. L. Cordeux.
The Schedules and Rules may be obtained at Dorman's Library, or of F. PERKINS, 2, Gold Street, Northampton.

The Best Hardy Bedding Plant.
CLEMATIS JACKMANNI.—Flowers rich purple, 4 inches across, and so profuse as to completely cover the bed. Begins to bloom in June, and continues until severe frost. It is perfectly hardy, and the stools improve annually. The only secret of success is a rich soil, to keep up free growth. 12s. per dozen. Other sorts of Clematis and Climbers in great variety. Descriptive LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

Carter's Grass Seeds.
JAMES CARTER AND CO. prepare MIXTURES of GRASS SEEDS by a system of suiting the Seeds to the geological formation of the soil, which has proved eminently successful. Estimates free.
237 and 238, High Holborn, London, W.C.

Twelve Acres of Roses in one Patch.
RICHARD SMITH invites inspection of his ROSES, now in fine bloom, at
The Nursery, St. John's, Worcester.

To the Trade, &c.—Roses! Roses! Roses!
EWING AND CO. are now offering very fine plants of the best varieties in cultivation. The new varieties of 1874, in fine well-established plants, sent, carriage and package paid, to any Railway Station in the United Kingdom, on receipt of Post Office Order for 31s. 6d.
Descriptive and Priced CATALOGUES, and further information, gratis and post free on application.
The Royal Norfolk Nurseries, Norwich.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

Rose Culture.
THE COLLECTION of ROSES is NOW in FULL BLOOM. The Nurseries are situated between the Harlow and Sawbridgeworth Stations (G.E.R.).
The *Rose Amateur's Guide*, 10th Edition (by Thomas Rivers), may be had, post free, for 4s.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Splendid Herbaceous Calceolaria Seed.
WOOD AND INGRAM beg to offer the above, selected from the finest varieties of Neill's superb strain, in packets post free for thirteen penny stamps each.
The Nurseries, Huntingdon.

Cineraria, Calceolaria, Primula.
LUCOMBE, PINCE, AND CO., have just harvested their magnificent strains of CINERARIA, CALCEOLARIA, and PRIMULA, and they will be glad to send good packets, post free, at 2s. 6d., 3s. 6d., and 5s. each. Also PRIMULA JAPONICA, new seed, at 1s. 6d. and 2s. 6d. per packet. Exeter Nurseries, Exeter.

Cineraria, Primula, Calceolaria, and Cyclamen.
WM. CUTBUSH AND SON very highly recommend their choice strain of the above, which always gives satisfaction. In packets, 2s. 6d., 3s. 6d., and 5s., post free. Highgate Nurseries, London, N.

DOUBLE FLOWERED CINERARIA, as exhibited at the Royal Horticultural Society, Kensington, supplied in Seed Packets, at 3s. 6d., 7s. 6d., and 10s. 6d. each. Also CALCEOLARIA, PRIMULA, CYCLAMEN, and CINERARIA, of extra quality, mixed, or in separate colours, in 1s., 2s. 6d., and 5s. packets.
E. G. HENDERSON AND SON, Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.
EPIPHYLLUM TRUNCATUM, good grafted plants, of the best varieties, 9s. per dozen, 65s. per 100. The New Double CINERARIA, strong plants, 9s. per dozen, 70s. per 100. Strong CINERARIAS of Messrs. Standish's fine strains, 2s. per dozen. STRAWBERRY RUNNERS, in great variety, 2s. per 100. Terms cash.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

ADIANTUM FARLEYENSE.—For Sale, a few thousand FRONDS weekly. Price on application to W. CLARK, The Nurseries, Wallington, Surrey.

For Present Bedding.
ALTERNANTHERA MAGNIFICA, Echeveria secunda glauca, Iresine Lindeni and Herbstii, Double and Single Petunias, Heliotropes, Dwarf Ageratums, Cineraria maritima, Blue Salvias, Mesembryanthemum cordifolium variegatum, Ivy-leaved Geranium (La Elegante), Purple, Crimson, and White Verbenas, Cupheas, Konigas, &c., all at 2s. 6d. per dozen, basket included, for cash.
JAMES HOLDER, Crown Nursery, Reading.

Orchard-house Culture.
A LARGE COLLECTION of FRUIT TREES, in pots, can NOW be SEEN in FULL BEARING. The Nurseries are situated between the Harlow and Sawbridgeworth Stations (G.E.R.).
The *Orchard-House Book*, fifteenth Edition (by Thomas Rivers), may be had, post free, for 3s. 6d.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

FOR SALE.—A large quantity of ROOTS of TREES, suitable for Fernery or other purposes.
Apply to THOMAS STANWAY, 7, Addison Terrace, Notting Hill, W.

WANTED, FLORIST'S SHOW-HOUSE, 55 feet by 17, in good condition. Send particulars to A. B., 241, Edgware Road, W.

WANTED, fine handsome CONSERVATORY PLANTS and TREES.—The Pine-Apple Nursery Company having a great demand for large Conservatory Plants, are open to purchase to any extent large well grown specimens of an ornamental character. Please address, with full particulars, to
Mr. JOHN BESTER, the Manager, Pine-Apple Nursery, Maida Vale, W.

Hyacinths, Tulips, Crocus, &c.
BUDDENBORG BROS., FLORISTS, Hillegom, Haarlem, Holland, WHOLESALE CATALOGUE of the above may be had free on application to Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

HYACINTHS, TULIPS, CROCUS, GLADIOLI, LILIES, IRIS, NARCISSUS, COLCHICUMS, HELLEBORES, PÆONIES, &c.
Our English CATALOGUE of the above for 1874 is now ready, and will, as usual, be sent post-free to all applicants.
ANT. ROOZEN AND SON (late Ant. Roozen), Overveen, near Haarlem, Holland.

British Fern Catalogue.
ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Lily of the Valley.
ROBERT NEUMANN, The Nurseries, Erfurt, begs to offer large quantities of strong flowering roots, for forcing, of the above, at 45s. per 1000.
Also strong clumps of SPIRÆA (HOTEIA) JAPONICA.

New Turnip Seeds for Present Sowing.
H. AND F. SHARPE are now harvesting TURNIP SEEDS, of 1874 growth, and are prepared to execute Orders from the Trade at very moderate prices, and on receipt of Letter or Telegram.
Seed Growing Establishment, Wisbech.

Scott's Wasp Destroyer.
J. SCOTT, SEEDSMAN, Yeovil, offers his well-known preparation to Fruit Growers at 1s. 9d. and 2s. 9d. per bottle, post free, on receipt of stamps. No one who has fruit to preserve should be without it. It is also useful in the destruction of Flies, Cockroaches, and Crickets. See testimonials. None Genuine except the Corks bear "Scott, Seedsman, Yeovil."
The Trade supplied. Prices on application.

MR. JAMES FRASER, HORTICULTURAL and AGRICULTURAL VALUER and AUCTIONEER, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

Wood Engraving.
MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.
THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES for JUNE, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

MARENDAZ AND FISHER, RUSSIA MAT MERCHANTS, 9, James Street, Covent Garden, W.C., Importer of RAFFIA FIBRE, TANNED GARDEN NETTING, &c.

COCOA-NUT FIBRE REFUSE, sifted and carefully prepared, invaluable for Forcing and Plunging Plants in. Price 9d. per bushel; 20 bushels, 5d. per bushel; larger quantities less.—JAMES STEVENS, Fibre Works, York Terrace, High Street, Battersea, London, S.W.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

TANNED GARDEN NETTING, to protect Fruit from Birds and Blight. Suitable for Poultry, 1d. per square yard; whole Nets, averaging 600 yards, £2 2s.; widths cut from 1 to 12 yards, any length over 50 yards.
C. COTTON, Potter Street, Worksop.

Indestructible Terra-Cotta Plant Markers.
MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing. Second sized Archangel, 100s.; Petersburgh, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; packing Mats, 20s., 30s., and 35s. per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

CHOICE FLOWER SEEDS for present Sowing, post free.

	Per packet.—s.	d.
LEE'S CHOICE CALCEOLARIA, extra fine	2	6
LEE'S CHOICE CINERARIA, extra fine	2	6
LEE'S CHOICE CYCLAMEN, extra fine	2	6
NEW DOUBLE CINERARIA, choice mixed	3	6
PRIMULA FIMBRIATA, choice mixed	2	6
PRIMULA, Fern-leaved, choice mixed	2	6
PRIMULA, Fern-leaved, double white	2	6
PRIMULA FIMBRIATA, double carmine	2	6
PRIMULA FIMBRIATA, double white	2	6

JOHN AND CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Choice Seeds of Prize Flowers (Post free).
SOW NOW.

MR. WILLIAM BULL recommends the following :—

	Per packet.—s.	d.
PRIZE PRIMULA SINENSIS, Red and White	each 2	6
PRIZE PRIMULA SINENSIS, Fern-leaved, Red and White	each 2	6
PRIZE PELARGONIUM, Gold and Bronze	2	6
PRIZE CINERARIA	2	6
PRIZE CALCEOLARIA	2	6
PRIZE GLOXINIA	2	6
PRIZE BEGONIA, handsome-flowered	3	6
PRIZE AURICULA, Alpine	2	6
PRIZE CARNATION	2	6
PRIZE COLEUS	2	6
PRIZE FUCHSIA	2	6
PRIZE PETUNIA	2	6

Establishment for Choice Seeds and New and Rare Plants, King's Road, Chelsea, London, S.W.

New Pelargonium.

PELARGONIUM QUEEN VICTORIA.—This new Pelargonium is now being sent out for the first time. To say that it is handsome conveys but an inadequate idea of it, for it is the most marvellously beautiful and novel variety ever offered. The flowers have peculiar crispy petals; they are not really double, but from their fulness of form and extra number of petals have the appearance of being so. The colour is a rich vermilion; all the petals broadly margined with pure white, and the upper ones blotched with maroon. The contrast of the broad white margin with the vermilion ground-colour makes the flower extremely pleasing and attractive. Price One Guinea each.

One dozen choice handsome flowered Pelargoniums, including the beautiful P. Queen Victoria, for three Guineas.

A drawing of Pelargonium Queen Victoria, by Macfarlane, can be had on application, price 2s. 6d. each.

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, S.W.

Extra Offer to the Trade.

JULES DE COCK ET SŒUR, The Nurseries, Ledeberg, near Ghent, Belgium, offer the undermentioned :—

AZALEA INDICA, with buds, in good variety, from 80s. to 300s. per 100.
CAMELLIA, with buds, good healthy variety, from 120s. to 400s. per 100.
SPIRÆA JAPONICA, good strong clumps, 16s. per 100 clumps; do., very strong, 20s. do.
DRACÆNA LINEATA, 1½ foot high, 200s. per 100; do., not so strong, 100s. do.

CATALOGUE free on application. Early orders are requested.

Extra Offer to the Trade.

JULES DE COCK ET SŒUR, The Nurseries, Ledeberg, near Ghent, Belgium, offer the following :—

PALM SEEDLINGS, in STORE POTS.

	Per 100.—s.	d.
Chamærops Fortunei per 1600, 90s.,	10	0
Corypha australis per 1000, 200s.,	24	0
Latania borbonica	16	0
Phœnix cycadæfolia	24	0
,, pumila	40	0
,, reclinata	40	0
,, sylvestris	48	0
,, tenuis	16	0
ARALIA SIEBOLDII	20	0

All the above are good healthy plants.

CATALOGUE free on application. Early orders are respectfully requested.

To the Trade Only.

E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem (the Netherlands), are publishing a New Series of the Wholesale CATALOGUE of their Horticultural Establishment; it will be published in different parts, which together every year will form a volume. The first volume, for 1874—75, is the sixty-fourth year of the establishment of the firm. The first part, containing Dutch Flower-roots, Hyacinths, Tulips, Crocuses, Narcissi, Fritillarias, &c., has been generally distributed, and will be sent post free on application.

An American Edition of the said Catalogue will be sent to the Trade of the United States of North America, post free, on application.

NEW QUEEN ONION.

THE EARLIEST IN CULTIVATION.

Sown now will produce nice Onions, fit for use, this year, and will keep late into next spring. Seed per ounce, 2s. 6d.; per packet, 1s.

Also the following choice varieties for present sowing :—ITALIAN TRIPOLI, GIANT ROCCA, WHITE TRIPOLI, and GIANT MADEIRA, each 1s. per ounce: 6d. per packet, cheaper by the pound. WHITE LISBON, a fine Onion for spring use, 4d. per ounce. EWING'S No. 1 CABBAGE, one of the earliest in cultivation, a fine selected stock, per ounce, 1s. WHEELERS' COCOA-NUT ditto, per ounce, 1s. 6d.; per packet 6d.

For other Choice Seeds for Autumn Sowing see our "Illustrated Guide for Amateur Gardeners," price 1s.; gratis to Customers.

DANIELS BROTHERS,
The Royal Norfolk Seed Establishment, Norwich.

To Gardeners.
Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,
MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

NEW PLANT CATALOGUE 1874,
Gratis and Post Free.

B. S. WILLIAMS'
NEW PLANT AND GENERAL
CATALOGUE OF NURSERY STOCK
Is now ready, and will be forwarded to all applicants.

It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

"THE ROYAL SEEDSMEN".

CARTER'S

PRIZE MEDALS
PARIS, 1867. LONDON, 1862.
HAMBURGH, 1869. WIGAN, 1870.
BLACKPOOL, 1870, &c, &c.

GENUINE SEEDS.

DESCRIPTIVE LISTS
GRATIS, POST FREE
5 PER CENT DISCOUNT
FOR CASH.

CARRIAGE FREE

237, & 238, High Holborn,
LONDON.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—
CORN MANURE, for the spring.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.

6, Fenchurch Street. E. PURSER, Secretary.

NITRO-PHOSPHATE and ODAMS CHEMICAL MANURE COMPANY (LIMITED).
Consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.
Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.
Particulars will be forwarded on application to the Secretary or may be had of the Local Agents.

COVENTRY SEWAGE MANURE.

In addition to its fertilising qualities for all kinds of crops, its use is a certain preventive against Turnip Fly if applied immediately the insect appears. Price £3 per ton.

Orders received at Coventry Works, or at the Office, 1, Iron Buildings, Queen Victoria Street, London, E.C.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Spider, Mildew, Thrips, Greenfly, and other Blight, in solution of from 1 to 2 ounces to the gallon of soft water, and from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and upwards. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	3s.	4½d.
3-inch Pipe, per yard	2s.	8½d.
2-inch Pipe, per yard	1s.	8d.

Connections at proportionate prices.

Illustrated Price List free on application to
T. G. MESSENGER, Hot-water Engineer, Loughborough.

CYCAS MEDIA.

MR. WILLIAM BULL

Intimates that he has just received, ex *Lincolnshire*, from Australia, the largest and finest Importation of this beautiful Cycas that has ever reached Europe.

The trunks are of various sizes, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, 9 feet, 10 feet, and 14 feet high, symmetrical, straight, and in the finest condition possible.

These Cycas are admirably adapted for the Decoration of Greenhouses and Conservatories.

An Inspection is invited, or Prices on application.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

CHOICE IMPORTED ORCHIDS

From the PHILIPPINE ISLANDS and CENTRAL AMERICA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 23, at half-past 12 o'Clock precisely, an

IMPORTATION OF ORCHIDS FROM CENTRAL AMERICA,

just arrived by R.M.SS. *Nile*, consisting of ONCIDIUM CHEIROPHORUM, CYPRIPEDIUM LONGIFOLIUM, CATTLEYA SKINNERI, EPIDENDRUM ATROPURPUREUM, PESCATOREAS, WARSCEWICZELLAS. Also splendid Specimens of PHALÆNOPSIS IMTERMEDIA, with fine leaves, some of which measure 12 inches in length, very broad, and in appearance very closely resemble the variety Portei; fine Specimens of PHALÆNOPSIS SCHILLERIANA; good Plants of PHALÆNOPSIS LUDDEMANNIANA and P. GRANDIFLORA; a lovely CYMBIDIUM, in the way of CYMBIDIUM PARISHII, producing on very small plants two flowers on a spike, in size nearly as large as those of Cymbidium eburneum, sepals and petals white, lip a delicate pencilled Roman red: a very waxy-like flower with delicious perfume—altogether a most beautiful and desirable species, and in opinion of Collectors entirely new.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON W.C.

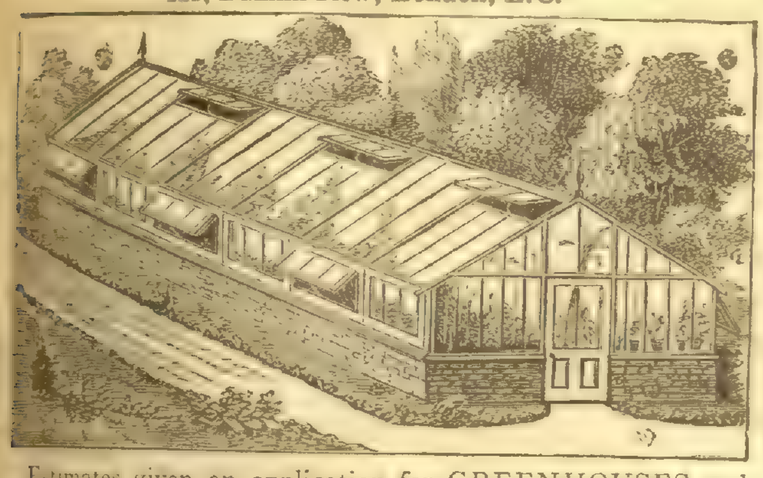
J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

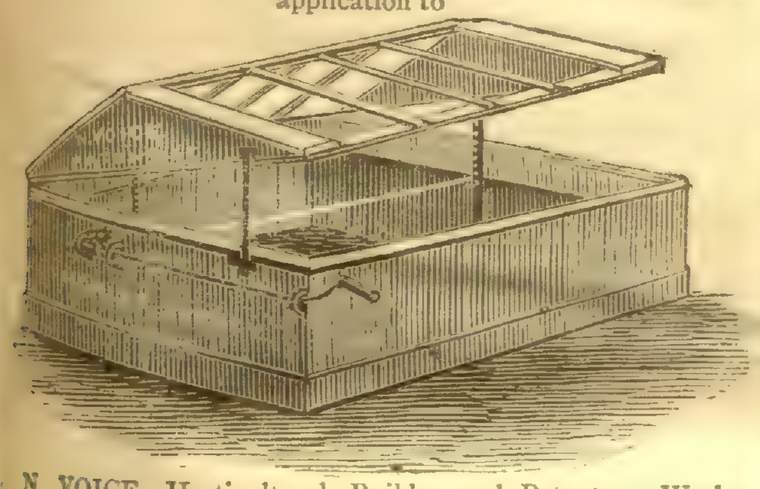
W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

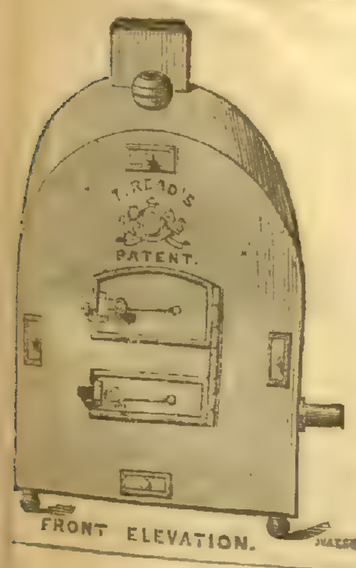
N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

THE GARDENER'S FRIEND.



READ & CO.'S

PATENT

RETORT SADDLE BOILER

Portable, or for Setting in Brickwork.

Constructed for heating from 100 to 5000 ft. of 4-in. pipe.

Stamp for prospectus on application to the Manufacturers,

T. READ & CO.,
167, OLD STREET,
LONDON, E.C.

PUBLIC and PRIVATE BUILDINGS, MANUFACTORIES, CONSERVATORIES, &c., heated on the most improved system, combined with perfect ventilation. **Heating by Hot Water.**

These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

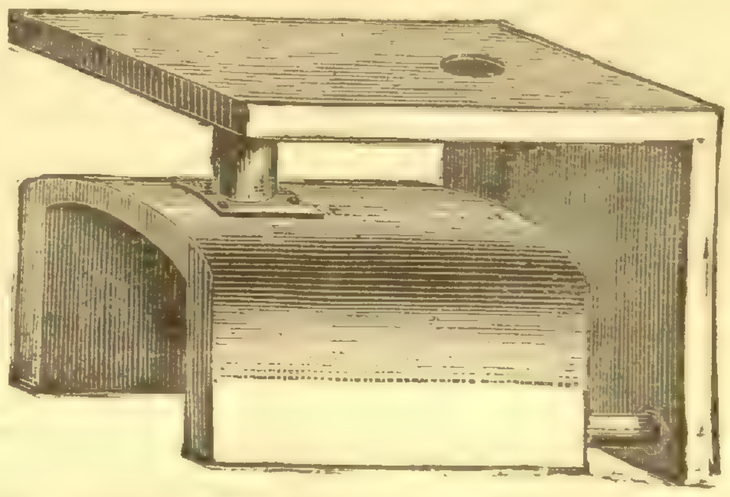
POLLARD AND CO. (late Bury & Pollard, Successors to John R. Peill, late Stephenson & Peill), Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Fixed at seats of Duke of Newcastle, Lord Belper, Lord Middleton, &c. At Viscount Sydney's replaced, after being twenty years in constant use. Foreign orders promptly executed. The Prince Salm Salm, the Duke de Croy, &c., recently supplied.

PRICE LISTS free by post.

Pear Garden, New Park Street, Southwark, London, S.E.

JONES'S PATENT "DOUBLE L" SADDLE BOILER



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

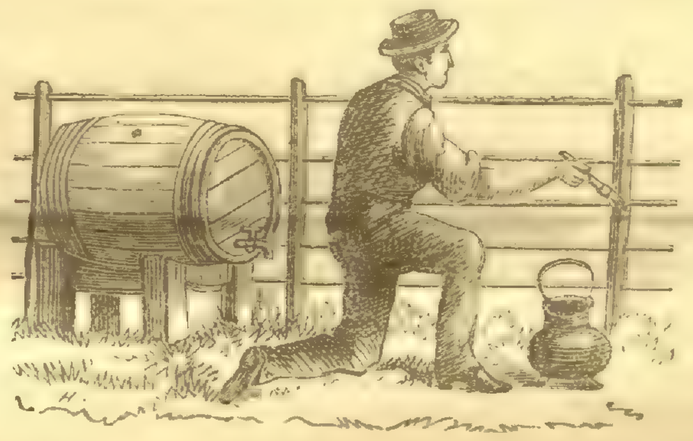
Sizes.			To heat of 4-in. Pipe.	Price.
High.	Wide.	Long.	Feet.	£ s. d.
20 in.	18 in.	18 in.	300	7 0 0
20 ,,	18 ,,	24 ,,	400	8 0 0
20 ,,	18 ,,	30 ,,	500	9 0 0
24 ,,	24 ,,	24 ,,	700	12 0 0
24 ,,	24 ,,	30 ,,	850	14 0 0
24 ,,	24 ,,	36 ,,	1,000	16 0 0
24 ,,	24 ,,	48 ,,	1,400	20 0 0
28 ,,	28 ,,	60 ,,	1,800	25 0 0
30 ,,	30 ,,	72 ,,	2,600	35 0 0
36 ,,	36 ,,	96 ,,	4,500	50 0 0
48 ,,	48 ,,	108 ,,	7,000	75 0 0
48 ,,	48 ,,	144 ,,	10,000	100 0 0

And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

Oil Paint no Longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL JUST RECEIVED.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

EXTERMINATES VERMIN

CANTHARIKOPHO

OR COCKROACH AND BEETLE POISON

EFFECTUALLY DESTROYS BEETLES COCKROACHES RATS & MICE *and will attract its victims until* ALL ARE DESTROYED.

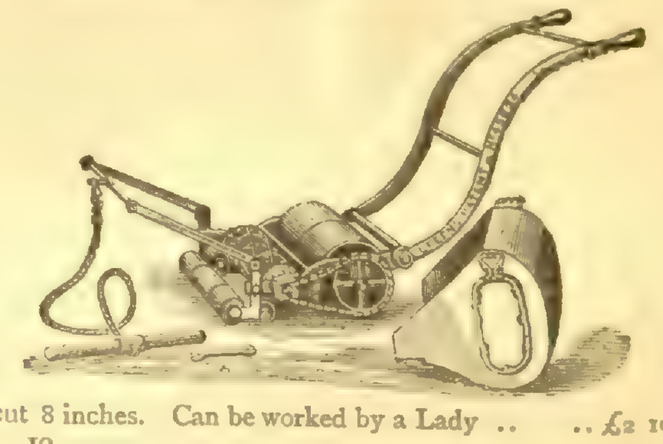
Is indispensable to Nurserymen, Gardeners, and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1*s.* and 1*s.* 6*d.*, and sent post free with directions, for 1*s.* 3*d.* and 1*s.* 10*d.*, by the Proprietors—

WILLIAM ROLLISSON AND SONS,
Tooting, London, S.W.

GREEN'S PATENT "Royal Guinea" & "Silens Messor" OR NOISELESS LAWN MOWING, ROLLING, AND COLLECTING MACHINES FOR 1874.

The Winners of every Prize in all cases of competition.



To cut 8 inches.	Can be worked by a Lady ..	..	£2 10 0
,, 10 ,,	,, ,, ..	..	3 10 0
,, 12 ,,	Can be worked by One Person	..	4 15 0
,, 14 ,,	,, ,,	..	5 16 0
,, 16 ,,	This can be worked by One Man on an even lawn.		6 17 0
,, 18 ,,	By Man and Boy	..	8 0 0
,, 20 ,,	,, ,, ...	..	8 10 0
,, 22 ,,	,, ,, ...	..	9 0 0
,, 24 ,,	,, ,, ...	..	9 10 0

Prices of Horse, Pony, and Donkey Machines on application.

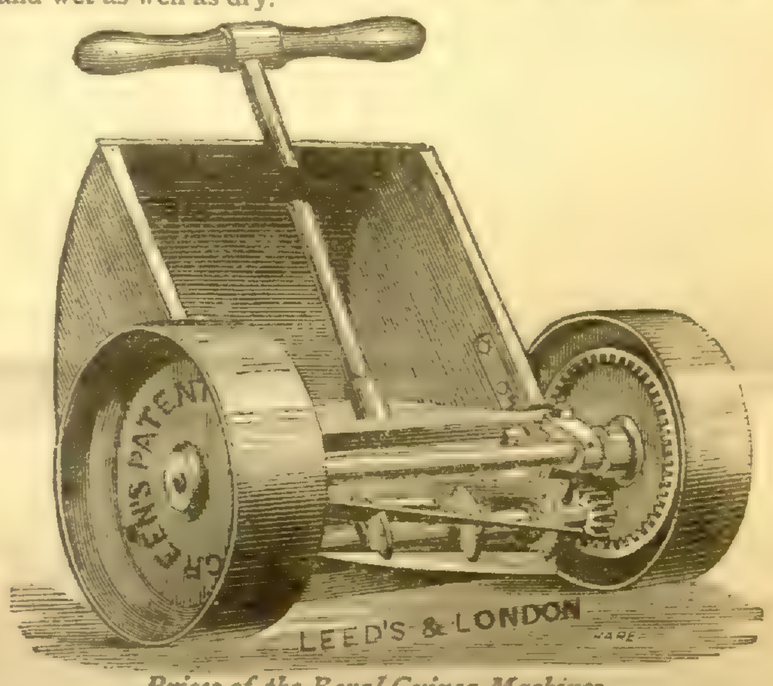
Carriage paid to all the principal Railway Stations in the United Kingdom.

The "Silens Messor" machines have a world-wide reputation for their superiority and excellence.

They will cut either SHORT or LONG GRASS, BENTS, &c., and wet and well as dry, advantages which no other Lawn Mowers possess. They are the only Lawn Mowers in constant and daily use in all the Royal Gardens, and in most of the principal Gardens and Parks throughout the Kingdom.

GREEN'S LATEST PATENT IS THE "Royal Guinea" Lawn Mower,

which is a far superior Machine of its kind to any Lawn Mower extant, and it will cut either short or long Grass, Bents, &c., and wet as well as dry.



Prices of the Royal Guinea Machines.

To Cut—					
6 ins.	8 ins.	10 ins.	12 ins.	14 ins.	16 ins.
21*s.*	31*s.* 6*d.*	42*s.*	52*s.* 6*d.*	63*s.*	84*s.*

Delivered, carriage free, to all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland.

And a greater fact still is, that

Every Machine is Warranted to give entire Satisfaction, and if not approved of may be Returned at once, Unconditionally, without any expense to the Purchaser.

N.B.—Those who have Lawn Mowers to repair will do well to send them either to our Leeds or London Establishments, where they will have prompt attention, as an efficient staff of workmen is kept at both places.

GREEN'S PATENT ROLLERS FOR LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, AND GRAVEL PATHS,

Suitable for Hand or Horse Power.

The above can be had from all respectable Ironmongers and Seedsmen in the United Kingdom, or from

THOMAS GREEN & SON,
SMITHFIELD IRONWORKS, LEEDS; and 54 and 55, BLACKFRIARS ROAD, LONDON, S.E.

Carriage paid to all the principal Railway Stations in the United Kingdom.

DESCRIPTIVE ILLUSTRATED PRICE LIST FREE ON APPLICATION.

IMPORTANT NOTICE.

A Valuable Scientific Discovery.

As the result of a lengthened series of practical tests Messrs Weeks & Co have much pleasure in stating that they have succeeded in perfecting one of the most valuable inventions ever introduced for economizing fuel, and effecting perfect combustion in the Furnaces of Tubular Boilers. So astonishing are its effects that not only has 20 per cent of fuel been registered as a minimum saving, but a point exceeding 30 per cent has been attained, to which must be added a corresponding economy in labour.

This invention consists of a patent horizontal Water-Diaphragm with vertical plates adjusted so as to prevent the escape of unconsumed gases, which being conducted through and through the furnace greatly intensify the heat, cause perfect combustion, and serve as a partial smoke-consumer.

This effective invention in conjunction with their previously Patented Duplex System of two Boilers in one, at once renders these Boilers the most powerful the most economical, and safest ever invented, while for durability Messrs Weeks & Co give a 10 years guarantee with every Duplex Boiler fired by them.

For particulars of same and BOOK OF DESIGNS (13th Edition), apply to

J. WEEKS & CO.,

HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS,

KING'S ROAD, CHELSEA, LONDON, S.W.

Sutton & Sons

ARE PREPARED TO OFFER

NEW SEEDS

OF THEIR CHOICE STRAINS OF

FLORISTS' FLOWERS

FOR PRESENT SOWING.

Post Free.

SUTTONS' SUPERB CALCEOLARIA.

Our Stock of this favourite Greenhouse Flower has been saved from the finest strains only. Price, 2*s.* 6*d.* per packet.

DOBSON'S, JAMES'S, THOMAS'S,
And other Strains can be supplied at the advertised prices.

The following can also be supplied :—

SUTTONS' CHOICE CINERARIA, 2*s.* 6*d.* per packet.
SUTTONS' CHOICE PRIMULA, 2*s.* 6*d.* per packet.
SUTTONS' CHOICE CYCLAMEN, 6 varieties, 5*s.*

Complete particulars of other CHOICE FLOWER SEEDS for present sowing, gratis and post free.

SUTTON and SONS,

SEEDSMEN BY APPOINTMENT TO THE QUEEN AND PRINCE OF WALES,
ROYAL BERKS SEED ESTABLISHMENT,
READING.

SUTTONS' CABBAGE SEED

FOR PRESENT SOWING,

FOR SPRING AND SUMMER USE.

The best Cabbage for Spring and Summer use is

SUTTONS' IMPERIAL.

This popular Cabbage is the finest in cultivation, and the earliest for Autumn, Winter, and Spring use. Good heads may also be cut from the stems during Summer. The heads are somewhat cone-shaped, remarkably large and firm, of mild flavour, and do not readily run to seed. Sow about the middle of July for Spring use.

Price 1*s.* per oz.

Suttons' Imperial Cabbage.

The following Sorts are also suitable for present sowing:—

EARLY YORK.
NONPAREIL.
WHEELER'S IMPERIAL.
ENFIELD MARKET.
EARLY BATTERSEA.

Further particulars of Seeds for Summer and Autumn Sowing on application.

Sutton & Sons

THE QUEEN'S SEEDSMEN, READING.

SATURDAY, JULY 18, 1874.

PLEA FOR WILD PLANTS.—II.

BEING mortified at finding myself uncertain as to one or two common wayside plants, in their undeveloped states, I resolved to refresh my knowledge amongst those by the seaside, and also on moor, bog, and hill—catching them before they were in flower—for there is no doubt that it is unworthy of an earnest amateur botanist to trust to the mere flower to clear off all his doubts and difficulties.

In spite of the mild winter, this past May was favourable for my object, and by the shore the plants were not so far on as usual, and the same with regard to the upland district I went over during the very first days of June. In this paper I will keep to the seaside. The first plant I came to was a fine lot of Geranium lucidum (Shining Crane's-bill), 2 yards square, quite distinct in its transparent red stalks and clear shining look; and a little further inland was G. pyrenaicum (Perennial Dove's-foot Crane's-bill), more confusing, and a variety one likes to see the small cupped blue-purple flower of. Quite in the sand, Erodium cicutarium (Hemlock-leaved Crane's-bill), there never can be any doubt about, as its long, narrow, sharply pinnatifid leaves, lying flat upon the ground, are completely different from the round foliage of the two former, or, I believe, from any of our native Geraniums. Of this I found only a single flower on three different plants, but all three were white (with unequal petals, the two upper being shorter than the three lower ones). Is the white variety of a plant usually earlier than that which is of the normal colour? The white variety of G. Robertianum is always first in our garden, where we grow this Geranium for its beautifully shaped leaves. The white varieties of Sisyrinchium grandiflorum, and Ribes, Hawthorn, and Horse Chestnut occur to me as earlier than their respective red and yellow varieties. In a patch of Ajuga reptans I have found the white spike in bloom while the rest of the patch was only in bud; true, there were other blue patches not far off fully expanded.

I had to search for Thalictrum minus, the dark purplish tops of which were just protruding above the sand, and to which the long blanched roots first found led up. Then came Ononis repens (Rest-harrow), more viscous and less fœtid than when showing its pretty pink Pea-flowers; and Lotus corniculatus (Bird's-foot Trefoil), with bright red buds—no yellow visible as yet. The prettiest of all the common Hieraciums, H. pilosella (Mouse-ear Hawkweed), was in plenty, but one missed its neat sulphur flowers, red streaked in bud, or when shut up in the afternoon.

In the chinks of the rocks, at times wet with the sea spray, were tufts of Plantago maritima (Sea Plantain), and Statice Armeria (Thrift), the tight flower-buds as yet stalkless. The young botanist is always attracted by the fact about this, "the most humble and most lofty of plants," as Lightfoot describes it, viz., that it is not found in intermediate stations, and only on the seashore, or on the tops of the highest mountains, and feels puzzled when he finds Polygala, Tormentilla, and Thyme, &c., in conjunction with it on the seashore, but looks in vain for the Thrift very high up hills, where these three are in abundance. The fine small herbage was all so extra short that I could not find either Polygala vulgaris, Linum catharticum, Astragalus arenarius (?), or Anthyllis Vulneraria, and must go back to see if they are lost to that particular locality, or if I require the various coloured flowers of the Milkwort, the small white flowers of the Purging Flax at the top of each slender branch, and the bright purple or yellow clusters of the two last Vetch-like plants. Elymus arenarius (Sea Lyme-grass), with blue-green sharp leaves rolled inwards, and the tall flower-stalks of last year still on, were also found here.

The honey-smelling Cochlearia officinalis (Scurvy-grass) was in full flower, those patches that were not luxuriating in the sand being of a purple tinge all over. Yet still further down on the shore, growing in the dry pure sand, was Arenaria peploides (Sea Chickweed), with its square juicy tops; no white flowers open. It is mere folly to single out any one class of plants as more suited than any other to its particular position, for all of course are fitted for their natural situation, but in our humid island succulents do strike one as most remarkable—the thick fleshy leaves supplying themselves with all the moisture they require, only waxing thicker and cooler and more glistening the hotter and drier be the weather.

Seasons like the present, I may remark in passing, will teach many things to the amateur: their two favourite practices, raking too much and watering too little (surface work, in short), must be avoided; and the value of properly and deeply worked ground and mulching (where that has not been practised) will be very apparent even to the prejudiced, who think neatness the beginning and end of good gardening. The cultivation of succulents will get a great impetus, and also I hope that of Scotch Roses.

Here in the poor sandy soil were Rosa spinossissima and four other Briars in bud, sufficiently far advanced to expand in water. We have a large bed of the cultivated double and semi-double sorts of these delicious little Roses. They have more perfume than any of the grand hybrids or Teas, shortlived as they are. The bushes (3 feet high) are loaded with flowers, grow in the poorest portion of the garden, require no pruning, no solid or liquid manure, and have not a caterpillar or aphis about them. This, however, is owing to a famous colony of sparrows—above thirty nests—which we left undisturbed this season in a high Ivy-covered wall hard by. We usually take their eggs twice in the spring, and find one brood fully sufficient to cover our Pea rows and peck every pod, and in spring we are provoked at the destruction of our Yellow Crocus edgings, and of our mossy Saxifrages or Sedums, which they pull up for their nests, also the sand baths that go on in our seed beds that are not netted; but this year we are envied by all our neighbours for our freedom from insect pests and for the comparative cleanliness of all our Roses.

The little yellow Stonecrop (Sedum acre) was also well covered up in the sand but was not in bloom, though Saxifraga granulata, with its tall stalk and fine white blossom, was in beauty. The double variety of this Saxifraga makes a lasting patch for the last lot of plants to flower in the spring border, but is still better placed among grass, where one does not miss its quickly dried up leaves, and its roots will only roll about and be spread, not lost, as is likely to happen on the bare soil; it is useful for cut flowers, but beware of pulling up the whole plant when gathering it. It is possible to mistake the tubercles for those of the Celandine — yellow, faded leaves, and exposed grain-like roots are now all that is visible of that earliest and always welcome Ranunculus.

At least two species of Atriplex, Sea Spinach or Orache, were promising to cover a large portion of the sand; they belong to a very unattractive family as to good looks. *Silene amœna (Sea Campion) [? S. maritima] was beginning to*

trail on the beach, also Polygonum Convolvulus (Black Bindweed). Up from the shore a few yards grew Campanula rotundifolia. One is apt to overlook the distinctive ground leaves when plucking the slender blue bells, with long narrow stalk leaves, two months hence. Shining green Galium verum (Ladies' Bed-straw) had not a vestige of its yellow flowers, but there was a suspicion of white visible on the close growing G. procumbens [?], and the little hairy Tare (Ervum hirsutum) was full of its minute flowers.

The great wild Valerian (V. officinalis) had come to its height, but was not in bloom; and Symphytum officinale (Comfrey) was exhibiting some of its yellowish flowers. These two large-growing plants were in a dampish piece of ground, where a burn ran into the sea; there also grew the little Cerastium aquaticum (Marsh Mouse-ear Chickweed). Handsome fresh tufts of Senecio Jacobœa reminded me of the pretty Burnet Moth (Anthrocera Filipenduæ) one was always sure to find in this spot (Dalmeny, near Cramond); its gay yellow and black headed and spotted caterpillar matched safely the golden flowers of the Ragweed, on which also this lazy moth clings in numbers on a dull day.

Silene inflata (Bladder Campion), not in bloom, stunted specimens in lilac flower of Valerianella olitoria (Corn Sallet), and a Papaver dubium or two, with red hairs at the base of the scarcely formed flower-buds, gave promise of the fine blaze there will be in the neighbouring cornfields presently, from whence these three last plants had strayed. A few Cowslips, and another nodding flower, Geum rivale (Red Water Avens) were also observed. We found also fine leaves of Angelica sylvestris, the only Umbellifer in this walk not alluded to in my April paper. "Well content with our stroll along 6 miles of coast, we took coach," as Pepys words it, "and so home to my musique and then supper . . . . which did please me mightily."—(*Diary*, 1660-61). *F. J. Hope, Wardie Lodge, Edinburgh.*

New Garden Plants.

Zygadenus Fremontii, *Torrey in Wats. Bot. 40th Parall.*, 343.*

This is a hardy bulbous plant of the natural order or sub-order Colchicaceæ. In the structure of the flower it is allied to Veratrum, but the narrow grass-like persistent leaves give it more the habit of an Anthericum. It is a native of California and the Rocky Mountains, and, though gathered forty years ago by Douglas, it was not clearly distinguished till Dr. Torrey took it in hand, and described and named it in his paper on the botany of Whipple's expedition. It was introduced by Mr. Bull some three years ago, and at the time a drawing was made by Mr. Fitch, which was intended to appear in the *Refugium*, and the following notes were taken. My own idea would be to restrict the genus Zygadenus to the hermaphrodite panicled Veratreæ with a free ovary. In that case the genus would hold only the plant now under notice and Z. glaberrimus, which inhabits the Eastern States, and has no bulb. Our plant resembles in habit very closely the Anticlea glauca of Kunth, but in that the lower part of the ovary is adnate to the perianth.

Bulb ovoid tunicated, ½—1 inch thick, with dark brown tunics and copious basal fibres. Basal leaves 3—4 to a bulb, narrow linear, grass-like in texture, 1—2 feet long, 3—4 lines broad, acuminate, bright green, keeled, glabrous, persistent. Stem ½—1½ foot long below the inflorescence, furnished with 2—4 reduced linear leaves. Inflorescence lax, a simple raceme in poor, a panicle ½—1 foot long in luxuriant specimens. Pedicels solitary, ascending, 3—24 lines long, the upper ones growing gradually shorter. Bracts lanceolate persistent, as long as the upper, shorter than the lower pedicels. Perianth cream-coloured, the six free divisions half an inch long, lanceolate, with a distinct claw, from the top of which they spread when expanded, the blade furnished with 5—7 distinct ribs, the claw bearing a distinct greenish-yellow viscid gland at the top, which is toothed on the upper side. Filaments shorter than the perianth, bearing small round yellow one-celled anthers. Fruit a coriaceous septicidal capsule twice as long as the persistent perianth, the carpels truncate at the apex, bearing short divaricating styles. Seeds numerous, compressed, packed tightly in the cells. *J. G. B.*

* Bulbo ovoideo tunicato; foliis basalibus 3—4 linearibus, gramineis glabris 1—1½ pedalibus 3—4 lin. latis persistentibus, caule ½—1½ pedali firmo parce foliato; floribus multis laxe racemosis vel paniculatis; pedicellis solitariis flore multo longioribus; bracteis lanceolatis persistentibus; perianthii segmentis albidis lanceolatis acutis distincte unguiculatis ½-uncialibus, unguibus distincte foveolatis; staminibus inclusis; carpellis coriaceis flore duplo longioribus; seminibus in loculo crebris compressis.—Anticlea Fremontii, *Torrey, Bot. Whipple*, p. 88; Zygadenus glaberrimus, *Hook. & Arn., Bot. Beech*, p 160, *non Michx.*

THE FRUITS OF PERSIA.

(*Continued from p.* 38.)

Persia, in ancient times, was the greatest power in the East, and attempted, upon more than one occasion, to subjugate what then existed of the West, until it fell before the genius of Alexander. During this period of supremacy it was repeatedly visited, and became well known to many travellers and geographers, and the description given by Strabo and others coincides exactly with the features to be met with at the present day. He divided the country into three regions—a distinction founded on an accurate observation of the leading diversities of climate and produce — the southern division or declivity being hot, dry, and barren; the midland, cold and dry; and the northern, moist, warm, and fertile. When approached by the Persian Gulf, instead of the beautiful land depicted by poets, the chief characteristics are dreariness, solitude, and intolerable heat. Some of the desert parts of the province of Kuzistan are exceedingly dangerous, from the effects of a scorching wind that frequently blows from the north-west, and only in the immediate vicinity of towns and villages are Rice, Wheat, and Barley grown, and then in portions scarcely sufficient for the supply of the inhabitants. The Rice harvest takes place in August and September, and that of the other grain in April and May. The Rice is cultivated in parts that are well watered, by artificial canals drawn from the different rivers; but the latter is chiefly dependent upon the periodical rains for nourishment, and hence the frequent failures of crops and consequent dearth.

Amongst the most fertile spots, with the Rice, the Date tree has found a home and flourishes greatly. This fruit is reckoned one of the most delicious in the country, and nowhere so excellent as in Persia. The care of the people, who live almost entirely upon camels' milk and Dates, seems exclusively given to the preservation of the animal and the propagation of this tree, which yields what they account the best of this world's luxuries. The Date also furnishes not only this lively race of men with food, but with almost all the metaphors with which their language abounds. An example of the estimation in which it is held is mentioned by one who accompanied Sir John Malcolm upon his mission to the Court of Teheran. "An Arab woman who had gone to England was questioned, upon her return, as to what kind of country she had seen, and upon hearing her answers the audience were filled with envy of the English, and a gloom spread over them, which showed discontent at their own condition. They were departing with this sentiment, when the woman happened to say, 'England certainly wants one thing.' 'What is that?' said the Arabs, eagerly. 'There is not a single Date tree in the whole country!' 'Are you sure?" was the general exclamation. 'Positive,' said the old woman; 'I looked for nothing else all the time I was there, but I looked in vain.' This information produced an instantaneous change of feeling among the Arabs—it was pity, not envy, that now filled their breasts, and they went away wondering how men could live in a country where there were no Date trees!" The Dates, when gathered, are laid in heaps until they are ripe and melting, and candy or preserve themselves without sugar; and the tree which bears them is slender, but very tall, and does not yield till it is fifteen years old, and then continues to do so for a great length of time. The cultivator is subjected to all manner of exactions. The plantations are assessed at a certain sum yearly for each tree: about fivepence, or sometimes more; but no remission is granted when the trees die or are destroyed. Should the number be increased, however, good care is taken to increase the assessment. Poppies growing in this region are held in great estimation for the quantity and strength of their juice. This juice is extracted in June, when the Poppy is ripe, by making an incision in the head, from which a thick liquor exudes that is gathered very early in the morning before sunrise. The people employed in this work are said to be greatly affected by their occupation, and their limbs tremble as if affected with palsy. The produce of the sugar-cane is believed to have been formerly immense; Cotton and Tobacco flourish at the present day.

As the traveller ascends the higher and colder regions that form the table-land of Persia the Date disappears, and its place is supplied by the Oak, the Poplar and the Plane. The people gather the acorns, which they use in making bread. The acorns are dried in the sun, peeled, and pounded into flour. This flour is soaked in water for two or three days, to take off the bitter astringent taste, then mixed with an equal quantity of barley meal and baked in thin cakes. There is an abundance of the Mastich tree, a species of wild Almond (from which the peasants cut knobbed sticks), the Barberry, and a very large kind of Hawthorn, which bears a yellow berry the size of a Cherry, with the scent of a Quince, which the peasants collect and eat. The entertainment at the caravanserai consists of a huge basin of sour milk, another of boiled Rice, wooden platters of cream, cheese, bread, Dates, and Pomegranates. In spring the beauty of these upland plains surpasses description: the first showers bring forth the young grass, and in a few days the whole face of the country becomes clothed with the deepest green, varied by innumerable flowers of the richest hue. Soon the flowers and the grass attain a height almost unknown in our climate, and the horseman with difficulty makes his way, and whilst so doing runs the risk of being lost amidst the luxuriance. The main roads are mostly impoverished by reason of the exactions of the officials and the troops; but there are secluded valleys where the hillsides are covered with Vines, and along the margin of the streams that fall in cascades the fields are rich with dense bushes of Roses, with Tulips, Hyacinths, Ranunculus, and almost every species of flowers, growing in the wildest profusion. The mountains reflect themselves upon the bosom of the waters, here and there expanded into lakes; and the quick sighted attendants—the Frenchmen of the East—observe the wonder and admiration depicted upon the face of the traveller, and exclaim with satisfaction, "This is Persia! this is Persia!"

The climate of Shiraz, which is distant about 160 miles from Bushire, the principal port in the Persian Gulf, is much too cold for the date. In December there is frost at night, and then ice upon the pools in the morning. At mid-day the sun is warm, and the temperature resembles a spring day in England. The air is remarkably dry and pure, like that of Upper Egypt. Wine is the staple commodity, and there are some kinds that are really good, and would doubtless be much better if the manufacture was conducted more skilfully. The Vine is planted at two seasons of the year—in Aries (end of March) and Scorpio (end of October). The ground intended for a vineyard is dug over repeatedly with a heavy spade, to the depth of a yard or more, and then smoothed over with a board studded with spikes, used as a harrow, and drawn by oxen. It is then divided into four or more flats, by constructing alleys a little higher than the level of the soil, and intersecting at right angles. The cuttings of the Vine are planted in little holes, about 6 feet apart, and well watered every ten days. There are usually three cuttings inserted in each hole, about 10 inches long above ground. The Vine trained upon a trellis bears fruit in three years after planting, and is pruned annually at the close of winter. The general practice of the country is to train the Vines on walls or high wooden frames; but in some places they are cut down into stunted bushes, as is the common fashion at the Cape of Good Hope. During September and October wine is prepared. The Grapes are trodden out in a large earthenware pan, and the whole crushed mass, juice and all, is stowed into a jar holding twenty gallons. A small quantity of water is added; after a few days fermentation commences, and the mass is then stirred about every morning and evening with a wooden shovel, during a period of twenty or twenty-five days. At the expiration of this space of time the refuse sinks to the bottom of the jar, and the wine is drawn off and bottled in glass flasks. It is considered fit to drink about forty days after bottling; but most kinds improve greatly by keeping a year or two. The best kinds are kept for seven years or more. There is no such thing as a cask or barrel in the country, and the wine thus prepared in jars is not fermented so perfectly as it would otherwise be.

The wines are both red and white; some are light, like Madeira, and others sweet, like Constantia. They are pure juice of the Grape, for the Persians do not doctor or fortify their wines as we do. It is sold in glass flagons of various sizes, the largest containing two and a half gallons, and the smallest little more than a quart. It is sold chiefly by Armenians, as it is considered disgraceful for Mussulmans to trade in this liquor, although many of them do so privately, and all drink it without much scruple. There is another spirit, distilled from orange-peel, made in Azerbayan, called "water of life," which is most destructive, and ought to be called "water of death." Date brandy is also drank by the people; a description of cider is also made from the Apple. In some places the Vines are extensively cultivated, and no wine made, but a considerable quantity of raisins and *sheera*, or Grape treacle, which is a common food with the peasantry. In the market at Shiraz, during September, Grapes were selling at 6 lb. for 1s. The common kinds are a long shaped large Grape, of a pale green colour and very sweet flavour; a purple Grape, from which the common raisins are made;

and a small sweet stoneless Grape, which when dried makes the *Kishmish* or Sultana raisin. At the villages, upon the flat roofs of the houses, may be seen quantities of large black Grapes drying in the sun. There are vast districts where raisins are cultivated, but the difficulties of transit are so great, and the expense of bringing them to the coast so heavy, that they do not pay to send to England, consequently they are used for distilling and other local purposes.

At Ispahan excellent wine is made, but not equal to that of Shiraz, where considerable quantities of fruit are produced in the gardens around the city,—Oranges, Pomegranates, Apples, Quinces, a large kind of Pear not unlike a Bergamot. The plain is for the most part cultivated, and there are two harvests in the year. The summer crop, sown in summer and reaped in the end of autumn, consists of Rice, Cotton, and Indian Corn, of which there are two kinds, Maize and small Millet, Lentils, castor-oil plant, and some garden vegetables. The winter harvest, sown during October and November, and reaped from May till July, consists principally of Wheat and Barley. The plain of Merodasht appears to be nearly, if not quite, as extensive as that of Shiraz, and like it, is covered in most places with the wild Liquorice and Camel's Thorn. There are numerous villages and some cultivation, but not one tithe of what there might be under proper management, for this valley, which is well watered and evidently fertile, once contained the city of Persepolis. *E. T. B.*

(*To be continued.*

TREES RECENTLY STRUCK BY LIGHTNING.*

I RECENTLY visited a large Sycamore growing in the park at Woodburn, Dalkeith, which was struck by lightning on June 25. The stem of this tree is 11 feet in circumference at 3 feet up, about 70 feet in height, and of perfect symmetry. Considerable portions of the outer bark, varying from 2 to 3 feet in diameter, particularly on various parts of the upper branches, have the appearance of having been scorched—pieces from 1 to 6 inches in length, and averaging about 2 inches in breadth, being more or less curled up, some appearing as if attached by the middle. Only on one spot is the bark removed down to the wood; this space is 2 feet long and 6 inches over. The lower part of the main stem shows numerous lines on the outer bark, as if removed while the electric fluid was passing to the ground. At the time of the lightning two bullocks were standing close to the stem, both were killed. It is difficult, as yet, to say what permanent damage the tree has sustained; the upper portion has a yellowish appearance, particularly on the south-west side.

A letter from Dr. Ballantyne, Dalkeith, informs me of an Ash at Lugton, on the Dalkeith property, which was struck by lightning during the same storm. This Ash is 8 feet in circumference, and 50 feet in height; it was struck on the main branch about one-third from the top, at this point the bark is entirely gone and the wood much splintered. On various places along the main stem the bark is more or less stripped off, and on the lower part the bark is nearly gone all round. The stem is covered with longitudinal fissures, but no splintering is seen except on the part first struck.

Various trees are reported in the public papers as having been injured by lightning on the same day, both in Fife and in various parts of Midlothian.

On hearing that some Beech plants were injured in the nursery grounds of Messrs. Methven & Sons, at Inverleith Park, on June 25, I made an inspection of them, and found a row, 39 yards long, with plants averaging from 2 to 3 feet in height, and which had stood in their present position for four years. The leaves of nearly all appeared more or less burnt, but the plants themselves did not seem to have sustained any damage beyond the browning of the leaves. A large group of Elms, about the same size, stood close to the Beeches, but none of them appear to have suffered. About 50 yards distant a large quantity of Beeches of the same age are growing, but none of them showed any signs of injury. I have long been anxious to ascertain the precise damage done to large Beech trees by lightning in this country from a prevailing notion in America that this tree is never struck, and which is therefore resorted to by the rural inhabitants during thunderstorms. Several instances in Britain are known to me of Beech trees having been injured both in leaf and bark, but in no case killed by being split or torn to pieces like many other trees, perhaps kinds more subject to electric influence, such as Oak, Elm, Ash, Silver Fir, &c.

Of recent years forest and ornamental trees damaged by lightning have been numerous. Many trees, growing in situations where not observed, although not torn to pieces, are often injured to such an extent as ultimately to cause death. During the spring months large branches are found to be dead, and often the whole tree, evidently caused by lightning during the previous summer or autumn, but not observed at the time.

Wall-fruit trees are also subject to the effects of lightning; when injured they are almost immediately observed by the sudden browning of the leaves. In the case of stone fruits, besides being browned, bursting of the bark often takes place, causing gum to ooze from the injured portions.

* Paper by Mr. M'Nab, read at the July meeting of the Edinburgh Botanical Society.

MARKET GARDENING IN WEST CORNWALL.

(*Concluded from p.* 40.)

ASPARAGUS.—Penzance growers save their own Asparagus seed, and rear their own plants. Beds are formed about 4 feet wide, and raised about 18 inches from the alleys. Five rows of plants are put in these beds. Asparagus is planted with the Onion crop. One crop of Onions is all that is taken out of the beds. When planted, the crowns of the young plants are only just covered. In winter 2 inches of soil are taken from the alleys and placed over the beds. Very little "grass" is cut the first year. In the autumn the stalks are cut off and laid in the alleys, and the earth which was thrown on the beds is now drawn back again to cover the stalks; these stalks become rotten on the return of spring. Spring dressings of guano and seaweed are used, the former from 6 cwt. to 7 cwt. to an acre, and the latter placed over the beds about 2 inches thick. The earth in the alleys at 2 inches deep is again thrown over the beds to cover the manure. Asparagus used to be planted deep, but shallow planting and shallow covering of the crowns having been adopted for some years here, it was found that the heads became weaker, and the cutting season sooner over, therefore the old plan has again been resorted to, and will soon become general. Hair which comes from the hides at the tanyard is considered superior to anything as a dressing for Asparagus; this manure produces finer heads, and, being a manure which takes long to decompose, its properties, whatever they may be, will hold good in producing fine heads for twenty years in succession. The supply of this material is found very much under the demand as a manure.

Tan from the hide or tanyard used to be considered by these growers of Asparagus absolutely necessary to get good crops. Large carts were made expressly for carrying it to the gardens. These carts used to be loaded as high as possible; it was, I believe, sold by the load. After a time some one who must have been deeply interested in the sale of this commodity, erected a pole across the tanyard gate or door, which, when the carts passed out, swept off some of the load. At this affront the gardeners agreed to wait and see if Asparagus would really do without the tan, and finding it grew quite as well, were spared the annoyance of the tan seller, and the labour of applying the tan.

The early importations of Peas from Holland and other places have great influence on the profits from Asparagus growing. In some seasons £80 an acre has been realised, while at other seasons the profits have been *nil*. Cutting commences in the latter part of March and the beginning of April; this operation is performed by women, who afterwards tie up the heads in bundles of twenty or twenty-five; four or five bundles are afterwards tied into one; they are then packed in hampers and sent off to different markets. About 50 acres of this vegetable are grown. Asparagus grows in a wild state on the Cornish coast, so also does Seakale.

STRAWBERRIES.

As a rule no special preparation of the soil is made for this crop. Autumn planting is exceptional: when planted at that season the soil is prepared. The usual time for planting is in the spring, and, as before stated, with the Onion crop. Well rooted runners which have been left in the beds through the autumn and winter are planted singly at 18 inches apart from row to row, and about a foot from plant to plant. In most instances the runners are allowed to grow until the beds are literally full, the alleys only being kept clear.

The second year after planting the beds are full of fruit. In the month of April of the second year a dressing of guano or a mixture of dung is placed between the plants. Previous to this dressing the beds are raked, everything loose cleared away—leaves as well as runners forming a part. Some of the readers of these notes will be shocked to hear that, after the above dressing of the beds, a horse drawing a chain-harrow is often seen rattling over the beds, for the purpose of spreading and settling the manure between the plants. A large Thorn bush was formerly used for that purpose. The fidgetty notions about the crowns, about the leaves, and about the runners form a lesson these gardeners have not cared to learn; yet, notwithstanding, they get enormous crops of fruit year after year, and if the beds do not get weedy, especially with Crowfoot, they go on profitably with this treatment, without replanting, from nine to twelve years. The old Caroline has been the favourite kind for market purposes, but the sort called Sir Harry is replacing it. The fruit is consumed in the county, being taken by the growers to the various markets. About 100 acres are grown.

RADISHES.

Radishes are sown in November for the first crop. Ground from which a Mangel crop has been taken is used, but a Wheat "arish" is sometimes utilised for this purpose. In some instances the Radish is sown broadcast, and the seeds are harrowed in as that for a corn crop would be; the soil being formed into beds afterwards. They are generally, however, sown in beds, and if early Potatos are to follow, the ground is previously manured heavily, the Potatos again receiving guano when planted. When not followed by a Potato crop, the ground for Radishes is dressed with guano at the rate of 7 or 8 cwt. to an acre. This November sowing comes in for use in January. They are pulled by women. Forty dozen bunches are packed into one hamper. The women get one halfpenny a dozen bunches for pulling and tying up. Several hampers are sent off together to London, Manchester, Birmingham, and other places. Even in this climate frost and snow have in some seasons to be encountered before the women can set to work. From 50 to 60 acres of Radishes are grown.

RASPBERRIES.

Raspberries are grown in fields. The favourite variety is called the Beehive. In forming a plantation, divisions from old stools are used, and when planted they last from ten to twenty years. A low situation is best suited for them. Farmyard dung is used when first planted, but seaweed is considered the best manure afterwards. This is placed between the plants, on the surface of the soil. To gain time, the plants are sometimes put or planted between the Broccoli. The plan of hooping the canes is practised here, and is the best where quantities are grown. This fruit was a few years since entirely consumed in the county, but now buyers come from London and other large cities, who purchase by the ton, £30 to £40 a ton being realised. When picked they are placed in barrels, each barrel containing about 1 cwt., and are thus sent away. From 30 to 40 acres of Raspberries are grown.

PARSLEY.

Parsley is grown in beds about 4 feet wide, the ground being manured with guano for this crop, and August is the time for sowing. Parsley is generally sown, yearly, on land from which Potatos have been taken, but is a very precarious crop; sometimes, therefore, very little is sown, while at others several acres are put under its cultivation. In those seasons when frost and snow are severe everywhere but at Penzance it is a paying crop, but under other circumstances it is labour thrown away. Acres have often to be mown down and thrown away. In seasons of severe cold, however, it is worth £100 an acre, in some instances fetching 1*s.* per lb. Baskets containing 30 to 40 lb. each are used to send away.

CURRANTS.

The black kinds are chiefly grown; but red and white are also cultivated. This fruit, as a rule, is consumed in the county, sometimes, however, many tons are sent away to London and other markets. Low situations are chosen for the bushes. Little need be said about their cultivation; when once planted, with a yearly pruning, they remain for many years. Upwards of 300 acres of Currant bushes are planted.

PEARS, &c.

A quantity of Brown Beurré Pear is grown—from 20 to 30 acres—but Pears in general are not largely grown. Apples are grown in such a quantity as merely to meet the local demands. Attempts have been made to grow Grapes for market, but, as far as I pan learn, not to any great extent, nor by any one cossessing the capabilities to ascertain if it would prove a success. I should imagine, if it is profitably carried on in Scotland, it would be found a successful enterprise here for a good Grape grower, taking into consideration the difference of climate and the price of fuel. Very little is done for the flower market or in the plant way beyond supplying the local demands. The same may be said of Celery, Lettuce, Seakale, &c., of which very little is grown. I should think growing sweet Violets for market would be a successful undertaking in the neighbourhood; in mild winters they are in flower from November to March, in open borders, in most places in the county Mignonette also often passes through the winter here, and is very early in flower. But, as already stated owing to the fickleness of the climate, the market business is already "risky," and crops of such tender things are very uncertain in results; and, as a vegetable grower said to me, "We have no inclination for growing such things," so the gardeners are shrewd enough to avoid increasing the chances of the lottery with additional "blanks." Rhubarb used to be ex-

tensively grown for the local markets, but after awhile everybody took to Rhubarb growing, and the gardeners had to drop its cultivation. Rags used to be ound the best manure for Rhubarb.

TURNIPS.

Turnips do not grow well in the neighbourhood, either for market or cattle. Cucumbers are grown in fields on the flat surface—no ridges are made.

All the gardeners keep cattle and pigs to eat up waste, and some of the land is so managed as to have some grass always. Land for market-gardening purposes is valued at from £8 to £12 per acre, yet it is so various in quality and formation that while one neighbour gives £12 an acre, the one adjoining gives only 30*s*. to 40*s*. The soil on "blue stone" is considered best; a "slatey kind of soil," which is shallow, is good for early Potatos; while that on granite is not at all suitable for market gardening purposes. *H. M.*

THE PHYLLOXERA OF THE OAK.

THE *Revue Scientifique*, No. xlix., 1874, contains a paper by Professor Balbiani detailing his observations on Phylloxera quercus, a species allied to the P. vastatrix which has occasioned such ravages among the Vines. The Vine pest can live underground as well as in the air, and its most destructive work is performed on the roots of the plants, to which it obtains access through cracks in the soil. Vines grown on clay lands are most exposed to its assaults, as they become extensively fissured in hot weather, and the best mode yet discovered of checking the mischief is by freely inundating the soil. It is, however, evident that this remedy cannot always be applied, and M. Balbiani studied the life history of P. quercus, in the hope it would throw light upon the development and proceedings of its Vine relative.

He tells us that somewhat late in spring the first individuals of the Oak Phylloxera may be seen in the shape of pale yellow larvæ on the under-surface of the leaves, each one occupying the centre of a yellowish spot produced by pricking into the leaf. These larvæ grow without changing their position, and after attaining a length of about a milimetre they surround themselves with a number of eggs concentrically arranged. The development of these eggs commences almost as soon as they are laid, and in a few days the young escape and wander to a fresh part of the leaf, into which they plunge their sucking tubes, causing the formation of a yellow spot, which, like their parents, they never leave. Generations thus succeed generations, until the entire surfaces of affected leaves are covered with Phylloxeræ of all sizes. When full-grown, M. Balbiani figures them as pear-shaped, very broad in the middle, blunt at the head, and very narrow at the posterior segments. The sucking tube of the mouth reaches as low as the third pair of legs, and the creature, exclusive of its antennæ, looks a little more than 2 inches long when magnified fifty times, as in his sketch. Until about the middle of August in the climate of Paris, only wingless or larval Phylloxeræ are produced, but from then till the end of the month a certain number of the larvæ are transformed into winged sorts after passing through the stage of red chrysalids; the winged form, according to Balbiani's figure, representing a magnification of fifty times, appears under that power 5 inches across from tip to tip of the larger pair of wings, the body about 2 inches long, and the sucking mouth tube short, not reaching to the segment carrying the second pair of legs. The lower wings are much smaller than the upper ones, and each one is furnished with a small pair of hooks on the upper edges, about one-third from their tips.

Hitherto no one had succeeded in discovering males of the Phylloxera, and in no female organ could any spermatozoa be detected; consequently, there could be no doubt that the ordinary generations were parthenogenic. In the females on each side of the oviduct canal are two pouches, connected with glands corresponding with the usual colloid glands of insects, and supplying the substance investing their eggs. Between these is a pouch like that for receiving spermatozoa, though none have been found in any case.

The question to be decided was—whether, and if so, when the Phylloxera, like the aphis, produced males, and the males laid fecundated eggs.

On examining the individuals destined to be transformed into winged insects, no external character differentiated them from the wingless generations; but an examination of internal organs showed their reproductive apparatus to be slightly developed. Thus, while the egg-laying larvæ contained a variable number of eggs more or less matured, these individuals only contained eggs so slightly developed as to be little distinguished from the other contents of the ovary.

It was observed that the winged insects did not remain on the leaves longer than was necessary for the hardening of their integuments, and very seldom laid eggs upon them. In calm weather they remained longer than when it was windy, confirming the remarks made by naturalists concerning other insects, and notably by Morren with regard to aphides, that they availed themselves of air currents to help their flight. But when did they go, and where deposit their eggs? In September M. Balbiani placed some twenty winged females in a bottle with a fresh Oak leaf, into which they thrust their sucking tubes without delay. The next day, however, some were uneasy, and moved about, depositing here and there an egg. Others, after wandering about, returned to their first place, and laid their eggs in a heap, and others, again, left the leaf altogether, and laid an egg here and there on the sides of the bottle. In two days all had finished laying, and soon after they died.

The eggs were alike in shape, but some were twice as big as others. When the hatching came the small eggs produced small red larvæ, and the big ones larger yellow ones—the small being the males, and the larger ones the true females of the species.

M. Balbiani subsequently found that the winged sorts laid their eggs among the old scales at the base of the new shoots of the leaves, and that they were hatched in about twelve days, and now comes the most curious part of his discoveries: both males and females from their eggs were destitute of alimentary and digestive organs, as male rotifers have long been known to be. They have no suctorial mouths, no stomachs, &c., but their reproductive apparatus is highly developed, and they spend their short lives in the formation of fecundated eggs. The ovary of these females is much simpler than in the parthenogenetic forms; instead of two ovaries, each with from two to six ovigerous tubes, there is a single tube in the middle of the body. These females lay only one egg, in fissures and cracks of the Oak bark: it is a "winter egg," neither like the egg of the parthenogenetic females, or those of the winged insects. April is the time for hatching these winter eggs. The first generation thus produced is extremely fertile, one of them being seen on April 25 with eighty-seven eggs, which in two or three days were increased to more than one hundred. In the summer these females are less prolific, the ovarian tubes diminishing in number until at last only one is found. Thus the vital energies of the parthenogenetic females become exhausted, and the reappearance of the males is requisite for the continuance of the race. *Academy.*

A LESSON IN STRAWBERRY CULTURE.

OUR more recent experiences regarding Strawberry growing point out with unmistakeable plainness that the Strawberry plant has a very distinct predilection for a moist site, and with equal distinctness have we the fact forced on our notice that a cool temperature, even when associated with moisture, whether abundant in the soil and plentiful in the form of superficial rains, is in all ways suitable to its requirements, both from a growing and crop-producing point of view. Take the spring weather of 1873 and the wonderful Strawberry crop of the season as facts in support of these statements. Seldom have we had colder, more incessantly inclement weather, with more continuous winter rain moistenings on the one hand, whilst perhaps never has the crop of Strawberry fruit been so fine and so very abundant. London, in market, shop, and street, was to be seen overflowing with the largest and finest of fruit, such as it had not been our lot to witness before.

Even the summer preceding had been a somewhat exceptionally cool and moist one, and one such as we are not wont to suppose likely to ripen Strawberry-plant crowns so efficiently as a warmer one in view of producing a fine and abundant crop. The fact is a lesson, therefore, practically read to us, and one we should not hesitate to apply to our future uses.

Proverbially, as well as theoretically, we have always inferred that Strawberry plants were partial to hot summer sun, especially to hot autumnal weather, when, following their yield of fruit, they become engaged in forming crowns, wherein is stored a latent vigour, for the ensuing spring growth and bloom display. Even this may, so far as our more immediate experiences go, be set aside. The Strawberry plant delights in moisture, and, whatever may be said to the contrary, revels in dull cloudy weather. In direct reference to both one need but refer to the exceeding hardships they undergo in being forced, and yet carry good crops of fruit, and lose none of their original vigour. In pans of rank manure water they stand for a month, enveloped in steamy vapour, yet we find the same plants chosen for turning out, to form the nucleus of the future crop. But some may say, "Look to its native habitat: it is there invariably found growing upon the most exposed situations, upon the upper edges of quarried rocks, sun-scorched hedge-row banks, dry walls, &c.—a proof as to its actual requirements." In opposition to this, I would advance the fact that it is not at all improbable that, could it choose a more favourable site wherein to grow, it would not be found in such situations. The very facts I have adduced as to its capacity to withstand the manurial gorgings, the excessive vapour baths, and want of open fresh air, when forced, and yet survive the ordeal so able as to become the best of fruit-producers subquently, is confirmatory that it would subsist, grow, fruit, and prosper better, on a better site, in richer, moister soil. As I take it, the war of races in the vegetable kingdom alone are the responsible agents in driving the species of Fragaria on to banks and hillocks, where they can just subsist and hold their own, because no kindred rank kind of vegetation can there smother and destroy them. I must not be told that a wild Strawberry plant will not subsist and flourish in good, deep, moist soil, if ranker vegetation were absent; but I maintain that such a position is most properly in keeping with its requirements.

Here, then, are facts in Nature, supporting the marvellous illustrations of excessive fecundity that the peculiarities of the past season have given. Good growers trench deeply—if the soil admits of the operation, deep as a man can stand upright in; slow and in strata upward from the base they manure heavily. Thus, whilst they afford what they consider a most necessary enrichment or manure nucleus, they inadvertently produce what seems to be a greater desideratum, a more moist basis, and the result is highly satisfactory. The moral I advance, therefore, is—let us try, those amongst us who possess low or moist sites, the Strawberry plant thereon, and ascertain the fact whether or not advantages will accrue to such position beyond what our past practices afford. As I take it we find yet another illustration of this peculiar predilection in the fact that finest Strawberry fruit is produced upon moderate stiff loamy soils, such moderate stiff soils, as we all know, being proverbially retainers of a greater excess of latent moisture during the winter months than all lighter kinds. We have had the theory expounded in practice, that elevations are good for Strawberry culture; but let us give equally good and new soil to such as are grown upon ordinary lower ground; let equal waterings, manurial and otherwise, be given also, and I have no doubt as to the results. *William Earle, Valentines.*

ITALIAN GARDENS.

PALAZZO ORENGO, NEAR VINTIMIGLIA.

(*Concluded from p.* 36.)

As may be surmised from what has been before said, the amount of dressed ground in this garden is not large, the main entrance to the house even being left in a condition which would shock some of our more precise gardeners, but which is, nevertheless, quite in keeping with the general nature of the situation, and which, moreover, secures at every step a novel combination and a fresh source of interest. Instead of casting a glance and then hurrying on to the house to avoid the monotony and formalism that characterise many such approaches, as happens so often when the ordinary system is pursued, the visitor is here led on from point to point, the interest increasing as he goes, till at length he finds himself at the central point of attraction—the hospitable mansion. One piece of dressed ground there is in the marble terrace facing the sea, and on which are judiciously arranged beds of succulents, flowering Aloes and Agaves, which are marvellously "at home" here, both in regard to climatal requirements and with reference to the architectural features with which they are in proximity. At one end of this terrace is a little summer house, or temple, of white marble, which, backed up as it is by Date Palms and looking over the clear blue sea, is at once effective and appropriate. In another direction is a "pergola," or as it is locally called a "topia"—an arcade, partly architectural but wholly embowered with climbing Roses and creepers, Mesembryanthemums and Pelargoniums, and which furnishes a charming sheltered walk. Elsewhere is a glorious bank of succulents rooted in sand, and forming one of the most remarkable features of the garden. Here, too, is a "cool grot," hollowed out in a sandy bank and lined by Ferns, among which the native Maidenhair, Adiantum Capillus-Veneris, is by no means the least beautiful.

The mere enumeration of the most interesting plants to be seen here in the garden would form a bulky catalogue. As it is, our note-book lies before us as we write with nine or ten pages closely written with the names of those plants only that impressed us most. Naturally they are such as we are least familiar with in England, or which have a special interest from their size, their beauty, their economic use, &c. A selection must be made, but how—on what principle? After some consideration we can think of none better than the simple subdivision into trees, shrubs, and herbs.

Among the trees it is fitting to observe the old saw, *Palmam qui meruit ferat*, and at once mention the

FIG. 12.—VIEW IN THE GARDEN OF THE PALAZZO ORENGO.

Date Palms, of which there are a ew fine specimens, mostly female plants, one of which is supposed to be 140 years old, and which give a peculiar *cachet* to the garden. Several specimens of Mr. Fortune's Chamærops are also to be seen here, some of which were imported direct from China by Mr. Hanbury.

Eucalypti form a prominent feature, and, indeed, are planted in abundance along the whole of the Riviera, as also in the South of France. We are inclined to be rather sceptical as to the virtues attributed to this particular tree, and are disposed to assign the alleged good effects to other causes than the aromatic emanations of the Eucalyptus. E. globulus has, however, the great advantage of growing with great rapidity. One of the plants of this species planted out at the Palazzo Orengo in 1869, when it was a seedling of 3 feet high, is now upwards of 48 feet high, the trunk being 3 feet in circumference at 3 feet from the ground.

Of Conifers, Pinus halepensis is the native tree on the neighbouring rocks, as shown in our previous illustration (fig. 7); but P. maritima is also found, and among introduced species Cupressus macrocarpa thrives admirably. Pinus insignis, as we noticed elsewhere, in the Riviera does not do so well. Australian Acacias and Casuarinas grow well. Of the former genus no less than thirty-five species are grown, and these are not like the drawn specimens we sometimes see at home, covered with mealy-bug and red-spider, but thriving vigorous plants. Nicotiana glauca, which we only know as a small shrub, and scarcely that, forms here a mid-sized tree, and was, at the time of our visit, covered with bloom.

Among woody plants of lower growth are many which have already been alluded to in our account of Monaco; but we may specially note the fine bushes of Polygala nicæensis and virgata, Melaleuca densa, Justicia alba, Cytisus Palmensis, a species with fine, deliciously scented white flowers; Pelargoniums, including the true P. zonale and the sweet P. citriodorum. Coccoloba platycladon, which with its singular leaf-like branches here forms a big shrub. Then there are Grevilleas, Hardenbergias, Cistuses galore, Medicago arborescens, Sutherlandia spectabilis (in fruit), Royena lucida, the berry-fruited Composite Osteospermum, Myoporum tuberculatum, the blue-flowered Jochroma tubulosum, Anthocercis viscosa, Poterium spinosum, a Syrian plant, one of the many supposed to have been used for the crown of thorns; Melianthus minor and M. major, both in bloom; great bushes of Fabiana imbricata in full flower, a shrubby Convolvulus, C. floridus, Sparmannia africana, Lavatera aceriforia (which has the singular property of producing on the same bush both downy and glabrous leaves), and very many others, not forgetting the Dianthus fruticosus, only found in a wild state on the Greek island of Serpho.

Plants of interest from their uses receive special attention here, and among others we noticed the oil tree of Marocco, Argania sideroxylon: the Kumquat,

Catha edulis, Pentzia virgata (used as sheep fodder), Myrica sapida, Casimiroa edulis, several varieties of Kaki (Diospyros), in addition to the Eucalyptus before mentioned.

Succulent plants are, of course, and as we have already remarked, well represented. The scorching sun and dry soil, together with occasional showers in the growing season, seem to suit these plants to a nicety. Agave americana forms the common hedge plant along the coast, and within Mr. Hanbury's enclosure many of the handsomer species are to be found, together with Kleinias, Cacti, Opuntia cylindrica, Euphorbia pendula, and other succulent species, Aloes, Crassulas, and Mesembryanthemums—the latter producing a gorgeous effect. The depth to which these plants send their roots is very considerable. We ourselves traced a thin thread-like root of Mesembryanthemum to a depth of 7 feet in a sand bank bordering the cool grot lined with Ferns, just constructed by Mr. Winter, the gardener.

Among herbaceous plants and herbaceous perennials the variety is equally great, and among them perhaps the first place ought to be given to the Echiums, than which few plants are more gorgeous. Our own Viper's Bugloss, E. vulgare, is no mean ornament of our chalk downs; but suppose the plant magnified two or three times, and the flowers massed in dense spindle-shaped heads of various colours, and some idea may be gained of the grand effect produced by these plants. The species we noted were E. giganteum, E. fastuosum (a superb plant), E. arboreum, with blue flowers, E. strictum, with pink flowers, and E. candicans, with white blooms.

Turf, in our sense of the word, is obtained with difficulty, but the grass plots abound with Anemones, Tulips, Allium roseum, and later Linum grandiflorum, and these compensate for the absence of velvet turf.

The climbing plants also demand notice, so splendid are they. A Bougainvillea, called in the gardens on this coast B. Warscewiczii, but which does not appear to be different from B. glabra, save in the richness of colour of its magenta-purple flowers, is simply superb. Tacsonia mollissima and T. manicata (here called T. ignea) are largely grown, but the latter, as in England, seems to be a shy bloomer; in places where it does bloom nothing can be more brilliant than its crimson flowers. Passiflora coccinea is also grown, and scores more of these very beautiful plants might be readily grown in such a climate. Lophospermum scandens, Bignonia equinoctialis, and specially the single Banksia Rose, deserve mention, but we might occupy many columns in the mere enumeration of the treasures of this garden.

Our former illustration (fig. 7) gave a general view of the grounds, as taken from the gorge to the westward. The view we now give (fig. 12) is taken from near the centre of the garden looking away from the sea and the mansion up to the mountains. The large trees, portions of which are seen to the right and left respectively, are Olives. To the left, in the foreground, are some Cannas. To the right, in the foreground, are plants of Acanthus mollis, Aralia papyrifera and Schœpferi. Mingled with the long grass are the Alliums and Linums—the Anemones and Tulips previously spoken of. The house, a portion of which is shown towards the upper part of the view, is the gardener's residence, from which a general view is obtained of all this wealth of interest and beauty. Our first impressions were gained from near this spot, where, on arriving at dusk, after a long day's staring and gazing at the manifold beauties of the coast scenery, fatigued physically and mentally, we experienced the sensation familiar to many under such circumstances of myriads of floating specks, appearing and vanishing as suddenly, before the eyes. Could they be what the doctors call *muscæ volitantes*? If so, then even such things were glorified in this delicious atmosphere, and instead of being the grey or black illusions which float before one's eyes in grimy London when tired or dyspeptic, these were gilded spangles forming a meteor shower on a small scale. They were in truth fire-flies, but had we been told that they were fairy fireworks, we do not know that we could have had the heart to question the assertion!

Mr. Hanbury, we may say in conclusion, is fortunate in being seconded by a gardener who really knows and loves plants.

THE REED MACE.

The tall, handsome, brown spikes and graceful flag-like leaves of the Reed Mace, Typha latifolia, L., are among the most conspicuous and ornamental objects among the vegetation of the river bank or pond side; but it may not be generally known to those who are accustomed to regard the plant merely from an artistic point of view that it is in many ways of considerable economic importance, not so much, perhaps, in Britain as in other parts of the world.

The use of the Typha which presents the greatest novelty is its employment as a vegetable, full details as to which are given by Dr. Clark, the well-known traveller. Among the Tartars and Cossacks its use is very widely extended, and the plant is held in great repute, so much so, indeed, that the inhabitants of Tcherkask, in South Russia, look upon it as a sacred plant and a special gift of Providence. According to Dr. Clark the lower portions of the stems form a portion of every meal; and these portions, to the length of about 3 feet, are sold in the markets tied up in bundles, like Asparagus. Like Asparagus, too, it is best used in the early part of the year, when the plants are beginning to shoot. Among the Cossacks this vegetable is preferred to all others—by rich or poor, young or old. They peel off the cuticle, choosing the young tender part near the root for consumption. During his stay among the Cossacks upon the banks of the Don, Dr. Clark had many opportunities of tasting this vegetable, and testifies that it forms a very excellent and nutritious dish, as might be supposed from the fact that the rhizomes abound in starch. The modes of cooking to which the Typha is subjected are similar to those which we employ in the preparation of Asparagus; it may be stewed and flavoured with nutmeg and salt. We are not aware that this vegetable has ever been tried in England; but the plant is common enough in many localities, and experiments upon it are desirable.

The rhizome of the Typha is not the only portion which is used as an article of food. The pollen is prepared as meal by the Highlanders, and made into a kind of bread. In India, that of another species (T. elephantina) is similarly employed, while the pollen of a third (T. utilis) forms the Hunga-hunga bread of New Zealand, being made into loaves by the natives. That of T. latifolia is very inflammable, and is used as a substitute for the spores of Lycopodium in exhibitions of fireworks. It is said that the whole spike will produce a flash of light if it be held near a candle.

The down was formerly employed in stanching blood, and for application to "kibed or humbled heels, as they are called," according to Gerarde; it was also used for stuffing pillows and mattrasses, especially in Sweden, where it was generally employed instead of feathers; but it became matted and entangled after a time, and hence is now but little used. Threlkeld, the old Irish botanist, writing in 1727, says:—"The down is gathered, and sold for making mattrasses for plowmen and poor people. The flowers of this herb, made up with washed hog's lard, cures burns." The same author says that "some call it Dunce-down, because the down of this herb will cause one to be deaf, if it happen into the ears."

A writer in Loudon's *Magazine of Natural History* says:—"A weaver of velvet told me that at Spitalfields and other places the head of this Rush is used for cleaning their work in preference to a common brush. Since then, being in the neighbourhood of Blackheath, I met a man carrying a large bundle of them, and, upon inquiry, he told me that they would be sold to the poor at a penny each, for the purpose of a hat brush." *B. M.*

NOTES FROM A LANCASHIRE GARDEN.

July 13.—There is a longer interval than usual since my last notes; but I have been away among the Soldanellas and the Gentians of Switzerland, and I have had to leave my garden to the gardener's care. Now that I have returned, I find how much has gone on, and how much I must have missed. The Nemophila bed, I hear, gradually filled up, and became a perfect sheet of brilliant blue. The Anemone bed was very good, and that of Ranunculus very fair; but best of all, as I knew it would be, was the bed of Briar Roses, with their trained branches laden with sweet little yellow blossoms.

The Kalmias, too, are over, and the alpine Rhododendrons (Roses des Alpes) are also nearly at an end; but I have just found them wild upon the Wengern Alp, and that must be my consolation. There is nothing I am more sorry to have missed than the great shrub—almost tree—of Buddleia globosa, which grows in the centre of one of the herbaceous borders. It has been, as it always is, covered with its golden balls, smelling of honey, and recalling an old garden in Somersetshire, which I knew years ago. It is certainly true that nothing calls up associations of the past as does the sense of smell. A whiff of perfume stealing through the air or entering into an open window, and one is reminded of some far-off place on some long-past day when the same perfume floated along, and for one single moment the past will seem more real than the present. The Buddleia, the Magnolia, and one or two other flowers always have this power over me.

I have still one Azalea, and only one, in blossom; it has a small and very fragrant white flower.

I have been lately reading several articles about the fly-catching flowers. Is it generally known that no fly-catcher is more cruel and more greedy than the common Ghent Azalea, especially, I think, the large sweet yellow one? On one single blossom, which I gathered just before leaving home, at the end of May I found no less than six flies; four of them were quite dead, and of one or two nothing remained but a shred of wing. Two others were still alive, but the Azalea had already nearly drained their life away, and held them so tightly with its viscid hairs that I could hardly release them from its grasp. On the other blossoms in the truss were other flies, three, four, or five; so that the entire Azalea shrub had probably caught some hundreds.

The mixed borders are almost past their best;—at least the hairy red Poppy, the day Lily, and the early purple Gladiolus are over, and, of course, the Irises and Pæonies. At present various Canterbury Bells, Valerian (which I saw bedded-out the other day at Liège), and the white and orange Lily, are the gayest things we have. There is a Mullein, too, which is well worth a corner in any garden. Not long since I saw, in some book of rambles through our southern counties, the spire of a cathedral with its pinnacles and crockets compared to a spike of Mullein flower. It is certainly the Mullein (the distinctive name of which I do not know) which is now in bloom with me; and, indeed, the resemblance had occurred to me before I had read the book.

But I hardly care to linger over other flowers, when the Rose beds are in their fullest splendour. The summer Roses must have been better a fortnight back, but the perpetuals are as good as can be, and many of the summer Roses yet remain. I sometimes fear that the passion for large, well-formed blossoms, and the desire of novelty, will make some of the dear old Roses of our childhood pass into entire neglect; yet, when we think of a Rose, of which any poet has written, it will not be La France, or Sénateur Vaisse, or Alfred Colomb—beautiful as they are. When Herrick warns us—

> "Gather ye Rose-buds while ye may,"

or when Hood tells us—

> "It was the month of Roses,
> We plucked them as we passed"

—their Roses were other than the favourite Roses of to-day. Perhaps they were the old Cabbage Rose, a great bush of which grows next to a bed of Lavender, and pleasantly scents the garden as you enter it. Perhaps they were the Portland Rose, of which I have some three beds, and than which no Rose is better for the making of Pot Pourri, as the young ladies in Mr. Leslie's picture may learn to their advantage. Perhaps they were the Moss Rose, with its mossed buds and fragrant blossoms, of which I have another bed entirely for itself. Perhaps they were the Maiden Blush, or the York and Lancashire, or the sweet old China, with its pink shell petals, which comes so soon and lingers on so late—the last Rose, not of summer but of autumn. Then there are other old Roses, which should not be neglected. The Rose Unique, which is a white Cabbage Rose, is one; the Rose Celeste, the thin delicate buds of which are so beautiful, is another. Then there is the little Rose de Meaux, and the old Damask, which, indeed, seems to have nearly disappeared.

It must have been one of these Roses, be sure, and not a Tea or a perpetual, which Lady Corisande finds in her garden for Lothair.

Not of course that we are not grateful for the new Roses, with their brilliant colouring and their perfect form, but we are unwilling that the old should be forgotten. The Gloire de Dijon and Général Jacqueminot seem to me the most vigorous and most useful, if not the finest; but I have two old standards which are at the moment more effective than anything I have. One is Boule de Nantes, the other an old summer Rose, the name of which I do not know, but which, when fully out, much resembles the Comtesse de Jaucourt. They are not trained in any way, and I find, measuring round their heads, that one has a circumference of 12 feet and the other of 12½ feet. In the South of England it is no doubt different, but for us these are large dimensions; and certainly nothing I now get from the nursery gardens seems inclined to attain to half the size.

There is one Rose in my garden which flourishes abundantly, but which is the only Rose of which I should decline to give a cutting. It is so ugly that it is worth nothing, except as a curiosity, and if it ceased to be a curiosity it would be quite valueless. It is a *green* Rose. I got a small plant from America some years ago, and I find it perfectly hardy. It flowers very freely, and all through the summer; the bud is a perfect Rose bud in appearance, but the open flower shows that the Rose is of monstrous and not natural growth; the petals are, it seems to me, no real petals at all, but an expansion of the green heart, which often appears in Roses, and which has here been so cultivated as to take the place of the natural Rose. These petals are coarse and irregular, and have serrated edges, with a very faint scent.

How the Rose twines itself around all history and all literature! There are the Rose gardens of Persia, and the loves of the Rose and nightingale; there are those famous Roses once plucked in the Temple Garden, of which "the pale and bloody petals" (to

use a fine expression of Hawthorne's) were strewed over many an English battle-field; there is the golden Rose which the Pope gives as the best of gifts to the foremost among Catholic monarchs—emblem at once of a fading earthly life, and of the unfading life in heaven.

Of English poets is there one who does not celebrate the Rose, and of all is there one who draws from it a more tender morality than Waller in "Go, lovely Rose?"

But no nation ever loved the Rose as did the Greeks, and it was *their* legend that told us how the Rose sprung to birth. Bion's "Lament for Adonis" has been translated by Mrs. Browning, and I know no translation equal to it in general fidelity and vigour of expression. It appears to me, on the whole, perhaps the very best translation in the language Here are the lines which tell this part of the story:—

"Ah, ah, Cytherea! Adonis is dead;
She wept tear after tear with the blood which was shed,
And both turned into flowers for the earth's garden-close,—
Her tears to the Windflower, his blood to the Rose."

Another still more famous Greek poem about the Rose is one by Sappho, which Mrs. Browning has also most beautifully translated—a fit task, which unites the names of the two great poetesses of Greece and England. The poem begins:—

"If Zeus chose us a king of the flowers in his mirth,
He would call to the Rose and would royally crown it:
For the Rose, ho! the Rose, is the grace of the earth;
Is the light of the plants that are growing upon it."

No wonder the Greeks wove their wreaths of the Rose, or that "under the Rose" they passed many a gay and happy hour, to be kept in memory if untold in words.

My bedding-out is of course finished, but of this I must speak on the next occasion. The weather has been hot, and rain will now be welcome. *H.*

A NEW SOURCE OF INDIA-RUBBER.

AMONG the collection of natural curiosities which I made during a short stay at Pará, was a bottle of the juice of the Massaranduba tree, which was given to me by my friend Captain Bloem, as yielding gutta-percha.

The principal use to which this juice is applied by the Brazilians is in mending broken glass and china. I saw several articles which were cemented with this juice, and am able to bear evidence as to the reported tenacity with which pieces of glass, &c., hold together after the juice has dried. This fact has been noted by Mr. Bates in his highly interesting book, *The Naturalist on the River Amazons.*

Bates, writing on the Massaranduba, or Cow-tree, says:—

"We had already heard a good deal about this tree, and about producing from its bark a copious supply of milk, as pleasant to drink as that of the cow. We had also eaten its fruit in Pará, where it is sold in the streets by negro market-women, and had heard a good deal of the durableness in water of its timber. We were glad, therefore, to see this wonderful tree growing in its native wilds. It is one of the largest of the forest monarchs, and is peculiar in appearance on account of its deeply scored, reddish, and ragged bark. A decoction of the bark, I was told, is used as a red dye for cloth. A few days afterward we tasted its milk, which was drawn from dry logs that had been standing many days in the hot sun, at the saw-mills. It was pleasant with coffee, but had a slight rankness when drunk pure; it soon thickens to a glue, which is excessively tenacious, and is often used to cement broken crockery. I was told that it was not safe to drink much of it, for a slave had recently nearly lost his life through taking it too freely."

Kingston, in his *Narrative of the Banks of the Amazons*, says:—

"We went on a few yards further, when we stopped under an enormous tree, one of the giants of the forest. Its trunk was covered with deeply-scored reddish and rugged bark. Duppo patted it, saying 'This my cow.' Another tree of the same species, but much smaller, grew near. He ran to it, saying, 'Small cow give better milk,' and began to attack it with his axe. After making a few strokes, out flowed a perfectly white liquid, which John, kneeling down, caught in the monkey-cup. As soon as it was filled I handed him another, the milk continuing to flow in great abundance, so that we soon had four cups filled full of the tempting liquid. On tasting it we found it sweet, and of a not unpleasant flavour, and wonderfully like ordinary cow's milk.

"We returned to the hut with the prize. Domingos had meantime been boiling some coffee; as we had now no sugar, the fresh milk proved a most valuable acquisition. The Indians, however, recommended us not to take too much of it. We kept it, intending to use it again in the evening, but on taking off the lid of one of the monkey-cups we found that our milk had thickened into a stiff and excessively tenacious glue. 'My cow good?' asked Duppo, as he saw us tasting the liquid. When we showed him the gluey substance in the evening, he inquired sagaciously, 'Whether the milk of our cow would keep so long,' and we confessed that in that climate it would be very likely to turn sour. After this, on several occasions, we obtained fresh milk from the Cow-tree for our breakfasts and suppers."

I must confess that my experience of its taste and flavour confirms what Mr. Kingston has written, especially as regards the recently collected juice, and I have no doubt that if the juice were carefully bottled up it would retain its freshness for a very long time, without coagulating. I diluted a portion of this juice with water, after being bottled up for nearly two months, and my own impression of it, as well as that formed by several friends who tasted it at the time, were strongly in favour of its agreeable and milk-like properties.

Probably the unpleasant flavour described by Mr. Bates may be due to the juice being collected from a tin which has been filled for some time, and had lain exposed to the sun for many days, so as to have undergone slight decomposition.

The durableness of its timber in water has long been known to the Paraensees, who construct jetties and stages at their wharves principally of this wood, which they consider to be one of their most valuable woods for resisting decay under alternate exposure to air and water.

This should be a valuable wood for shipbuilding, since the durability of Teak is said to be due to the existence of caoutchouc in its pores. The wood itself is very hard, and grows abundantly in the upland regions of the Amazons, but I am afraid the difficulty of transporting the trees when felled through the dense forests, among which it is always found, must remain an insurmountable barrier to its exportation on an extensive scale.

Several plants yielding milky juices have been noticed by travellers, among which may be mentioned the Cow-tree of Brazil, the Palo di vacca of the South Americans, and the Galactodendron utile of Kunth, the Cow-plant of Ceylon (Gymnema lactiferum), the sap of which is used by the Cingalese for alimentary purposes, and the Cream-tree of China.

Although travellers speak generally of these trees as being harmless, it is evident from the experience of Bates and others that the juices of such trees cannot be held to be innoxious. The Cow-tree of Brazil belongs to the natural order Artocarpaceæ, a class containing many highly suspicious members. My specimen of the juice of this tree was much more limpid than than obtained from the Siringia (Siphonia elastica), it was much lighter in colour, strongly resembling cream, and possessed a strong ammoniacal odour. In a tolerably close vessel it keeps much longer than the ordinary india-rubber juice without coagulating, which, no doubt, is due, in a great measure, to its more alkaline properties. It coagulates, however, under the same conditions as those which determine the coagulation of india-rubber juice obtained from the Siphonia species. I obtained my specimens in the solid form by pouring the juice into a shallow dish and allowing it to stand for three or four days. The coagulation is rapidly accelerated by heat. The weight of solid india-rubber obtained from 22 ounces of juice was 14 ounces when dry. By destructive distillation it yields a large quantity of caoutchoucine mixed with other products obtained in the distillation of caoutchouc. Like ordinary india-rubber, it hardens by exposure to cold, and possesses great elasticity when soft. It does not melt without decomposition, and when melted remains soft and tarry. It is readily soluble in those menstrua which dissolve india-rubber, and is separated from its solution in ether on the addition of alcohol. The action of sulphur on it is precisely that which is so characteristic on india-rubber, and its behaviour to iodine, bromine, and chlorine is in every respect similar. It possesses very high insulating properties, and, no doubt, is highly suited for those manufactures which depend upon a clean and pure india-rubber. My specimen is much harder and tougher than any india-rubber I have met with.

As the Massaranduba grows in more healthy localities than the different species of Siphonia, it is a question whether it would not be desirable to draw the attention of the Brazilian Government to this important discovery. It deserves notice that this juice is quite as rich in caoutchouc as the Siphonia, whilst its collection would be less pernicious to the health of the population. I have been told that this substance is so plentiful that, if a demand could be created for it, it could be obtained for about one-third to one-half the price of the best Pará india-rubber. It was this statement which led me to examine it.

The copiousness with which the juice flows from the tree when cut may be gathered from the remarks which I have quoted from Mr. Livingstone's book. Being more limpid than the juice obtained from the different varieties of Siphonia, one would have imagined that it should flow more freely. This, I am disposed to think, is due entirely to the larger quantity of ammonia in the Massaranduba, for the amount of solid matter is even greater than in the juice of the Siphonia elastica. I may mention that the juices of both these plants which I examined were collected at the same time, the Massaranduba juice being gathered from trees in the forests in the neighbourhood of Belem (Pará).

The percentage of solid caoutchouc from the Massaranduba is about 65, whilst the juice of the Siphonia elastica yielded about 65 per cent., from which 20 per cent. to 25 per cent. would have to be deducted for water, so that approximately the Siphonia would contain only 50 per cent. of dry solid caoutchouc. I propose sending these specimens to the Museum of the Society of Telegraph Engineers, where any one interested in the subject can examine them.

I cannot close this paper without expressing surprise that a substance which has so long and so frequently arrested the attention of travellers and naturalists should have remained without being examined before. Probably the other lactescent juices referred to in this paper may eventually be found to owe this appearance to an emulsion of caoutchouc, in which, in addition to ammonia, saccharine and mucilaginous matters contribute to its being so perfectly blended with the watery portion of the juice, and prevent its being so easily or readily separated, as is the case with the generality of india-rubber yielding plants. *Thos. T. P. Bruce Warren, in the "Journal of the Society of Arts."*

NEGLECTED PLANTS:

SAMPHIRE.

WOULD you be surprised, gentle reader, to hear that some competitive examiner had put on his paper the following questions, "What is Samphire? Quote the best English authors who mention it. To which natural family does it belong? Can it be cultivated in gardens, and how? In what manner is it prepared for eating? Give some idea of what it tastes like." In most of the answers he would get the lines from King Lear descriptive of the "dreadful trade"; a few, more learned, might cite Evelyn; but he could hardly be surprised to be told by many—especially if his candidates were denizens of the eastern counties—that Samphire is a succulent plant (natural family unknown, its flowers being so inconspicuous as to escape observation, unless you search for them closely, and not always to be found if you do), which grows in salt-marshes occasionally covered by the tide, in such abundance that its cultivation fn gardens is needless, although it might probably thrive on an artificial mud-bank frequently moistened with doses of sea-water; that it may be boiled into a dish of greens—not bad—of Spinachy Seakaleish quality, but that it is mostly pickled, when it tastes of the vinegar and pepper put to it, and of nothing else.

Such is the result of a vulgar error in nomenclature—which is not confined to the British Isles—and of giving the name of Samphire (in French Passepierre, from its supposed remedial influence in cases of stone and gravel) to a species of Glasswort, Salicornia, which has little resemblance to the true Crithmum maritimum except in having fleshy leaves and in preferring to grow naturally close to the seashore. Boiled or pickled Glasswort are not without their merit, but they are no substitute for the true Shakspearian Samphire; and, therefore, although ignorance may be bliss, it is not necessarily folly to be wise, and to know, and to have, the real thing.

One of the Salicornias, found on the Norfolk coast, but nowhere very common, merits admission for its own sake, as a plant, into gardens, although I never knew it to be eaten in any shape. A hardy under-shrub, of erect habit, with evergreen succulent leaves, thriving in any ordinary soil, and perfectly able to dispense with its native air and salt, surely deserves the little room it takes up. True Samphire is less readily cultivated. Evelyn, who was fond of "Sampier, not only pickled, but crude and cold, when young and tender (and such as we may cultivate and have in our kitchen gardens almost the year round)," does not tell us how he proceeded, except that he frequently received the seeds from France, and so had it fresh, "for composing sallets," being, in his opinion, "for its aromatic and other vertues and effects against the spleen, cleansing the passages, sharp'ning appetite, &c., far preferable to most of our hotter herbs and sallet ingredients."

If Samphire be still to be found on Dover cliffs, it cannot be in any great quantity. [Plenty still remains all along the chalk range from Folkestone to Walmer. EDS.]. There is none on the corresponding chalky face of Cape Blanc-nez opposite, although plenty of wild Cabbage grows there in places where only a bird can gather it. There is a little Samphire at the foot of the ruins of Tankerville Castle, in the embouchure of the Seine, near Le Havre. In certain parts of the coast of Brittany it is tolerably abundant. It is also found fringing the edge, where the shallow lagunes of the Mediterranean coast repose upon a chalky bottom.

To save disappointment to those desirous of growing Samphire they are recommended to proceed in this wise: Choose a perfectly dry and well-drained spot, with a sheltered and sunny aspect; make a hole 2 feet deep—3 feet by 4 will be a sufficient area. Fill

the hole to a couple of inches above the level of the surrounding soil, to allow for settlement, with hard or stony chalk broken up into bits as if for mending roads, and approaching as nearly to the chalky materials of Dover cliffs as you can get. On this, roughly levelled, sow Samphire seeds, two or three in a patch, a foot apart every way. Keep the seedlings scrupulously clean from weeds, and if sown in the spring they will give a small cutting towards the close of summer. Next year they will be established perennial plants, and that is all the care they require.

For pickling gather the young shoots and leaves on a dry day, put them into a wide-mouthed glass pickle-jar, cover with good cold vinegar, and cork tight. Samphire needs no salt or spice, though both may be added, if approved. Like pickled Tarragon, it keeps perfectly without that assistance, in consequence of its own proper virtues. You thus obtain, in a month or two, an aromatised vinegar, which is an excellent antiscorbutic, valuable for hygienic purposes on shipboard, an acceptable ingredient for salads, sauces, and so on, as well as a good pickle to eat with meat, hot or cold. Its degree of gastronomic merit must depend on taste. The plant being an Umbellifer, its flavour may naturally be expected to be high. To my own palate, it approaches nearest to that of pickled Capers, only it is more decided in its smack.

Crithmum seed, if not to be had at the shops in the usual way of trade, would doubtless be obtainable from botanical gardens. So interesting and peculiar a plant would probably be grown at Kew. *E. S. D.*

OPEN AIR VEGETATION.*

Since the commencement of this year I have given at regular intervals remarks on the state of open-air vegetation. The almost total absence of severe frost and snow during the winter months rendered such observations the more necessary for comparison with winters and summers which may follow. Since last meeting (June 11) we experienced during the early part of the month much cold, dry easterly winds, with hot sun during the day, which has been the means of keeping back the foliage of the late leafing trees, chiefly the American species, such as Sugar Maple, Locust trees, deciduous Cypress, Tulip trees, Catalpa, Liquidambar, deciduous Magnolias, &c.

Owing to the long drought and hot sun the leaves of several species look as if they would not become properly developed this season, as they are now (July 9) very far behind. We experienced some heavy showers of rain on June 25 and 29, and slight showers on several occasions since, but the moisture not having penetrated into the soil under the trees, a full development of foliage cannot be expected.

The long dry weather has had the effect of ripening off the leaves of some of the early foliaged trees, such as the Lime and Sycamore, particularly in dry exposed situations. The leaves of both species in several of our town squares and gardens are already assuming an autumnal tint.

With the exception of the common Horse Chestnut, Elm, Lime and Sycamore, very few of the other ordinary forest trees, as the Beech, Ash, Oak and Birch (except in situations naturally damp), show that rich luxuriance of foliage which they are accustomed to do in the beginning of July; and from present appearance, particularly in dry situations, do not seem as if they would attain their accustomed size this year.

The double-flowered variety of English Cherry (Prunus Avium) took on a second blooming about June 20. These were probably buds of the first flowering partially injured by the cold east wind which prevailed in the spring.

Scarlet-flowered Horse Chestnuts have also been very late, probably from the same cause, none of the flower heads being equal to former years.

A large old Service tree in the Botanic Gardens has assumed rather a remarkable appearance this year. It has a stem 4 feet 6 inches in circumference, and 8 feet high before branching. It is growing on a raised bank, of which a grass lawn rises close to the stem on one side, while the ground on the opposite side is covered with shrubs of Yew and Lilac. The leaves on the branches next to the exposed grass-bank were fully developed three weeks before the leaves on the root-bound portion, which forms about one-third of the tree. The latter is now covered with rich foliage, but no appearance of flowering; while the former is abundantly set with fruit, and has foliage of a dark green colour. This example shows that the roots on one side do not stimulate the branches on both sides at one and the same time.

The blooming of late varieties of Rhododendron has been very inferior this year, owing to the dry state of the soil; very few of the flowers became fully developed, and many decayed without opening, unless in those cases where water was freely applied.

Since the rain on June 25 and 29, the young growths on all the Conifers have made rapid progress, and bid fair to be equal to former years. They were generally late of starting, but are now exceedingly vigorous.

Since the last meeting of the Society the six lowest morning temperatures were on June 12, 14, 15, 25, 26, and 30, indicating 34°, 40°, 36°, 38°, 38°, and 41°; while the six highest morning temperatures were on July 1, 2, 3, 4, 8, and 9, indicating 54°, 55°, 55°, 53°, 53°, and 53°.

* Report on the Open-air Vegetation at the Royal Botanic Garden, Edinburgh. Read by Mr. M'Nab at the July meeting of the Edinburgh Botanical Society.

Florists' Flowers.

Double Primroses.—Had I been told a few months since that there were no less than twelve distinct kinds of the double Primula acaulis in cultivation, I should have received the statement with a smile of incredulity. We have seen so little of late years of other than the White, Lilac, and Sulphur kinds that it was excusable if the belief prevailed that other kinds existed only in the imagination of enthusiastic florists of the old school, or if they ever possessed a tangible shape they had now become defunct. Since I began my work of collecting together plants of whatever kinds were obtainable, I have carefully examined all lists of hardy plants that came in my way, but, in those of our home establishments at least, it was a remarkable circumstance if more than the above three kinds were included, and this result naturally strengthened the belief that other kinds had become almost non-existent. I have still a distinct recollection of seeing both a crimson and a rose-coloured kind twenty years ago, but these seemed to be remnants of the far-off past that lived only in the memory. Now that a special effort in the collection has been made, I am rewarded by being enabled to rejoice in a species of floral revival, for not only are some old friends again brought to life and an existant reality, but some new faces have also appeared with them, and these altogether form a group that may or may not constitute all the living members of a family that ever were, and ever will be, favourites with those who truly love the lowly denizens of our spring gardens. In classifying these twelve kinds, I begin at the lightest colour as presenting a proper starting point, and this is of necessity the old Double White, one of the purest of all white flowers, and perhaps the best known of all the Primroses. In good soil the foliage is large and rounded, and of a light-green shade of colour, the surface being rather uneven. Ordinarily in the open ground it begins to flower early in March: it is very free, and a robust grower.

The Double Blush is in all respects a duplicate of the White except in colour, as the flowers are deeply tinted with lilac. It is evidently a sport from the White, and is intermediate between that and the Double Lilac, which is again almost a duplicate of the White, as there is abundant evidence of its origin as a sport from that kind at some remote period. Perhaps it is a trifle less robust in growth but the characteristic of lessened strength of growth in proportion to depth of colour seems to run all through these Primroses. The Double Sulphur, or, as it is sometimes termed, the Early Sulphur, is undoubtedly the earliest to bloom of the entire number. It is quite distinct in character, having foliage that is long, narrow, rather glossy, smooth and somewhat reflexed, the flowers are of a pale sulphur in colour, and are borne very freely. The yellows, so called, are misnomers—they are rather straw-coloured, or at the best but very pale yellows, but differing materially from the Sulphur in all respects. Of these there are three distinct kinds. Late Yellow is a robust growing kind having dark green foliage, rough and uneven in appearance; the flowers are extra large and distinct, and have an orange-buff base to each petal. This variety is easily distinguished by the stout rounded form of its flower-buds. Giant Yellow has flowers of the same size as the preceding, but just a shade lighter in colour, the foliage being narrow and pointed, and of moderate growth; it blooms freely. Giantess Yellow, so named as received from Ireland, gives the richest yellow hue, and seems to be a sport from the Giant Yellow, to which in all other respects it bears a close resemblance. These three kinds are late bloomers. Somewhat more rare than any of the preceding is the Salmon, or, as it is at times called, the Rose. This is a second early bloomer; the flowers are large, full, and freely produced, the colour being really a brownish red, but quite distinct. The foliage is long and narrow, and rather smooth and of a distinctive character. Of a similar type of foliage and general habit is the Purple, and I believe that these two differ only in colour of flower, that of the latter being, when in full vigour, of a deep rich purple hue, and of a close compact form. It is a very showy variety. The Scotch Red, like to the Sulphur, forms a section by itself, as it is quite distinct. It blooms very early and freely, and is one of the most acceptable varieties. The foliage is large, rounded, and vigorous, and of a deep green hue, rather rough and uneven. The flowers are purplish red in colour, are not so full as those of preceding kinds, and an orange-buff base is seen to the centre petals. Occasionally it throws up a short polyanth stem, but this in no way detracts from its beauty and usefulness. Last, but not least, are the double crimson kinds, of which there appears to be two distinct forms. One I call the Bright Crimson: the flowers are of moderate size, full and richly coloured; foliage long, rounded at the top, but having long narrow stalks. This kind is well-known as "miffy," and requires more than ordinary attention in its cultivation. The remaining one I call the Deep Crimson, as the flowers are of a deep velvety hue, and the edges of the petals are distinctly marked with minute white specks. My first acquaintance with this beautiful kind was at South Kensington on April 15, when a handful of large, richly-coloured blooms were shown by Mr. Waterer, of the Knap Hill Nursery, and excited much attention. Since then I have been enabled to secure plants of it from Scotland, and having thus been able to compare it with the bright crimson, have concluded that they are two distinct kinds. It may perchance happen that the publication of these notes will lead to the discovery of other kinds not here mentioned, but which may be in the possession of patient, careful collectors in divers parts of the country. Ireland seems to be the most favoured home of the double Primrose, and after that Scotland and the North of England. No doubt the comparatively cool and humid atmosphere that largely pervades those parts of the kingdom favours their growth, whilst the warm dry summers of the sunny South prove to them the reverse of encouraging. Under these latter conditions it behoves the possessors of double Primroses to secure for them during the summer months a little shade during the heat of the day, but especially a deeply-stirred and moderately rich soil, into which the roots can descend freely in search of moisture. Specially rare or "miffy" kinds deserve special care, and I find that these are best preserved in pots, which should be plunged in ashes under a north wall or fence. With the common kinds, such as the white or lilac, I find no difficulty in growing them in the open ground exposed to the full glare of the sun. How far in a deep clayey loam, such as is the soil here, the choicer kinds would thrive under the same conditions remains to be seen, but whilst stocks of them are to be counted by dozens only, instead of by hundreds, I must be discreet and grow them only where I find for them the conditions apparently most favourable for cultivation. *Alex. Dean, Bedfont.*

Apiary.

Bee-Keeping. — *Hives.* — There are so many opinions respecting the best form of hive that it is not easy for novices to decide which to choose. Perhaps a few remarks on this part of the subject may not be out of place. When I started as a bee-keeper, some fifteen or twenty years ago, I used the old straw hives, and killed some off every autumn. The profits were small, and the cost was small, so that it could not be said to be a great venture. After a few years, perhaps four or five, they all died. It was decidedly a bad year, and many lost their all. But as I lived among some neighbours less scientific than myself, who had the good luck to retain live bees, I bought a swarm, and started again, with straw hives of the old pattern, but I introduced among them now and then a wooden box, with glass lights in some of them, but they were neither Woodbury's, nor Neighbour's, nor any other patent, but nondescript, and of course I could take honey from them in no way but by killing the bees, as before. Well, in your columns I saw a description given of a bar-hive, rather a large one. I made two of them, and they answered well. They got very full of honey and bees, but when I went to take the honey I did not succeed very well, as the combs were fixed across in all sorts of ways, and I could not get a single one out, so I cut them apart with a blunt knife, and I dare say I killed the queen. At any rate, they did not do well afterwards, and those two hives were failures. Then a friend well up in bee culture brought the Woodbury hive to my notice, and I invested in two of them, and made some more, converting my two tenantless old ones, which were the proper size, into frame instead of bar-hives. A fine year following I succeeded pretty well, having got a good supply of honey—two or three frames from each hive of from 4 lb. to 6 lb. of honey each. Then I began to think I had got on the right track, and was sometimes tempted to tell you and the public all about it, but, as I had not succeeded so well before, I thought I ought to remain quiet for a little longer; I still kept a few straw hives, and killed one now and then. I always found it difficult to get a frame neatly out of the Woodbury box, and was told that I ought to manipulate the frame from time to time, and shape the combs. But that did not suit my time or views. I thought the bees ought to know best what shape to make the combs, and if they did not I had not time to help them. It was always a great job to get a frame out separately, and I thought smaller boxes and supers would be better, so I went back to bars again and made the box 1 foot square, without top or bottom, and 4 inches deep, fitted bars in the top, and

fitted three such boxes on the top of each other, covering the top of all with a thick board, and the bottom resting on the ordinary foot-board. I have had some of these in use for some time, and am so far satisfied with them that I do not intend to change them until I see some very promising thing turn up. I can take off the top division pretty easily, and if the whole box is pretty full there will not be many bees in the top. I put on an empty one where I take the full one off, but perhaps it is better to add the empty one below, and screw the top board on what was before the second division. So much for my general experience. Another time I will give you a few more particulars. *G. S.*

ANNUALS FOR BEE-KEEPERS.—Having during the last two days taken notes of more than 250 kinds of flowering plants, of which a very large proportion consisted of varieties of annuals, and the weather having been extremely hot, I have had an unusually good opportunity of seeing hymenoptera on the feed. Amongst vegetables, the flowers of Parsley appeared to be much approved of by bees. Amongst flowers there was a slight hum going on over beds of Bartonia aurea, but the bees were neither large nor conspicuous. There was, however, one variety of a well-known plant which was literally beset with bees—Clarkia pulchella alba. I counted no less than five species of bees on it, and heard their music several yards off. *W. T. P.*

BENEDICT ROEZL.

FEW people are aware of the amount of zeal and endurance experienced by our botanical collectors, and of the degree of enterprise manifested by importers of new plants. Judging from the history of many collectors, there are few occupations more fatal to health, and we may sorrowfully say to existence. When we remember the sad fate of a very large proportion of botanical collectors we may the more rejoice that such men as Fortune, Roezl, Bruchmuller and others, still remain to us. Among the most indefatigable of the class to which he belongs is certainly M. Benedict Roezl, whose portrait we give with the present number, and this remark applies equally to the numbers of first-class plants introduced by him and to the extent of his travels. If ever man deserved to be free of the Travellers' Club and of the Royal Geographical Society it is M. Roezl. This will be made apparent in the following notes, for the substance of which we are indebted to M. Roezl himself, and which, in their literal, unadorned statements, will convey a deeper impression than if a more detailed account were given. Few travellers, it is to be hoped, can say, as M. Roezl does, that he has been robbed of all his possessions seventeen times. One thing we beg of M. Roezl, and others who like him can boast of the tons of rare plants they send to Europe, that, ere they exterminate, as they must surely do, the plants from their native haunts, they carefully preserve a few pounds' weight only of dried specimens, to serve as records for the future.

"I started in my horticultural career," writes M. Roezl, "in my thirteenth year—in 1836; I was apprenticed in the gardens of the Count of Thun, at Tötschen, in Bohemia, from which, after three years, I went to the gardens of Count Pawlikowsky, at Medica, Galicia. At that time these gardens contained the largest collection of plants in Europe, and I was there enabled to gain most of my botanical knowledge of plants. After staying there three years I went to Vienna to the far-famed gardens of Baron von Hügel; from there I went to Telsch, in Moravia, to Count Lichtenstein, and from there to Ghent, to M. Van Houtte, where I stayed five years. I was *chef de culture* in the School of Horticulture of the Belgian Government. After this I served for two years as foreman to M. Wagner, in Riga (Russia). From Riga I went again to M. Van Houtte for two years, but I could no longer restrain my ardent wish to see the tropics, and I proceeded, *viâ* New Orleans, to Mexico: this was in 1854. In Mexico I started a nursery for European fruit trees; there also I collected a large number of Mexican Pines. From thence I sent to Europe Dahlia imperialis, Bouvardia Humboldtii, Zinnia Haageana, Cosmos atropurpureus, Agave schidigera and many other plants. I introduced into Mexico the culture of Ramie (Böhmeria tenacissima), and planted many acres of land with it. I invented, also, a machine for extracting and cleaning the fibre of Ramie and Hemp, and took out a patent for my machine from the Government of the United States on September 17, 1867. The Agricultural Exhibition awarded a diploma for it in February, 1868. This discovery was the cause, in the year 1868, of the loss of one of my arms. Many people in Havanna solicited me to exhibit my machine there, and I was asked by some gentlemen to try if the machine would extract the fibre from Agave americana. The result of the trial proved that my assertion, that the fibre would come out green, was correct; but in endeavouring to show me that they were right in their assertions they managed in some way or the other to fasten some screws tighter, so as to get the cylinders closer together, and I not knowing this, in putting a leaf between the cylinders (making 360 revolutions per minute), in consequence lost my left arm. Afterwards I again travelled in Mexico, and discovered Dalechampia Roezliana rosea, Aphelandra aurantiaca Roezlii, Campylobotris Ortgiesii, C. Roezlii, Nægelia fulgida and digitaliflora. From Mexico I went again to Havanna and Cuba, and discovered Microcycas species.

"Afterwards I proceeded to New York, to start on my Californian travels over the Rocky Mountains and Sierra Nevada. I discovered here the new Lilies Washingtonianum, puberulum, parvum and Humboldtii; the latter I found on the hundredth memorial day of Alexander von Humboldt, and hence named one of the species after him. The Lily in question does not come from the Humboldt County, as some catalogues

BENEDICT ROEZL.

assert. I also found here Saxifraga peltata, Calochortus Leichtlinii, Abies magnifica, and many others that have been published from time to time. From there I went to Panama and Ocaña, in New Grenada, where I found Utricularia montana, Anæctochilus Ortgiesii, and forwarded about 10,000 Orchids to Europe, and something like 500 species of plants. From there I went to the Sierra Nevada, from Santa Martha; I found there Telipogon Roezlii (Reich.), and of which I collected 800 plants. These died in one night, owing to the great heat in Rio de Hatcha. I also found many new varieties of Odontoglossum, and forwarded upwards of 3000 to Europe.

"Then, at the beginning of the Franco-German I went to Panama and to San Francisco, and owing to the war many of my consignments arrived dead at their destination. Wishing to await the end of the war, I went to the Washington territory, and found Lilium columbianum and a great variety of Conifer seeds. From there I proceeded to Sierra Nevada, California, to gather Conifer seeds, but the harvest was lost, on account of the severe frost. From there I went to South California, then to Panama and Bonaventura, in Choco; there I found Zamia Roezlii and Lindeni, and Cypripedium palmifolium and Roezlii. Here I also gathered Cattleya chocoensis, and brought them to Bonaventura, to ship them, and returned through the valley of Cauca. Now a very difficult journey commenced, through the State of Cauca to Antioquia, where I discovered large quantities of many varieties of Masdevallias described by Professor Reichenbach, and Odontoglossum vexillarium, Curmeria picturata, Cattleya gigas, Phyllotænium Lindeni, and many Dieffenbachias and other Aroids. After a journey of six months I travelled down the Magdalen River and to Colon and Panama, thence to North Peru, crossed the Andes where I found a scarlet Violet, a new species of Heliotrope, Tillandsia argentea, Epidendrum Frederici Guilielmi, Masdevallia amabilis, &c. I returned to Payta, to ship my plants and myself too, and went to Bonaventura, found Odontoglossum Roezlii, and when almost exhausted I found on the way Masdevallia chimæra and several new Aroids, which I brought myself to Europe. After staying about four months, and visiting the principal towns and nurseries, and seeing my parents again, I started once more for a new series of travels.

"On August 3, 1872, I went from Liverpool *viâ* New York, into the Colorado territory, and in Denyer City I was robbed of 2000 dols., the whole of my possessions. There I collected Yucca angustifolia, Calochortus Krelagii, Ipomœa leptophylla, and, proceeding to New Mexico, found the beautiful Abies concolor (Engelmann), Yucca baccata, many hardy Cacti, and many annuals and perennials. From there I went again to the Sierra Nevada, where I found Pinus edulis, Pinus Bolanderi, and collected Californian Lilies, and went to San Francisco, from thence *viâ* Acapulco into the Sierra Madra, where I found Odontoglossum maxillare, pulchellum, citrosmum, roseum, and many others—altogether, 3500 Orchids, which arrived in London in fine condition. From there I went to Panama over the Isthmus, and went to La Guayra to get to Caracas in Venezuela, where I found Cattleya labiata Roezlii. I forwarded in all no less than 8 tons of Orchids to London. From there to St. Thomas, and to Havanna and Vera Cruz, then to the Isthmus of Tehuantepec, and into the State of Oajaca in Mexico, where I found a real "new wonder," the double Poinsettia pulcherrima, which has already flowered in New York, and many Cacti and Agaves, Dion, and Orchids—in all, 10 tons of plants. From the city of Mexico I returned to Vera Cruz to go to New York, from New York to Panama, from there to Lima and Peru, over the Oroja railroad, crossed the Andes at a height of 17,000 feet to Tarma and Chanchamaga; brought back with me 10,000 bulbs of various sorts, Pilocereus mollis, many Cantuas, new Bromelias, Loasas, Calceolarias, Fuchsias, Mutisias, and many other new plants. From thence I returned to Lima and Callao, to South Peru, to Molienda and Arigipa, to Puno on the Lake of Titicaca; from there I went to La Paz in Bolivia, and from thence I went over the Snowy Mountains of Illimani to the province of Yungas, there I found Odontoglossum selligerum, Telipogon Benedictii, Masdevallia aspera, many new bulbous Begonias and Loasas, Tacsonias, Tropæolums, and others. From thence I returned to Tacna and Arica to Lima; from there again I went to Payta, crossed the Andes to Huaca-Camba, from whence I sent home many Masdevallias and Odontoglossums, Pilocereus Peacockii and Telipogon Hercules, and went to Guayaquil (Ecuador), from there down the Chimbazo, found a new Zamia, Pescatorea Roezlii (Reich.), Batemanii, Wallisii (Reich.), and others. I returned to Guayaquil and went to Bonaventura to visit once more the Valley of Cauca, where I found Masdevallia chimæra, Odontoglossum Roezlii, Pescatorea Dayana, and many others. With these I started once more for London."

Such, in mere outline, is the account of M. Roezl's wanderings, and of the results of his travels.

GREENHOUSE PLANTS.—XIII.

THEIR CULTURE AND MANAGEMENT.

Azaleas.—Of all the plants in cultivation, either as specimens for the exhibition stage, for conservatory decoration, or simply grown for producing cut flowers, there are few that equal the Azalea, especially if we take into account its excellent constitution and immunity from disease when fairly treated. To those commencing their cultivation a little judgment is required in the selection of plants. Taking all things into consideration, it is much better to select grafted plants; some of the stronger-growing varieties will certainly do equally well on their own roots, but I do not think they are so long-lived, and by far the greater number do much better when grafted. The object in view ought to be to grow them up to something like the size required as quickly as possible; such plants are always more likely to live and bloom satisfactorily than those that have been grown slowly and indifferently: hence the necessity of selecting free-growing young plants. On no account commence with such as are at all stunted, either through having been too long in small pots, or being kept too cold in the winter. I would much rather have a newly-struck cutting, which, with proper treatment, will grow away and far outstrip plants that are stunted. I much prefer those that have a few strong vigorous shoots, to those that have had their shoots stopped so as to form little bushy plants.

We will suppose the plants to be in something like 6-inch pots, with from six to a dozen stout shoots; if procured in the autumn do not winter them in a lower temperature than 45° to 50° by night, if at all stunted keep them 10° higher. Perceptibly they will make little or no progress through the winter months, but they will cast very few leaves, and their roots will be actively at work all the winter; such plants will make more progress the ensuing summer than those that have been starved through the winter will do in two seasons. Towards the beginning of March they will require potting; give them a liberal shift, say from a 6 to a 9-inch pot; use nothing but good fibrous peat, broken into pieces about the size of acorns, and sufficient silver sand to insure porosity. After potting keep the house a little close. Through April and May give them a night temperature of 60° to 65°, day 70° to 75°; syringe regularly overhead every afternoon; do not stop the shoots, as is often done, unless it be some one that is much stronger than the rest; if

they run a foot long during the season so much the better, the object being to get a good open framework as a foundation for the future plant, which can be sufficiently filled up afterwards. Through June, July, August, and September keep the temperature up to 65° or 70° by night, and 75° to 80° by day. If they set blooms in the course of the summer nip them out, and they will push a second growth. Discontinue syringing about the end of September, give more air and reduce the temperature 10° both day and night; keep them on until the end of February at a temperature similar to the preceding year, in the beginning of March give them more heat and syringe overhead every afternoon as recommended last spring; and as soon as the roots are moving repot into 12 or 13-inch pots, using similar soil and potting hard as before. Let their general treatment all through the summer be the same as the last. Most of the plants will set bloom by midsummer, remove all such, and they will push a second growth, and set a full crop of buds by the end of September, or middle of October—a month previous to which leave off syringing, give more air and keep the temperature pretty well up, with a drier atmosphere to ripen their buds.

It will now be time to determine what shape the plants are ultimately to be trained to, as there should be a few more sticks used now, and they should be trained into something like the shape intended. Any shoots that have a tendency to grow much stronger than others should be tied down so as to bring their points near the base of the plant, which will have the effect of equalising their growth. On no account train them close in specimen fashion, but simply arrange the shoots so as to lay the foundation for the future specimen. Let the winter treatment be the same as before. The plants will bloom nicely, but must not be placed when in flower in a draughty conservatory with a dry atmosphere, for at the time of flowering they will be full of young growth, which would be so hardened by such treatment that it would be difficult to get it to move afterwards; and by pushing them forward in a similar temperature, and at the same time as the previous season's, they will make two growths again during the summer. Pot them this season as soon as they have flowered into 15-inch pots, and let their general treatment be the same as hitherto prescribed.

After this period it will be neither necessary nor advisable to induce them to make more than one growth in a season; consequently, they will require to be wintered cooler than previously. A night temperature of 36° to 42° will answer, keeping the heat correspondingly lower in the day. Get them tied as early as convenient in the autumn, if possible before their growth has got hard and the bloom-buds ripened, as by so doing the points of the shoots will turn upwards and assume their natural position, which will make them look much better than if allowed to have hardened their shoots before tying, as in that case the wood will be too stiff to assume its proper upright position. Use no more sticks than are absolutely necessary. Do not yet tie them in nearly so close as full-grown specimens would require to be, for the object for some time yet is to increase their size.

Much has been said and written about the training of Azaleas. We see some collections that are trained on pyramidal circular wire trellises, with every shoot tied and twisted down until the whole surface of the plant is as even as if it were clipped with a pair of shears. Nothing in existence can look more unnatural. In a house full of specimen Azaleas all the plants should be somewhat different in shape, which can easily be done by making some a little wider than others, some higher, others lower over the pots, and others again not so pointed at the top; and all more or less slightly irregular in their outline, by drawing up a branch here and there and depressing others, so as to form slight protuberances in one place and small hollows in others, yet still the whole surface covered with flowers. This can easily be done by an expert trainer, especially if, as before suggested, the plants are tied whilst the shoots are soft and yet growing, which will give them and the leaves a chance to turn into their natural position, and these little inequalities will look as if produced naturally. In fact, the principal art in plant tying is to conceal the art, and to give as much natural appearance as possible, and withal to correct that loose untidy appearance that plants always have which are allowed to grow as if they were wild. If they are only required for home decoration they will do with much less tying, but if, on the other hand, they are for exhibition and have long distances to travel, then every shoot must be secured so as to keep them from chafing, or the flowers would be literally ground to pieces.

Those who have convenience for grafting large plants may thus get up specimens much quicker than by growing on young plants. The way to proceed is to get good, healthy, fair-sized plants of phœnicea, or any of the strong growing, dark-flowered hybrids—I do not like the white or light-coloured varieties, they appear to have too much of the Chinese blood in them, and cast too many leaves in the winter. In August, some years ago, I took a strong plant of phœnicea, in a 15-inch pot, thinned all the weakest shoots out, leaving about 200 of the strongest untouched with the knife. I took sixty half-ripe shoots about 2 inches long from a plant of Iveryana; those were stripped of their leaves one-half their length, which portion was thinned down with a sharp knife to half its thickness; the points of the shoots on the stock were pared down similarly, but their points were not yet cut away, the grafts being placed evenly to and tied on with worsted, which stretches a little, so as to allow of the shoots thickening. The plant was then laid down on its side in a one-light box, brought into a warm stove, and the light just tilted about half an inch; fifty of the shoots took, and were growing nicely in five weeks time. A little more air was gradually given. At the end of two months I cut out all the points of the stock that were grafted. The plant, being kept in the stove with a night temperature of as near 65° as possible, grew away rapidly. By the middle of November the grafts had grown from 4 to 6 inches. I then inarched the whole fifty midway betwixt their points and their junction with the stock upon the best placed shoots not yet grafted; by the end of January they had taken. I then severed them just below the point where inarched, about 2 inches above where grafted, and cut out all the shoots of the stock not grafted. These would have been reduced at first to the number I intended to graft, and those afterwards to be inarched, were it not that such severe mutilation of the plant all at once would have impaired the roots by destroying the proper balance between root and branch. In March the plant was removed into a No. 1 pot, and all the strongest shoots stopped, and kept on growing as recommended for the young plants. In June it set buds all over. These were removed at once, and the plant tied loosely into shape. It broke again profusely, and was now put in the Azalea-house and treated like the others. By the end of September it again set buds all over, and was then regularly tied and kept in heat until the wood and buds were thoroughly ripe, being at that time a well-furnished plant 4 feet 6 inches through.

I have as yet said nothing respecting the destruction of insect pests to which they are liable. Thrips are their greatest enemy, and red-spider will much injure them. I never fumigate, always finding it injure the leaves more or less. I use a shallow galvanised iron trough, 6 feet square; we lay the plants down with their heads over the trough, and syringe them thoroughly with tobacco-water containing 1 oz. of Gishurst to the gallon. The tobacco-water is sufficiently strong when the colour of London stout. In February we wash all the plants, even if they have not the sign of a thrips on them; for although at this season there will be no living insects, unless the plants are in heat, yet there may be eggs that will come to life as the season advances. We do not wash the solution off but leave it on to dry. Many of the plants will not be affected by a single thrips during the ensuing summer, some others may. Towards August or September we give the whole collection another washing, as in the winter. If red-spider makes its appearance I sulphur the pipes as for Vines, which will also destroy living thrips if any exist, but not their eggs—that nothing that I have tried will effect except the washing.

For producing flowers for cutting, the Azalea has few equals; you may cut with impunity without injuring the health of the plant, but of course plants should be grown for the purpose, as no one would think of cutting their best specimens. I have heard it said that the flowers do not stand well cut out of heat in winter; the fault arises from two causes—using too much heat, or keeping the plants too far from the light. Whilst bringing into flower they ought to almost touch the glass: so treated the flowers will stand for a week in water or sand and water. In conclusion, I may say that the Azalea is a plant not at all impatient of cold. I have seen plants in a north retarding house in the early spring frozen considerably, and afterwards they flowered equally as well as others that had not been subjected to so low a temperature, but I should not advise such treatment if at all avoidable, as they might get so far frozen as to injure the roots; and as I have previously said in the case of young plants, this cold treatment induces a hard stunted condition, to get them out of which takes a considerable time, in the spring, consequently retarding the progress which it is so necessary for them to make in their early stages. In selecting varieties care should be taken to procure such as are not only good free growers, possessing distinct, finely coloured flowers, but also such sorts as retain their bloom for the longest time. This is a matter that does not receive sufficient attention, yet is of very great importance whether they are required for exhibition or ordinary decorative purposes; some varieties carrying their flowers double the length of time that others will. There is also much difference in the early or late habit of flowering in different kinds; by a judicious selection the season of their blooming can be much prolonged. The following kinds can be depended on as worthy of cultivation, and in every way possessing the above qualities:—

Iveryana.—Still unsurpassed as a white, all properties taken into account.

Flower of the Day.—White, slightly striped with rose; a fine variety.

Louise von Baden.—White; splendid shape; good habit and profuse flowerer.

Baronne de Vriere.—Magnificent white, slightly splashed with crimson; very large flowers.

Magnficent.—Pure white; a good early-flowering kind, always to be depended upon.

Flag of Truce.—White; very fine; double variety.

Brilliant.—Orange-scarlet; one of the very best Azaleas in cultivation; a good grower, and will come into flower after most other varieties are over.

Chelsoni.—Light red; an excellent and indispensable variety, good in constitution and a late flowerer.

Duchesse Adelaide de Nassau.—Scarlet, with flamed centre; a most useful sort.

Stella.—Bright orange-scarlet, with violet centre; a good strong grower, and a profuse flowering variety.

Roi de Hollande.—One of the most intensely-coloured and profuse flowering sorts grown; ought to be in every collection.

Mons. Thibaut.—Fine rosy red, distinct, and worth a place in even the most select collection.

Eclatante.—The deepest crimson, shaded rose, and profusely spotted; one of the very best.

Mars.—Splendid bright red, perfect in shape; a good and vigorous grower, and should be in every collection, however select.

La Pax.—A vigorous, free-growing, telling variety.

Marquis of Lorne.—Very bright red; a splendid new variety.

Comtessede Beaufort.—Fine bright rose, spotted with maroon; a magnificent variety.

Duc de Nassau.—Very large, rosy purple; a vigorous grower; one of the best sorts in cultivation.

Madame Louis Van Houtte.—Splendid white, streaked with rose; a semi-double sort, of great excellence.

Cedo Nulli.—Very rich purple; fine in form and colour; one of the highest coloured varieties grown.

Charles de Buck.—In the way of Duc de Nassau; a really splendid variety.

Criterion.—A fine old sort; free grower, profuse flowerer, and very effective.

Madame Ambroise Verschaffelt.—A fine effective sort; ground colour pale-pink, edged with white, flaked and striped with crimson.

Madame Joseph Vervaene.—Delicate rose bordered with white, suffused with bright red; a most desirable variety.

Madame Leon Maenhaut.—Amaranth, new in colour; form and habit unexceptionable.

Sinensis.—Orange-yellow; an indispensable old sort, fine and distinct in every way.

For forcing in the winter season the white sorts are the best; nothing is better than Fielder's White, next to which stands the old White. The Chinese species, vittata striata, is a most useful sort for producing cut flowers in the autumn and winter, coming in without any forcing, and lasting for months in succession, producing freely its beautiful white lilac-striped flowers. *T. Baines.*

DARNEL AND OTHER BIBLICAL PLANTS.

Your correspondent, A. S. Wilson, writing (at p. 240, Feb. 21, vol. i., 1874), on the subject of Darnel, incidentally mentions the great difficulty that has to be encountered by the learned men who are commissioned to correct the English translation of the books of the Old and New Testaments. It appears almost an impossibility to make out with certainty the botany of the Hebrews, for we find in the notes on 1 Kings vi. 15, that the "planks of Fir" may have been Juniper, or even Box; while at Genesis xxxv. 4 we read that Jacob hid the jewellery under an Oak that was by Shechem; and at verse 8 of the same chapter we read that Deborah was buried under an Oak tree, and the place was thenceforth called "Allon-bachuth," or, as it is sometimes written, "Eilon-bachuth," the "Oak of weeping." Learned commentators state that this so-called Oak may be rendered Turpentine tree, as well as Oak, and it may also mean Box. Again, we have the Cedar spoken of by Solomon, and it is easy enough to recognise this princely tree, but what is to be said of his Hyssop, "Azub," or, as Loudon has it, "Esob," said to be a wild odoriferous shrub on the mountains, and even growing on walls? What were the bitter herbs of Numbers ix. 11, rendered "wild Lettuce"? What was the Mustard of Matthew xiii. 31? or the Tares of verse 25 of the same chapter? We read of the blade, but that would not refer to the peculiar pinnate leaf of any Vetch, but would rather favour Mr. Wilson's views of Darnel, which being a true grass would

have a blade, and for a time look like good corn. The botanist here steps in, and shows that no two plants resemble each other less than Tares and any kind of corn or true grass, for the one has the hard side out (endogens) and the other the hard side in (exogens); the one is a conspicuous Pea-flowering plant, and the other an inconspicuous flower without petals or colour to attract notice.

St. Jerome, who died A D. 420, renders "Archeuthina" Fir, and "Brussim" is rendered by others as not only Box or Cedar, as well as Fir, but even Maple; and the commentator adds, that the precise import of the names of plants and animals in Hebrew is not known. The Latin Vulgate of St. Jerome is, perhaps, the safest version to follow in these doubtful points, as he lived near the times when the ancient Hebrew was a living language.

In the Book of Judges, chapter ix., we read that Abimelech was made king by the Oak that stood in Sichem; and when this was told to Joatham he called aloud the fable that the trees wanted to anoint a king, and that they offered the honour first to the Olive, then to the Fig tree, and thirdly to the Vine, and they all declined, when the trees said to the Bramble, "Come thou and reign over us." Now there can be no doubt about the identity of the Olive, for its fatness; or of the Fig tree, for its sweetness; or of the Vine, for its wine that cheereth, &c.; but the commentator besides Bramble gives "Rhamnos" the Whitethorn, and says that some suppose that "Atod" means a wild Rose, or even Scotland's badge, the Thistle. St. Jerome is said to have added the interpretation of "Shibboleth," an "ear of corn," to the text. Again we have in Daniel xiii. 54 and 58, the "Holm tree," and the "Mastich tree," that grew in Joakim's orchard in Babylon. The Mastich tree (Pistacia Lentiscus), cultivated for its nuts, is, like the Olive, the Fig, and the Vine, easily distinguished; but trees grown for their timber, as the Turpentine tree (Pistacia terebinthus), the Juniper, the Oak, the Box, &c., are difficult to identify from the short descriptions given in Holy Writ. On the subject of the Mustard of St. Matthew's gospel, xiii. 31, we have evidently mistaken the plant, for the species known to Europeans are quite at variance with the text. The White Mustard has a seed large in proportion to the herb and it is the tallest of the kind, but yet seldom reaches the height of even a little man, and grows and dies in less than a year. Many years ago there was a discussion in one of the garden periodicals on this subject, when the true Mustard of the sacred text was pointed out, but I cannot now call to mind the name of the plant in question. [Salvadora persica.] Mr. Wilson seems to stick to "Zizania" as Wheat, or, at all events, as Wheat, Oats, Barley, &c.; but there is little doubt that the corn of Scripture is frequently Maize (Zea Mays), Indian Corn, as we read of plucking the ears of corn and eating to allay hunger. This in the case of Maize would be intelligible enough, for it would be like eating green Peas in handfuls, whereas the grains of Wheat with the chaff on would make it next to impossible for any one to eat Wheat ears from standing corn. [But Maize is a new world plant, unknown in scriptural times! EDS.] These are only a few of the most conspicuous difficulties in correcting botanical names which the translators will have to encounter.

Although herbs and plants and fruitful trees have done more than half to feed man and beast ever since the world stood, the man who sows and reaps, and gathers into barns, is looked upon as low in the scale of intelligence and importance; while his brother of the blue apron, the lineal descendant of the gardener whom God created and made, is of no repute, and his "harmless art" but lightly esteemed, for to the unitiated the botanical names that fix for certainty the identity of every important plant are just so much jargon, without sense or meaning. It would be well for the translators above named if they were all well versed in practical botany, for they would then be better able to grapple with the difficulties of the sacred text; and if practical gardeners were better paid, they might in time be able to help the interpreter with facts bearing on the subject. What an important part trees and shrubs have acted in the pages of Holy Writ. Passing over the Eden which God planted, we read that Abraham planted a grove in Beer-sheba, and there he called on God; in other words this was literally a living temple; and when he entertained the angels that foretold the birth of Isaac, he asked them to rest and gave them refreshment under a tree. This may have been a tree of the stock of the first creation—a Deodar (tree of God) where Abraham had pitched his tent. We read in Genesis xxxv. 8, that Jacob buried Deborah, Rebecca's nurse, in Bethel under an Oak tree—an honourable example of respect for an old and faithful servant; and at the very end of the sacred volume we read in the Apocalypse (Rev. vii. 2) that the destroying angel is charged thus: "Hurt not the earth, nor the sea, nor the trees." In speaking of Darnel it may be remarked that the ergot infests the grains of most grasses, and it is well known in medicine that the nauseous parasite has deadly properties, so that swollen diseased seeds of Rye, and perhaps those of other grasses would be very unsafe to eat—not that the grain if clean would be unwholesome, but the parasite in large doses is beyond all doubt dangerous. *A. Forsyth, Salford.*

THE FARM.

ROOTS.—The rains at the beginning of the month have had a good effect upon the root crops, which, however, under the best of succeeding circumstances, will now only be a second-rate and patchy crop. Those who got a plant of Mangel Wurzel, and persevered in getting them clean in the dry weather of June, will now be well repaid in seeing them grow under the influence of rain, as when free from weeds the moment the solvent power of the soft water began to act upon manures, and especially artificial ones, the crop plant was ready established to take advantage of the whole of the chemical matters they could digest, and the result has been a marvellously quick growth.

A plant of Swedes at this time is indeed a great rarity, for not only did the drought act upon the young plants much as though the seed had fallen in stony places, but the little flea-beetle is always most active in dry weather, so that Swedes have had but a poor chance. In this strait we have sown twice over, but the present dry weather is again encouraging the insect, so that never in our experience have we seen the Swede grow so slowly, and we must therefore content ourselves with some of the better sorts of Turnips, amongst which are some that are called Swedes, because they are sweet and good and possess more than ordinary keeping qualities, such are the so-called hybrid Swedes and others of the group.

Turnips have come up well, and fortunately the ground has or ought to have been so well worked that the crop is so clean as in many instances scarcely to require the "sham hoeing" as a preparatory step to "singling;" but we think the latter operation may be performed alone, and commenced as soon as the plants are fairly in their secondary leaves. If but few hands are available it should be begun early, or the plants will be too far gone if only slowly got through.

As early green food will be of importance, we would recommend that where Peas are grown they should be carted to dry in a neighbouring field, and the field at once be ploughed up and put into White Stone Turnips, or the sort we have found to succeed well where the work has been done expeditiously, viz., Sutton's Imperial Green Globe; it is a neat and solid root, and if it has not time to grow to its full size it will yet be solid and good, and we think more nutritious than the larger bulbs. The best test is that we usually rob our fields during the winter months of this variety for table use. Early spring feed, such as winter Oats, Winter Barley, Rye, Trifolium incarnatum, and Vetches, should be well provided for, as there will be a small quantity of hay to fall back upon if the winter should be severe; and so the extraneous feed may relieve the call upon the rick at as early a period in the spring as possible. The summer has hitherto been a trying one to the stock farmer, but much will depend upon the future. The stubble may greatly aid the sheep, and the latter rain may cause an abundance of grass which will be open for stock for a period only limited by winter weather.

Notices of Books.

THE sixth and last part of Mr. Bateman's *Monograph of Odontoglossum* (Reeve & Co.) is before us, and contains an epistle dedicatory to H.R.H. Alexandra, Princess of Wales, in which it is stated that this monograph of a favourite section of a charming family was commenced on the eve of her Royal Highness' arrival in this her adopted country. There will be but one feeling of regret among Orchid lovers that so beautiful and valuable a publication should be thus terminated. Rather might not Mr. Bateman have derived fresh impetus from the arrival among us of the Grand Duchess Marie, and have started upon a new series. In the introduction the author touches lightly on the history of his work and its connection with the introduction of the cool system of growing Orchids coming naturally from high elevations. He alludes to the geographical distribution of the Odontoglossa along the chain of the Andes throughout nearly its entire length, having, in fact, almost precisely the same distribution as the Tacsonias, though, we believe, no Odontoglot attains the same elevation as many of the Tacsonias do.

One of the reasons which have induced Mr. Bateman to cease the issue of this publication is founded on a certain sense of disappointment that more novelties in the way of Odontoglots have not been introduced, a reason which, when we think of O. vexillarium and O. Roezlii, seems rather insufficient. The unfortunate death of Bowman and of Pearce is alluded to as one cause of the relative paucity of new Odontoglots, and great hopes are entertained that when the mountains of Peru are more fully explored further treasures in this way will be brought to light. While we have such men as Roezl, Bruchmüller, Patin, and others whom we might mention still with us, we do not despair of novelties, even in the way of Odontoglots, being discovered. Our fear rather lies that such glorious plants, once discovered, may speedily be exterminated. Orchid collectors literally collect by the ton, and it is mortifying to have to add, that of the tons sent home a very small proportion are in a living condition on their arrival. A smaller number more carefully collected, packed, and tended on the journey from the place of collection to the seaport, and thence to Europe, would not only be more satisfactory to Orchid importers and Orchid growers, but would greatly diminish the risk of extermination which is now very serious.

Mr. Bateman endorses Prof. Reichenbach's view, that Orchids lend no support to the Darwinian theories, though from the fascinating work of our great physiologist on the fertilisation of these plants, it might have been expected that they would have been specially valuable witnesses in favour of his hypothesis. This is a subject naturally on which great latitude of opinion is allowable, and, in the present state of knowledge, beneficial. For our own parts we should be inclined to say that Orchids favoured Mr. Darwin's theories to the full as much as most other natural families. Neither Professor Reichenbach nor Mr. Bateman can, we believe, find any perfectly satisfactory mark absolutely to discriminate Oncidium from Odontoglossum. Mr. Bateman even throws out a hint that Miltonia, Mesospinidium, and Aspasia, will ultimately be regarded merely as sub-genera of one and the same genus as Odontoglossum and Oncidium. As a general principle we are disposed to assent to this view. Supposing it to be the correct one, it would, to our minds, furnish a valuable illustration of Mr. Darwin's views, at least so far as the idea of derivation of all these varied forms from some common ancestor is concerned.

The present part contains figures of Odontoglossum coronarium, blandum, vexillarium, and Roezlii. Such is the progress made that the sketch of O. vexillarium, beautiful as it is, by no means represents what the plant has already been made by the skill of the gardener.

We cannot close this notice without again expressing our regret that Mr. Bateman should feel it incumbent on him to discontinue the work. We should also fail in our duty if we did not heartily tender to him the most cordial thanks of the gardening fraternity for his long and valued services to horticulture and botany, and specially to orchidology. Such long-continued and valuable services could not have beeu rendered save by an enthusiast, and he will, we hope, find some portion of his reward in looking back at the magnificent works of which he has been the author, and in the assurance that his services to horticulture are widely appreciated and gratefully acknowledged. Gratitude is a sense of favour to come, so says Rochefoucauld, or some other cynic; at any rate it is no sign of ingratitude to express the wish that after a period of repose Mr. Bateman will once more enter the lists, and further illustrate the plants he loves so well.

—— The last number of the *Botanical Magazine* contains figures of Chrysanthemum Catananche, a beautiful yellow-flowered herbaceous plant from the greater Atlas; Erica Chamissonis, a neat Heath; Romanzoffia sitchensis, a neat Saxifrage-like plant with white flowers; Iris olbiensis, a species very like I. pumila, but with larger flowers; Campsidium chilense, already figured by us in 1870, p. 1182, and Pyrus baccata. We shall further allude to these plants in due course.

—— The numbers of the English edition of the *Illustration Horticole* for May and June are before us. The coloured plates represent Camellia Pietro Boutourlin, a rose-coloured flower with a white central band running down the innermost petals: Geonoma gracilis, a very elegant pinnate-leaved Palm, exhibited among others by M. Linden at the recent Florence Exhibition; Odontoglossum brevifolium, with a single very short leaf surmounting each pseudobulb; Azalea Madame Gloner, a free flowering variety, with medium-sized flowers of good form and pure white colour, which, judging from the figure, should be a very fine variety; and Dendrobium infundibulum, a plant now well known in England.

—— The fourth part of Dr. Buek's *Index to De Candolle's Prodromus* (Williams & Norgate) is before us, and completes the work, for, as we have already stated, the great publication of the De Candolles has been somewhat abruptly brought to a conclusion. Dr. Buek's index is indispensable in all botanical libraries. Some idea of the magnitude, both of the original work and of the index also, may be gained when we state that the index alone comprises 1570 8vo pages in double column.

ROYAL

HORTICULTURAL SOCIETY.

SHOW of ZONAL PELARGONIUMS, FUCHSIAS, FRUIT, &c.,

July 15, 1874.

AWARDS of the JUDGES.

Class 1.—18 ZONAL PELARGONIUMS, Florists' varieties, distinct, in pots not exceeding 6 inches in diameter. (Open.)
3d, Mr. J. George, Putney Heath, £2.

Class 2.—12 ZONAL PELARGONIUMS, Nosegay or Hybrid-Nosegay varieties, distinct, in pots not exceeding 6 inches in diameter. (Open.)
2d, Mr. J. George, £2.

Class 3.—6 ZONAL PELARGONIUMS, Florists' varieties, distinct, in pots not exceeding 8 inches in diameter. (Amateurs.)
1st, Mr. J. Catlin, Gr. to Mrs. Lermitte, Sen., Finchley, £3.
2d, Mr. J. Herrington, Gr. to J. Price, Esq., Clapham Park, £2.

Class 4.—6 ZONAL PELARGONIUMS, Nosegay or Hybrid-Nosegay varieties, distinct, in pots not exceeding 8 inches in diameter. (Amateurs.)
1st, Mr. J. Catlin, £3.

Class 5.—6 ZONAL PELARGONIUMS, Florists' varieties, sent out since 1872, or not in commerce, distinct, in pots not exceeding 6 inches in diameter. (Open.)
3d, Mr. J. George, £1.

Class 6.—6 ZONAL PELARGONIUMS, Hybrid-Nosegay varieties, sent out since 1872, or not in commerce, distinct, in pots not exceeding 6 inches in diameter. (Open.)
3d, Mr. J. George, £1.

Class 7.—8 ZONAL PELARGONIUMS, double varieties, distinct, in pots not exceeding 8 inches in diameter. (Open.)
2d, Messrs. Wright, Lee, Kent, £2.
3d, Mr. R. Watson, Gr. to T. H. Bryant, Esq., Surbiton Hill, £1.

Class 8.—6 ZONAL PELARGONIUMS, double varieties, distinct, in pots not exceeding 6 inches in diameter. (Amateurs.)
2d, Mr. R. Watson, £1.
3d, Mr. W. Whittaker, Gr. to S. Williams, Esq., Putney, 10s.

Class 9.—18 ZONAL PELARGONIUMS, Golden Tricolor varieties, distinct, in pots not exceeding 8 inches in diameter. (Open.)
1st, Mr. C. Turner, Royal Nursery, Slough, £3.
2d, Mr. T. Pestridge, Boston Park Road, Brentford, £2.
3d, Mr. H. B. Smith, Ealing Dean Nursery, Ealing, £1.

Class 10.—6 ZONAL PELARGONIUMS, Golden Tricolor varieties, distinct, in pots not exceeding 8 inches in diameter. (Amateurs.)
1st, Mr. J. Hinnell, Gr. to F. A. Davis, Esq., Surbiton, £2.
2d, Mr. R. Watson, £1.
3d, Mr. G. Thomas, Turner Road, Lee, 10s.

Class 11.—6 ZONAL PELARGONIUMS, Silver Tricolor varieties, distinct, in pots not exceeding 8 inches in diameter. (Open.)
1st, Mr. H. B. Smith, £2.
2d, Mr. T. Pestridge, £1.
3d, Mr. R. Watson, 10s.

Class 12.—6 ZONAL PELARGONIUMS, Golden Bronze Bicolor varieties, distinct, in pots not exceeding 8 inches in diameter. (Open.)
1st, Mr. T. Pestridge, £2.
2d, Mr. R. Watson, £1.
3d, Mr. E. Keeler, Gr. to H. Simmonds, Esq., Denmark Hill, 10s.

Class 14.—8 FUCHSIAS, distinct. (Nurserymen.)
1st, Mr. F. J. Mould, Devizes, Wilts, £5.
2d, Messrs. Wright, £4.

Class 15.—6 FUCHSIAS, distinct. (Amateurs.)
1st, Mr. T. King, Gr. to R. V. Leach, Esq., Devizes Castle, Wilts, Silver Medal and £5.
2d, Mr. J. Watson, Gr. to D. Martineau, Esq., Clapham Park, £4.
3d, Mr. E. Keeler, £3.

Class 16.—24 FUCHSIAS, not fewer than 12 kinds, in pots not exceeding 8 inches in diameter. (Open.)
1st, Mr. T. King, £5.
2d, Mr. J. James, Gr. to W. F. Watson, Esq., Isleworth, £3.

Class 17.—6 HYDRANGEAS. (Open.)
1st, Mr. J. Aldous, Gloucester Road, South Kensington, £2.

Class 20.—6 CLEMATIS, distinct. (Open.)
1st, Messrs. G. Jackman & Son, Woking Nursery, Surrey, £3.
2d, Messrs. W. Cutbush & Sons, The Nurseries, Highgate, £2.

Class 21.—12 CARNATIONS, cut blooms, distinct. (Open.)
1st, Mr. C. Turner, £1 10s.
2d, Mr. N. Norman, 98, Crescent Road, Plumstead, £1.
3d, Mr. D. Pizzey, Gr. to Sir E. Perry, Fulmer, Slough, 10s.

Class 22.—12 CARNATIONS, cut blooms, distinct. (Amateurs.)
1st, Mr. N. Norman, £1 10s.
2d, Mr. D. Pizzey, £1.
3d, Mr. H. Catley, 16, Claverton Buildings, Bath, 10s.

Class 23.—12 PICOTEES, cut blooms, distinct. (Open.)
1st, Mr. C. Turner, £1 10s.
2d, Mr. N. Norman, £1.
3d, Mr. D. Pizzey, 10s.

Class 24.—12 PICOTEES, cut blooms, distinct. (Amateurs.)
1st, Mr. N. Norman, £1 10s.
2d, Mr. D. Pizzey, £1.
3d, Mr. H. Catley, 10s.

Class 25.—Mr. Pearson's Prize for 12 distinct varieties of SEEDLING PELARGONIUMS, not variegated, raised and sent out by him, in pots not to exceed 8 inches, plants to be grown with as little training as possible. (Open.)
1st, Mr. J. Catlin, £5 5s.
2d, Mr. W. Birse, Gr. to J. H. Lermitte, Esq., Finchley, £2 2s.

HORTICULTURAL SOCIETY—(continued).

MISCELLANEOUS.—EXTRA PRIZES.

Messrs. J. Veitch & Sons, Chelsea, for Miscellaneous Group of Plants, Silver Medal.
Messrs. J. Veitch & Sons, for Group of Conifers, Silver Medal.
Mr. B. S. Williams, Upper Holloway, for Miscellaneous Group of Plants, Silver Medal.
J. Denny, Esq., M.D., Stoke Newington, for Group of Pelargoniums, Silver Medal.
Messrs. W. Cutbush & Son, for Group of Plants, Bronze Medal.
Messrs. J. Veitch & Sons, for Group of Roses, Bronze Medal.
Mr. J. Aldous, for Group of Plants, Bronze Medal.
Mr. W. Paul, Waltham Cross, for Group of Pelargoniums, Bronze Medal.

Classes A to G, Prizes offered by Messrs. James Veitch & Sons.

Class A.—Collection of FRUIT, in 10 distinct kinds.
1st, Mr. W. Coleman, Gr. to Earl Somers, Ledbury, £15.
2d, Mr. G. T. Miles, Gr. to Lord Carrington, High Wycombe, £10.
3d, Mr. T. Jones, Royal Gardens, Windsor, £7.

Class B.—Collection of FRUIT, in 6 distinct kinds.
1st, Mr. T. Bannerman, Gr. to Lord Bagot, Rugeley, £9.
2d, Mr. J. Watson, Gr. to E. W. Harcourt, Esq., Abington, £6.
3d, Mr. W. Bones, Gr. to D. McIntosh, Esq., Romford, £4 10s.

Class C.—Dish of WHITE GRAPES, consisting of 3 Bunches of one or more kinds.
1st, Mr. J. Loudon, Gr., The Quinta, Chirk, £6.
2d, Mr. W. Coleman, £4.
3d, Mr. J. Woodbridge, Syon Gardens, Brentford, £2.

Class D.—Dish of BLACK GRAPES, consisting of 3 Bunches of one or more kinds.
1st, Mr. W. Coleman, £6.
2d, Mr. J. Loudon, £4.
3d, Mr. J. Deaville, Gr. to Mrs. Bannerman, Monmouth, £2.
Extra, Mr. R. Fleming, Gr. to R. Houghton, Esq., Liverpool.

Class E.—3 PINE APPLES.
1st, Mr. J. Stirling, Gr. to H. H. Vivian, Esq., M.P., Swansea, £6.
2d, Mr. D. Wilson, Gr. to Earl Fortescue, South Molton, £4.
3d, Mr. T. W. Bond, Gr. to G. A. Smith, Esq., Weybridge, £2.

Class F.—6 PEACHES, one kind.
1st, Mr. J. Heamen, Eaton Hall, Congleton, £4.
2d, Mr. J. Richards, Gr. to Baron Rothschild, Gunnersbury Park, Ealing, £2.
3d, Mr. G. Sage, Ashridge Gardens, Great Berkhampstead, £1.
Extra, Mr. W. Coleman.
Extra, Mr. T. Pitt, Gr., Berry Hill, Dorking.

Class G.—6 NECTARINES, one kind.
1st, Mr. J. Gill, Spring Place, Bradford, £4.
2d, Mr. W. Kemp, Albury Park Gardens, Guildford, £2.
3d, Mr. W. Coleman, £1.

EXTRA PRIZES.
Mr. W. Sparkes, Gr. to J. W. Jeakes, Esq., Highgate, for 6 Queen Pine-apples.
Mr. D. Wilson, for 10 Melons.

NURSERY and SEED BUSINESS.—The Advertiser is prepared to invest from £500 to £1000 in the above Business, and is wishful to meet with one or two persons who can invest a similar amount to join him in the same. It is necessary that parties offering should have had good experience in one or more Departments, and be steady and persevering business men.—Apply, with full particulars, in the first instance, to SEEDSMAN, *Gardeners' Chronicle* Office, London, W.C.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

TO BE LET, EIGHT ACRES of excellent LAND (most advantageously situated, close to the Railway Station, Bishop Stortford), suitable for Horticultural Nursery or Market Gardening, part in cultivation.

For further particulars apply to D. NEWTON, Engineer, Bishop Stortford, Herts.

Farms in Devonshire.

TO BE LET, for seven or fourteen years, from Michaelmas, together or separately, THREE FARMS, of 173, 132, and 85 Acres respectively.

For particulars address G. W. M., care of Mr. W. Abbott, 46, Eastcheap, London, E.C.

To Nurserymen and Gardeners.

TO BE SOLD (in consequence of the death of the Proprietor), the LEASE and PLANT of an old-established Nursery Ground, situated at Islington, in a crowded well-to-do neighbourhood; or would be LET. Good opportunity for a practical man with a small capital.

Apply to Mr. ARTHUR THWAITES, 91, Queen Street, Cheapside, E.C.

Leighton Buzzard, Beds.

TO BE SOLD, the unexpired term in a LEASE (upwards of 40 years to run, at a moderate ground rent) of FOUR substantially-built and well-arranged RESIDENCES, with good gardens, in a healthy locality, standing on an eminence, commanding extensive views, and in the centre of a hunting district, within an easy distance of London, and 15 minutes' walk from the London and North-Western Railway. Full particulars to be had on application to Mr. J. DOUGLAS DICK, Secretary's Office, Royal Horticultural Society, South Kensington, S.W.

SALES BY AUCTION.

An Importation of Choice Orchids from Brazil.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 23, at half-past 12 o'Clock precisely, a large quantity of the exceedingly rare LÆLIA MARGINATA, L. CINNABARINA, L. PUMILA, L. ELEGANS, CATTLEYA LABIATA, C. WALKERIANA, and ONCIDIUM SARCODES.

On view the morning of Sale, and Catalogues had.

Orchids, Ferns, and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, July 20, at half-past 12 o'Clock precisely, IMPORTED ORCHIDS from New Grenada, including many rare and valuable sorts. A fine lot of Dendrobium lituiflorum. A Consignment of Dendrobiums, &c., from the East Indies, comprising the new and beautiful Dendrobium amœnum, and many other rare kinds. A Consignment of ALSOPHILA CAPENSIS, IRIS IBERICA, from the Caucasus, and a new Bulb from California, BLOWMERIA AUREA, with bright yellow flowers. A Consignment of TODEA SUPERBA, and valuable Tree Ferns, just arrived in the finest possible condition. Also an Importation of DICKSONIA ANTARCTICA, comprising fine straight stems, starting into growth.

On view the morning of Sale, and Catalogues had.

Bedford Hill House, Balham, S.W.

STOVE and GREENHOUSE PLANTS, ORCHIDS, &c.

MR. J. C. STEVENS has received instructions from James Brand, Esq. (in consequence of the expiration of the lease, and the land being required for building purposes), to SELL by AUCTION, on the Premises, Bedford Hill House, Balham, S.W., on TUESDAY, July 21, and following days, the STOVE and GREENHOUSE PLANTS, consisting of magnificent specimens of Eucharis amazonica, large and beautifully trained Camellias and Azaleas, Tree Ferns, Palms, including some of the finest plants in the country: Dracæna regina and others, Adiantum farleyense, &c. Also the choice Collection of ORCHIDS, consisting of Dendrobes: a very fine lot of Phalænopsis, a beautiful plant of Angræcum sesquipedale, the finest variety of Anthurium Scherzerianum, Epidendrum vitellinum majus, Odontoglossum Bluntii, O. Alexandræ, a large number of O. pulchellum, Cattleyas, &c.

On view the day prior and mornings of Sale, and Catalogues had of Mr. HOWARD, the Gardens, Bedford Hill House, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Choice Imported Orchids from the Philippine Islands and CENTRAL AMERICA.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 23, at half-past 12 o'Clock precisely, an importation of ORCHIDS from Central America, just arrived by R.M. SS. Nile, consisting of Oncidium Cheirophorum, Cypripedium longiflorum, Cattleya Skinneri, Epidendrum atropurpureum, Pescatoreas, Warscewiczellas; also splendid specimens of Phalænopsis intermedia, with fine leaves, some of which measure 12 inches in length, very broad, and in appearance closely resembling the variety Portei; fine specimen of P. Schilleriana, good plants of P. Luddemaniana and P. grandiflora; a lovely Cymbidium in the way of Cymbidium Parishii, producing or very small plants two flowers on a spike in size nearly as large as those of Cymbidium eburneum, sepals and petals white, lip delicate, pencilled Roman red, a very waxy-like flower, with delicious perfume—altogether a most beautiful and desirable species, and in opinion of collector entirely new.

On view the morning of Sale, and Catalogues had.

Third Great Sale of the Meadowbank Orchids.

MR. J. C. STEVENS has been instructed by the Executors of the late Mr. Thomas Dawson to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, THURSDAY, and FRIDAY, August 5, 6, and 7, at half-past 12 o'Clock precisely each day, the third portion of the great Collection of ORCHIDS grown at Meadowbank. Among these will be offered some of the largest specimens of the collection, and some species and varieties of rare and beautiful character. The finest specimen and the finest variety of VANDA BATEMANNI GIGANTEA in Europe, the plant being over 10 feet high, in perfect order, with four strong beaks, each a good plant of itself, and the variety, as to size and colour of flower and length of raceme, quite unrivalled. Along with the above will be offered some magnificent plants of ANTHURIUM SCHERZERIANUM, with numerous brilliant spathes, quite in first-rate ornamental order, one of the varieties being a totally new and distinct one, of marked dwarf habit, and of unusual length and brilliancy of spathe. Most of the lots to be offered are in superb health; many of the plants (both as regards health of plant and quality of flower) are quite unique. There are 900 lots included in this sale, and are all to be sold without the least reserve.

Full particulars and detailed Catalogues to be had on and after July 20, of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

On Tuesday, July 21, and three following days.

SALE of the valuable Collection of EXOTIC PLANTS of Robert Corkling, Esq., most of which have been imported and established by him, comprising, in ORCHIDS, fine specimen and half-specimen plants of Cattleyas, Lælias, Oncidiums, Odontoglossums (including upwards of 100 plants of Bluntii and Alexandræ), Trichopilias, Cœlogynes, and Pleiones; also a few good EAST INDIAN ORCHIDS, viz., Vandas, Aerides, Saccolabiums, Dendrobiums, and Cypripediums; a fine Collection of STOVE PLANTS and FERNS, amongst which may be named Adiantum farleyense, from 2 to 3 feet across; also a Collection of the best JAPANESE CONIFERÆ, consisting of all the principal varieties, numbering about 1500 plants, and including specimen Retinospora, 5 to 6 feet high, and 2 to 3 feet in breadth; together with a number of GREENHOUSE PLANTS, CAMELLIAS, AZALEAS, &c.

MESSRS. CAPES, DUNN, AND CO., respectfully announce the receipt of instructions from Robert Corkling, Esq., to SELL by AUCTION, on TUESDAY, WEDNESDAY, THURSDAY and FRIDAY, July 21, 22, 23 and 24, commencing at 12 o'Clock prompt each morning, at his residence, Alder House, Whalley Range, near Manchester, the whole of his exceedingly choice Collection of ORCHIDS and STOVE and GREENHOUSE PLANTS.

Catalogues (price 6*d.* each, to admit two) are now ready. May be viewed on the Friday, Saturday and Monday preceding the Sale.

The specimen EVERGREENS in the grounds being too crowded, the surplus quantity may be purchased at once, deliverable either now or in the autumn.

N.B.—The HOUSE to be SOLD by Private Treaty, or to be LET, furnished, with immediate possession. For cards to view and to treat, apply to Messrs. HEWITT AND PAUL, Dickinson Street, Manchester.

8, Clarence Street, Albert Square, Manchester.

Noteworthy Horticulturists and Botanists.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6d. each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.
W. WILSON SAUNDERS, F.R.S.
Rev. M. J. BERKELEY, F.L.S.
M. DECAISNE.
G. F. WILSON, F.R.S.
Dr. MOORE, of Glasnevin.
Professor REICHENBACH.
Rev. S. R. HOLE, M.A.
E. J. LOWE, F.R.S.
JAMES MCNAB.
ROBERT HOGG, LL.D.
Dr. REGEL.
JAMES BATEMAN, F.R.S.
BERTHOLD SEEMANN, Ph.D.
ARCHIBALD F. BARRON.
Hon. MARSHALL P. WILDER.
JOHN GIBSON.
Professor ASA GRAY.
I. ANDERSON-HENRY.
Professor KARL KOCH.
Baron VON MUELLER.
JOHN SMITH (Kew).
Professor WESTWOOD.
Dr. THWAITES.
Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W.C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

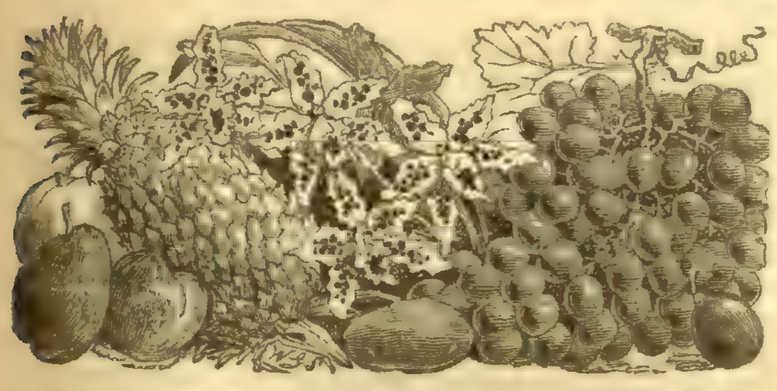
£1 6s. *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10s. 4d. *for* 12 *months, including postage to*—
AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14s. 8d. *for* 12 *months, including postage to* —
RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.



THE

Gardeners' Chronicle.

SATURDAY, JULY 18, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	July 20	Sale of Orchids, Tree Ferns, Bulbs, &c., at Stevens' Rooms. Bramley Horticultural Society's (two days) Show.
TUESDAY,	July 21	Erewash Valley Horticultural Society's Show. Sale of Orchids at Bedford Hill House, Balham.
WEDNESDAY,	July 22	Elford Horticultural Society's Show. Sale of Camellias, Azaleas, Ferns, &c., at Bedford Hill House, Balham.
THURSDAY,	July 23	City of London Flower Show, in the Garden of the Drapers' Hall. Cambridge Horticultural Society's Show. Liskeard Horticultural Society's Show. Grantham Horticultural Society's (two days) Show.
SATURDAY,	July 25	Tong and Dudley Hill Horticultural Society's Show.

A VERY useful publication has just been issued under the auspices of the AMERICAN POMOLOGICAL SOCIETY, and to which we deem it right to call attention, because, although its utility will be especially experienced in America, yet it is by no means without value on this side of the Atlantic. For us, indeed, its worth is as great, indirectly as directly, for the suggestions it offers, as for the information it conveys. The publication in question * places on record the history of a most noteworthy assemblage of pomologists from every part of the Union, and gives the details of the exhibition of fruits to which nearly all the States of this vast region, and some of the provinces of the Dominion of Canada, contributed. These things were noted by us at the time, but now that we have the full report before us we are more than ever impressed with the vitality and promise of pomology and horticulture in the United States.

In this country the flower shows have a marked tendency to become mere floral displays and nothing else. As such they are not without their value, but the good they do would be greatly enhanced if they were made more efficient means of instruction for gardeners or amateurs. Our meaning will be the better grasped by the comments we now proceed to make on the contents of the imposing *brochure* before us. We need not dilate on the speech-making and business formalities which occupy the early portions of the report. Americans seem to have a special facility for after-dinner speeches, and in this respect they more nearly assimilate to the Celtic than to the Teutonic stock. We have already alluded to the address of Colonel WILDER, which if it appealed to the ears of those who heard it as forcibly as it does to the attention of those who read it, must have been a fine piece of oratory. The business meetings of the Congress were devoted to discussions on fruits, their correct nomenclature, the kinds suitable for different localities and varying cultural conditions and the like, each member giving his opinion *viva voce*.

In all this there is, as it seems to us, a valuable hint to ourselves in any future horticultural Congress that may be organised.

In addition to these individual expressions of opinion, there are special reports from the various States and Territories, written by competent observers, and summarising briefly the present condition and the probable future of pomology in each State. To these reports follow certain essays expressly written for the Society, such, for instance, as the remarkable one by Dr. ASA GRAY, entitled, "Were the Fruits Made for Man, or did Man Make the Fruits?" and which by the courtesy of the author was reproduced in our columns (p. 79, vol. i. 1874). Other memoirs of a more specially practical character are those by Mr. P. T. QUINN on the Exhaustion of Fruit Trees and its Causes; on Pear Culture, by Mr. C. M. HOVEY; on Grapes, by Mr. G. W. CAMPBELL, who tells us, among other things, that he can predict what the flavour of a seedling Grape will be some time before it produces fruit by testing the tendrils; or, to put it in his own words, "Repeated and unvarying tests of a similar character have so far convinced me of its entire correctness that I do not hesitate to announce that in the taste or flavour of the green tendrils of the Vine may be found a true index of the character of its fruit." To Mr. CAMPBELL succeeds Dr. STRENTZEL, who descants upon the cultivation of the Fig in the United States; Mr. HOOPES, who treats of the reciprocal influence of the Stock and the Scion. But probably the most valuable portion of the report is the revised Catalogue of Fruits. This comprises the names of a large number of Apples, Pears, Peaches, &c., together with brief descriptions and an indication of their value as tested in the several States of the Union, the latter being classed into three divisions—northern, central and southern—according to latitude. Asterisks are placed to indicate the State or district in which any particular variety is recommended for cultivation, such recommendation being based on the collective evidence supplied by the members of the Congress and of the Reporters as before explained. Where the variety is deemed of very superior value two asterisks are made use of, and so on.

A mere glance over these elaborate tables will show their value and interest. The subject is too vast for us to pretend to cope with in this place, but we select certain subjects for comment which we think may be of interest to our readers. One thing especially strikes us, and that is, the relatively little influence that climate has in the case of a thoroughly good variety. Let the reader bear in mind the vast range of territory extending from 35° to 42° North latitude and from 70° to 130° West longitude, its different elevations and its enormously varied climatal conditions, and then let him note the fact prominently brought out in these tables, that, whereas certain varieties succeed best in some States and some in others, yet the varieties of such superior quality as to be marked with a double asterisk are, as a rule, subject to few exceptions, and excepting always local varieties not known out of particular districts, found to be the best throughout the whole Union—in the New England States as in the Southern States, in Massachusetts as in California or Texas, just as it is found in colleges that the pupil who takes a prize in one subject is pretty sure to gain honour in others as well. We take it this is a fact that Mr. M'NAB will find it difficult to adapt to his views as to the degeneracy of climate.

A few illustrations of the general rule may advantageously be given. In selecting them we choose, naturally, varieties which are known to us on this side of the Atlantic, and which, from their proved value in those States which have a climate approximating to our own, are likely to be of most interest.

Among Apples we find the Baldwin specially recommended for the North-Eastern States, as well as for the central ones. Gravenstein is another specially recommended for the Northern and Eastern States. Red Astrachan is a proved favourite, not only in the North, but in the climatally very different States of Ohio, Indiana, Tennessee and Missouri. Rhode Island Greening is highly spoken of as a Northern variety.

But it is most especially among Pears that our remarks find most abundant illustration. Ninety-five selected sorts are catalogued, and among them we find marked as of special value the Bartlett (Williams' Bon Chrétien), which is highly valued in almost every district north or south, east or west; Fondante d'Automne is almost equally valuable; Beurré Bosc not much less so; Beurré d'Anjou is particularly useful in the North-Eastern States; Duchesse d'Angoulême is marked with special approbation throughout almost the whole Union; Flemish Beauty is almost equally popular; Marie Louise is esteemed only in the North-East, and is apparently almost unknown elsewhere—moreover, it is marked with the defect "untrustworthy" even where it is known; the delicious Seckel is a universal favourite throughout the whole of the States.

We might give many more illustrations, but we have probably said enough to indicate the great value of this report, and to furnish some hints how our flower and fruit shows might be turned to more profitable account than they now are.

* *Proceedings of the Fourteenth Session and the Quarter Centennial Celebration of the American Pomological Society, held in Boston, Massachusetts, September*, 1873. Edited by H. T. Williams, and published by the Society.

—— PROFESSOR SANTO GAROVAGLIO, the Professor of Botany at Pavia, and director of the laboratory of cryptogamic botany in that city, writes to us to state that in his opinion the DISEASE which affects RICE in India is the same as that known in Italy as the Brusone del Carolo, and is produced by a fungus belonging to the group Sphæriaceæ, and which he calls Pleospora oryzæ. In a pamphlet now before us the Professor descants upon the nature of the disease, the history of its progress in Italy, and gives a full description with figures of the fungus producing it. The disease assumes different forms or stages, which have been taken as so many separate diseases. This is accounted for by the fact that the fungus presents itself in three forms, *i.e.*, 1, spermagones with spermatia; 2, as conceptacles with pycnidia, or, 3, as perithecia with asci.

—— We have already on one or two occasions noticed the very promising batch of NEW PEAS raised by Messrs. STANDISH & CO., of Ascot, and which are now in process of being proved and tested before a selection is made for public distribution. That which has been set apart as the best of the whole series has just been named THE CRITERION, and it is in every way an excellent Pea, well deserving such

a suggestive name. It is one of the wrinkled marrow class, and in ordinary seasons averages about 3 feet in height. It is a fortnight earlier than Ne Plus Ultra, a good bearer, with fine well-filled pods, and, when properly cooked, is one of the greenest of all Peas; it will, moreover, it is said, keep longer in use than most other Peas, partaking in this and in other respects of the character of Ne Plus Ultra, which was one of its parents. The flavour is just what it should be, having the characteristics of that of the best wrinkled marrows, which so many of the new Peas are said to lack. We look upon the Criterion as an undoubted acquisition. Amongst many other seedlings, all of good quality, and all having, we believe, the Ne Plus Ultra blood in them, we noted a dwarf and very prolific Pea of much promise, as yet unnamed; this grows some 15 inches high, has long curved pods, with from eight to ten Peas in each, and of a fine green colour and good quality when cooked. Another taller variety, some 5 or 6 feet high, is remarkable for its continuity of bearing from near the base to the very tips, and would, we think, under high culture, form a grand Pea for a successional supply.

—— We understand that the Royal Horticultural Society are entering into an arrangement with Messrs. Prince for establishing in the Royal Horticultural Society's Gardens at South Kensington a Skating Rink. A site for the rink has been selected which would not interfere with the ordinary enjoyment of the gardens, and it is confidently expected that this important addition to the attractions of the gardens will lead to a very considerable increase of the Society's funds.

—— The forthcoming meeting of the British Association will be held at Belfast, beginning on Wednesday, August 19. Professor Tyndall will preside. Professor Huxley and Sir John Lubbock will deliver addresses. The departments of Zoology and Botany, in which it may be presumed our readers will be most interested, will be presided over by Dr. Hooker, C.B., Pres. R.S., while Professors Dyer and Cunningham will act as secretaries.

—— Mr. Prestwich, the newly-elected Professor of Geology in the University of Oxford, speaking from geological evidence alone, concludes that it is quite practicable to construct a Tunnel beneath the British Channel, and leaves it to the civil engineers to consider whether the attempt is worth the cost.

—— With reference to the Comet, now so striking an object in our northern sky, it may be stated that it is supposed by some that a comet consists of carbon in a state of incandescence. It is to be hoped that spectroscopic examination will decide this question. Comets are also supposed to be members of meteor swarms, though not precisely meteors. The difference between a comet and a meteor is that one is self luminous, the other is not so till it arrives within the limit of our atmosphere. So says Mr. Lockyer in *Nature*.

—— In the very interesting Lower Grounds, Aston Park, Birmingham, where Mr. Quilter's most successful essay in spring gardening finds its tens of thousands of admirers (we believe some 120,000 persons were admitted between Easter and the end of June, attracted only by flowers and music), we noticed recently two particularly effective beds of evergreen shrubs amongst many others planted a couple of years ago by Mr. Standish. They were the Retinospora filifera and Retinospora leptoclada. Like all the other Retinosporas, both these plants are perfectly hardy, and the first, with its thong-like branches arching out on all sides, and the latter, with its dense little cones of the deepest green, produced two of the most charmingly effective groups we have ever seen. They are evidently capital subjects for a garden or parterre of evergreens, and in situations where they will thrive as well as they do in this suburb of Birmingham, they are much to be recommended.

—— At this season of the year the well-known Red Valerian (Centranthus rubra), is an object of considerable interest along the chalk cuttings and embankments on the North Kent Railway by Greenhithe, Northfleet, and Gravesend. In some places the growth is very dense, and the patches of colour are very bright indeed. In addition to the old rosy red form, there can also be seen sparingly mingled with it quite a deep rich crimson coloured variety, much darker in hue than is generally seen in gardens. This is well worthy of being cultivated as a border plant. Not a trace of the white variety could be seen among the many thousands of plants growing on either side of the iron roadway.

—— The essays and addresses published by the Professors of Owen's College, Manchester (Macmillan), furnish additional testimony to the valuable education afforded by what we may term the University of Manchester. We observe, however, with regret that there is no provision for separate instruction in vegetable physiology, and especially in experimental physiology. A young vigorous institution like Owen's College might, more readily than older establishments, institute a special department for research and instruction in vegetable physiology, a department so inefficiently provided for in this country. Germany has such institutions, we may say, by the score; France has several; Italy and Belgium are not unprovided with them. We alone, so far as public efforts are concerned, seem dead to the importance and progress of vegetable physiology.

—— M. Frémont, chemist at Montreuil-sous-Bois, highly recommends the following method of Keeping Cut Flowers fresh during a fortnight. He dissolves 5 grammes (about one-sixth of an ounce avoirdupois) of chlorhydrate of ammonia or sal ammoniac in a litre (not quite a quart) of water. The results he has obtained, after numerous experiments, have induced him to communicate this plan to amateurs. Having ourselves (*L'Illustration*) tried it with success, we advise our readers to adopt it.

—— There are certain plants which have, more than others, a tendency to break away from their accustomed form. The Foxglove is one of these, but among the many deviations from the usual condition which we have seen in this plant, we have never seen any quite like that which was forwarded to us lately by Mr. W. Earley. As will be seen from the sketch (fig. 14), the lower half of the corolla was entirely absent, and its place supplied by supernumerary stamens; in fact the three united petals, of which the lower part of a Foxglove flower usually consists, were replaced by as many stamens. There were other accompanying changes of less moment, and which, indeed, varied in individual flowers of the same cluster, no two being precisely alike. We are informed that the plant from which our illustration was taken was a seedling from one which was similarly deformed.

Fig. 14.—Monstrous Foxglove.

—— The City of London Flower Show will hold its next exhibition on Thursday next, July 23, in Draper's Hall Gardens, Throgmorton Street—one of those curious open spaces still left in the heart of the City, and whose existence is quite unsuspected by the vast majority of passers-by, so thoroughly is it enclosed. The show will consist of plants grown in windows within the limits of the City. Medals are offered by the Royal Horticultural Society; and these, as well as other prizes to be awarded by the judges (Mr. W. Marshall and Mr. A. F. Barron), will be distributed by H.R.H. the Princess Louise, Marchioness of Lorne.

—— We have received from Alfred Smith & Co., Bath, a Patent Siphonic Watering Pot, for which special advantages are claimed over the older kinds, the principle of the siphon being applied in such a manner that it can be used underhand, or elevated overhead by means of a pole—this, however, as we should think, in the case of the smaller sizes only. Where ladies personally take a delight in watering their plants, but are chary of mounting steps, &c., the contrivance will prove useful. We do not consider that gardeners, having their customary daily work to get through, will appreciate it greatly, however, owing to its somewhat intricate working.

—— M. Dupuy Jamain, in a recent number of the *Revue Horticole*, recommends the use of the leaves of Salsify and of Scorzonera in summer as a substitute for Spinach.

—— Messrs. Morgan & Sons, of the Torbay Nursery, Torquay, have disposed of their business to Mr. W. J. Veitch, of Exeter.

Home Correspondence.

The Size of Peaches and Orchard-House Fruits.—Mr. Paul, at p. 18, July 4, thinks it is wonderful that Peaches can be brought to perfection so early as to measure 9 and 10 inches in circumference, while Strawberries and Gooseberries are still green; but if the Peaches had not had more attention than the latter fruits, they too would have been green. Apples are but a little more than formed; surely there is some mistake here, as there have been Apples here fit for culinary purposes for at least three weeks—but they are in a sheltered corner, and are young trees of Lord Suffield. I also gathered Strawberries (Black Prince), for preserving, in the middle of June. I think it is quite possible to get any of the hardy fruits in quite as early, and in equal perfection, as the Peach, if not more so, and at not half the expense and trouble. Take Strawberries—they were ripe here in the end of March, when Peaches were hard and green, but that was with fire-heat. At the time Mr. Paul writes, in the cold orchard house I had Knight's Early Black Cherry, May Duke, Archduke, and Empress Eugénie, ripe most of them from the middle of May. Some May Dukes are hanging yet, and in good condition, although they have been ripe eight weeks. Then there is Doyenné d'Eté Pear, one of our very earliest and best—and beautiful objects they form, as they have coloured so well this year. Jargonelle comes next. Then we have Reinette du Canada (Apple), 9 inches in circumference at the present time; we have it from 12 to 14 inches in circumference last year's fruit, in perfection that the Peach cannot aspire to, although I sold Noblesse and Royal George in Liverpool from 10 to 11 inches in girth. Plums come next in order: in the orchard-house Victoria bears the sway—I cannot get any Plum to bear like this. I have plants in 12-inch pots, with upwards of sixteen dozen fruit. *Joseph Murdoch, Crank Hall, St. Helen's.*

Bath Pond.—This weather makes every one long to have a dip. I send you a plan (fig. 15) by which the garden pond may be utilised for that purpose, without much disfigurement of the lawn. We do not enough consider the value of water at hand. For gardens which have been exposed to the sun and air this plan allows you a pond and a bath. Of course the bottom must be tiled, and if with white tiles all the better. The pond may even be the centre of the flower beds or garden. *East Somerset.* [Our artist (see opposite page) has in some particulars modified our correspondent's sketches. The depth of the pond at the deepest end is 5 feet. The pond itself may be of any size, and the tent supported by iron rods to allow of the canvas being rolled up on them. Eds.]

Goat Moth (Cossus).—Your answer to a correspondent last week, instructing him to hook out these pests by means of a hooked wire, forcibly reminded me of the futile attempts I once saw a Cockney disciple of Isaac Walton make in his endeavour to get worms, during a dry and dusty period, by hooking them out of their "ground runs" in a similar manner. If the pests have made real progress, the difficulty will be too great for the hooked-wire remedy. The next best way is to clear the soil, &c., from around the base, and then to make a kind of basin all around the bole with clay, working it up all around to the assumed height of the borers, and keeping the inlets to their holes open as a matter of course. Now fill this basin with soap-suds, and keep it filled for a few days, which will drown the inmates. I have frequently dislodged these insects by syringing soap-suds up their runs by means of the single jet nozzle of an ordinary syringe—that is, when their holes were not formed too near the ground. *William Earley.*

Honey-dew.—Permit me to offer my explanation of this phenomenon. I have not time to look up and see whether or not I am involuntarily pirating some one else. Most likely I am, for the suggestion is so obvious that it must have occurred to many before. The honey-dew is the juice of the plant exuding under the suction-power of a hot sun and growing weather from the holes in the skin of the leaf made by the powerful sucker of the aphis. This quite accords with the clear and satisfactory experiments of your correspondent "O.," which are to my mind conclusive that the aphis is, if not a necessary, at least a usual, element in the phenomenon. It also quite accords with the observation of your other correspondent, Mr. Earley, which many must be able to confirm—that the flow of honey-dew from trees often greatly exceeds in quantity any that could reasonably be expected to be secreted by the aphides themselves. They merely open the door to the flow of the juice, and, instead of excreting it, feed upon it. It is a beneficial bloodletting at a season when the tree is elaborating more sap than it is able to dispose of; and now that we have got rid of the old myth, of the descent of the sap (now reduced to its proper limits of its non-ascent at certain seasons), we can better understand how, at a season when the growing action and absorb-

ing power of the roots, and the pumping power of the sun drawing up the sap, are both at high pressure, the sap should flow readily from any lesion in the skin, even though it should be so small as the point of the sucker of an aphis, nay sometimes, perhaps—and that is what I had in my mind when I qualified my expression of belief in the necessity of the interference of the aphis or other insects—it may actually burst its vessels and exude of its own accord through the skin of the leaf, in the same way that bleeding at the nose, or bleeding from the skin when it is preternaturally delicate, sometimes occurs in ourselves to relieve the system overcharged with blood. Of course if the aphides perform the office of cuppers for it, so much the better for the tree. It will be more delicately done, inasmuch as a breathed vein is better than a burst blood-vessel. I may mention one or two circumstances that seem to favour my view of the matter. On which side of the leaf should we expect the honey-dew to be found if excreted by the aphides? I should say the upper side, as it must be more natural for it to excrete it downwards, in the way of gravity, than upwards. On which side of the leaf should we expect to find it if it flows from punctures made by aphides? Certainly most from the under side, for, for one aphis that you will find on the upper, you will find a hundred on the under. I imagine the advocates of the secretion hypothesis will not object to go to issue with me on the case so put, for they will remember the thousands of leaves they have seen all smeared with honey-dew on the upper side and apparently none on the under side. But wait a bit. Let any of them come with me, in imagination (or in person, if they like, for I shall be most happy to show it to any one who is interested in the matter), to a Laburnum tree, growing in front of my house. I only stipulate that the hour shall be about nine or ten in the morning, that is, before the sun has come out in his full power and dried up my facts. At that hour, then, we shall find plenty of leaves with the upper side all glossy with honey-dew, but is there anything above them? Yes, invariably there are other leaves. Let us see if we can find any so smeared that are not subject to the stillicidium of upper tenements. Not one; there are a few with a tiny drop of honey-dew on the surface here and there, but even that is not frequent, and you will often find one half smeared that is only half-shaded by one above. It is plain that the smearing is due to the dew dropping from the neighbouring leaves above. Now let us look at the under side. Here is one whose upper side is all sticky. Is there any on the under side? To all appearance no; but if you turn the leaf to the light you will see a number of tiny specks, like "scattered seeds of light," studded over it: these are drops of honey-dew. There is not enough to test it here, but if we take a leaf or two near the top of the twig—say these three hanging their heads and with their margins curled in close to the bud and twig thickly clothed with a matting of blackish aphides which extend up the peduncle even to the base of the leaf—what do you see there? The upper side is guiltless of honey-dew, but the under side is thickly sprinkled with pearls of liquid, each as large as a big pin's head. You can taste that easily enough, and you find the sweetish flavour of honey-dew. By-and-bye this will fall on the leaves below or the sun will dry it all up. We want some experiments yet to show that the honey-dew from each of the different plants possesses the properties of the sap of each respectively, and also practical observation of the aphis sucking the sap exuding after the aphis has left the spot; and this had better be made on the under side of the leaf, although it will be more trying and troublesome to the observer. *Andrew Murray.*

Nemophila insignis.—There is at present in the nurseries here, a large plot of this well-known annual in full flower. I have been surprised at the wonderful effect that gazing upon the blue colour has in soothing and invigorating the eye, wearied by over-reading or writing. Have any of your readers ever observed this pleasant sensation, or is it merely a hallucination on my part? *William Sang, Kirkcaldy.*

The Season.—According to statistics supplied by the Registrar-General, the mean temperature at the Royal Observatory, Greenwich, in the last week of June was 57°, which is 3° below the corresponding period in fifty years. During the week nearly an inch of rain fell, raising the amount measured at Greenwich since the beginning of the year to 6.5 inches, which is still 4.7 inches below the average amount measured in the first six months of the year for fifty-eight years. On the banks of the Tweed, as well as at Greenwich, one marked characteristic of the season has been the uncommon absence of moisture, not only since the year began, but during the months of November and December, 1873. The rainfall at Kelso during the first six months of this year has been 8.75 inches, as against 10.07 in 1873, and 16.05 in the remarkably wet season of 1872. Fully 2 inches fell in the shape of thunder showers in June, which were very partial, and in no previous month this year did the rainfall amount to 2 inches. This appears to be a natural consequence of the great rainfall of 1872, which was 38.46 inches, or 14.07 inches more than the average. That was the wettest year remembered by any one living on Tweedside, the nearest approach to it having been 1856, when the rainfall was 28.28 inches. The year 1873 was dry, but the last two months were particularly so, and there was during the whole winter an uncommon absence of frost and snow. Not till January 19 was the ground covered with snow, and then it was only a sprinkling, which vanished in a day. On January 19 Snowdrops were in flower, and during the whole month there were only four nights of frost. February was a particularly fine month, with frost on twelve nights, but often mild, and never very intense, and there was no snow. The first week of March was remarkably fine, with an uncommonly high barometer, but on the night of the 7th a brilliant display of aurora heralded a change of weather. On the 8th there was frost, followed by showers of snow, and about 5 o'clock on the morning of the 9th the showers were accompanied by a good deal of thunder and lightning. Thunder is rarely heard in the district in the month of March, and in cases where it has been known formerly it was only one or two peals along with a hail shower, but on the occasion referred to there was a succession of flashes and peals for about an hour. The frost and snow lasted only four days, after which the weather was again dry and fine, continuing so with little interruption till the close of the month, but there was another storm of thunder and lightning on the night of the 29th. There was high wind and much rain, accompanied again by thunder and lightning, on April 2, causing the highest flood of the season; and again on the afternoon of the 11th there was a continuous storm of thunder and lightning, the fourth regular storm at a season of the year when even a peal of thunder is rarely heard. Since April 2 there have been occasional showers, but no soaking or general fall of rain, and, the wind having been much in the east, the temperature has been low and unfavourable to vegetation. When the wind occasionally changed from the east it got into the north-west, blowing often with considerable violence, and licking up whatever moisture was near the surface of the soil. In the leafing of trees, it was observed that the Ash was long after the Oak; that even till about the middle of June the Ash trees were bare, the leaves coming out with apparent reluctance, and branches remaining bare and withered after other parts of the tree were partially covered with leaves. In gardens there was a great show of blossom, but, owing to the continuance of cold weather, there are few Apples, except in well sheltered gardens. It is a feature of the season, however, that there are notable exceptions, and late situations are more favoured than early ones. The first seventeen days of June were cold, and during the night of the 12th there was severe frost. Towards the end of June the drought became very severe, and it was observed to have penetrated the soil more deeply than usual. This was, doubtless, owing to the absence of snow, which, when melting, percolates deeply into the soil; combined with the fact that during all the four winter months, ending with February, the time when evaporation is at its minimum, and when the earth generally becomes like a saturated sponge, there was almost no rain. Thus the dry weather of April, May, and June, found the soil, and even the subsoil, with no surplus treasures of moisture, and soon the supply was exhausted to a degree that cannot now be replaced till the short days of winter, except by an amount of rain which would be almost disastrous. A change to showery weather may, however, now come, which is much needed, and is, indeed, necessary to avert serious calamity as the season advances. Unless the remainder of the season be unusually moist the soil and the springs will get very much dried up in the autumn. *T., Roxburghshire.*

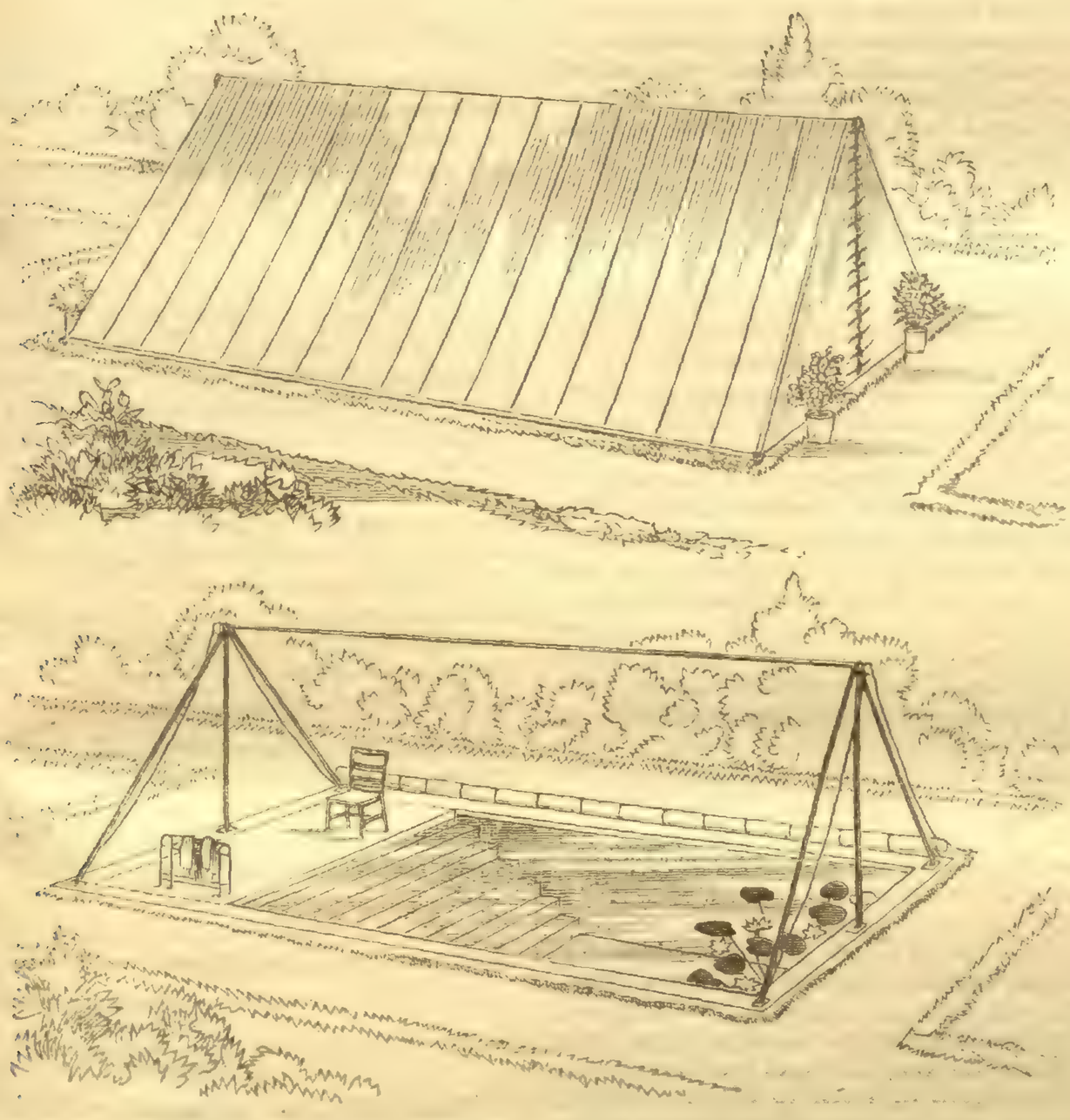


Fig. 15.—Bath Pond with Tent Covering.

Puccinea malvacearum, Mont.—This fungus, I regret to say, has made its appearance in this county. Messrs. Oldroyd & Son, nurserymen, received some infected leaves from Bishops Castle, the only place in which it has been hitherto detected. I have been searching the Mallows and Hollyhocks in this neighbourhood since the disease showed itself in England without being able to trace a sign of it, and I was inclined to think our inland position would secure us for some time from its destructive effects. I am unable to say whether it has been conveyed here by newly-introduced plants, or whether it has reached us by those occult channels through which other diseases find their way to these islands. *William Phillips, Canonbury, Kingsland, Shrewsbury.*

Horticulture of the Last Century.—In the *Gentleman's Gardeners' Directory*, by the Rev. H. Stevenson, published 130 years ago (1744), there appears a few names of plants that are scarcely intelligible to the craft of the present day, for instance, Trip-Madame is stated to be a salad herb; the seed, leaves, and young tops are used in July, August, and September. This ought to be worth knowing. [Trip-Madam appears to be a name of Sedum reflexum. Eds.] He gives a list of Peas, including Long Crooked Sugar Peas, eaten as Kidney Beans, shells and all. These sorts and any other seeds may, it is said, be had of Mr. Nathaniel Powel, Seedsman, at the King's Head, near Fetter Lane, in Holborn, London. This information and the following is to be received with a grain of salt. Burns has hinted that even ministers have been known, "in holy rapture, a rousing whid at times to vend and nail't wi' Scripture." So our author quotes Mr. Emery as being the author of the following cram:—"Steep Tulip seed in ink for a black, in verdigrease for a green, in azure for a violet," &c. (*Curios.* p. 126). Stock Gilliflowers should be transplanted three times,

each time at the full of the moon. The following secret our author lets out in the way of compost for these plants:—Tanner's rubbish, one barrowful; wood pile earth, four barrowsful; old lime a quarter of a peck. Ox and cow-dung (mark the distinction) well rotted and mixed with light earth, is good for layers. It is only when we see such arrant nonsense set down by way of information that we can sufficiently value honest horticultural skill. *A. F.*

The Three Earliest Peaches.—Your correspondent, Thomas Bréhaut, Guernsey (p. 48), places the Early Rivers Peach before the Early Beatrice in ripening. This is different from my experience with these varieties, for I have generally found the Early Beatrice colour and ripen the earliest, whether grown in pots, in Peach-houses, or in the open air—that is, when they were grown under the same circumstances. The Early Beatrice is not so large nor so good flavoured as the Early Rivers, but it always colours well and grows with me best in pots, often reaching there to a middle-sized fruit, it is hence invaluable for a dish or two early in April for the dessert. The Early Louise I have found, like Mr. Bréhaut, to ripen about a week or eight days later than the Early Rivers, and I agree with him that it is the best of the three varieties for size and flavour. Since the above three varieties of early Peaches were let out by Mr. Rivers I have grown them extensively in pots, in the houses, permanently potted out, and on the walls in the open air, and have therefore had some experience in their culture. As to early ripening Nectarines we still want a better variety than Hunt's Tawny, for it is, as Mr. Bréhaut describes, too small unless well grown, and it is very subject to mildew. Rivers' Lord Napier ripens a week or two later than Hunt's Tawny, and is the best early Nectarine yet let out. *William Tillery.*

Plants of Llandudno and the Great Orme's Head.—Mr. Robinson's interesting account of the native floral productions at and around Llandudno, induces me to offer some supplementary remarks that may include a few plants that he has omitted, as well as to note the changes of vegetation that arise from the advances of cultivation and the spread of buildings. When I first visited Llandudno, now more than thirty years ago, there was only a single dwelling upon the beach, and the little scattered village lay intermediate between the bay and Conway river. Here at that time was truly the wildness of Nature, and the Yellow Poppy (Glaucium luteum), the Seakale (Crambe maritima), Sea Gromwell (Lithospermum maritimum), Sea Chickweed (Honckenya peploides), Sea Lyme-grass (Elymus arenarius), and other inhabitants of sandy shores grew at pleasure, while the Henbane (Hyoscyamus niger), a lover of waste maritime places, appeared in abundance, and the Stinking Groundsel (Senecio viscosus) might be seen in profusion. Now all are gone from the shore, and a long serried array of bathing machines takes their place. At the time I allude to almost every waste spot around the coast was covered with the tall gray Thistle (Carduus tenuiflorus); but when here last year I could not find even a single specimen of the plant. Inland, the country between the Orme's Head and Gloddaeth was little better than a marsh, where frogs were rather too abundant, and where I noticed the elegant Bog-bean (Menyanthes trifoliata) in some plenty, as well as the Flowering Fern (Osmunda regalis), and in some spots the greasy-leaved Pinguicula vulgaris was apparent. Drainage has banished these as well as other water-loving plants, and they must now be sought, if indeed any of them yet remain, in very obscure places or boundary ditches. Among the local plants of the Orme's Head Mr. Robinson has not mentioned the Juniper (Juniperus communis), which trails over many of the rocks, giving a close matted covering to them. It seems formerly to have been abundant on the Head in an upright state, for when I first explored the ground many old Juniper trunks of considerable size lay scattered about among the rocks, whether purposely cut down, or upset by the pitiless winds that often sweep over this exposed promontory, I am unable to say; but they must have remained exposed a considerable time, as all of them were in a decaying state. Now, however, the Juniper only exists in a prostrate condition, and thus, clinging to the rocks, defies the winds. It is remarkable how localised plants are fond of association, or, at least, are found near each other, which is pleasant for the botanist when he thus comes upon a good spot. On the same ledge of rocks on which the Cotoneaster vulgaris grows I observed the rare flax-leaved Goldilocks (Chrysocoma Linosyris), Navelwort (Cotyledon Umbilicus), Wild Madder (Rubia peregrina), Spring Cinquefoil (Potentilla verna), Marjoram (Origanum vulgare), Bloody Cranesbill (Geranium sanguineum), Ivy Broom-rape (Orobanche Hederæ), Dropwort (Spiræa Filipendula), very abundant, though dwarf, upon the scanty soil; Hybrid Speedwell (Veronica hybrida), particularly fine; White Horehound (Marrubium vulgare), and English Stonecrop (Sedum anglicum). On another mass of precipitous rocks, not far distant, the silvery-leaved White Beam tree (Pyrus Aria) grows, though I only noticed it in this one place. The ledge of rocks I have adverted to, but whose situation I shall not exactly indicate, when I first visited Llandudno, was abundantly fringed on the top with the Cotoneaster, and there I have seen it both in flower and fruit. Now the ravages of spoliating (I fear lady) botanists have entirely stripped the ledge, so that last year, after several careful hunts, I could only find a single dwarf specimen in a cranny of the rocks, and this I carefully left. I therefore fear that ere long the Cotoneaster will no longer be found as a native of Wales, for boys know the plant as acceptable to visitors, and to gain a few pence have pulled it up wherever they could see it. Mr. Robinson says that he does not blame visitors, but I think their selfish rapacity deserves severe censure. The consequence is that they deprive future wanderers of the enjoyment they seek for and cannot obtain. Here Nature cannot be trusted to increase the store, for she rather encourages the growth of weeds than of curious or lovely flowers, and it is very annoying to journey to a place where local plants were once known to grow and find them irretrievably gone. When, as is now too often the case, persons are encouraged for pecuniary gain to root up rare plants, and all the Ferns that can be found about a place are ruthlessly dug up, then, though a practical observing botanist may carry a note-book, as Mr. Robinson recommends, it will be only to record a series of disappointments. A botanist, in the case of a rare or local species, should be contented with one or two specimens, and should sternly discountenance the wholesale plunder of plants for pecuniary profit. When I was last at Cheddar, I and my friends were beset with a host of importunate girls and boys to buy the Cheddar Pink (Dianthus cæsius), which they had rooted up from every attainable spot, and thus no specimen could be gathered from the cliffs without incurring risk of misadventure. If visitors would not buy, but search for themselves, then there might be hope that local plants would not be quite exterminated, as many will probably be if the system that I reprobate continues to be carried on and is encouraged. Several good Orchids are yet to be found about Llandudno, as Epipactis latifolia, Gymnadenia conopsea, and Orchis pyramidalis. In September, too, the fragrant Lady's Tresses (Spiranthes autumnalis) may be seen abundantly on the turf, by the path towards the ruins of Gogarth Abbey. An instance of the change in vegetation through human influence may be noticed at Craig Diganwy on the coast towards Conway. This is an isolated hill of trap rock, where years ago solitude reigned supreme untouched by cultivation, and the cliffs were adorned with the Nottingham Catchfly (Silene nutans), the pretty Pink (Dianthus deltoides), an abundance of Foxglove (Digitalis purpurea), which carefully keeps off the limestone of the Orme's Head, and several other interesting plants. In truth it was a little botanic garden, where I have wandered delighted, and mused among the ruins of the old castle on the top. But last year, when again visiting the spot, I found it changed to an execrable weedy wilderness, where Nettles, Docks, Thistles, Brambles, and the ugliest weeds that find out abandoned garden ground, had made such a descent and occupation that it was with difficulty that I struggled through them. On reaching the top of the craig, I found that some enterprising Taffy had been at work to displace Nature with his pitchfork, and the site of the donjon of the castle was occupied by a luxuriant patch of Potatos, encompassed round by a fringe of dead thorns in the slovenly Welsh fashion. If any one wishes to see weeds on cultivated ground, Wales is the country to go to, for there I have often observed them more abundant than the crop. It was clear, then, that the abundance of weeds on the hill was due to this incursion of Welsh cultivation; but what was really curious was the enormous quantity of the Milk or Holy Thistle (Silybum Marianum), scattered over the ground of the craig from the base to the very summit, for in general this Thistle is but scantily dispersed anywhere, and it could not have been sown purposely. I looked about for the former resident plants in vain, the only remarkable one still left, on a fragment of rock scarcely accessible, being the purple-flowered Sedum Telephium. *Edwin Lees, F.L.S., Green Hill Summit, Worcester.*

Saponaria calabrica as a Spring-bedder.—Its wonderful power of long-sustained bloom renders this plant one of the very best annuals that can be used in the summer parterre. I would here say a word or two in its praise as a spring-bedder. In the spring garden it is a gem. I have used it extensively and with the greatest success, both in ribbons and in all kinds of beds. Its colour is a rich rosy pink, forming a smooth glowing surface when in bloom, rarely equalled and not to be surpassed by any other plant. I prefer it to Silene pendula. There is nothing in my garden in spring which calls forth the admiration of visitors more than the beds and lines of this plant, and truly it deserves their praise, the dense masses of soft rose being in beautiful contrast to the tender shades of the delicate turquoise-blue of the Myosotis (Forget-me-not), which in its turn is beautiful in close proximity to the pale straw-coloured Limnanthes Douglasii. The Saponaria is very accommodating and easily managed, and need never be dispensed with on the score of uncertainty, as it is perfectly hardy. About the middle of August sow the seed in drills on any spare bit of ground in the kitchen or reserve garden; when up it will require no further care than slightly thinning; in the autumn it will cut out of the drills in small pieces with a ball to each, and do transplanted to the beds and borders any time, even up to Christmas, if the weather is open. For edgings and lines I have left it in the seed-bed all winter, and transplanted it early in March. This does not in the least deter its bloom, but it has a tendency to keep it dwarfer than when planted in October. The white variety, S. calabrica alba, is not to be depended upon; it is of a more weakly constitution, though when it does well it is exceedingly effective. *Thos. Hutt, Corley Rock, near Coventry.*

Bedding Pansies.—We have a variety at Bath, grown, I believe, by Mr. Minchin. I think he calls it Blue Bedder; your correspondent noticed it in the *Gardeners' Chronicle* last season. I know nothing of the kind equal to it for general purposes. It commences blooming very early in the spring, and continues all through the summer until the autumn frost sets in. The extreme drought that we have had has no effect on it. As for a single bloom, I cannot say much for it; but in a mass, or for pot culture, it is splendid. *R. Shackell.*

Staking Trees.—The best method for staking or steadying newly transplanted trees I have practised is one which was adopted and strictly enforced by my late master (J. S. Enys, Esq.), who had a long experience in transplanting trees and shrubs of all sizes. The sketches on the opposite page (figs. 16 and 17) will better explain the plan than words. The stakes in this position will not injure the roots as the practice of driving down one among them just where they are thickest does, nor will the main stem of the tree suffer from damaging the bark, neither from what Mr. Earley complains of (at p. 13, vol. i., 1874), "restraint." The only harm done is in the act of tying, and this, at the most, is only sacrificing a few tips of the branches which are tied to the stake, and is soon remedied by the branches above them growing over them, or other parts of the same branches growing beyond them. They should be so tied as that the tree should have a little play on every side. Three stakes will do for most small trees and shrubs, but eight will not be too many, nor a waste of labour if a large tree is to be staked. *Henry Mills, Enys.*

Multum in Parvo Pea.—I bought 1 peck of Nutting's Multum in Parvo Peas of Messrs. Nutting & Sons in the spring of this year, and I have picked 57½ pecks of good well-filled pods from the 1 peck sown. Surely this is "much in little," it being only about 12 inches in height, and of good flavour. *Henry Adamthwaite, 11, John Street, Woodfield Road, Harrow Road, Paddington.*

Forestry.

Treatment of Tap-roots.—The treatment of the tap-roots of seedlings depends entirely on the peculiarities of the species of tree, the locality and climate in which the seedlings are to grow into trees, and on the description of labour available for the handling of the seedlings during the different manipulations of planting. Some species will stand the tap-roots and stems being cut in all sorts of ways without dying, others will not, and, as far as experience goes at present, Teak seems to belong to the latter class. Experiments were made on this subject years ago in Burmah, if I am not mistaken. At Bamunpaokri I made lately, in conjunction with the Inspector-General of Forests, a small experiment of cutting the tap-roots of a number of Teak seedlings one and two years old. I put the plants with my own hands into the ground, but in spite of every care they have all died except one, of which it is doubtful whether it will live or die. I shall make another experiment on a somewhat larger scale during the coming planting season, and report the result hereafter.

To recommend the cutting of tap-roots generally, as Captain Walker seems to be inclined to do, is a great mistake, not only with regard to the peculiarities of the several species of trees, but also as regards difference of soil and climate. No doubt the operation is to be recommended in the case of many of the European species when planting them in rich or tolerably rich soil, and in a climate sufficiently moist to maintain seedlings at all times of the year. On the other hand, there are many instances to be seen in Europe where the tap-roots of seedlings are not only not cut, but where the seedlings are raised in such a manner as to produce exceptionally long tap-roots. I need only mention here, as an instance, plantation of the Scotch fir, in dry or sandy soil with a moderate or small amount of moisture. Without long tap-roots

the seedlings would be quite unable to live under such circumstances.

The quality of labour available is also of influence. In Europe, seedlings are certainly treated in a rough manner, as described by Captain Walker, but, on the other hand, on all well-regulated plantations they are treated systematically, and specially their roots are not exposed more to heat, sun, and winds than they can stand. In India here, on the other hand, one of the greatest difficulties in planting operations is to prevent the seedlings being injured while in the hands of the labourer.

On the whole, I submit that it is impossible to set up a general rule on the subject under consideration, and that the method according to which the seedlings are to be treated has to be decided upon in each instance. *W. Schlich, in "Agricultural Gazette of India."*

FIG. 16.—STAKING TREES.

FIG. 17.—STAKING TREES.

REMARKABLE POLYPORUS FROM CANADA.*

BY SIR R. CHRISTISON, BART.

A SHORT time ago I came accidentally upon a mysterious specimen,—mysterious, I mean, to myself,—which I had put aside in 1843 till I should receive farther information about it, and of which I had lost sight during other and very different pursuits. The label on it bears that it is "a fungus from the White Pine" of Canada, presented to me by Dr. James Johnston, at the time Assistant-Surgeon in the 71st Highland Light Infantry. On presenting it to the Botanical Museum, I found that it seemed as novel and strange to Dr. Balfour and other experienced botanists as it was to myself; but a small fragment, evidently of the same kind of substance, was subsequently found in the collection of the Garden.

As a cursory examination proved it to be an object of interest, I applied to Dr. Johnston for farther information; and fortunately, considering the long period which has elapsed since he parted with it, he was able to turn up in a memorandum-book the following note, taken on April 28, 1841, when he got it at "Penetanginshine, Georgian Bay, Lake Union," viz., "Bought a Wahbodo,—Indian Rhubarb,—a fungus growing on top of White Pine,—very scarce—thirty-three years' growth. Indians say it lives—cries like a child—bleeds when wounded—and does not fall unless killed. This specimen was brought down by three rifle-balls. A tonic bitter—recommended as an application to wounds. It was brought to me from a distance of upwards of 50 miles."

The Wahbodo is still in a state of perfect preservation, as when I got it thirty-one years ago. It is 18 inches long, from 22 to 26 inches in girth, firm in external texture, and very fibrous, the fibres longitudinal. It is very white. It weighs thirteen pounds. It is strongly marked by thirty-three parallel rings, or seems to be made up of so many circular superimposed cakes, somewhat more than half an inch in thickness. At one side of its thicker end there is attached, over a space as large as the palm of the hand, a quantity of the outer bark of a smooth-barked Pine. On cutting out with the saw a quarter section along its whole length, it was found that the rings outside penetrate a very short way inwards; that the texture everywhere is in general spongy, white, and fibrous; but that there are also many long, longitudinal, rudely parallel lines on the surface of the section, which are brownish, harder, not at all fibrous, and which obstructed the saw by adhering to it like a resin. The powder has a strong, pure, almost aromatic, bitter taste, very like that of sulphate of quinia.

Dr. Maclagan made a rough analysis of it for me, and found that it consists, in 100 parts, of 64.59 resin, 25.79 cellulose, and 9.62 watery extract. The bitterness he found to reside, not in the resin, but in the watery extract, and therefore must depend on some other proximate principle, possibly crystalline.

On consulting the opinion of the most eminent English authorities on the subject of the fungi, Dr. Balfour found that all considered this substance, from an examination of small fragments of it only, to be ligneous texture degenerated and much altered by the presence of a species of Polyporus, which Mr. Berkeley thinks will probably prove to be P. Pini canadensis (Schweinitz).

* Read at July Meeting of Edinburgh Botanical Society.

WHITCHURCH RECTORY, EDGWARE.

PERHAPS there are few more pleasurable treats to one who is fond of gardening pursuits than a visit paid to a first-class garden, more especially when it contains a rich collection of rare and beautiful plants. The day I had set apart for my visit to the above gardens was warm and sultry, but as soon as I had turned from the dusty road and entered the carriage drive leading to the rectory, I felt revived by the cool odour of the Coniferæ which are grown here in great variety and luxuriance; their perfume quite filled the air. I was soon also gladdened by a gorgeous sight of Roses and other flowers that gave promise of the treat I had in store. I found the Rector, the Rev. J. B. Norman, at home, and received from him a kindly welcome. He first accompanied me over his church, which is one of the most beautiful and interesting within the suburbs of London. It is 8½ miles from the Marble Arch, Regent's Park, and near the old market town or village of Edgware, the major part of which is included in the parish. On entering the precincts of the churchyard, which is separated from the rectory garden by a thick border of evergreens, the first object of interest which I encountered was a stone monument erected to the memory and marking the burial-place of the "Harmonious Blacksmith," who (as the inscription runs) "was sexton during the time the great Handel was chapel-master at this church." It is a most appropriate monument: on it is a representation in alto-relievo of the anvil and hammer of the musical blacksmith, encircled with an olive wreath, surmounted by the first bar of the piece known as the "Harmonious Blacksmith." The churchyard is kept in the best order, the grass is closely shaven, the graves many of them embellished with suitable plants and decked with immortelles. The Rector has also beautified and planted the borders of the boundary walks with handsome varieties of Coniferæ, which are growing with remarkable vigour. The walls of the church are covered with Virginia Creeper, many varieties of Roses, Jasmines, Pyrus japonica, Glastonbury Thorn, and other suitable plants.

On entering the nave the visitor is at once struck with the beauty of the church. There is a warmth of colouring, a harmony and elegance in all the lines and features of the building, which is most impressive. It appears the church was rebuilt by the great Duke of Chandos in the reign of George I. at the time that he built his magnificent palace at Canons, the principal estate in the parish. The whole of the walls and ceiling are covered with paintings and decorations in encaustic work of the very best kind, and the effect is exceedingly striking and pleasing. The principal artists employed by the Duke were the celebrated French artists, Verrio and Laquerre, who afterwards executed other works of a similar kind in London, and other parts of England. I believe the reception rooms at Chatsworth were decorated by them. The ceiling is divided into eight compartments representing the principal miracles of our blessed Lord; over the altar is a grand representation of the Adoration of the name of Jehovah, which has a most imposing effect. I recalled to my mind Pope's satire, which was levelled against the Duke of Chandos, under the appellation of "Timon," in which, labouring under a stinging fit of jealousy against Handel, who had been patronised by the Duke to the exclusion as he imagined of himself, Pope characterised these paintings and the music of Handel thus:—

"And now the chapel's silver bell you hear,
To summon you to all the pride of prayer;
Light quirks of music, broken and uneven,
Make the soul dance up on a jig to Heaven!
On painted ceilings you devoutly stare
Where sprawl the saints of Verrio and Laquerre,
On gilded clouds in fair expansion lie,
And bring all Paradise before your eye."

Behind the altar stands the organ, rendered famous by its being built by Father Schmidt for the immortal Handel, many of whose sublime oratorios and anthems were composed upon this instrument whilst he was chapel-master here. The woodwork, which is of black oak, was carved by Gibbons, and contains many fine bits moulded by his cunning hands. Passing through the church I entered the mortuary chapel of the Duke of Chandos. It is a large compartment, decorated most profusely in the same manner as the church, and containing the magnificent monument in black and white marble of the great Duke, and of the daughter of Lord Bruce and consort of Henry II., Duke of Chandos, and of Mary, Marchioness of Carnarvon. There are also monuments erected to the memory of the Marquis of Carnarvon (1727), and several others. In the vault below this chamber lie over sixty bodies of the members of this noble family.

Returning to the garden I could not but remark the very agreeable situation of the rectory house. It stands on a gentle elevation, surrounded by a garden of about 3½ acres in extent, and the views from the windows of the house and the lawns are most charming. In looking over the lawn from the drawing-room windows the eye first catches the red-tiled roofs of the houses in the village of Edgware, situated about a quarter of a mile distant, peeping from amongst the fine timber that covers the whole landscape here; above these the country gradually rises until it attains the highest parts of Mill Hill, and Highwood Hill, a distance of about four miles. The immediate country consists of masses of timber, alternating with the green fields, and marking the gradually receding view. The various tints of green, gradually shading off to the blue of the distance, and contrasting with the rich red of the tiled roofs, make the scene most beautiful. On the rectory house is a wonderful plant of Climbing Devoniensis Rose: it has been in its present situation four years. The stem is 9 inches in circumference at the base, it covers the gable and extends altogether over 16 yards of the house; its beautiful creamy white flowers, eight or ten in a bunch, all open at the same time, are most lovely. It is certainly one of the best, if not the best, Rose in cultivation for a wall. Intermixed with this is a very large plant of Clematis Jackmanni, climbing over the porch, and Wistaria sinensis occupying a position near it.

Mr. Norman has recently commenced Orchid growing, and that he has gone into it with a will is evident by the extensive and complete collection he has got together of all the best and most beautiful in cultivation of these, the cream of cultivated plants. A considerable portion of the plants here have been imported within the last two years, and consequently are not individually so large as those that have been longer in the country; but the excellent progress they have made gives evidence of the skill and care bestowed upon them by Mr. Shields, Mr. Norman's clever and intelligent gardener, who appears to be passionately fond of these fascinating plants.

In the first house I entered are Odontoglossums and other Orchids requiring cool treatment. It is built against the north side of the rectory, and is about 45 feet long and 12 feet broad; the back wall of the interior is entirely covered with rockwork, in which Ferns and Lycopodiums in abundance luxuriate. I noticed also some of the Orchids were thrusting their silvery roots amongst the cool Moss and Ferns. On the front side is a wide stage extending from end to end; this was covered with varieties of Odontoglossums and other cool Orchids, in good healthy condition. There is a fine collection of O. Alexandræ and its varieties, not less than 300 plants; many of them were throwing up their arched spikes

of chaste and beautiful flowers high over the foliage of the other plants. There are some strikingly beautiful varieties. Several racemes of Barkeria elegans were rising up, showing their rosy segments and rich spotted labellums. Here, also, is the original plant of O. Andersonianum; O. Pescatorei, in many beautifully marked forms; O. hystrix, O. sceptrum, O. gloriosum, O. Hallii, some choice varieties of O. grande, O. Skinneri, and many others, and a very complete collection of Masdevallias. The following were in flower:—M. Veitchii, M. Harryana, M. ignea, M. coccinea, M. amabilis, and several others; Epidendrum vitellinum majus, showing remarkably how it enjoys this cool treatment. Here, also, is the beautiful Cape Orchid, Disa grandiflora, doing well, and pushing up strong, vigorous spikes; Lycastes in quantity, including the scarce L. alba.

Next we came to a small span-roofed Odontoglossum house, with a wide stage on both sides of the centre walk. The roof is shaded with the beautiful yellow Rose, Maréchal Niel. It is undoubtedly the finest Rose for glass work in cultivation. It is here allowed to make all the wood possible in the growing season; about Easter every bud of this new wood throws a bloom, and I was informed that this one plant produced no less than 700 flowers last spring. After blooming it is much reduced by pruning, and started into growth. Every encouragement is given it to make wood for the next flowering season. Here is the magnificent plant of Griffinia hyacinthina purchased lately by Mr. Norman, at the Southgate House sale (see fig. 6, p. 17). Also some select specimens purchased at the sale of the late Mr. Dawson's Orchids, especially a fine plant of Cypripedium insigne Veitchianum, which is perhaps the rarest and most beautiful of all Cypripediums. A good plant of Oncidium macranthum superbum, which is said to be the finest variety that has ever flowered in England. Distinct varieties of Odontoglossum grande, O. Uro-Skinneri, O. Insleayi (leopardinum of Backhouse), Lælia autumnalis (grandiflora of Backhouse), and L. autumnalis superba; Zygopetalum crinitum roseum, Z. crinitum cœruleum, Z. rostratum, all large and healthy specimens. One side stage of this house was entirely covered with recently imported varieties of Odontoglossums and Oncidiums, making new and robust breaks, and in some cases showing flower.

The next is the Phalænopsis-house: it is narrow, and span-roofed, with a descent of four steps sunk below the ground level—this floor is always damp, giving off the moisture these plants delight in. It is amply supplied with piping. There is a stage on each side of the centre path. Here I noticed what I consider to be an excellent adaptation to moisture and heat-loving plants: the stage is fixed close above the pipes, and is composed of roof-slates covered over with sifted gravel; on this stood a most complete collection of Cypripediums in remarkably good health. By this arrangement, warm, moist air is constantly rising and playing amongst the foliage of the plants, and they seem to luxuriate in it, making plenty of robust, healthy leaves. There were somewhere over 100 plants of Cypripedium niveum, a fine variety of C. caudatum in flower, C. Parishii, C. Veitchii, the elegant C. Pearcei, all in flower, and many others. Utricularia montana was to be seen here. It is one of the most chaste of white flowers, and is of surpassing beauty. Aerides, Vandas, Saccolabiums, a nice plant of Oncidium splendidum, five plants of Lælia anceps Dawsoni, Houlletias, Pescatoreas, Trichopilias, Odontoglossum vexillarium, O. Roezlii, represented by several plants and varieties. But perhaps the most interesting sight of all is a collection of Phalænopsis in every variety which has been imported within the last two years. Some of them are in flower, all in most robust health, with large leaves and vigorous roots clasping their baskets in every direction.

In the Cattleya-house the first plant that caught my attention was the largest specimen of Cœlogyne cristata I have ever seen. It produced last season 115 spikes of bloom; it is quite 4 feet in diameter. There were also five other fair specimens. The house was very gay with blooms of Cattleya Mossiæ. There is a fine specimen of the Manley Hall variety; this is undoubtedly the most beautifully marked form of any in cultivation—the sepals and petals are large and of a rich pale mauve colour, the labellum is very broad and open; the deep rich gold colour extends from the centre to the margin, interspersed with regular streaks of dark magenta to the edge of the labellum. It is a conspicuous and magnificent variety. There were also many other fine forms in bloom of this beautiful Orchid. Here also in flower were plants of C. Mendeli, C. Warneri, and C. lobata. The collection of Cattleyas is very complete. I noticed fine specimens of C. Bassettii, a most beautiful variety; C. Dawsoni, C. gigas, C. aurea, C. labiata, the true and very scarce old variety, a very large plant; C. Skinnerii, C. crispa, and C. Warscewiczii delicata, seven plants of C. exoniensis, two Lælia Turneri, L. purpurata, and many others. Several plants of Cattleya Dowiana were showing bloom; this has been found rather a difficult plant to flower—here I noticed it was hanging close to the glass, and sometimes in the sun, and under this treatment it seems to do well. Epidendrum bicornutum, also a difficult plant to do well, was in good condition. I also noticed Odontoglossum Reichenheimei, with a flower stem 2½ yards long, from the first growth it has made since imported.

The Dendrobium-house contains also a fine collection. The following were in flower:—D. thyrsiflorum, D. Bensoniæ, D. Devonianum, D. dixanthum, D. formosum giganteum, D. McCarthiæ: many of the varieties were making vigorous growth. Here also were some scores of plants of Calanthe vestita, indispensable for autumn aud winter flowering, and which should be grown by all who value flowers for cutting at the dreary season of the year. The plant can be well done by any one who possesses a house where heat and moisture are kept up that will grow Cucumbers all the year round.

The East Indian house contains perhaps the cream of the collection. The centre table is covered with large healthy masses of plants. Two Aerides Fieldingii, about a couple of feet high, have thrown long branching spikes; Aerides Dayanum, with two spikes 2 feet long; three plants of A. Veitchii, two of A. Schrœderii, A. Larpentæ, with two spikes; many plants of A. Lobbii, with long branching spikes. In Angræcums I remarked two handsome plants of A. sesquipedale, two of A. eburneum superbum, and a fine plant in basket of A. bilobum. The Vanda group is also amply represented. There are two plants of V. Lowii, 3 feet high; V. gigantea magnifica, 4 feet; the true variety of V. insignis, a large vigorous plant; many forms of V. tricolor and V. suavis, and good plants of V. cœrulea, V. cœrulescens, V. Denisoniana, V. teres, in flower. Amongst the Saccolabium genus I noticed in flower a handsome plant of S. curvifolium, with two good spikes; S. guttatum Holfordii, and other varieties of guttatum; S. violaceum, and the beautiful and deliciously scented white variety, S. v. Harrisoni. In this house were also ten or twelve large pans of varieties of Pleiones, which had nearly completed their growth, and gave promise of a magnificent display in the winter season. These Pleiones are amongst the most lovely plants grown, and deserving of cultivation by all who have a stove. Nothing can exceed the exquisite markings of the flowers, and they possess the advantage of being easily grown and occupying little room.

We then came to a large span-roofed house, devoted to the cultivation of Camellias and other greenhouse plants; the Camellias are, most of them, planted out, in which way they produce a far greater number of flowers than when confined in pots or tubs. On one side of this house Muscat Vines occupy a portion of the roof, on the opposite side Black Hamburghs, both carrying a heavy promising crop. Here, hanging up close to the glass, were a number of plants of Cattleya citrina and Dendrobium Cambridgeanum, with little to protect them from the sun: they are placed here to ripen the growth already completed, and seem quite at home under the treatment.

The carriage drive leading up to the house from the road is flanked on one side with a broad irregular belt of shrubbery filled with quantities of all the best and most choice coniferous plants and deciduous trees, noticeable amongst which were Abies excelsa, A. pyramidalis, A. orientalis, near which stands a splendid specimen of Thujopsis borealis, conspicuous for its fine colour and the way in which it has stood the continuous nipping frosts of the present spring unscathed — Picea grandis, Abies Douglasii, Pinus Lambertiana, the glaucous-leaved Picea amabilis (the true plant), Pinus monticola, Picea grandis (Gordon's plant), distinct and handsome; P. Pinsapo, a grand plant. Dotted about at irregular distances were numerous large fine headed standards of Acer Negundo variegata; these, backed up by the dense healthy green foliage of the coniferous plants, had a fine effect, which was still further heightened by large quantities of all the best varieties of Rhododendrons and Roses. On each side of the carriage drive are planted alternately, a few yards apart, Irish Yews and standard Rhododendrons—the broad bushy heads of the latter, even when not in flower, contrasting well with the upright habit of growth of the Yews. Standing out on the lawn are a couple of very large plants of Picea magnifica (the true variety), than which nothing could be more handsome; Thuja Lobbii, a fine specimen of variegated Oak—Quercus Cerris variegata, a nice variegated companion to the Acer. Next was the most elegant foliaged Alnus laciniata imperialis. Standing near the house are a match pair of Thuja aurea, 5 feet high, dense and fresh, near which is a beautiful specimen of the variegated Yew, Taxus Harringtonii. On a prominent point of one of the clumps is a huge plant of Arundo conspicua. Then we come to a specimen in free growth of the grotesque habited Abies inverta, near which is Cryptomeria sinensis and Abies alba glauca, and numbers of dense fine plants of Abies gigantea, 10 feet high. Not far from these is an arbour composed of a centre plant of the crimson Boursault Rose, grafted 10 feet high, with light chains attached to the top of the iron stake that supports it, and which form the roof by being brought out and fastened to a circle of lower stakes fixed firmly in the ground, the whole being covered by its weeping branches. The walls of this living arbour are composed of seedling Clematis raised from lanuginosa crossed with Jackmanni, some of which had flowers upon them 7 inches in diameter, of various tints, and composed of seven broad petals, the whole surrounded by a narrow belt of dwarf Roses. Near this arbour are several plants of Retinospora obtusa nana aurea, one of the brightest of golden Coniferæ; here, again, we meet with numerous plants of Picea magnifica and P. nobilis in the finest possible health, associated with the Japanese Elm, Ulmus aurea. We then come to quantities of smaller plants of the rarest of these interesting families planted in borders on trial. Here are to be met with most of the golden and silver forms of Coniferæ, such as Cupressus Lawsoniana pendula argentea, C. Lawsoniana argentea variegata, and C. Lawsoniana aurea variegata, Wellingtonia gigantea aurea, Retinospora leptoclada, R. plumosa, with its varieties; Taxus squarrosa, Thuja semperaurea, Retinospora lasiocarpa, Thujopsis Standishii, Juniperus hibernica compressa, Taxus Washingtoni, whose dense horizontal branches look as if it hereafter may be a rival to the Cedar of Lebanon. Numbers of the fine glaucous variety of Picea nobilis, several plants of Young's variety of the Weeping Birch, a most elegant plant; Thujopsis borealis variegata, Cupressus Lawsoniana erecta viridis, a rival of the Irish Yew in form, and which retains its bright green in the winter; Taxus hibernica variegata (Fisher & Holmes' variety). Intermixed as these plants are with commoner varieties of Coniferæ, quantities of Rhododendrons, Kalmias, Azaleas, and other plants, there is very great interest attached to them in noting how they grow and stand our winters, and the size they attain, many of them being variegated, and variegated Coniferæ are subject to the same natural laws that other variegated plants are, in not being so vigorous generally as the normal type. Most of the clumps and borders are planted in front with good varieties of herbaceous plants, than which nothing can be more appropriate, or a source from which more continuous interest can be derived all the year round, affording something in flower, from the Christmas Rose, that first greets the dawn of the incoming year, to the unassuming Michaelmas Daisy, that bids farewell to its departing days. The soil is a strong loam, common in this part of Middlesex, heavy, tenacious, and anything but inviting in appearance, yet, when sufficiently drained, plants of the description heretofore named do well in it. I noticed some hundreds of the new Japanese Primrose (Primula japonica) in fine health. Mr. Norman is crossing these in every possible way. His experiments are not yet complete, but the results so far are of a startling nature, and calculated to upset a good deal of our preconceived conclusions upon the subject of crossing. *T. Baines.*

Reports of Societies.

Royal Horticultural: *July* 15.—Dr. Maxwell T. Masters, F.R.S., in the chair. The Rev. M. J. Berkeley, in announcing the awards of the Fruit Committee took occasion to advert to the excellent collection of dried specimens of various varieties of Peas, exhibited by Messrs. Carter, a collection of a very interesting nature, and rendered the more so from the difficulty usually experienced in drying these plants satisfactorily. Alluding then to Melons exhibited and grown with their roots in water, Mr. Berkeley remarked that the finest Persian Melons were grown on floating islands, where their roots were always in water. The speaker also adverted to the Green Cabul Melon as a kind now rarely met with, but one of delicious flavour. The skin was so thin that it might be blown up like a Gooseberry when the pulp is removed.

The Cucumber known as Daniel's Duke of Edinburgh was pronounced quite different from Monro's variety of the same name, and to which the right of priority should be accorded. In the opinion of the committee the Cucumber sent out by Messrs. Daniel hardly differed from that known as the Marquis of Lorne. Alluding to the fine collection of Lettuces shown by Messrs. Carter & Co., Mr. Berkeley took occasion to mention a peculiar spotted variety which, when cut, resembled the Truffle of Alessandria, Tuber magnatum.

Reference was then made to the Potato haulms affected with aphis, and to the Phylloxera of the Oak, mentioned elsewhere. The Pine-apples and the fruit of the Musa Champa exhibited were next mentioned, and allusion further made to the Hollyhock disease, and the alleged method of curing it by Messrs. Downie, Laird & Laing.

Passing then to the objects shown before the Floral Committee, Mr. Berkeley made some observations on a pretty Campanula exhibited before the committee, and which was supposed to be a hybrid between C. fragilis and C. pumila alba. The pretty

little Saccolabium Cruikshankii was then mentioned, and also a beautiful Lily, said to be a cross between L. auratum and L. speciosum. Mr. Berkeley concluded by some remarks on the curious fungus, Sphærobolus stellatus, which is originally of a globular form, but which afterwards protrudes its inner lining in the form of a hernial protrusion, which ultimately bursts and expels with much force the contained sporangium. The walls and leaves of plants adjacent were often covered over with these pellets, to the great surprise of the uninitiated.

The Chairman remarked on the frequent absence of any member of Council on the Wednesday meetings. The entry of Mr. Kellock, however, before the meeting was over rendered it unnecessary to make further comment on that occasion. Mr. Kellock explained that the absence of members of Council was to be accounted for by the circumstance that the Council did not meet on the Wednesday as heretofore.

The Chairman alluded to the great variation in the Lettuces and Peas exhibited, and stated that, while the former confirmed Mr. Darwin's dictum that those parts of plants which were specially the object of the cultivator's care varied very much by virtue of the selective process exercised, the latter did not so fully bear out Mr. Darwin's views, inasmuch as the Peas varied as much, or nearly so, in their haulms and foliage as in their pods and seeds. After some other observations, relating to the soporific properties of the wild Lettuce, &c., the meeting was adjourned till August 15.

Scientific Committee.—A. Smee, Esq., F.R.S., in the chair.

Coffee Fungus.—The Chairman showed leaves of Coffee from Ceylon affected with fungus on the under side only. The fungus is probably the Hemileia so often referred to, but will be further reported on.

Gall on Damson Leaves.—Mr. McLachlan showed Damson leaves with a gall on them, produced by a species of mite, Volvulifex pruni, a species commonly found on the Sloe.

Phylloxera.—The Rev. M. J. Berkeley alluded to a paper on Phylloxera on the Oak, reprinted in the *Academy* (see p. 68), and which confirms his observations as to the different sizes of the eggs, which it was found produced, the one male, the other female insects.

Periodic Phenomena of Vegetation, &c. — Mr. McLachlan produced proof reports containing lists of insects, plants, &c., recommended to be observed by a committee of the Meteorological Society, with a view of ascertaining the date of the first appearance of leafing, flowering, of insects on plants, &c., as the case may be, with reference to temperature and other climatal conditions.

Vitality of Seeds.—With reference to some recent communications to the committee on this subject (see p. 19), Professor Dyer read a communication from Dr. Hooker relating to the Kerguelen's Island Cabbage (Pringlea). Since the last meeting a Ward's case had been received from Mr. Mosely of the *Challenger*, in which no living plants remained, owing to the case having been improperly packed; the soil was, however, spread out, and carefully tended, when numerous seedlings of Pringlea, Azorella, Lyallia and other antarctic plants made their appearance.

Mr. Munby stated that seeds of various plants introduced by him in hermetically sealed tin cases had uniformly failed to germinate.

Diseased Rose.—Mr. Renny brought specimens of a Rose affected with Fumago foliorum, which makes its appearance after honey-dew and with Cladosporium herbarium.

Hollyhock Disease.—Dr. Masters showed specimens from Messrs. Downie, Laird & Laing, to show the success of a method introduced by them, and which, judging from the specimens before the committee, appeared to fully answer the purpose.

Diseased Rice.—Dr. Masters also commented on a paper of Professor Santo Garovaglio, of Pavia, and in which the Rice disease of India is asserted to be due to the same fungus as produces certain well-known diseases in Italy. The fungus is sphærioid and polymorphous, and has been called Pleospora oryzæ.

Monstrous Privet.—The same gentleman exhibited branches of a Privet sent by Mr. Banting, of Bonchurch, and which were studded with very large stout woody spines, representing, in Dr. Masters' opinion, branches arrested in their development.

Hollyhock Disease.—Mr. Renny showed leaves affected not only with the Puccinia, but also with a new species of Diplodia (probably a stylosporous form of some Sphæria). It was considered very doubtful if it had any essential connection with the Puccinia.

Potatos Destroyed by Aphis.—The Rev. M. J. Berkeley showed specimens of the haulm destroyed by aphis in the manner recorded by him in our columns, p. 46.

Floral Committee.—R. B. Postans, Esq., in the chair. The display of subjects for the examination of the committee was an interesting though not a very extensive one. Messrs. E. G. Henderson & Son, of St. John's Wood, obtained First-class Certificates for Sonerila Hendersoni and Sonerila Hendersoni argentea, two forms, distinct in character, of a very pretty dwarf stove Melastomaceous plant, but with ornamental leaves. In the type, the leaves, which were ovate-oblong and red beneath, were blotched with moderate-sized silvery patches between the network of dark olive-green veins; in the var. argentea the surface of the leaf was more freely, though not entirely, covered with silvery grey. Both are pretty plants, well worth growing. The same exhibitors had an interesting Zonal Pelargonium called Distinction, having a narrow dark zone on the bright green leaves, and crimson narrow-petaled flowers, which may prove useful as a dwarf bedding variety; and also Saccolabium Cruikshankii, a small plant with short upright spathes of pale rosy flowers. Mr. Smith, of Willmot Road, Leyton, showed the pretty new hybrid Campanula Smithii, a dwarf plant which had sprung up accidentally in a frame where C. fragilis and C. pumila alba had been largely grown for market purposes. It is a charming hardy or frame perennial, with small hairy leaves, erect hairy stems about 6 inches high, and a profusion of semi-erect greyish-blue flowers of a very delicate tint. It was awarded a First-class Certificate. Mr. G. Thomson, of the Crystal Palace Gardens, showed his hybrid Lilium, called Purity, which had been bred between L. speciosum and L. auratum, and had been previously certificated; it has much the aspect of L. speciosum, but the flowers are a very pure white evenly spotted with dots of crimson-lake. A First-class Certificate was awarded to Mr. J. Fraser, of Leyton, for Ixora Fraseri, a variety with remarkably bright orange-red flowers in large clusters, backed up by free and healthy foliage of an oblong-elliptic form. The variety was stated to be of a more hardy constitution than some of these plants, and gave every appearance of being so. Another variety shown with it, Ixora crocata major, was less distinct. Mr. Fraser also sent blooms of François Courtin, a nice rosy-crimson French Rose. Mr. C. Turner, of Slough, showed several handsome new H.P. Roses, but only one of them, named Royal Standard, received a First-class Certificate; this was a very compact globular Rose, of a pinkish-rose colour. The others were Miss Hassard, a pale peach, of the character of La France and Madame la Baronne de Rothschild, but not so good as these fine sorts; Rev. J. M. Camm, a pretty and full cup-shaped Rose, of a deep pinkish rose; and John Stuart Mill, a deep crimson, but thin and open. Mr. W. Paul gained a First-class Certificate for the well-marked purple-leaved Birch, Betula alba foliis purpureis, which, when developed, with its dark purplish red leaves, will be a fine ornamental tree. Mr. Paul also exhibited several novel double-flowered Zonal Pelargoniums, amongst which one called Jeanne Alégatière, a large-flowered double lilac-tinged pink, was selected for a First-class Certificate; another, named Georges Sand, was of a blush white. Mr. George, of Putney, was awarded a First-class Certificate for Pelargonium Sir Garnet Wolseley, a large bright scarlet of fine quality, with a faint-zoned leaf. Mr. Pestridge and Mr. Lipping also showed variegated Pelargoniums. From Mr. R. Barr came an interesting group of cut Lilies; and other cut Lilies were shown by G. F. Wilson, Esq., F.R.S., whose collection contained Lilium tigrinum erectum, which, compared with other Tiger Lilies, is not effective, the erect flowers being marked by small spots; L. longiflorum Wilsoni and longiflorum albo-marginatum, L. pardinum, Humboldtii and puberulum, and the very distinct and attractive L. chalcedonicum. Messrs. Carter & Co. showed some pyramidally-trained plants of Lobelia speciosa, and some new Picotees and Carnations were staged. A large bunch of cut flowers of the Mandevilla suaveolens, from the gardens of Battle Abbey, where it had grown on the out-door walls for fifteen years, was shown by Mr. Jack.

Subsequently to the meeting at South Kensington, a meeting for the examination of Bedding Pansies was held at Chiswick, Mr. John Fraser presiding. On this occasion, marks equivalent to a First-class Certificate were awarded to Dicksons' Golden Gem, bright yellow with radiating eye; Dicksons' King, lilac purple with dark eye; Dicksons' Queen, white with dark eye; and The Tory, dark purple, with rich dark eye—all from Messrs. Dicksons & Co., of Edinburgh; Tyrian Prince, purple self; Imperial Blue Perfection, deep bluish lilac; Blue Bell, small bluish lilac, but very free; Lily White Tom Thumb, white with radiating eye; Miss Maitland, white with radiating eye; and Mulberry, mulberry-purple self—all from Mr. R. Dean, Ealing. Marks equivalent to a Second-class Certificate were given to Chieftain, lilac purple with rich dark eye, which had been sent by Messrs. Dicksons & Co.

Fruit Committee.—A. Smee, Esq., F.R.S., in the chair. At this meeting Mr. Barr, 12, King Street, Covent Garden, sent three varieties of Cucumber, viz., Daniel's Duke of Edinburgh, a fine variety of Telegraph, and Dyer's Champion. The committee decided that the former, which was the produce of seeds supplied to Messrs. Barr & Sugden by Messrs. Daniels, was too much like, if not identical with, Marquis of Lorne to be considered distinct from it. Mr. Johnson, Glamis Castle, sent Allen's Champion Pea, evidently a fine and handsome podded variety, which the committee, however, recommended should be sent to Chiswick for trial. Mr. R. Dean sent Murray's Champion Cos Lettuce, which possessed the character of the Florence Lettuce. Messrs. Carter & Co. exhibited a Lettuce received from America, named Hanson's Cabbage, which was considered much like old Drumhead. Mr. Perkins, gr. to C. Keyser, Esq., Warren House, Stanmore, sent an Enville Pine, weighing 8 lb. 10 oz., grown from a rootless sucker, planted August 17, 1873. This was an extremely finely-finished fruit. The committee unanimously awarded a Cultural Commendation. Mr. Harris, gr. to Mrs. J. H. Vivian, Singleton, Swansea, South Wales, sent four Queen Pines, averaging 5 lb. each. These had been forwarded in competition for Messrs. Veitch's prizes, but were received too late. The committee recommended the Council to award Mr. Harris a bronze medal for his very meritorious exhibition. Mr. J. Woodbridge, Syon House, Brentwood, exhibited fruits of Musa Champa, the plant and fruit of which are said to be intermediate in form between M. Cavendishii and M. sapientum. The committee will ascertain, however, as to its botanical history before the next meeting; a First-class Certificate was awarded, owing to its excellent flavour, and subject to the above. Mr. Jack, Battle Abbey, sent a seedling Raspberry (red); the Rev. W. Kendall, Wareham, sent also a white Raspberry. From Mr. D. Smith came a seedling Strawberry, which, however, the committee did not consider of superior merit. Mr. Bennet, gr. to the Marquis of Salisbury, sent a scarlet-fleshed Melon, named Hatfield Hybrid, which was of inferior flavour. Mr. Deuxberry, gr. to Lord Darnley, forwarded Read's Scarlet-fleshed Melon, which was not of superior flavour. Mr. Johnson, Glamis Castle, staged Hick's Scarlet-fleshed, which was, however, unripe; also Sutton's Duke of Edinburgh, which, though a large, fine fruit, was deficient in flavour. Mr. Thos. Speed, Chatsworth, sent Melons to illustrate the fact that they can be grown in pots standing always in pans of water. Though the fruit were evidently well finished, flavour was greatly wanting. Messrs. James Carter & Co. sent for presentation to the Council examples of varieties of Peas, the haulm of each distinct variety having been dried at full length, and mounted in frame together with single pods, and the usual quantity of ripe Peas of each—so as to exhibit at a glance the characteristics of each. The Messrs. Carter & Co. also exhibited a collection of Lettuces, neatly staged in pots, the number of varieties being 45. The best amongst them are the different forms of Paris White Cos, including Carter's Giant White. Amongst the Cabbages, Perpignan, a Continental variety, is of fine habit, and stands drought well—the Dandelion-leaved, or Augustana, used for cutting up when young for salads, Tom Thumb, and All the Year Round being amongst the best of the latter for English gardens.

At a meeting of the committee at Chiswick, July 10, to examine the collection of Garden Beans, Messrs. Vilmorin & Co., Paris, received a First-class Certificate for Seville Long-pod Bean, producing pods 8 to 10 inches long, of great size, and coming in four or five days before the earliest of the Broad Beans. Messrs. Carter & Co., High Holborn, also received a First-class Certificate for Carter's Mammoth Long-pod, which proved a superior selection of the best old long-pod kinds.

Messrs. Veitch's Special Prizes for Fruit.—The fruit exhibition which Messrs. Veitch & Sons have inaugurated, with so much public spirit, and so greatly to the encouragement of fruit culture, were competed for on this occasion, and formed one of the most attractive elements of a very interesting summer show. These prizes being well conceived and liberal, were well contested for, and abundantly show that a good exhibition of fruit may always be forthcoming, if only a sufficiently liberal scale of prizes is offered as an inducement. The classes on this occasion comprised collections of fruit, and five special kinds of fruit distinct. This brought together an excellent display, consisting of a table some 50 yards in length richly laden with *recherché* fruits of the kinds invited. For the best collection of fruit in ten distinct kinds there were three competitors: Mr. W. Coleman, gr. to Earl Somers, Eastnor Castle, Ledbury, was an admirable 1st. His collection consisted of the three best bunches of Black Hamburgh Grapes that have been exhibited in the metropolis for a long time; these averaged 3 lb. each in weight, and were highly finished and black as Sloes; three bunches of Muscat of Alexandria, large and fine Royal George Peaches, good Rivers' Early Apricots, Lord Napier Nectarines, Brown Turkey Figs, Eastnor Castle Green-fleshed Melon, a Ripley Queen Pine, weighing 4 lb. 10 oz., May Duke Cherries, and British Queen Strawberries.

Mr. G. T. Miles gr. to Lord Carrington, Wycombe Abbey, Bucks, was 2d, with good Black Circassian Cherries, Violet Hâtive Nectarines, Bellegarde Peaches, Bigarreau Cherries, and fair Black Prince and Foster's Seedling Grapes. Mr. T. Jones, gr., Royal Gardens, Frogmore, was 3d, having in his collection Buckingham Mignonne Peaches, Victoria and Green Gage Plums, &c., including a Smooth Cayenne Pine, which was, to say the least, gone by. For the best collection of fruit, in six distinct kinds, there were five competitors. Mr. J. Bannerman, gr. to Lord Bagot, Blithfield, Rugeley, was 1st, with a Queen Pine, good Royal George Peaches, excellent Black Hamburgh and Muscat Grapes, Nectarines, Figs, &c. Mr. J. Watson, gr. to W. E. Harcourt, Esq., carried off the 2d prize with excellent Grosse Mignonne Peaches, Foster's Seedling Grapes, and Dr. Hogg Strawberry, &c. Mr. Bones, gr. to D. McIntosh, Esq., Havering, was 3d, with good Black Hamburgh and Muscat Grapes, Golden Queen Melon, &c. Mr. W. Strong, gr. to H. Yool, Esq., Weybridge, and Mr. G. Holliday, gr. to J. Morris, Esq., also competed. For the best three bunches of White Grapes there were ten competitors. Mr. J. Loudon, gr., The Quinta, Chirk, carried off the 1st prize, having two very excellent bunches of Golden Champion and one bunch Muscat of Alexandria; Mr. W. Coleman being a good 2d, with three admirable dishes of Muscat of Alexandria; Mr. J. Woodbridge, Syon House, was 3d, with three excellent bunches of the same. Mr. J. Jack showed a good bunch of Canon Hall, Mr. Bones good Muscats, and Mr. Clarke, gr. to Mrs. F. R. Hall, Golden Champion, Golden Hamburgh, and Buckland Sweetwater collectively in the same class. For the best three dishes of Black Grapes Mr. W. Coleman was again 1st, with most admirably finished Black Hamburghs; Mr. J. Loudon being 2d with two admirably-coloured bunches of Madresfield Court, and one of Black Hamburgh. The 3d prize was taken by W. J. Deaville, gr. to Mrs. Bannerman, Wyaston Leys, Monmouth, with three well finished bunches of Black Hamburgh. An extra prize was awarded to Mr. R. Fleming, gr. to R. Houghton, Esq., Sandhays, Waterloo, Liverpool, for three excellent bunches of Black Hamburgh. Mr. H. Stapleton, gr. to H. Davis, Esq., Isleworth, also staged some very good Black Hamburghs. For the best three Pine-apples there were eight exhibitors, the first being of great merit, consisting of three Queens from Mr. J. Stirling, gr. to H. H. Vivian, Esq., Swansea; Mr. D. Wilson, gr. to Earl Fortescue, was 2d with three smooth-leaved Cayennes; the 3d prize going to Mr. T. W. Bond, Weybridge, who showed three Queens, the aggregate weight of which was 16 lb. Mr. G. T. Miles, C. Rye, and C. M. McCrow showed well in this class also — extra prizes being given to Mr. W. Sparkes, gr. to J. W. Deakes, Esq., Highgate, for six Queen Pines. For the best six Peaches there were twenty-two competitors: Mr. J. Heamen, Eaton Hall, Congleton, won the 1st prize with six marvellous fruits of Royal George; we have rarely seen finer, if such fine fruit as these. Mr. Richards, gr. to Baron Rothschild, was 2d with excellent Bellegarde Peaches, Mr. G. Sage being 3d with excellently coloured specimens of Royal George. Extra prizes were also given in this class to Mr. T. Pitt, Berry Hill, for six beautiful fruits of Galande, and to Mr. W. Coleman for Royal George. For best six fruits of Nectarines there were twelve competitors. Mr. J. Gill, Bradford, was 1st, with fine and well coloured Violette Hâtive; Mr. W. Kemp being 2d, with better coloured but smaller fruits of the same; and Mr. W. Coleman 3d, also showing the same variety, somewhat less in size, but remarkably well coloured.

Pelargoniums were produced in sufficient numbers to have made an effective display, had the exhibits in all the classes for these plants been well flowered, but such by no means was the case in the plants confined to 6-inch pots. The expediency of offering prizes for Zonals confined to pots of this size is questionable. It is not in the nature of these plants, even the freest flowering varieties amongst them, to bloom whilst young, and in a small state, so freely as the ordinary show varieties can be made to do; under the best culture only a limited quantity of flowers can be produced, which gives them a meagre appearance. This was remarkable in the plants shown in all the classes confined to the 6-inch pots. In the class for large plants, florists' varieties, Mr. Catlin, gr. to Mrs. Lermitte, sen., Finchley, who was 1st, exhibited some very fine plants, large and splendidly flowered; his examples of John Williams and M. Rendatler, pink, and Corisande, scarlet, were magnificent; Mr. Harrington, gr. to J. Price, Esq., Thornton Road, Clapham, was 2d. In the corresponding class for Nosegay or Hybrid Nosegay varieties, Mr. Catlin was again 1st, with a good even lot. Gold and Silver Tricolors were largely shown, but nothing deserving especial mention.

Fuchsias were produced in considerable numbers, and several collections were shown very much better than they are often seen at the London shows. In the class for eight (nurserymen), Mr. F. G. Mould, Devizes, was 1st, with a lot large and well-flowered, noticeable amongst which were Queen Victoria, Rose of Castile, an old sort but still unsurpassed—both light-coloured varieties, and Mrs. Mould; Mr. Wright, Lee, Kent, was 2d, with smaller plants. In the class for six (amateurs), Mr. King, gr. to R. V. Leach, Esq., Devizes Castle, Wilts, was 1st, with a remarkably good half-dozen, his best being Puritani, Arabella, and Rose of Castile. To mark the excellence of his collection, in addition to the prize, they were awarded a silver medal.

For six Clematis, Mr. Jackman was 1st, with a grand lot, well-flowered, and full of ample, healthy foliage, the most noticeable amongst them being Mrs. Jas. Bateman, Lady Bovill, and Rubella. Hydrangeas were shown in remarkably good condition by Mr. Aldous, Gloucester Road; these were in small pots, good in foliage, and profusely flowered.

Two groups of miscellaneous ornamental plants were contributed by Messrs. Veitch and Williams respectively, that shown by the former firm being particularly interesting, and comprising, among others, Vanda cœrulea, Darlingtonia californica, Abutilon Sellowianum marmoratum, some good Crotons, including C. undulatum, C. Youngii, C. ovalifolium, × Sarracenia Stevensi, &c. Mr. Williams' group was smaller, and comprised an elegant Panax, Cyrtochilum stellatum, and a plant of the old Stanhopea tigrina. What a pity it is, by the way, that Stanhopeas are not more often grown. Messrs. Veitch also showed a remarkable collection of Conifers in tubs, comprising beautiful well-grown specimens of Abies polita, Retinospora plumosa, and several other species and varieties, Thujopsis dolabrata, and Sciadopitys verticillata. Some small plants of Azara microphylla were also shown with the Conifers. This formed so attractive a group that we trust we may see many more such at our shows.

Bury and West Suffolk Horticultural Society: *July* 2.—The Bury show has long been distinguished for the perfection of the Fuchsias and Pelargoniums exhibited. The show on the date mentioned was no exception in these respects. Perhaps Fuchsias were never seen in greater perfection; Pelargoniums were also fine, though it was somewhat late for them. Ferns, Lycopodiums, stove and greenhouse plants and Coleuses were the more notable among the other plants shown. Bouquets were good, though not so numerous as usual. Cut herbaceous plants and Zonal Pelargoniums were also good. The Roses were about the finest feature of the show, and were far superior to those exhibited at Ipswich a week before. Mr. Fish took the 1st place in nearly all the classes with some very fine flowers, and his single Rose Leopold King of the Belgians was a wonderfully fine flower. In fruit Black Grapes were particularly good, and in the White Grapes three good bunches of Golden Champion carried off 1st honours; and Mr. Squibbs, gr. to the Marquis of Bristol, came in 2d, with very good examples of Ferdinand de Lesseps. Melons were of good quality, and Strawberries, Cherries, and Figs particularly good. The season told upon the number and quality of the vegetables, and neither Potatos, Peas, Cauliflowers, nor Lettuces were so plentiful or fine as usual. Cucumbers were unusually fine, the varieties being Marquis of Lorne, Blue Gown, and Duke of Edinburgh (Daniel's), the latter, a brace 27 inches long, shown by Mr. Fish, carried off the 1st prize. Cottagers' produce, a great feature at the Bury show, was not so numerous or so good as we have seen it, although many dishes of good Potatos, Cabbages, and other vegetables, were contributed as well as some fruit, and bouquets, the latter not showing any advance, but rather a retrogression, in tasteful arrangement. The cottagers are admitted to the show in the afternoon, and it might be of much use in improving their taste were a lecture given on the arrangement of flowers, illustrated by the prize bouquet in the other department.

Gravesend Horticultural: *July* 2.—This is quite a new society, that is content to hold a small, yet highly creditable exhibition once a year. Not having any tents of its own, it wisely gets them from London; and it may, perhaps, be instructive to the managers of small horticultural exhibitions to know that the three large roomy tents which contained the produce exhibited on this occasion were sent down from London, together with tables and green baize; erected, taken down again, cleared away, and taken back to London for the sum of about £30.

Some small but nicely-grown specimen foliage plants came from Mr. Deuxberry, gr. to the Earl of Darnley, Cobham Park, consisting of Cissus discolor, Croton variegatum, Dracæna ferrea, Alocasia macrorhiza variegata. A. Jenningsii, with well-marked leaves, and A. metallica. Among specimen plants was an excellent example of Clematis Jackmanni, capitally grown and flowered in a way that would have gladdened the heart of Mr. Jackman. Another feature was some plants of golden-margined Coleus, shown by Mr. J. Bashford, gr. to H. Brenchley, Esq., East Sutton, with ample and finely marked foliage, and yet of vigorous growth. The same exhibitor had some good large flowering Pelargoniums. Some plants of double Petunias in 10-inch pots would have proved a pleasant feature in the most important exhibition that has been held this season.

Cut flowers were mainly represented by Roses, Zonal Pelargoniums, capitally shown, and stands of twelve and six bunches of cut flowers. Far away from these classes in the schedule was an appended foot-note, stating that each bunch must be of flowers of one variety only. The country gardeners appear not to possess a very clear idea of the exact meaning of variety; and as a bunch of Sweet Peas, Sweet Williams, Verbenas, &c., contained as many as three or four varieties, a general disqualification had to be resorted to, and the judges came in for a fair share of hostile criticism.

There was an excellent show of fruits—good Grapes, Peaches, Melons, Strawberries, Cherries, Currants, Raspberries—all bearing testimony to the productive character of the Kentish soil and the skill of the fruit cultivators about Gravesend. Hardy outdoor fruits were especially fine. A good collection of fruit came from Cobham Hall gardens.

Vegetables were very good also; among them appeared Duke of Edinburgh Cucumber, a long large, coarse-looking, white-spined variety, that gardeners should avoid growing for table purposes. [See Report of the Fruit Committee, *ante*.]

Tunbridge Wells Horticultural: *July* 3.—If all the fine plants, cut flowers, and fruit that was collected together in various tents at this exhibition could have been put into the large tent in the Regent's Park Botanic Gardens, it would have been pronounced a first-class exhibition. The Tunbridge Wells show was one; and if the county of Kent held no other flower show but this one, it would have a great deal to be proud of. The managers of the Tunbridge Wells Horticultural Society have much to congratulate themselves upon. The rule is fine weather, excellent productions, and such a business-like capacity for arrangement that the exhibits are all staged early in the morning, the groups are well together, and the task of judging is made as pleasant as possible.

Foliage and stove and greenhouse plants are always well and somewhat largely shown at this pleasant Kentish resort. Some examples of the former, staged by Mr. G. Sims, gr. to John Hough, Esq., a young but most able cultivator, called forth universal admiration. They consisted of two Crotons, 8 to 9 feet in height, well furnished, and finely coloured; Alocasia metallica, at least 5 feet through, and thoroughly well-grown; Maranta Veitchii and M. zebrina, a splendid pair, each about 7 feet through; a good Dracæna longifolia, the pendent foliage quite hiding the tub in which the specimen was growing, and, in fact, extending some way below it; and Cissus discolor, 6 feet high and 4 feet through. An extra 1st prize was awarded in addition to the one taken by these plants in the class in which they were competing. The other plants of this character looked quite small and commonplace by the side of these fine specimens.

Stove and greenhouse plants and Ericas were well shown on the whole, but they do not call for any special comment. Caladiums were well grown, not particularly large, but vigorously grown plants, with bold, handsomely marked leaves. Coleuses are always a leading feature here, and they were represented by two types of plants; the one tied closely in to form a severe cone shape, and then the shoots kept well pinched to preserve this form, and a most unnatural and ugly form, too; the other growing luxuriantly in a free pyramid style, grand in growth and in marking—such plants as any one would be glad to have in a conservatory. Achimenes were superb both in pans and pots, large, well grown and flowered examples, such as one seldom looks upon. Ambroise Verschaffelt, Edmund Boissier, longiflora alba, and Mauve Queen, were the best. Exotic Ferns, Begonias, Lycopods, all kinds of Pelargoniums, Fuchsias, &c., were also of good quality.

All the foregoing, together with the vegetables, were under canvas, but the fruit, cut flowers, table decorations, bouquets, &c., were set out in the new public hall—a lofty, commodious, cool building, well suited to the purpose.

Of fruit there was an excellent show, and the prizes are always good enough to tempt a fine cultivator like Mr. J. Douglas, of Loxford Hall Gardens, to compete with Grapes, &c. In the class for three bunches of Black Grapes there were no less than eighteen exhibitors, the best being good Black Hamburghs from Mr. G. Warren, gr. to J. A. Hankey, Esq. Black Prince was finely shown. Mr. Warren was also 1st with Muscat of Alexandria in the class for three bunches of White Grapes, and here ten exhibitors contended. Foster's Seedling and Buckland Sweetwater were also well shown. The best three bunches

of Grapes, different varieties, exclusive of Black Hamburgh, was staged by Mr. W. Knight, gr. to W. D. L. Shadwell, Esq., and consisted of Buckland Sweetwater, Black Prince and Black Damascus; the latter, however, was considered by the judges to be identical with Black Hamburgh, and was disqualified accordingly. Peaches, Nectarines, Strawberries, and Cherries, both white and black, were very fine; some of the latter wonderfully so. The best collection of fruit came from Mr. Hopgood, gr. to Julian Goldsmid, Esq., M.P., and consisted of a Pine, Black Hamburgh Grapes, Peaches, Nectarines, Strawberries, Cherries, Gooseberries, Raspberries, and Currants.

In the leading classes of cut Roses Messrs. Mitchell & Sons, Piltdown Nurseries, carried off the prizes. Some charming designs in table decorations, and centre-pieces of wild-flowers, were also set up.

Southgate Horticultural and Cottage Garden: *July* 4.—A good exhibition is invariably the rule at Southgate. The meeting is held every year in the grounds of some residence in the neighbourhood, and on the above date the Society's tents were pitched in the grounds of Grovelands, the residence of Donnithorne Taylor, Esq. Of general horticultural produce there were good stove and greenhouse, fine foliaged plants, Ferns—among the latter a fine example of Davallia pyxidata, Adiantum farleyense, and Leucostegia immersa; Balsams, Lilies, &c. One example of Lilium auratum had a singular fasciated stem, and over one hundred flowers much smaller than is usually seen. One striking feature was the splendid Cockscombs, which are well grown in this neighbourhood by Mr. Graver, gr. to John Walker, Esq., and others. On this occasion they were very fine, broad massive combs, of a rich hue of colour, and the competition was very keen indeed; the foliage of Mr. Graver's plants, though vigorous, was somewhat discoloured, and this told against him. Petunias and Balsams are nicely grown, the former were very meritorious. Some charming Gloxinias were shown, and to one of them, an unnamed seedling, a First-class Certificate was awarded. In the way of specimen plants a finely grown plant of Allamanda Schottii was staged.

There is invariably a nice exhibition of cut flowers, especially of Roses. Some of the amateur cultivators in this district exert themselves to the utmost to grow fine Roses, and they are very successful indeed; the result is that a sharp competition takes place in all these classes. Collections of cut flowers of forty and also of twenty distinct species were generally well done, and they made an acceptable display.

This district is famous for the fine Strawberries it produces, and here also there is a sharp competition. Dr. Hogg, British Queen, Sir C. Napier, and President were well grown, large, plump, finely coloured fruit, of good flavour. Higher class fruits were sparsely represented, but Cherries were very good, as they appear to be generally this year, notwithstanding the trying season.

This show was greatly assisted by contributions of plants, &c., from the neighbouring nurserymen. Messrs. B. S. Williams and J. Cutbush & Son also sent good collections of plants, and Messrs. Paul & Sons boxes of cut Roses.

In the cottagers' department there is always a good and keen competition. In the class for a climber appeared a charming specimen of Clematis Jackmanni, small but extremely well grown and flowered by a cottager. This Society must be doing much good among the cottagers, for the quality of the vegetables staged, as well as the character of the varieties grown, show what incentives to improvement have been offered them. A large number of prizes were offered to the school children for bouquets of wild flowers, as well as for named collections of the same, and many of these were of a very praiseworthy character. The exhibition day is always a Saturday, as that day is found most convenient in all respects.

Botanical and Horticultural of Newcastle: *July* 8.—This Society held its summer show of plants, fruits and vegetables in the Elswick Park. The exhibition was altogether a good one, both in respect to the numbers and merits of the productions, more especially of flowers and fruits, there being only a small display of vegetables. Indeed, the show of Roses excelled anything that had before been seen, not only in Newcastle, but in the North of England, neither Alnwick nor Bishop Auckland excepted. It was superior even to the York show of the present year. We think some little improvement is needed in the definition of the terms of competition in this branch of the schedule; there is no information as to whether the prizes are for number or character, so that one man showing 150 varieties properly named may be beaten by somebody else who shows 400 badly named varieties. We noticed that throughout the show the Maréchal Niel variety had the pre-eminence. To mention individuals, Mr. Cooke, gr., Holeyn Hall, had one of the finest collections ever shown in Newcastle, and he fully deserved all the prizes he received; Mr. Harrison, nurseryman, Darlington, had also a grand show. The prize given by Mr. Councillor Gray, for the best single cut Rose in the show, was won by this exhibitor with a Maréchal Niel. In the class for stove and greenhouse plants was a very fine collection by Mr. Moult, Ravensworth Castle, who took both 1st and 2d prizes. Especially worthy of notice was a Clerodendron Balfourianum, a splendid plant, which was exhibited amongst the six first. Mr. Watson, nurseryman, showed a splendid collection of miscellaneous plants and cut Roses. For foliage plants Mr. Moult was 1st, and Mr. Kershaw, gr. to Mr. Councillor Gray, 2d. *From a Correspondent.*

Royal Caledonian Horticultural: *Edinburgh, July* 8.—The summer show in connection with the Royal Caledonian Horticultural Society was in many respects a great success. Occupying the first place in the catalogue was the greenhouse plant competition, the honours of which were, as usual, carried off by Mr. John Paterson. His collection included very fine specimens of Pimelea Hendersoni and Statice profusa, the latter looking well with its rich clusters of blue flowers. The foliage plants were up to the mark, and set off the tables on which they were arranged to great advantage. Among those exhibited were some fine lots of variegated New Zealand Flax and Yuccas. There were also some remarkably pretty Palms, including the Latania borbonica, exhibited by Mr. Colville, and for which that gentleman received an award. Mr. Paterson's Cape Heaths were, of course, first in their class, although he has shown on other occasions finer plants. The second prize was adjudged to Mr. Leslie, who had a nice lot of promising young plants. Perhaps the second best thing in the hall was the excellent assortment of Ferns which were shown. In this competition Mr. Neill Fraser, Canonmills Lodge, carried nearly everything before him. His collection of six exotic Ferns contained capitally grown plants of Adiantum farleyense, Todea superba and intermedia, and his British collection was also charming. Among Mr. Paul's six British varieties there was a capital pot of Trichomanes radicans—superior to the specimen shown in the 1st prize lot. Mr. Campbell exhibited a splendid crested Royal Fern. Fuchsias and Pelargoniums were fair, although many of the latter were past their best, as the petals on the tables showed; and the white-edged and bronze Geraniums were in general well grown. But the grand feature of the show was the Rose competition, in which there were an unusual number of entries. The blooms, as a rule, were of a superior description, and, notwithstanding that this year the Rose trees have been attacked rather seriously by green-fly, it may be said that there was not an indifferent lot shown. Beyond all comparison, however, with those around them was the magnificent collection of hybrid perpetual Roses, exhibited by Mr. H. Dickson, of Belfast, whose fame as a grower of this class is well known. The blooms were far superior to what is usually seen in Scotch gardens, and nothing could exceeed the beauty of many of the varieties. Mr. Parlane was very successful as a prize-taker, and his stands of Roses, had they not been eclipsed by the Irish blooms, would have been considered very superior indeed. The stand shown by Mr. Halliday, which was placed 2d, was, however, little inferior to the 1st, and the judges must have had some difficulty in deciding between them. The 1st prize Tea Roses were a well selected lot, and contained nice examples of Souvenir d'un Ami, and Maréchal Niel. Fruit was an exceedingly fine show, although Mr. Johnstone, of Glamis, did not put forward so many specimens as on former occasions. He and Mr. P. Stewart, of The Glen, however, succeeded in dividing the honours between them. Some of the bunches of purple Grapes displayed were extra well finished and ripened; the white Grapes were, however, in a few cases unripe, and in the case of the White Muscats, no 1st prize was given owing to this circumstance. The show of vegetables was smaller than is commonly seen at this time, although the superior quality, perhaps, compensated in some degree for the fewness of the entries.

The Society was as usual greatly indebted to the nurserymen in the vicinity of the city for the excellent and varied collections of flowers and plants which they sent to adorn the tables. First in order may be mentioned the Lawson Seed and Nursery Company, whose contributions decorated the orchestra and the able in front of it with many excellent specimens of Ferns, Tricolor Pelargoniums, Palms, and Dracænas. They had also a fine assortment of alpine plants, among these being Nertera depressa, with bright coral berries, and for which they obtained a special award; also Sibthorpia europæa variegata, a new rock plant, of which this firm we believe holds the entire stock. Methven & Son's table had upon it a new variety of Conifer, which was specially noticed, and a remarkably good miscellaneous collection. Messrs. Downie, Laird & Laing exhibited a choice lot of cut Pelargonium blooms, which would have looked even better had a few more of the leaves been left around them; and a nice assortment of Phloxes, for which they are famed. Messrs. Dicksons showed an extensive collection of bedding Violas, of which they had no less than eighty bunches, including colours varying from pure white to the darkest maroon. Their fancy seedling Pansies were also extremely beautiful, and to these there was awarded a First-class Certificate. A Certificate was also given to this firm for seedling Pinks.

Rose Show at the Exhibition Palace, Dublin.—The special Rose show, under the auspices and in aid of the recently organised Gardeners' Benevolent and Provident Society, opened at the Exhibition Palace on Wednesday, July 8, and was continued that evening and following day. The table decorations were arranged on stands in two lines running up the centre of the hall, and parallel to those, on either side, was a line of Roses—one from nurserymen, the other from amateurs. In neither case did exhibitors come forward in anything like the force one might have expected, considering the very liberal scale of prizes set forth in the schedule. Beginning with the nurserymen's section, and taking the classes *serialim*, we commence with the class of sixty varieties for the £10 cup. In this and the succeeding class of forty-eight there were only two competitors—Messrs. Alexander Dickson & Son, of Newtownards, and Messrs. Campbell, of Glasnevin. Among the most striking varieties in their stands of sixty and forty-eight were Paul Néron, Maréchal Niel, Baroness Rothschild, Marie Baumann, Etienne Levet (about the best Rose in the exhibition), Xavier Olibo, Alexander Dixon (fine), Madame Levet (Tea), and a Rose we should like to see again, Pierre Isambert, of which very favourable opinions are expressed.

In the class for twelve new Roses of 1872 and '73 Messrs. Dickson and Messrs. Campbell were again pitted against each other, Messrs. Dickson being placed 1st with an effective stand made up principally of the following varieties:—La Belle Lyonnaise, Reine Victoria, pale rose, exquisite form; Etienne Levet, fine; Rev. S. R. Hole, gory crimson; Abbé Bramerell, a grand Rose and a magnificent bloom of it; Firebrand, well named, showy and fine; La Favorite, pale rose, large flower; Louis Corbie, a fine, full flower, but somewhat flat-faced; and Auguste Rigotard. Messrs. Campbell were 2d, with a choice stand; among their varieties General Dowai was one of the most striking. Turning to the classes for amateurs, we found those for thirty-six varieties, represented by some half-dozen stands—that from the gardens of H. A. Herbert, Esq., M.P., Muckross, Killarney, being accorded 1st honours by the judges; and Captain Fitzgerald, of Delgany, and Dixie L. Coddington, Esq., 2d and 3d in the order named. A very fine stand, and admirably set up too, from the gardens of Henry Hawkins, Esq., Kin-Edar, Belfast, looked to great advantage. Though not placed, it looked as though it ought to have been, at all events it was far in advance of the other undecorated stands. In the class for twenty-four varieties (eight competitors) matters were reversed, and Mr. Hawkins won readily with a telling stand, fine blooms, and choice varieties; Captain Fitzgerald coming in 2d, and Mr. Coddington 3d. In the succeeding class for twelve varieties, the last named exhibitor was more in the style in which he came out at the Royal Horticultural Society's show on the 25th ult., and consequently obtained 1st honours with a very choice stand. In the class of twelve Tea or Noisette Roses the 1st place was won by Captain Fitzgerald, Mr. Hawkins coming in 2d and Mr. Coddington 3d, in the order we have named them. *Irish Farmer Gazette.*

The Great Midland Counties Exhibition at Birmingham: *The Implement Department.*—What by courtesy was called "the Implement Department" was at the late Midland Counties Grand Exhibition at the Lower Grounds, Aston, of an eminently satisfactory character. There was a variety and abundance of subjects, no overcrowding or huddling together, a well-kept line of frontage throughout, and plenty of room for promenading—points which conduced to good order and regularity, and made this department more appreciated here than at any of the larger exhibitions which it has been our pleasure to attend. We cannot pretend to give a complete list of the exhibitors, for, as must always be the case, there were many stands of articles which by no stretch of imagination could be thought "things horticultural," and must, therefore, proceed to notice such things as more closely concern the garden. Silver and bronze medals were offered for novelties of various kinds, and though a number of these medals were awarded, it is astonishing how few really new things were exhibited. In greenhouses and garden frames, for instance, the so-called patents seem only to be distinctions without a difference; one maker considering that everything depends on the hinges of the door or light for which he has a patent; another considers putty out of place in a garden, and straightway patents a button, plain or ornamental, to hold the glass in its place; a third considers perfect glazing the correct thing; a fourth

stakes his reputation on a patented plan for ventilating, which plan was used years ago, or is simply a slightly altered plan of somebody else's. And so the horticultural year rolls on without introducing to us any, or but few, novelties of any sterling value.

The smallest exhibit on the ground—Palmer's Improved Syringe Plunge—struck us as being decidedly the best and most useful article (as a novelty) for general use that was shown, though it only got a bronze medal. The idea is new, and it meets a long-felt want in a manner which was proved to be perfectly satisfactory. The contrivance is described as follows by the exhibitor, Mr. W. Palmer, 40, Campbell Road, Brighton:—"A radical defect exists in all the syringes hitherto offered to the public, the piston or plunge not being sufficiently expansive to fill up the slight inequalities of the barrel or cylinder to which all syringes in constant use, even in the most careful hands, are liable. The principle of W. Palmer's new plunge, when once properly fitted, is such as to preclude the possibility of water passing it and wetting the operator. It is extremely simple in construction, very durable, and easily adjusted by means of a screw at the base, acting upon an expanding disc or plate of india-rubber within and beneath the leather. The outer or sucker portion consists of an elastic leather collar, thus obviating the trouble, and, to an inexperienced person, the difficulty of packing with worsted or tow. A turn of the screw, one way or the other, to contract or expand the leather collar, as may be required, or a drop of oil when first used or after lying by for a time, is all that is needed to keep it in working order;" and it can be fitted to old syringes of any size.

Messrs. T. H. P. Dennis & Co., of Chelmsford, had a large show of various styles of house, suitable for all purses, from the nobleman to the artisan, neat in design and well constructed. The Messrs. Dennis had also a specimen in work of their perfect water-waste preventer, which entirely supersedes self-closing valves when used as a supply for domestic, public, or manufactory requirements, and which consists in the arrangement of a measured time intervening from the discharge of one flush until a second can be obtained. The new patent high-pressure gun-metal valves also deserve the attention of water engineers, there being so few really good valves in the market.

Messrs. Cranston & Luck, of Birmingham, also made a considerable display of houses, and received a silver medal for a sliding wall shield, which in principle appeared the same as the one which was fixed to the Peach wall at Chiswick, and taken down some years ago as useless.

Messrs. James Boyd & Sons, Paisley, exhibited a large, neat, well made and most easily ventilated span-roofed house; and Messrs. Boulton & Co., of Norwich, had a large show of small greenhouses, hand-lights, garden frames of all kinds and sizes, all useful and handy.

Mr. John Matthews, the Royal Pottery, Weston-super-Mare, came out stronger than ever with his famous garden pots and garden ornaments in terra-cotta; and Mr. Horley, of Toddington, showed his Paragon greenhouse, which at the price advertised should place it in every small garden.

Messrs. G. Baker & Co., Aston Road, Birmingham, had a very effective display of garden elegancies in the way of wirework; and Mr. Walter Peters, 26, Carr's Lane, Birmingham, made a large show of garden furniture of all kinds, and a similar group came from Messrs. Mapplebeck & Lowe, Birmingham.

Mr. R. Bailey, Bennett's Hill, Birmingham, had the farmer's barometer, a good accurate instrument, at a very cheap price; thermometers of all kinds, rain-gauges, &c.

Mr. J. Clark, Horticultural Builder, Stourbridge, showed a span-roofed frame, ventilated along the top, and having movable lights which are fitted and swing like a roller blind, also a very simple system of ventilation.

Messrs. T. Green & Sons, Leeds, had a good show of lawn mowers, rollers, &c., and their patent boilers. Messrs. Hartley & Sugden, of Halifax, showed a large variety of boilers made by them, and also their new mowing machine. Messrs. Follows & Bate, Manchester, also had a considerable display of lawn mowers.

The Witley boiler was shown by Messrs. Jones & Rowe, of Worcester; the amateur's heating apparatus came from Messrs. Deards, Harlow; and the Dromore Heating Company had a model of Cowan's combined lime kiln and hot-water apparatus, which gained a silver medal. The principal awards in this department were noted last week.

The Villa Garden.

Budding Roses.—The Rose can be found in every Villa Garden. No more complete evidence is required of its undying popularity than that where there is a spot on which flowers can be grown, the Rose is surely to be met with. There is many a small railway station about the country that literally smiles with Roses at this season of the year. The plants are carefully tended, and diligently looked after, and large, lustrous, bright-coloured flowers are the result. At a village station not many miles from London can be seen that fine old-fashioned variety, the York and Lancaster, with its charming rosy-red flowers striped and flaked with white; and the wonder is that it is not more generally grown for its novelty of character, notwithstanding it is thin and wanting in fulness.

There are many villa gardeners who not only grow Roses, but who also exhibit them at one or more of the many horticultural shows up and down the country, who also propagate a few annually by budding on the Briar stock. The great pleasure derived from cultivating Roses is greatly enhanced when they can point to plants as the product of successful attempts at budding, and take pride in their own handiwork. How many hundred attempts at budding are made, that prove utter failures, is not recorded. Invariably the failure inspires fresh and more complete attempts. "He who would have beautiful Roses in his garden, must have beautiful Roses in his heart; he must love them well, and always. He must have not only the glowing admiration, the enthusiasm, and the passion, but the tenderness, the thoughtfulness, the reverence, the watchfulness of love." So writes the Rev. S. R. Hole, in his *Book About Roses*. It is the

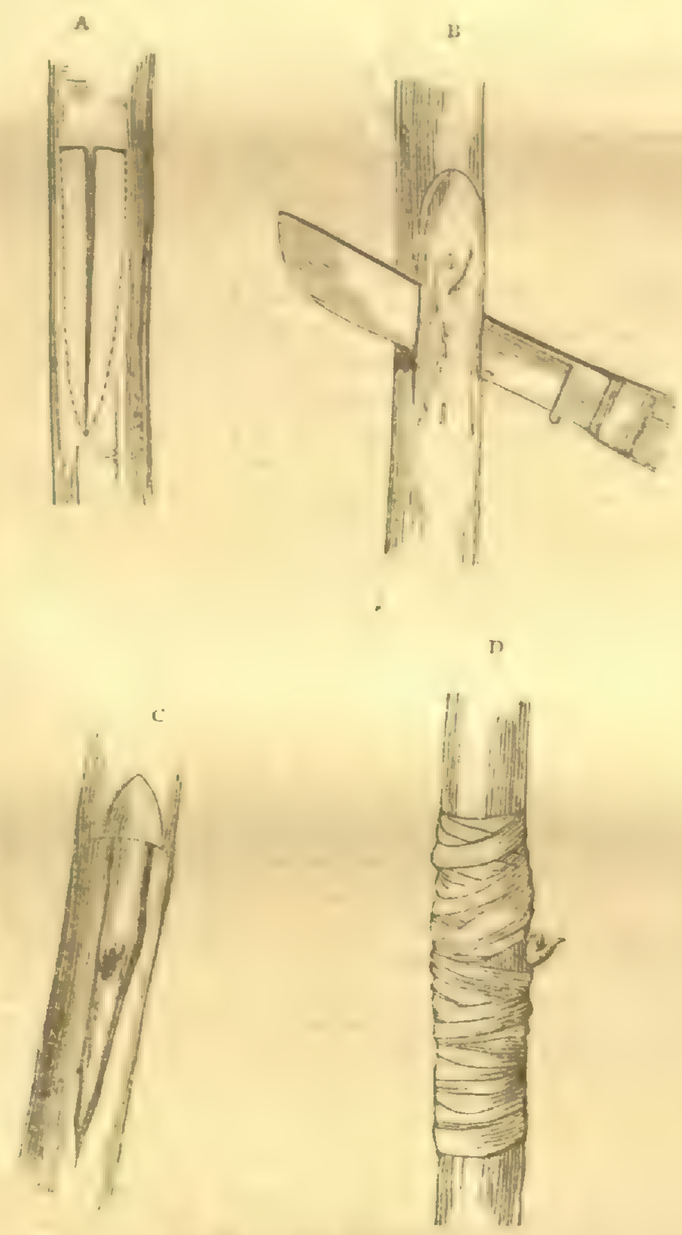


Fig. 18.—Rose budding.

possession of these qualities that transforms many a failure into a delightful success.

In order to bud Roses there must be Briar stocks. In the country where hedgerows abound it is not a difficult matter to get a few. A man can always be got to search the hedges, for a small consideration. In the suburbs of London it becomes much more difficult; country friends must be appealed to, or the kindly offices of some friendly Rose grower or nurseryman obtained.

Let it be an instruction to the Rose budder that when the autumn comes his Briar stocks be obtained and planted before mid-winter. Let them be vigorous, straight, full of sap, rude in health, so that there shall be the promise of healthy action in July following, when the scion is wedded to the stock in the process of budding. Some people plant these stocks as if place and soil were of no moment. Let them be planted in lines, about 18 inches apart, in some good light soil, and in some sheltered spot, secure from ill-usage by means of rough winds. If there are to be good Roses there must be good stocks, the one cannot be had without the other.

The time for budding is generally the month of July, and on through August. The peculiar season, which has so much retarded the development of the Roses, has similarly affected the growth of the stocks, and budding will be done late this year. Rose cultivators are influenced in their budding operations both by the condition of the scion as well as of the stocks; and in order that this may be understood as clearly as possible some remarks of Mr. John Cranston, the eminent Rose cultivator, of Hereford, may be quoted: "In no case will it answer to bud until the sap flows freely both in the stocks and the plants from whence the buds are to be taken. The scion must be firm and well-ripened, otherwise the buds are apt to perish." (Now will be seen the force of the advice given as to securing healthy vigorous stocks in the autumn.) "If the bark does not rise freely on the stocks, the operation should be deferred for a few days, or until the sap is induced to flow, which may be hastened by giving a few copious waterings. The buds should be taken from ripe shoots of the current year; the fact of the plant being in bloom will generally indicate that the wood is ripe and thoroughly matured." Now it may possibly be asked, What is the exact meaning of Mr. Cranston's words, "If the bark does not rise freely on the stock," in his otherwise plain instructions? It is a most important point, and it should be put in the simplest and most easily understood form. When the budder proceeds to work by making a cut along the branch to be budded, an inch or so in length, but taking care to cut the bark only, and not into the wood beneath the bark, then he makes a transverse cut across the upper part of the slit, about one-third or one-half of an inch in length (see fig. 18 A). This transverse cut is made in order to enable the budder to gently lift the bark on either side of the downward cut, so as to enable the bud to be placed under it. Now we begin to perceive the force of Mr. Cranston's remark: "If the bark does not rise freely on the stock the operation should be deferred for a few days." If there is a copious flow of sap the bark will part easily from the wood, and the experienced budder knows that it is the proper time to bud. If the soil be dry about the roots, do not attempt to bud until the flow of sap has been excited by abundant applications of water to the plant. The sap plays an important part in the process of budding. If it be not present the bud will not adhere to and grow on to the stock, and the reason why so many failures take place in the case of the work of amateur budders, is not so much because the work is imperfectly done, but because the conditions were not favourable to a perfect jointure.

And now as to the bud, and in relation to this important agent Mr. Cranston remarks:—"The buds should be taken from the ripe shoots of the current year; the fact of the plant being in bloom will generally indicate that the wood is ripe and thoroughly mature." As it has been laid down as radically important that there be an active flow of sap in the stock, so it is equally true, to quote the words of a modern writer on the subject, that the well-being of the buds "depends on the presence of a full supply of vital fluid, a full flow of sap at their base."

Next comes the matter of taking the bud to be used. First make the cuts in the stock, and gently raise the bark on either side; then cut out from the shoot from which they are to be taken two or three nice plump buds near the base of it. The knife should be inserted just above the bud (see fig. 18 B), and brought down by means of a decisive cut to something like a half-inch, or a little more, below it, cutting away with it a piece of wood, but not going deep enough to reach the pith. This done, the next operation is to remove the wood from the bark of the bud. It is not wanted, but it would be difficult to get the bud without cutting away a piece of the wood of the shoot with it. If the operator will take the point of a knife and commence the process of removal by separating the wood from the bark just below the bud in an upward not in a downward direction, he will have his bud in every respect perfect. A little practice soon makes this easy; and learners must of necessity look for a few failures till, by the teaching of experience, they become a little grounded in the art of budding. Next, as to inserting the bud in the cleft made in the bark of the stock: "Lifting up the corner of the bark beneath the cross-cut, the bud is placed in and gently pushed down to its proper position by hand, or with the back of the knife lightly applied to the leaf-stalk behind the bud" (see fig. 18 C). Now you cannot cut a bud from a vigorous-growing shoot of a Rose without cutting away a leaf with it. This leaf should be removed, but a portion of the stalk should be left with the bud; it is, as just stated in the quotation given, an assistance in inserting the bud, and it will help to shade and protect it after it is put in position. And, as the writer just quoted observes, "Neatness of fit is not actually essential, but it is an example of good workmanship, and may also prove useful in hastening and perfecting the union between the Briar and the bud. For, though the main current of the sap is assuredly upwards, yet in a Briar in fit condition for budding, fluids move more or less freely in all directions, and assuredly will find their way to any wound or incision made in any part thereof." From this it is inferred that the sap will both ascend from below and descend from the point of the budded

shoot downwards to the place where the bud is inserted, and so hasten the union thus made.

Immediately the bud is inserted, some wet matting should be bound round the stock, both above and below it, so as to bind the opening up tightly, and exclude the admission of air or wet (see fig. 18 D). If all goes well, in about three weeks there will be a perfect adhesion, and the bud will begin to swell; then the tie should be removed, and its place supplied with a looser one, for it is very important there be no interference with the freest swelling at this jointure. Until the adhesion between stock and scion is complete do not cut away any portion of the shoot in which the bud is inserted, as the action of the sap greatly assists the bud. But as soon as the work is perfected, and the swelling of the bud proves the adhesion of the two to be complete, then a few inches may be cut away from the shoots of the Briar budded; the consequence being that the flow of sap will go more directly to the nourishment of the bud.

Bud as near to the base of the shoot as possible, but on its upward side, if space admits, put in two buds, not side by side, but one rather higher up the shoot than the other; if one fails, the other may succeed.

Bud only good varieties of Roses, especially where the collection is a limited one. It is not necessary to indicate varieties here, as all lovers of Roses have opportunities of becoming acquainted with the leading sorts, and of making a selection of the best. The number grown must be regulated by the space of ground at the service of the cultivator.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JULY 15, 1874.

Month and Day.	Barometer		Temperature of the Air.					Hygrometrical Deductions from Glaisher's Tables 5th Edition.		Wind.	Rainfall.
	Mean Reading Reduced to 32 Fahr.	Departure from Average of 18 Years.	Highest.	Lowest.	Range.	Mean for Day.	Departure of Mean from Average of 50 Years.	Dew Point.	Degree of Humidity. Sat. = 100.	Average Direction	
July	In.	In.	°	°	°	°	°	°			In.
9	29.95	+0.14	92.0	55.0	37.0	73.7	+12.0	55.7	53	S.W.	0.00
10	29.91	+0.09	89.0	63.6	25.4	74.9	+13.1	58.9	58	SW : E	0.29
11	29.81	−0.02	78.4	61.5	16.9	67.1	+ 5.3	62.2	84	S.S.W. : N.E.	1.03
12	29.86	+0.04	80.0	59.2	20.8	65.7	+ 3.7	58.7	78	S.W.	0.00
13	29.94	+0.12	81.6	57.0	24.6	66.5	+ 4.2	59.0	77	WSW	0.00
14	29.86	+0.05	86.7	57.5	29.2	70.9	+ 8.4	59.7	68	WSW : N.	0.00
15	29.97	+0.15	81.2	58.7	22.5	68.5	+ 6.0	55.3	63	N.E. : E.S.E.	0.00

July 9.—Fine; lightning at night. The maximum temperature, 92°, is the highest which has been recorded since 1868, September 7, when 92°.1 was registered.
— 10.—Heavy rain, with lightning and thunder in early morning. Fine till evening; slight thunderstorm at night.
— 11.—Generally overcast. Thunderstorm between 3 P.M. and 5 P.M. Rain fell at first somewhat gently, but with extreme violence between 3.45 P.M. and 4.15 P.M.; and afterwards with variable degrees of heaviness till 5—1.03 inch of rain being measured, the greater portion of which fell between 3.45 P.M. and 4.15 P.M.
— 12.—Fine.
— 13.—Cloudy in morning; fine afterwards.
— 14.—Very fine throughout.
— 15.—Cloudy; fine.

—— At the beginning of the week, in the neighbourhood of London, the reading of the barometer at the level of the sea was 30.04 inches, which increased to its maximum, 30.13 inches, by 9 A.M. on the 6th; it then turned, and decreased steadily to 29.91 inches at 9 P.M. on the 7th; after which it rose to 29.97 inches by 9 A.M. on the 9th; and from that time till the close of the week decreased readings were recorded, the height of the barometer then being 29.79 inches. The mean reading for the week was 29.95 inches, which was 0.16 inch greater than that of the preceding week.

The highest temperatures of the air four feet above the ground varied from 92° on the 9th to 75° on the 5th and 6th, and the lowest from 47½° on the 6th to 63½ on the 10th. The mean temperatures of the air on each day, with departures from their respective averages, were, on the 5th, 61°.8 +0°.1; 6th, 60°.9 −0°.9; 7th, 61°.1 —0°.8; 8th, 68°.1 +6°.4; 9th, 73°.7 +12°; 10th, 74°.9 +13°.1; and on the 11th, 67°.1 +5°.3; showing that although on the second and third days the weather was slightly cool, it became exceptionally warm towards the end of the week, the maximum thermometer on the 9th registering as high as 92°—that being the highest temperature since September 7, 1868, on which day 92°.1 was observed. The nearest approaches to these temperatures during the intermediate years were 90°.9 on July 2, 1869, 90°.9 on July 25, 1872, and 90°.2 on June 22, 1870.

The direction of the wind was generally N.E. and S.E. at the beginning and end of the week, and S.W. at other times. The pressures were generally light, the greatest being 4.3 lb. on the square foot on the 5th. The daily horizontal movement of the air was, on an average, 170 miles.

The weather was generally fine till the 9th, when it became very sultry, lightning being seen throughout the evening. On the 10th heavy rain fell in the early morning hours, accompanied with lightning and thunder, the weather was sultry throughout the day, another thunderstorm occurring in the evening. On the 11th a violent thunderstorm again occurred between 3 P.M. and 5 P.M.; rain fell at first somewhat gently, but from 3.45 till 4.15 with extreme violence, and afterwards with variable degrees of heaviness till 5 P.M.; vivid lightning with thunder was very frequent throughout. The amount of rain collected between 3 P.M. and 5 P.M. was 1.03 inch, the greater portion of which fell between 3.45 P.M. and 4.15 P.M. The total amount collected during the two last days of the week was 1.32 inch.

The highest readings of a thermometer placed on grass and exposed to the rays of the sun ranged from 156½° on the afternoons of the 9th and 10th to 111°.5 on the 11th; and the lowest on grass, by a thermometer with its bulb freely exposed to the sky, from 38½° on the night common to the 5th and 6th, to 58° on that of the 10th and 11th.

In England, the extreme high day temperatures ranged from 92° at Blackheath to 72° at Newcastle-on-Tyne, with a general average of 82¾°. The extreme low night temperatures ranged between 51° at Liverpool and 44° at Hull and Newcastle-on-Tyne, the general average over the country being 47°. The mean range of temperature in the week from all stations was 35¾°. The mean high temperatures observed by day varied from 81¾° at Blackheath to 68° at Newcastle-on-Tyne, with an average value of 74¾°. The mean low temperatures observed by night ranged from 55½° at Liverpool to 49¾° at Newcastle-on-Tyne, the general average being 53°. The mean daily range of temperature in the week was 21¾°, being as high as 28° at Blackheath, and as low as 12¾° at Liverpool. The mean temperature for the week was 62°, the highest being at Blackheath, 66¾°, and the lowest at Newcastle-on-Tyne, 57°. The amount of rain measured at the various stations during the week varied from rather more than 1¼ inch at Blackheath to three-hundredths of an inch at Bradford; at a few of the stations, however, no rain fell, the average fall over the country being two-tenths of an inch. The weather during the week has been very fine and warm throughout.

In Scotland the highest temperatures ranged from 76¼° at Aberdeen to 68° at Greenock; the lowest temperatures varied from 48¾° at Leith to 44½° at Aberdeen, their respective averages being 71½° and 47°. The mean range of temperature was 24½°. The mean temperature for the week was 59°, the highest being at Edinburgh, 61½°, and the lowest at Greenock, 56¾°. Rain fell to the amount of two-tenths of an inch at Dundee, and in no case was this amount exceeded; it varied to two-hundredths of an inch at Aberdeen and Perth, the average fall over the country being one-tenth of an inch.

At Dublin the highest temperature was 76½°, the lowest 43°, the mean 60½°, and the rainfall 0.06 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

PLANT STOVE.—Stove plants in general, but more especially such free growing things as *Allamandas*, *Bougainvilleas*, and *Dipladenias*, that when well managed flower continuously all through the summer and autumn, are naturally profuse rooting plants, and consequently soon exhaust the soil, often before the end of the season, even after they have been potted in the spring; when such is the case they often fall off in their flowering in the autumn when much wanted. To prevent this timely assistance should be given by a surface dressing of good rotten dung, in addition to liberal applications of manure-water: if these are applied before the plants evince any weakness or falling off in their flowering, they will keep on right through until it is necessary to withhold water and dry them off. Stove *Begonias*, of the summer flowering section, will also require attention in this matter, and must be supplied with manure-water. The frequency of the application should be determined by the size of the pots they occupy. If small in proportion to the size of the plants they will require more assistance, but this must always be met by more frequently giving the liquid, not by using it as is sometimes done in too strong a state, by which means serious injury is very often done. In the selection of the different varieties and species of plants for cultivation under glass, the system adopted in bygone times was to obtain as many as possible, and cram them together in a given space. Even at the present day, when there is a marked general advance in the cultivation of the plants under consideration, a great many more varieties are grown than are either required or of use for the effective decoration so much in vogue at the present time. The quantities of table plants now wanted, and also for the decoration of halls and rooms, makes it necessary to grow large quantities of such things as are most effective, and, by their general adaptation, best calculated to fulfil the object in view. As most of the plants used for such purposes are not required large, it is necessary to keep up a continuous supply, more especially as in the houses where gas is burnt the plants soon get so injured as to be of little use. This necessitates continual watchfulness in keeping up the supply, and in selecting the different subjects most suitable for winter and summer. In the latter season much more diversity exists in the plants that can be used. Most of the numerous family of *Dracænas* are available, and amongst the newer ones many beautiful varieties exist that will be extensively used as they become cheaper. The Screw Pines, in a small state, come in for this purpose: at the very head stands *Pandanus Vandermeerschii*, *P. utilis*, *P. Veitchii*, *P. elegantissimus*, *P. graminifolius*, *P. candelabrum*, and *P. javanicus variegatus*. Then there are *Cupania filicifolia*, *Aralia leptophylla*, *A. Veitchii*; the beautiful *Curculigo recurvata variegata*, *Croton angustifolium*, *C. variegatum*, and *C. longifolium variegatum*; *Ardisia crenulata*, *A. crenulata alba*: *Cyperus alternifolius*, and *C. alternifolius variegatus*. These are all plants suitable for table decoration, when in 6-inch pots and not too large, after which they will do for room embellishment; but even in the summer season, during warm weather, they must not be kept too long in such a situation, or their bottom leaves will suffer, which will make them unsightly and useless until they are headed back and are grown up afresh. The India-rubber plant, *Ficus elastica*, is one of the best plants for room decoration in existence, lasting for the whole summer season in good condition, not so much as losing a leaf if it meets with proper attention as to water and keeping the dust sponged off its ample glossy leaves. To these may be added a number of Palms, that in a small state are admirably adapted for this purpose. The following will answer well:—*Latania borbonica*, *L. rubra*, *Hyophorbe indica*, *Thrinax elegans*, *T. gracilis*, *Geonoma Seemanni*, *Dæmonorops plumosus*, *D. palembanicus*, *Chamædorea elegans*, *C. plumosa*, and numbers of others. In addition to the older varieties of *Dracæna terminalis*, *ferrea* and *Cooperi*, *D. gracilis*, *D. Fraseri*, *D. Guilfoylei*, *D. nigro-rubra*, *D. Shepherdii*, and *D. nobilis*, may be added. Many Ferns may be used, such as *Adiantum concinnum*, *A. formosum*, *A. cuneatum*, *A. pubescens*, *Davallia canariensis*, *Lomaria gibba*, *Pteris serrulata*, *Pteris cretica albo-lineata*, and *Lycopodium cæsium* (Selaginella uncinata). This latter, when well prepared, by being sufficiently hardened, is one of the best room-plants in existence; for, if properly attended to, it will not only live, but will grow and improve in a room even where gas is burnt. The above stove plants, in addition to some geeenhouse subjects given in a recent Calendar, will form a good and varied selection of foliage plants.

In the winter season nearly all the above plants are unsuitable for the purposes under consideration, by reason of their not being able to bear so low a temperature as they would here be subjected to. It should always be borne in mind that in using even in the summer season plants that naturally require in this country artificial heat to grow them in, the first essential is to well prepare them by previously not subjecting them to a higher temperature than necessary, and for some weeks before removing them to the house they should be gradually hardened by being removed to a cool house from where they have been grown, and whilst in their cool quarters they should never have more water given them than is required to keep the soil just moist, as little growth will be made whilst the plants are here; neither should they be placed near an open window where they will be subject to a keen draught of air. *T. Baines.*

FERN-HOUSE.—Many plants here that did not require more root space at the time of the general potting in the early spring will now want it, and unless they receive this attention before the time comes for the spring shift again they get into a hard stunted state, and the summer gets half over before they can be induced to move. Such plants should at once be removed into larger pots, always making sure that the water can pass freely through the soil, by using a liberal admixture of broken charcoal or cinders. *Gleichenias*, and other similar growing plants with creeping rhizomes, should never be allowed to suffer from having the points of their creeping stems injured

for want of room, which will occur if they are allowed to extend over the rims of the pots. *Gleichenias* must never be allowed to suffer for want of water; if ever the young expanding fronds flag through an insufficiency of moisture at the root, such fronds will never afterwards attain their proper size. In Tree Ferns the same will happen to *Cyathea dealbata* and *Alsophila excelsa*, if ever they get dry at the root, disfiguring these fine plants in both form and colour. Keep the whole of the stock free from insects, especially scale; if this insect is permitted to get ahead in large plants it becomes an almost impossible job to afterwards get them clean. Thrips will now also make their appearance, but, as the fronds are fast completing their growth and getting more solidified, they will stand a moderate amount of fumigation, but let this always be done with care, as the effects of an overdose will be objectionably visible until another growth is made. *T. Baines.*

FRUIT HOUSES.

Vines.—Although we have hot parching days houses in which late Grapes that are passing through the critical process of stoning must not be allowed to fall too low at night, otherwise "scalding" will be sure to follow. Fortunately the period over which this difficulty extends does not exceed fourteen days, and I find the best preventive is a night temperature of 70°, with abundance of air by day.

Muscats in their last stage of ripening should be assisted with a little extra heat, by gradually raising the temperature to a maximum of from 90° to 95° by day, with plenty of air. Under this treatment, while acquiring their richly vinous flavour, they will also lay on that fine golden colour so essential to perfect finish in this noble Grape. Judging from the number of scorched berries we now see in very early ripened Muscats, I am inclined to think the modern system of close glazing with large squares has its defects as well as advantages; and when it is necessary to hurry on the process of ripening, unless the foliage is dense and good, would recommend the use of a piece of fine hexagon netting to be drawn over the roof for a few hours on bright scorching days. Assuming that former directions with regard to mulching have been followed, efforts must be made to keep the roots of fruiting as well as young Vines near the surface, by means of liberal waterings with water that has been for some time exposed to the atmosphere.

Pot Vines for early forcing will now be ripening their wood, and although atmospheric moisture may be reduced, a good washing with the syringe, on fine evenings, to preserve the foliage from premature ripening, will be necessary, and they must also have a steady supply of water at the roots. *W. Coleman, Eastnor.*

Peaches and Nectarines.—In the succession house the routine work will be what has been detailed in previous numbers. Should the fruit, owing to the present hot weather, ripen faster than is required they may be retarded a little by shading from the sun in the middle of the day. I use some wooden shutters for this purpose, and shade the lower portion of the house, and thereby keep the succession of fruit a week or two longer in ripening than those on the top of the trees. In the earliest house, where the fruit is all gathered, the trees must still have attention in watering the roots in the inside borders, and using the syringe or engine to keep the foliage healthy, so as to make plump flower-buds for another year's forcing. In the very latest houses, where the fruit is stoning or about to take their second swelling, great attention will be required in keeping the inside borders well watered; and if some liquid manure is applied occasionally it will help to swell the fruit to a good size. Syringing the trees to keep the red-spider in check must likewise not be omitted whenever the weather is favourable for the purpose. Owing to the dry season the outside borders must not be neglected for want of a good watering, and if they are well mulched at the time its effects will be more lasting, and the roots of the trees benefited by the manurial effects of the mulching if made of stable manure. *William Tillery, Welbeck.*

Notices to Correspondents.

Barbarea præcox: *Alpha.* We should think it likely to have been introduced with the Clover, or to have escaped from some garden.

Birmingham Show: Mr. Brown, gr., Elmdon Hall, writes that he and Mr. Shuttleworth were bracketed equal 1st in the class for eight Ferns (amateurs). In our report we had placed Mr. Brown 2d.

Clarkia elegans: *H. J. Hardy.* The double-flowered varieties called extra rose and extra purple are very good samples of double-flowered forms of this species, the one being of a salmony-red tint, the other a rosy-purple. We have never seen finer double Clarkias than these latter.

Illustration Horticole: *Honesty.* We have just received the numbers you speak of, and presume you have done so also. Regularity of publication is not so customary a feature in Continental periodicals as in our own.

Japanese Rose: *Cor.* It is apparently a form of the Turnip Rose (Rosa rapa). See Redouté, *Roses*, ii., p. 7. The perfume is delicious. *J. G. B.*

Names of Plants: *S. L.* Philesia buxifolia; occasionally grown as a greenhouse or conservatory shrub in England. We suspect it might be found hardy in some localities.—*C. W. D.* Tordylium maximum. The locality Eton is given in Hooker's *Student's Flora;* but the plant is not supposed to be a genuine native.—*W. D., Ryde.* Claytonia perfoliata, North America, but nearly wild in some places.—*Student.* 1, Narthecium ossifragum; 2, Anagallis tenella; 3, Polygala vulgaris; 4, Galium palustre? (specimen insufficient); 5, Euphrasia officinalis; 6, Hypericum pulchrum. We will try and aid you; but you must be reasonable in your demands on our time, and not apply to us till you have exhausted your own resources. —*W. T. P.* Mirabilis, Quamoclidon multiflora = Mirabilis multiflora; Campanula rotundifolia, Pentstemon (lilac) speciosus, Pentstemon (white) rubescens, Leptosiphon ciliatus, Diplacus glutinosus, Lychnis cœli-rosa var. aspera.—*Quarto.* Maxillaria ochroleuca. —*J. R.* 1, Achillea Millefolium rubra; 2, Funkia ovata; 3, Epilobium angustifolium; 4, Hemerocallis fulva; 5, Crinum capense; 6, Veronica spicata variegata.—*A. Sim.* 1, Lastrea dilatata collena; 2, Doryopteris pedata, apparently; 3, Blechnum gracile; Asplenium Trichomanes; 5, Phlebodium aureum; 6, Lastrea taristata.—*J. Mathison.* Elisena longipetala.

Peas: *J. Bloxham.* Your Pea is, judging from the examples sent, a very good one, but it is impossible to distinguish Peas, excepting they can be seen in a growing state.

Size of Pots: *Iota Beta.* No doubt your pot, measuring 12½ inches one way and 12¼ the other, just within the rim, is what has been made for a 12-inch pot, since with such rough ware the measurements can never be very exact. Such a pot ought not to disqualify, though it rests with the manager or committee to settle a point of this kind. Pots should be measured just within and a little below the rim, about up to the point usually occupied by soil in potting.

Strawberry: *R. T. Stewart.* Vicomtesse Hericart de Thury is one of the most generally useful Strawberries that can be grown. Sir Joseph Paxton is one of the most showy.

West Kent Horticultural Show: *Erratum.* In our report of this exhibition an error occurred which we take the first opportunity of correcting. In the two leading classes for Roses, Mr. B. R. Cant, of Colchester, was 1st, and Messrs. Paul & Son 2d. In the next class the positions were reversed.

Communications Received.—J. R. Monckman (your note has been sent on to our reporter).—W. T. P.—E. T. B.—J. B.—C. W. D.—Sington & Co.—W. B. S. & Sons.—G. F. —Captain O.—E. H. K. & Co. (with inclosure).—H. J. H.—W. C.—J. Mathison.—E. M.—Marshal Wilder.—J. R. B.—A. Sim.

DIED, after a long and painful illness, on the 9th inst., at The Mount, Shrewsbury, Mr. George Wynne, for several years gardener to the late Miss Darwin, and previously gardener at Ash Grove, near Overton, Flintshire, and Shenstone Moss, near Lichfield. Aged 59.

Markets.

COVENT GARDEN, July 16.

The trade of the market generally is good, and a large amount of business in soft goods is current. Importations are heavy from the Continent and Channel Islands. *Thos. Taylor, Wholesale Apple Market.*

Fruit.

	s. d. s. d.		s. d. s. d.
Cherries, p. lb.	0 6– 2 0	Nuts, Cob, p. lb.	.. ..
Gooseberries, p. qrt.	0 4– 0 9	Oranges, p. 100	6 0–16 0
Grapes, English, p. lb.	2 0– 6 0	Peaches, p. doz.	8 0–18 0
— finest, do.	8 0– ..	Pears, p. doz.	.. ..
— Muscats, do.	4 0–10 0	Pine-apples, p lb.	3 0– 6 0
Lemons, per 100	14 0– ..	Strawberries, p. lb.	0 6– 1 6
Nectarines, per doz.	6 0–12 0	Walnuts, p. bush.	20 0– ..

Vegetables.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Leeks, per bunch	0 2– 0 4
Asparagus, per 100.	3 0– 8 0	Lettuces, per doz.	1 6– ..
Aubergines, per doz.	6 0– ..	Mint (green), p. bun.	0 6– ..
Beans, Broad, English, per bush.	3 0– 3 6	Mushrooms, per pott.	1 0– 2 6
— French, per lb.	1 6– ..	Onions, young, bun.	0 4– 0 6
Beet, per doz.	1 0– 2 0	Parsley, per bunch	0 4– 0 6
Cabbages, per doz.	1 3– 2 0	Peas, per quart	1 0– 2 0
Carrots, new, p. bun.	0 9– ..	Radishes, per bunch.	0 2– 0 4
— English, do.	0 9– ..	— black, Turnip, do.	– 0 6
Cauliflowers, per doz.	2 0– 6 0	Rhubarb, p. bundle	0 4– 1 0
Celery, per bundle	2 0– 3 0	Shallots, per lb.	0 6– ..
Cucumbers, each	0 6– 3 0	Salsify, per bundle	1 6– ..
Endive, per doz.	1 0– 2 0	Spinach, per bush.	5 0–
Herbs, per bunch	0 2– 0 4	Tomatos, per doz.	3 0– ..
Horse Radish, p. bun.	3 0– 5 0	Turnips, per bundle	1 0– ..
		Veg. Marrows, doz.	3 0– ..

New Potatos:—Round, 8s. to 10s. per cwt.; Kidneys, 10s. to 12s. per cwt. Old stocks quite finished.

Cut Flowers.

	s. d. s. d.		s. d. s. d.
Carnations, per doz. bunches	4 0– 9 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Corn-flower, p. doz. bunches	2 0– 6 0	Pinks, white, 12 bun.	4 0– 9 0
Eucharis, per doz.	4 0– 9 0	— mixed do.	2 0– 4 0
Escholtzia, p. 12 bun.	2 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Gardenias, p. doz.	3 0– 9 0	— Outdoor, do.	0 4– 1 0
Heliotropes, per doz. sprays	– 0 6	— Moss, 12 bun.	6 0–12 0
Mignonette, 12 bun.	2 0– 6 0	Spiræa, per 12 sprays	1 0– 2 6
Pelargoniums, per 12 sprays	0 6– 1 0	Stephanotis, 12 sprays	3 0– 9 0
		Sweet Peas, 12 bun.	3 0– 6 0
		White Lilies, p. bun.	1 0– 2 6

Plants in Pots.

	s. d. s. d.		s. d. s. d.
Begonias, per doz.	6 0–12 0	Heaths, in var., doz.	12 0–30 0
Bouvardias .. do.	9 0–18 0	Hydrangea .. do.	9 0–24 0
Calceolarias, shrubby	6 0–18 0	Liliums, in var., each	1 0– 3 0
Cyperus .. do.	6 0–12 0	Mignonette, per doz.	4 0– 6 0
Dracæna terminalis	12 0–30 0	Myrtles .. do.	3 0– 9 0
,, viridis .. doz.	12 0–24 0	Pelargoniums do.	9 0–24 0
Fairy Roses, p. doz.	6 0–12 0	do, Scarlet .. do.	3 0– 9 0
Fuchsia .. do.	4 0–12 0	Rhodanthe .. do.	6 0–12 0

SEEDS.

London: *July* 16.—Owing to the recent fine weather various descriptions of new seeds have now put in an appearance on Mark Lane. Samples of new French Trefoil and Sainfoin, new English Rapeseed, new Italian Red Clover and Rye-grass have already come to hand, but values for the most part are not yet fixed. Just now the articles most in request are White Mustard, Trifolium incarnatum, and Winter Tares; for the latter named, especially, we have had a brisk inquiry. New French Trifolium must be quoted at 2s. to 3s. per cwt. dearer: letters from Paris describe the supply as limited and the market as being very firm. In sympathy with the advance in new seed, old and yearling parcels are held for more money. Canary seed is again dearer. Blue boiling Peas continue very scarce. Other articles, for the lack of transactions, offer no subject for remark. —*John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E. C.*

CORN.

At Mark Lane on Monday trade was very quiet, under the influence of fine weather. Millers were not greatly disposed to purchase English Wheat, even at a reduction of 1s. per quarter, and the fall of from 1s. to 2s. per quarter in the value of foreign Wheat was apparently useless in stimulating the demand. Barley was dull of sale, and somewhat lower in price. Malt changed hands very slowly, and barely maintained the rates of the Monday previous. Oats were in moderate request, at a slight decline on the week. Maize was weak, though not quotably cheaper. Beans and Peas were quiet, and unaltered in price. In flour few transactions occurred, and the quotations were a trifle easier in some instances. —On Wednesday few sales were effected in either English or foreign Wheat, and some of those were on slightly easier terms than on Monday. Barley was dull, and weak in price. Malt was inactive. Little attention was directed to Oats, but the better qualities supported their price. Maize tended downward, but Beans, Peas, and flour remained without appreciable change.—The average prices for last week were: Wheat, 60s. 9d.; Barley, 41s. 7d.; Oats, 29s. 11d. For the corresponding week last year: Wheat, 59s. 5d.; Barley, 37s. 7d.; and Oats, 29s.

CATTLE.

At the Metropolitan Market on Monday last there was a very large supply of beasts, and a considerable proportion of inferior quality. A few of the choicest, this class being scarce, made rather over the top quotation. A clearance could not be effected. There was also a larger number of sheep than for a long time past. Trade was very bad for them, at lower rates. Trade for lambs and calves partook of the general depression. Prices were quoted—Beasts, 4s. 4d. to 5s. 8d.; calves, 3s. 10d. to 5s. 2d.; sheep, 4s. to 5s. 2d.; lambs, 5s. 4d. to 6s. 4d. per 8 lb.—Trade was dull for beasts at Thursday's market, the qnotations being those of the previous day. The supply was large, consisting of those left over from Monday and second-rate animals. Sheep did not improve in price, and a clearance was not effected. In choice lambs there was a slight improvement; trade was dull for calves; and for milch cows the report is "trade still bad."

HAY.

The Whitechapel market has been moderately active for all kinds of fodder, arrivals of which were short, and prices remained firm, prime Clover making from 100s. to 114s.; inferior do., 70s. to 80s.; prime meadow hay, 90s. to 102s. 6d.; inferior do., 55s. to 75s.; and straw, 33s. to 40s. per load. The quotations from the Cumberland market are as follows:—Superior old meadow hay, 114s. to 120s.; inferior do., 80s. to 100s.; new hay, 90s. to 115s.; superior old Clover, 112s. to 120s.; inferior do., 90s. to 105s.; new Clover, 90s. to 110s.; and straw, 40s. to 44s. per load.

POTATOS.

The Borough and Spitalfields markets reports note that the supplies of Potatos are rapidly increasing, and are now on an extensive scale. The trade for them is slow, at our quotations. Foreign Potatos are dull, on rather lower terms. English round Potatos were selling at 7s. to 9s., but are now obtainable at 6s. 6d. to 7s. 6d. per cwt. Round foreign Potatos are worth 6s. to 8s.; and Kidneys, 9s. to 11s. per cwt.—Last week's imports into London consisted of 180 packages from Dunkirk, 4 from Lisbon, 5880 from Rotterdam, 90 tons from Jersey, 336 from Boulogne, 100 boxes and 15 tons from Barfleur, and 70 baskets from Antwerp. The imports into Southampton were nearly 14,000 baskets, &c.

COALS.

On Monday best house coals advanced 6d. per ton, Walls End Original Hartlepool reaching 26s. At Wednesday's market business was steady, but Hartley's declined 6d. per ton. The following are the latest quotations to hand:—Holywell Main, 22s. 6d.; West Hartley, 22s. 3d.; Walls End Tunstall, 22s. 6d.; Walls End East Hartlepool, 25s. 9d.

SIMPSON'S RED SPIDER, THRIPS, and GREENFLY ANTIDOTE.—The following unsolicited Testimonials have been received among others regarding the *bona fide* character of this remedy:—

From Mr. DAVID THOMSON, *Gr. to the* Duke of Buccleuch.

"Dear Sir,—I consider your Antidote an invaluable remedy for Red Spider. Three washings have annihilated the pest on our Muscats, and the Vines look much more fresh and green since the application. No bad effects to the foliage whatever. "Truly yours, D. THOMSON."

From Mr. SPREADBURY, *Gr. to the* Earl of Portsmouth.

"I like your Antidote better than any other insect destroyer I have used, being so very clean and efficacious."

In quarts, 6*s.* each. One quart diluted sufficient for 200 gallons of water as a preventive.

Supplied by JOHN KILNER, Wortley, Sheffield.

Sold by Seedsmen and Chemists.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c. TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard. TIFFANY, 6*s.* 6*d.* and 7*s.* 6*d.* per piece of 20 yards.

EATON & DELLER, 6 & 7, Crooked Lane, London Bridge.

EDGINGTON'S GARDEN NETTING, the cheapest and most durable, at 1*d.* per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.

EDGINGTON'S RICK CLOTHS for 69 years have maintained their celebrity as the best.

EDGINGTON'S MARQUEES for Hire are the most elegant and capacious.

EDGINGTON'S CRICKET and GARDEN TENTS are the prettiest.

TIFFANY, SCRIM CANVAS, and every other kind of NETTING.

Be particular—FREDK. EDGINGTON AND CO., Rick Cloth, &c., Manufacturer to Her Majesty, 52, Old Kent Road, London, S.E.

A quantity of good Second-hand Government TENTS for Sale, Cheap.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of CHARLES J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C. Retail of the principal Seedsmen. Prices on application.

Improved System of Glazing without Putty.

WILLIAM PARHAM, Northgate Works, Bath; and 280, Oxford Street, London, W., Patentee and Inventor of the Improved System of Erecting and Glazing Horticultural Buildings without Putty; the Glass supported on channelled rafters with moulded cover plates and steel springs for expansion. Plans and Estimates on application. Catalogues seven stamps. Specimens may be seen at either address.

MILDEW.

The best and most easily applied composition for the Prevention and Destruction of Mildew is

EWING'S INFALLIBLE COMPOSITION. Can be had retail through all Seedsmen and Florists, in bottles holding about ¾ pint, sufficient to produce 8 gallons of fluid fit for use, at 1*s.* 6*d.* per bottle; or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, carriage paid to any Railway Station in the United Kingdom for 24 penny postage stamps.

THE PATENT VERMIN ASPHYXIATOR.

LIST of AGENTS, DESCRIPTIVE PAMPHLET, PRICES, FULL INSTRUCTIONS, and TESTIMONIALS

Post Free, on application to

JOHN WATTS & CO.,

6, BROAD WEIR, BRISTOL.

The Royal Pottery, Weston-super-Mare.

UNDER ROYAL PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.

JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

VASES, STATUES, FLOWER POTS, FLOWER TRAYS, and BASKETS, in Terra Cotta, of various colours; also FOUNTAIN BASINS, FISH POND KERBS, GARDEN BORDER EDGINGS, PEDESTALS, BALUSTERS, GARDEN and PARK SEATS, and ARCHITECTURAL DETAILS, in Terra Cotta, warranted to stand frost.

The Stamford Terra Cotta Company (Blashfield's), Limited, 28, Berners Street, Oxford Street, London, W.—Works, Stamford, Lincolnshire.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants. See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

(Business Established in 1770.)

THE LAWSON SEED AND NURSERY COMPANY

(LIMITED), LONDON AND EDINBURGH.

GENUINE SEEDS FOR PRESENT SOWING.

TURNIP of Superior Stocks, TRIFOLIUM INCARNATUM, MUSTARD, GRASS SEEDS, BROAD-LEAVED WINTER RAPE, CABBAGE, &c., &c.

Samples and Prices on application.

SOUTHWARK STREET, LONDON, S.E., and at EDINBURGH.

PHOSPHO-GUANO,

the best Manure for the Farm; also

PACIFIC GUANO, PHOSPHATES, BONE PHOSPHATES, SUPER-PHOSPHATE of LIME,

All of the highest class quality only.

PRICED LISTS, ANALYSES, AND OTHER INFORMATION ON APPLICATION.

Wholesale Vendors for Great Britain and Ireland—

THE LAWSON SEED AND NURSERY COMPANY (LIMITED),

SOUTHWARK STREET, LONDON, S.E., AND EDINBURGH.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

HENRY ORMSON,
HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

SYRINGES & GARDEN ENGINES.

G. & W. PURSER'S
List of Engravings for this Season
Is now ready, and may be had, post free, on application.
Sole Makers of the Jet d'Eau.
WORKS: WARWICK STREET, BIRMINGHAM.

Secure Your Peaches by Covering Your Walls
WITH
SIR J. PAXTON'S HOTHOUSES
FOR THE MILLION,
Which are sent out glazed and painted complete, all ready for putting on the Walls prepared for them, and can be taken down in sound whole pieces, ready for removal, in a few hours. They are durable and efficient, and as permanent structures are equal to others much more expensive, and superior to most, if not all, of those at lower prices.
MANUFACTORIES IN
LONDON, GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, AND ABERDEEN ONLY.

HORTICULTURAL BUILDINGS
OF EVERY DESCRIPTION
Designed, Built, and efficiently Ventilated and Heated.
Estimates given to Architect's Plans, or to Rough Sketches, with Sizes, &c.
Agents for Chapman's "Multum in Parvo" Flower and Fruit Cases.
A Pamphlet with Illustrations, Testimonials, &c., and Price Lists of Sir J. Paxton's Hothouses, for 3*d.* post free.
A Handbook of Vine and Fruit Tree Cultivation, with Plans of Glass Houses, Heating, &c.; post free, 13*d.*
HEREMAN AND MORTON,
HORTICULTURAL ENGINEERS,
14, TICHBORNE STREET, REGENT QUADRANT, LONDON, W.

STEVENS'
TRENTHAM GREENHOUSE BOILER,
After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

AGRICULTURAL LOCOMOTIVES,
STEAM PLOUGHING MACHINERY,
ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES, STEAM ROAD ROLLERS.
For Prices, Description, and Reports of Working, apply to the Manufacturers,
AVELING & PORTER,
ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.
AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

CARSONS' PAINT,
PATRONISED BY THE QUEEN,
The British, Indian and Colonial Governments,
8000 of the Nobility, Gentry, and Clergy,
Railway and Canal Companies, Collieries, Ironmasters, &c., &c.,
Is extensively used for all kinds of
OUTDOOR WORK.
It is especially applicable to
WOOD, IRON, BRICK, STONE & COMPO.
CAN BE LAID ON BY UNSKILLED LABOUR.
Sold in all Colours.
2 cwt. free to all Stations.
Prices, Patterns, and Testimonials sent Post Free.
WALTER CARSON & SONS,
LA BELLE SAUVAGE YARD,
LUDGATE HILL, LONDON, E.C.
And 21, BACHELOR'S WALK, DUBLIN.
NO AGENTS.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.
CONTENTS:—
INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.
The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.
Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*
Publishing Office—Hunter Street, Sydney, New South Wales.
ENGLAND.
The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.
London .. Mr. George Street, 30, Cornhill, E.C.
Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham. Mr. R. S. Kirk, 90, New Street.
Liverpool .. Lee & Nightingale, 15, North John Street.
Bristol .. James & Henry Grace, Royal Insurance Buildings.
Edinburgh .. Robertson & Scott, 13, Hanover Street.
Glasgow .. W. Porteous & Co., 15, Royal Exchange Place.
Copies of each Journal are filed at the above Offices for the use of Advertisers.
Notice.
(*By Appointment to the Royal Horticultural Society.*)
To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.
ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.
ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

THE AGRICULTURAL GAZETTE
AN ILLUSTRATED JOURNAL FOR
LANDOWNERS AND TENANT FARMERS.
PRICE FOURPENCE.
AFTER thirty years' association with "*THE GARDENERS' CHRONICLE*," *THE AGRICULTURAL GAZETTE* now stands alone, and the double space at its disposal is occupied with matters strictly Agricultural.
SUBSCRIPTIONS PAYABLE IN ADVANCE,
Including postage to any part of the United Kingdom:
Three Months, 5s.; Six Months, 9s. 9d.; Twelve Months, 19s. 6d.
P.O.O. TO BE MADE PAYABLE AT THE KING STREET POST OFFICE, W.C., TO WILLIAM RICHARDS.
Publishing Office, and Office for Advertisements:
7, CATHERINE STREET, STRAND, LONDON, W.C.

THE AGRICULTURAL GAZETTE, SATURDAY, JULY 18, 1874,

CONTAINS—

A FULL and ILLUSTRATED REPORT of the ROYAL AGRICULTURAL SOCIETY'S MEETING at Bedford; also

ORIGINAL ARTICLES on Scottish Farms and Farming—Fallowing—Portrait and Memoir of Lord Bridport—The Lock-out in the Eastern Counties—Cricket—Portrait and Memoir of Edmund Holland, Esq., President of the Royal Agricultural Society.

HOME CORRESPONDENCE on the Maintenance of Turnpike Roads—The Great Crop of Mangels at the Sewage Farm, Romford—A Scotchman on the Bucks Farmer, &c.

ALSO—

FARM Notes—Garden of the Farm—The Weather, Markets, &c.

Price 4d.; post free, 4½d. Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

Works on Botany, by Dr. Lindley.

THE VEGETABLE KINGDOM; or, THE STRUCTURE, CLASSIFICATION, AND USES OF PLANTS. Illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25s., with upwards of 500 Illustrations.

EXTRACT FROM THE AUTHOR'S PREFACE.

"The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be brought by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects."

By the same Author.

INTRODUCTION to BOTANY. Fourth Edition, greatly enlarged; with six Plates, and numerous Wood Engravings. Two Volumes, 8vo, 24s.

*** It has been the Author's wish to bring every subject that he has introduced down, as nearly as possible, to the state in which it is found at the present day. In doing so, he has added so very considerable a quantity of new matter, especially in what relates to Vegetable Anatomy and Physiology, that the present Edition may be considered, in those respects, a new work.

DESCRIPTIVE BOTANY; or, THE ART OF DESCRIBING PLANTS CORRECTLY, in Scientific Language, for Self Instruction and the Use of Schools. Price 1s.

MEDICAL and ŒCONOMICAL BOTANY; or, AN ACCOUNT OF THE PRINCIPAL PLANTS EMPLOYED IN MEDICINE OR DOMESTIC ŒCONOMY. In One Volume, 8vo, with numerous Woodcuts, price 5s.

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

Just Published, imperial 8vo, on fine toned paper, with eleven Illustrative Plates,

THE NATURAL PRINCIPLES of LANDSCAPE GARDENING. By JOS. FORSYTH JOHNSON (Landscape Gardener), Curator, Royal Botanic Gardens, Belfast.

Price 7s. 6d., post free 7s. 9d., from the Author.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8d. per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

FOR SALE.—Twelve Volumes of the "GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE," 1861—1872, very clean and well bound, half bazel, cloth sides. Price £6.—For particulars apply by letter, G. C., *Gardeners' Chronicle* Office, W.C.

WANTED, in a large Nursery, a thoroughly experienced MAN, to take the MANAGEMENT of the Growing Department. Liberal wages will be given, and a good house and garden found.—Apply, by letter only, giving references as to capability and character, to "X. Y.," care of Messrs. Barr & Sugden, King Street, Covent Garden, W.C.

WANTED, IMMEDIATELY, a HEAD GARDENER, not under 35, married. Must be thoroughly competent in Kitchen and Flower Gardening, and understand Greenhouses, Vinery, Stoves, &c. Two Under Gardeners kept.—T. W. A., Cockermouth, Cumberland.

WANTED, a GARDENER.—A Head Working Gardener is required for a Private Family in Suffolk.—He must be married; the Wife to act as Laundry-woman. Good house and convenient laundry.—Apply, with particulars, B. D., Post Office, Ipswich.

WANTED, as GENERAL NURSERY FOREMAN and PROPAGATOR, one who thoroughly understands Budding and Grafting, Fruit Trees, Forest Trees, Roses, Coniferæ, Clematis, &c.; must also be a good Grower of Pot Roses and Plants in General. Must be steady and industrious, and have a good character. For a clever Man this is a permanent situation.—WITTY AND SON, The Nurseries, Cottingham, Hull.

WANTED, a ROSE GROWER.—Mr. WM. PAUL has a vacancy for a leading Man in the department of Roses under Glass. A liberal salary will be given to a man of character and ability.—Paul's Nurseries, Waltham Cross, Herts.

WANTED, an INDOOR PROPAGATOR and PLANT GROWER. Must be thoroughly experienced in Roses, Conifers, Soft and Hard-wooded Plants generally; and above all an expert and successful Grafter. None but competent hands need apply.—Give full particulars, with amount of wages, &c., to A. B., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

WANTED, a young MAN, under the House Foreman. One who has had experience in Growing Bedding and Herbaceous Plants, &c.—Give full particulars as to previous situations, amount of wages, &c., to A. B., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

WANTED, in a large Nursery, a young MAN who has had some experience in Hard and Soft-Wooded Propagation, to act as SECOND to a very experienced Man.—Apply by letter only, giving last place and references, to "X. Y.," care of Messrs. Barr & Sugden, King Street, Covent Garden, W.C.

WANTED, a FORESTER who thoroughly understands Planting, Thinning, Felling, and Measuring Trees; also, Care of Park Roads, &c., Management of Horses, Keeping Accounts, and Superintending the Work of about 20 men. A married man without incumbrances preferred. Good testimonials and security indispensable. No application will be answered unless likely to suit. For further particulars apply to W. FRENER, Estate Agent, West Rudham, Rougham, Norfolk.

WANTED, on an Estate in Bucks, where no Arable Land is kept in hand, a Man and Wife, middle-aged, without young children. The Man will have to pay the Wages, look after Repairs, Measure Timber; the Wife will have to Manage a small Dairy and Cure Bacon. No persons need reply to this advertisement who have not filled a situation of the description before, and whose characters will not bear the strictest investigation.—Apply by letter only to E., Post Office, Little Marlow, Bucks.

WANTED, a JUNIOR SHOPMAN, in the Seed Trade, to live with employer. Good Provincial House, with Corn Trade attached.—State age, experience, and salary required, to A. B. C., Mr. Cooper, 152, Fleet Street, E.C.

WANTED, a strong active Man, as PORTER for Covent Garden. Must be able to Write a fair Hand and Keep Accounts. A Married Man who has been in the Nursery Business and has a knowledge of Plants preferred.—Apply, by letter, J. I., *Gardeners' Chronicle* Office, W.C.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD), where two or three are kept.—Has had good experience in every branch of the profession. Excellent references as to character and ability.—F. L., Mr. Dalton's, Hoo Green, Meopham, Gravesend, Kent.

GARDENER (HEAD).—Single; thoroughly understands Gardening in all its branches. Two years' good character.—W. W., Croft, Fairford, Gloucestershire.

GARDENER (HEAD).—Age 27, married; understands Gardening in all its branches. Good reference.—G. WISE, 27, North Road, Hersham, near Walton-on-Thames, Surrey.

GARDENER (HEAD).—Age 30, married, one child; thoroughly understands the profession in all its branches. Good character.—A. B., *Herts Advertiser* Office, St. Albans, Herts.

GARDENER (HEAD).—Married; thoroughly understands the profession in all its branches. Seven years' good character.—E. H., Hawthorn Hill, Bracknell, Berks.

GARDENER (HEAD).—Age 28, single; has served four years in present situation as Foreman, at Wycombe Abbey Gardens, Bucks. Can be highly recommended.—EDWARD WILLMET, Wycombe Abbey Gardens, High Wycombe, Bucks.

GARDENER (HEAD).—Age 28, single at present; thoroughly understands Forcing Vines, Pines, Peaches, Figs, Vegetables, &c.; also a good Grower of Gigantic Plants, both Flowering and Foliage, and a good Flower Garden Plan Drawer. Left last place through alterations. Excellent character. Salary, £70 a-year.—H. YEDNUM, Banning Street, Romsey, Hants.

GARDENER (HEAD), to any Gentleman in want of a thoroughly practical Man.—Age 39, married, with family; has had upwards of twenty-five years' experience in some of the leading places in England and Scotland. Been in present situation nearly twelve years. Leaving on account of death. Has had five men under him, and can be well recommended.—W. L., Post Office, Market Harborough.

GARDENER (HEAD).—Age 30, unmarried; experienced; has had first-class opportunities of learning the profession in some of the leading establishments in England; is an excellent Plantsman and Fruit Grower, and a successful Cultivator of Flowers and Vegetables, understanding his business thoroughly. Industrious, steady, trustworthy. A 1 references from his late employers.—T. O. R. T., Post Office, Rushy Green, Lewisham, S.E.

GARDENER (HEAD, WORKING, or SECOND), in a Nobleman's Establishment.—Age 25, married, no family; thoroughly acquainted with the various branches of the profession.—G. E., 3, Castle Terrace, Albert Road, Belvidere, S.E.

GARDENER, where a Man or Lad is kept, or SINGLE-HANDED.—Age 38, married, no family; understands Greenhouses, Vines, and Flower and Kitchen Gardening.—J. B., 11, Palmerston Terrace, Park Road, East Moulsey, Surrey.

GARDENER.—Age 26, married, one child; understands the Growing of Grapes, Melons, Cucumbers, Stove and Greenhouse Plants, Flower and Kitchen Gardening. Two years' good character.—A. B., 3, Rennell Street, Lewisham, Kent, S.E.

GARDENER (SECOND), in a Gentleman's Establishment (good).—Well up in Indoor and Outdoor Gardening. Wages 24s. per week, or equal.—J. W., Post Office, Cardiff, South Wales.

GARDENER (SECOND).—A young Man; has been used to Stove and Greenhouses, and Forcing, and perfectly understands his duties.—J. M., Post Office, East Grinstead, Sussex.

FOREMAN, in a Nobleman's or Gentleman's Garden.—Has good general knowledge of the profession. Can be highly recommended.—T. W., 15, Brook Lane, Chester.

FOREMAN, in a Nobleman's or Gentleman's Establishment, where Gardening is carried on with spirit.—Age 26. Has held a situation as above. Character will bear the strictest inquiry.—P. C., 32, Lifford Street, Putney, S.W.

NURSERY FOREMAN, SALESMAN, and good general PROPAGATOR of Roses, Rhododendrons, Coniferæ, Clematis, and Soft-wooded stuff.—W. B., 2, Salisbury Road, Upper Holloway, N.

NURSERY MANAGER or FOREMAN PROPAGATOR.—Long and practical experience in Stove and Greenhouse Plants, Ericas, New Holland Plants, Pot Vines, Grafting Roses, Rhododendrons, Clematis, Coniferæ, and the usual routine of a Nursery, indoors and out. Good Salesman. First-class references.—P. J. H., Mr. E. Holmes, Whittington Nursery, Lichfield.

GROWER for MARKET.—Wanted a Situation as above in the Fruit and Plant Trade. Has been Head Gardener for the last five years.—W. W., Patching's Library, Putney, S.W.

JOURNEYMAN.—Age 22. Two years' good character.—E. ELTON, The Gardens, Wolveton, Dorchester.

To Noblemen and Gentlemen.

LAND STEWARD, or AGENT.—The Advertiser, having had great experience in the Management of Landed Property, is now open for an Engagement as Land Steward or Agent, or both combined. The highest testimonials.—A. C., Charles Ewing, Esq., Golden Grove, Hoole Road, Chester.

SHOPMAN, or TRAVELLER.—H. D. MITCHELL, for nearly 18 years in the employment of James Dickson & Sons, Chester, having for several years travelled the Midland Counties, Lancashire and Yorkshire, North of England, South of Scotland and Ireland, will be glad to treat with a large House, to open up a connection on the above ground, being well known amongst Gardeners, Stewards, &c.—Address, 17, Tarvin Road, Chester.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA, BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*

MANUFACTURE OF COCOA.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*

Made simply with boiling water or milk.

Sold by Grocers, only in packets, labelled

JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS, 48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, N.W.

PURE AERATED WATERS—ELLIS'S RUTHIN WATERS—Soda, Potass, Seltzer, Lemonade, Lithia, and for GOUT, Lithia and Potass.

Corks Branded "R. ELLIS AND SON, RUTHIN," and every label bears their trade mark. Sold everywhere, and Wholesale of R. ELLIS and SON, Ruthin, North Wales.

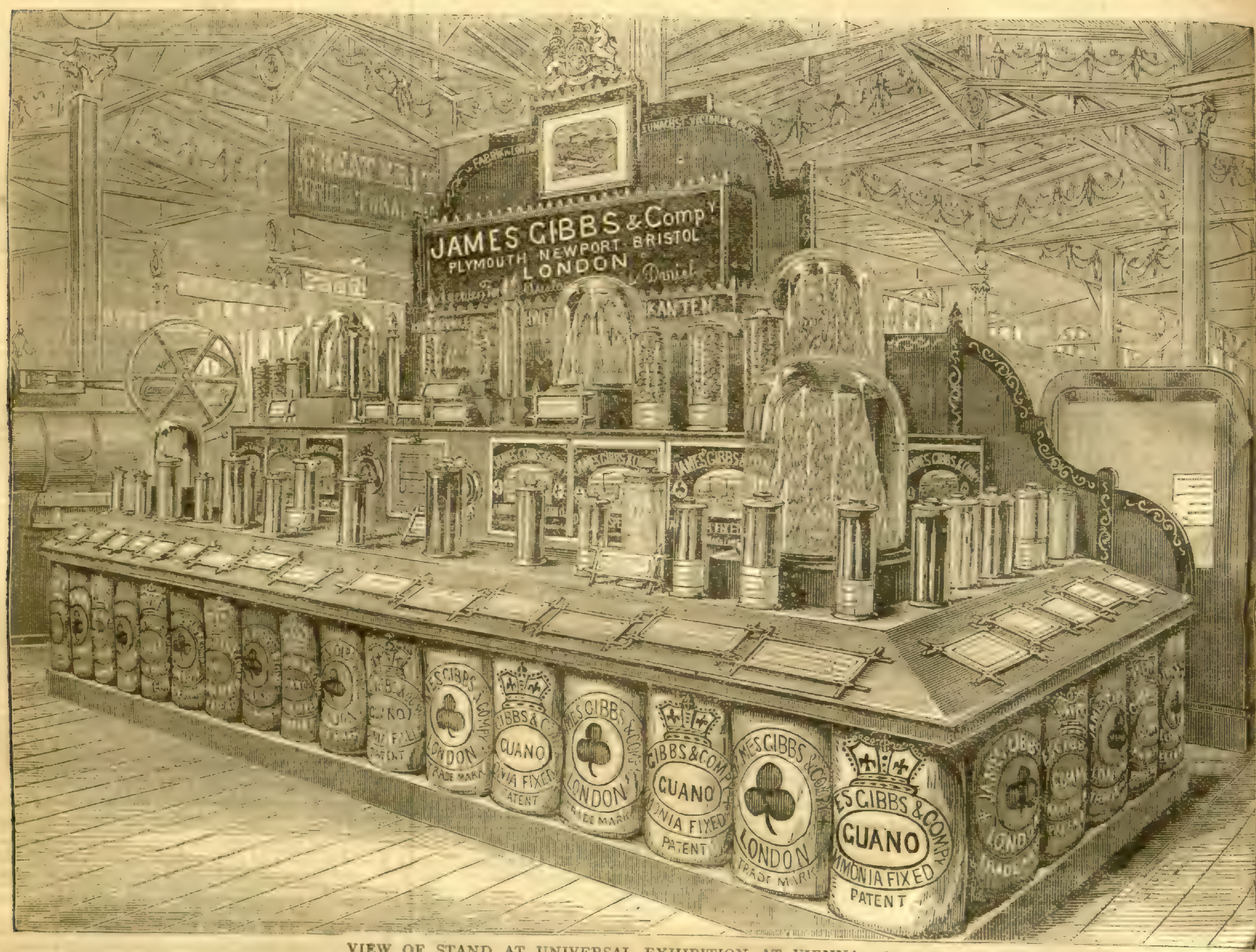
LONDON AGENTS:—W. BEST AND SONS, Henrietta Street, Cavendish Square.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W., and of all Chemists throughout the World.

ROYAL SOCIETY'S SHOW, BEDFORD—STAND 335.



VIEW OF STAND AT UNIVERSAL EXHIBITION AT VIENNA, 1873.

JAMES GIBBS AND COMPANY,

SOLE MANUFACTURERS OF THE

PATENT AMMONIA-FIXED GUANO,

AWARDED SEVEN MEDALS (as under)

1874.—International Agricultural Exhibition ..... BREMEN.
SILVER MEDAL—HIGHEST IN CLASS.

1873.—International Exhibition ..... LONDON.
PRIZE MEDAL.

1873.—Agricultural Exhibition, Groningen ..... HOLLAND.
SILVER MEDAL—HIGHEST IN CLASS.

1873.—Universal Exhibition ..... VIENNA.
(1.) GRAND MEDAL OF MERIT.
(2.) GRAND MEDAL FOR PROGRESS.
(3.) GREAT SILVER MEDAL OF SOCIETY OF ARTS AND MANUFACTURES, VIENNA.

1868.—International Exhibition ..... HAVRE.
SILVER MEDAL—HIGHEST IN CLASS.

GIBBS' BONE, BLOOD, AND SPECIAL MANURES OF THE BEST QUALITY,

AND IN THE HIGHEST CONDITION.

PARTICULARS OF

JAMES GIBBS AND COMPANY,

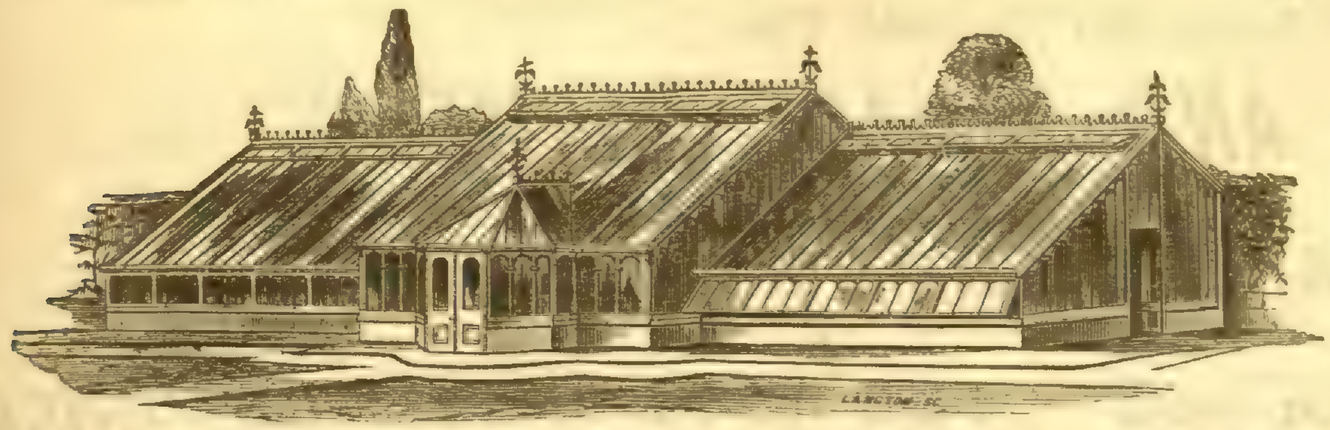
WORKS—VICTORIA DOCKS, LONDON, E., and CATTEDOWN, PLYMOUTH.
OFFICES—16, MARK LANE, LONDON, E.C.

And at Stand No. 335, Implement Shed, Show-yard, Bedford.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, July 18, 1874.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

T. G. MESSENGER,

CONTRACTOR, MIDLAND HORTICULTURAL BUILDING AND HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH,



Begs to inform his numerous Patrons and the Public generally, that since his recent disastrous fire he has erected new, more extensive, and commodious works, fitted with the best steam-power machinery, for the construction of Horticultural Buildings in wood or iron, plain or ornamental, of any required dimensions. T. G. MESSENGER is now, therefore, in a position, from his great facilities and experience, to carry out with dispatch and in the best manner, at moderate cost, the orders with which he may be entrusted. Glasshouses erected on Messenger's Patent principles are, owing to mechanical arrangements, very strong, *most durable*, light, *elegant; perfect efficiency* for purpose intended is *guaranteed;* are economical in cost and maintenance. Hot-water engineering in all its branches. Messenger's Patent Hot-water Boilers, Flexible Jointed Hot-water Pipes and Valves, are now in use in many thousands of instances, with the greatest success. Particulars on application.

Plans and Estimates forwarded. Ladies and Gentlemen waited upon. The Plans of Architects and others carried out.

A richly Illustrated CATALOGUE forwarded Post Free on receipt of 33 Stamps.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

Have the largest and most complete Stock in the Trade of

HOT-WATER BOILERS, | PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

They are thus enabled to offer these Goods at Low Prices, notwithstanding the very great increase in the cost of all kinds of Iron.

NEW PATENT CLIMAX BOILER (1874).

GOLD MEDAL BOILER (Birmingham, 1872).
PATENT EXCELSIOR BOILER (1871).

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE.

By Appointment to H.R.H. the Prince of Wales.

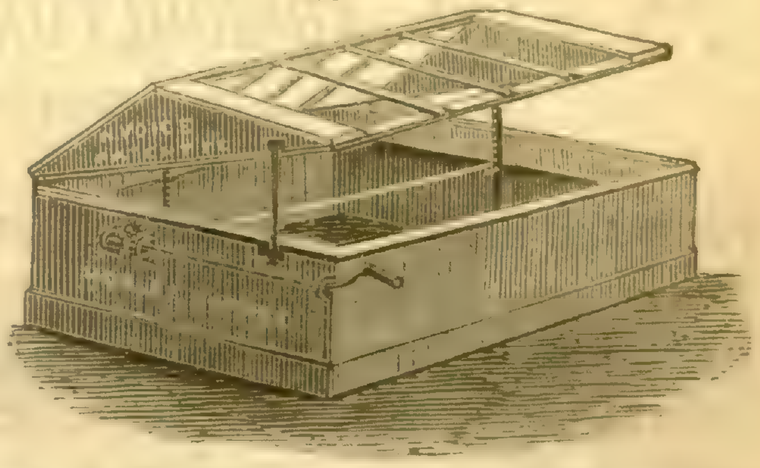
BARTON'S PATENT STABLE and HARNESS ROOM FITTINGS, BRACKETS, &c.

Gentlemen altering their Harness Rooms can be supplied with BARTON'S newly-improved IRON SADDLE and HARNESS BRACKETS. They preserve the Harness, keep it in shape, are light, and very durable. The New Illustrated Catalogue for 1873 sent for six stamps.

For alteration of Stables, a competent person can be sent to any part to inspect and give Estimates.

JAMES BARTON, Ironworks, 370, Oxford Street, W.

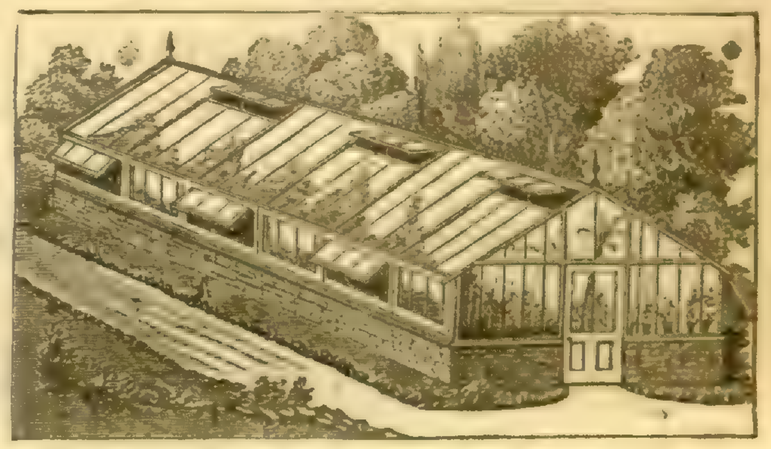
N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

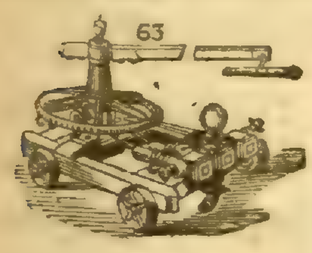
N.B.—AGENTS WANTED.

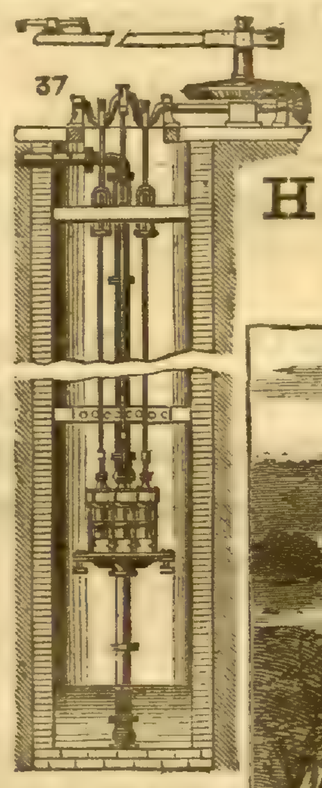
W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

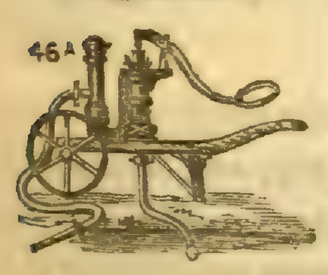


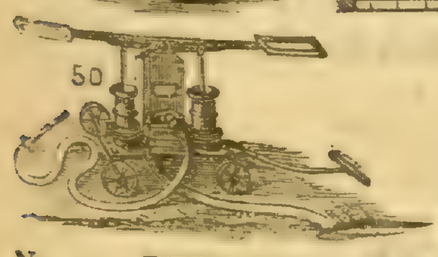
Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.





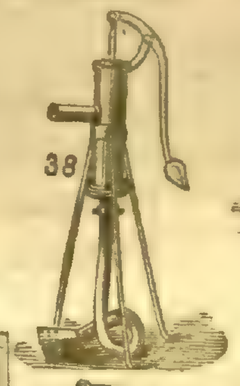


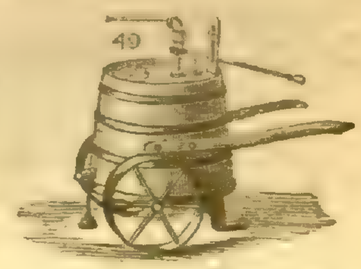


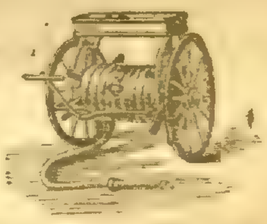
S. OWENS & CO.,

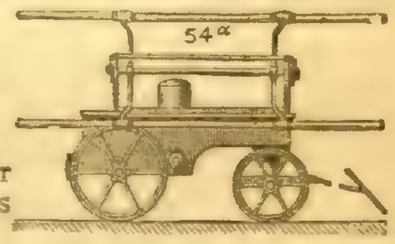
HYDRAULIC ENGINEERS,

WHITEFRIARS STREET, LONDON, E.C.









THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
No. 63. PORTABLE IRRIGATORS with Double or Treble Barrels for Horse or Steam Power.
No. 46*a*. IMPROVED DOUBLE ACTION PUMPS on BARROW for Watering [Gardens, &c.
No. 49*a*. GALVANISED SWING WATER CARRIERS, for Garden use.
No. 50 and 54*a*. FARM and MANSION FIRE ENGINES of every description.
No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.
No. 49. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.
No. 54*b*. THE CASSIOBURY FIRE EXTINGUISHER, as designed for the Right Hon. the Earl of Essex.
No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.
No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.
No. 39*b*. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution, FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.

THE AGRICULTURAL GAZETTE

AN ILLUSTRATED JOURNAL FOR

LANDOWNERS AND TENANT FARMERS.

PRICE FOURPENCE.

AFTER thirty years' association with "*THE GARDENERS' CHRONICLE*," *THE AGRICULTURAL GAZETTE* now stands alone, and the double space at its disposal is occupied with matters strictly Agricultural.

Full Market Reports.

FULL MARKET REPORTS, both Metropolitan and Provincial, accurate Accounts of Prices, Sales, and Business Transactions of all kinds, are published every week.

Prices, Sales, &c.

Universal Intelligence. and Correspondence.

INTELLIGENCE in any way affecting Agriculturists, or interesting to them, is carefully collected and made known. Correspondents have been secured in every county. Separate editorial departments have been established for Scotland and Ireland. Reports are periodically received from Canada, Australia, India, France, Germany, and Hungary, and from the United States of America.

Proceedings of Agricultural Societies.

The PROCEEDINGS of AGRICULTURAL SOCIETIES, Farmers' Clubs, and Chambers of Agriculture —their Meetings, Exhibitions, and Discussions—are reported fully and with promptitude.

Estates and Farms.

EVERY DEPARTMENT OF THE ESTATE OR FARM receives attention—Land Agency, Estate Equipment, Forestry, Farm Buildings, Roads, Fences, Cottages—Live Stock, Plants, and Implements of the Farm—Drainage, Tillage, and Manuring of the Soil.

A Veterinary Editor.

A VETERINARY EDITOR has been secured.

The Poultry Yard, Apiary, and Garden.

Departments relating to the POULTRY YARD, the APIARY, and the GARDEN of the Farm are under separate professional direction.

Reviews of Books.

REVIEWS are published of all Books claiming a place in the library of the Farmer.

Special Reports.

REPORTS of noteworthy Estates, Farms, Herds, Flocks, and Factories are given from week to week.

Botany, Chemistry, Physiology, Entomology, Natural History, &c. &c.

Teachers and students of the several sciences in which the Agriculturist is interested—BOTANY, CHEMISTRY, PHYSIOLOGY, ENTOMOLOGY, NATURAL HISTORY—are constant contributors.

Agricultural Machinery.

Especial attention is given to AGRICULTURAL IMPLEMENT manufacture. Improvements in Machines are reported—New Inventions made known—Patents discussed—and the Implement Factories of the country described—Engravings, always necessary in such cases for intelligible description, being given without stint.

Illustrations.

No expense is spared in ILLUSTRATIONS—wherever they can be of use. Not only Implements, but Plants, Weeds, varieties of Cultivated Crops, &c.; and animals—breeds of Horses, Cattle, Sheep, and Pigs; also Poultry, Insects, General Natural History; and Buildings—Farmhouses, Homesteads, Cottages; Photographs Illustrative of Country Life and Occupations, whether at home or abroad:—all these provide subjects for the Engraver. Portraits and Memoirs of Noteworthy Agriculturists are also occasionally given.

Patents and Inventions.

THE AGRICULTURAL GAZETTE professes no Party Politics; but it does not hesitate to discuss any subject affecting the Position or Relations of those whose Professional Organ it desires to be. It will be found absolutely Independent, excepting only of such rules as govern honourable men. And nothing that affects the interests, whether of the Landowner, the Tenant-Farmer, or the Labourer, is excluded from its Columns.

SUBSCRIPTIONS PAYABLE IN ADVANCE,

Including postage to any part of the United Kingdom:

Three Months, 5s.; Six Months, 9s. 9d.; Twelve Months, 19s. 6d.

P.O.O. TO BE MADE PAYABLE AT THE KING STREET POST OFFICE, W.C., TO WILLIAM RICHARDS.

Publishing Office, and Office for Advertisements:

7, CATHERINE STREET, STRAND, LONDON, W.C.

WHEELERS'

CHOICE SEEDS

FOR PRESENT SOWING.

WHEELERS' COCOA-NUT CABBAGE.

WHEELERS' COCOA-NUT CABBAGE.

WHEELERS' COCOA-NUT CABBAGE.

Wheelers' Cocoa-Nut is a new and very early variety, perfectly distinct, of most excellent flavour. It should be planted 18 inches apart; will yield an early and continuous supply. This Cabbage is a decided novelty and a great acquisition.

Per ounce, 1s. *Packets*, 6d. *each, post free.*

"I consider the Cocoa-Nut Cabbage the best I have ever grown."—A. W. HARPER, Westhall Hill, Burford, Oxon.

"I grew the Cocoa-Nut Cabbage last year, and admire them very much."—ROBERT MANGHAM, School House, Kingsbarn.

"I have some of your Cocoa-Nut Cabbage growing in my garden now from seed sown last March. They are such fine ones,—it is a pleasure to look at them."—GEORGE EVANS, Abergwilly.

"I have given some of the Cabbages (Cocoa-Nut) to my friends, and they all say they are the best they have seen."—J. BRATLEY, Briggs.

"In my experience Wheelers' Cocoa-Nut Cabbage is far superior to any other in cultivation."—JAMES HARRIS, Sunninghill.

"Will you be so good as to send me a packet of your Cocoa-Nut Cabbage; I find your Lettuces so good that I never grow any other, and I hope the Cabbage will prove equally good."—A. PHILLIPS, Windsor Cottage.

WHEELERS' TOM THUMB LETTUCE.

A small compact Lettuce, of fine flavour and of excellent quality; a capital variety for winter and early spring.

Large packet, 1s.; *small packet*, 6d., *post free.*

"I am going to try how your Tom Thumb Lettuce will stand the winter. As a summer Lettuce it is invaluable, and not to be approached by any in cultivation."—CHAS. BRETTINGHAM, Goodwick.

"Please forward me two packets of your most excellent Tom Thumb Lettuce, the best Lettuce ever introduced into this country."—C. THURNALL, Whittlesford, near Cambridge.

"Your Tom Thumb Lettuce is the most tender and delicious of all Lettuces.—W. M. THOMAS, Fanfield, Bedale, Yorkshire.

J. C. WHEELER & SON,

SEED GROWERS, GLOUCESTER, and 59, MARK LANE, LONDON, E.C.

FINEST ONIONS in the WORLD.

Carter's

PRIZE ONION SEED,

for Present Sowing.

NEW GIANT ROCCA
NEW EARLY WHITE NAPLES
NEW GIANT WHITE TRIPOLI
NEW NEAPOLITAN MARZAJOLE

} 1s. per pkt. post free.

CARTER'S

The Royal Seedsmen,

237 and 238, HIGH HOLBORN, LONDON, W.C.

SATURDAY, JULY 25, 1874.

WINDOW GARDENING.

AMONG Window Plants some of the prettiest are climbers, mostly annuals, or plants treated as such; for Tropæolums, Maurandyas, Cobæas, and others, grown inside a window, protected by outside shutters from winter-nights' radiation as well as from contact with hoar-frost on the panes, will flower even more freely, if they run about less, the second and third summer than they did the first. We often see instances of this with Tropæolum Lobbianum in greenhouses and conservatories.

Without saying a word against the more usual window climbers, such as Convolvulus major and its varieties (extremely beautiful in their long succession of bloom), the Canary-flower (vulgarly called "Tropæolum canariense," but more correctly called Tropæolum aduncum, from Mexico), the Scarlet Runner and Painted Lady Beans, it may be suggested that the list can be extended, and the combinations varied with advantage and interest. For instance, having a Cucumber plant too many, and not knowing any one who wanted one, I put it into a large pot, set it in a corner of one of my windows having a S.E. aspect, and gave it a stick and a string to mount, with frequent waterings of tepid water. It now forms an arch or skeleton bower, proudly displaying a large and a little Cucumber pendent from the stem, with other still unflowering young ones to follow. The abundant crop of male flowers make a brilliant show day by day, besides affording the means of setting the fruit by hand, as insects are not admitted more than can be helped. The produce can be pointed out as a curiosity, and the large green translucent leaves are very effective seen from within; which is an encouragement to repeat the plan next year, if spared to do so—because window gardeners may be regarded as philanthropists, or general benefactors, who give quite as much pleasure to the passing public as they do to themselves. Their horticulture, like their virtue, is often obliged to be its own reward; because plants will turn their faces to the light, that is, to outside and stranger admirers, instead of to their assiduous rearers within, to whose care they owe their beauty. Their owner is obliged to content himself with the sight of the wrong side of the parti-coloured tapestry, unless he steals out now and then when nobody sees him (as I confess to having done myself) to enjoy the brightness and excellence of his own little private horticultural show. Who that walks along a street does not delight to behold a balcony or window tastefully decorated with plants? A general floral display by day would be prettier than a general illumination by night. The grower, doubtless, is partially recompensed by his consciousness of the public approval; still, he has a right to be rewarded by a few things which shall be ornamental in the eyes of the beholder behind the scenes. I therefore recommend the Cucumber for trial; but it must be kept inside the window. Outside, on the sill, or in a balcony, unless very sheltered, gusts of wind would demolish the leaves and destroy the beauty of the plant, if not its very life. Chilly autumn nights, too, would shorten its duration.

In another window I am trying a Noir des Carmes Melon, grown in the same way; but it was planted too late to rival the Cucumber, nor has its foliage naturally the same vigour or elegance of form. Still it may fruit, indeed it is already showing it; in any case it gives one the pleasure of hope, besides the repose to the eye afforded by its verdant screen intervening between the inmate of the chamber and the sunshine without. Several good varieties of small Melon lend themselves to the experiment readily and gracefully—for instance, the Little Prescott, Boule de Siam, Queen Ann's Pocket Melon, &c.—and as summer is hoped for once a-year we may as well take advantage of it.

The Cucumber, although we mostly compel it to creep in the prison of a frame, is, when in strong health and at liberty, a rampant climber, as its tendrils plainly indicate. Like the Gourds it will top hedges and mount the inclined plane of low-thatched roofs. Great people's gardeners, having the opportunity, sometimes use their glass-covered structures to grow choice and new varieties, by training the stems along rafters and letting the fruit hang down like bunches of Grapes, as has been shown by illustrations in this journal. In Burgundy they support rows of Cornichon Cucumbers, sown where they are to remain (the short stout variety cultivated to make pickled Gherkins, of which the consumption is very large in France), by making them grow up pea-sticks instead of trailing along the ground, which is a great economy of space; the crop also is cleaner and more equally coloured on both sides. The success of the plan depends entirely on the kind of summer experienced, and may be applied to other tender vegetables, not climbers. Thus, in seasons like this of 1874, I find the Tomato to do better and produce more fruit planted out at sufficient distances in beds in the open ground in a warm and sheltered situation, and fastened to stakes not more than 3 feet high, than when trained against a wall. It is always worth trying as a speculation, because wall space is mostly occupied by plants which retain permanent possession of their places. *Apropos* to Tomatos, the small, smooth, round-fruited variety (the Cherry Tomato) makes an attractive window plant, easily accommodating itself to pot culture, and displaying its bright red berries for a considerable length of time. You have only to sow the seeds in early March in a pot which you can place wherever there is heat enough to start them, and afterwards prick out the plants singly in the large pots in which they are to fruit, giving them all the sunshine you can, with only moderate waterings.

As a window-climber the white Cucumber would mingle pleasingly with the green varieties; but the whole family contains not a few species which admit of being similarly utilised. There are the variegated Colocynth Gourds, the Orange Gourds, and the small Bottle Gourds; above all, the pretty little Gooseberry Gourd deserves the patronage of indoor gardeners. M. Naudin has published a *Monograph of the Cucurbitaceæ*, which may be profitably consulted by amateurs inclined to go into that branch of horticulture.

New Garden Plants.

ODONTOGLOSSUM GALEOTTIANUM, *A. Rich.* (See *Gardeners' Chronicle*, 1870, No. 2, p. 39.)

After five years' delay this *rarissima avis* appears once more in England. When speaking of it I alluded to its being perhaps a hybrid between O. nebulosum, Lindl., and Cervantesii, Lex. (membranaceum). It is very gratifying to read these remarks which I obtained with the flower:—"The enclosed flower is from a plant with a habit of growth like a gigantic form of O. membranaceum. The pseudobulb is dark and freckled, bearing a single leaf, which, but for its size, is just like O. membranaceum. The spike bears three flowers, which to my mind are intermediate

between the last-named plant and O. nebulosum." I have to thank Mr. B. S. Williams and his skilful *adlatus*, Mr. Gower, of the Victoria and Paradise Nurseries, both for a flower, and for those very apposite remarks. *H. G. Rchb. f.*

MASDEVALLIA (SACCILABIATA) HOUTTEANA.*

Not a grand thing belonging to the scarlet aristocracy or the gorgeous grand Chimæra (not in European collections, it appears), but by far better than many miserable things which are brought up because they are Masdevallias. The flowers appear to be very numerous; they are white, blotched inside with purplish spots, and the broad long tails are purplish. It may be one of Mr. Lalinde's discoveries, yet I have to acknowledge that I obtained lately lots of dried flowers from Mr. Wallis, who tells me it grows at 8000 feet elevation. I have also a nice photograph in colours from Monsieur Patin, and a proof of a plate destined for the *Flore des Serres*. There were several healthy plants at the sale Lalinde-Patin last summer. The plant has been named in honour of Monsieur Van Houtte, of Ghent, who entertained a very cordial friendship for his young countryman.

MASDEVALLIA VELIFERA.†

I may state that, by an unlucky accident, the description of Monsieur Patin's Masdevallia velifera, Rchb. f., was omitted in *Gardeners' Chronicle*. It will be found below.

Much in the way of Masdevallia Mastodon, or of a coriacea, with nearly connate under-sepals. It may be yellowish brown. I have to thank for a flower Mr. Williams of the Victoria and Paradise Nurseries, who obtained it from Mr. Patin, the young Belgian traveller. *H. G. Rchb. f.*

EPIDENDRUM FAVORIS, *n. sp.*‡

Very near Epidendrum bidentatum, Lindl. (named later Boothianum, Lindl.), but very distinct by the shape of the lip and by the one-leaved bulbs. The bulbs are rather large, covered with a bluish hue, and rather promising. The flowers, however, are small, as in E. bidentatum, yellowish, mottled with brown. I have been favoured with the inspection of this plant, imported from Mexico by Mr. Backhouse, Holgate House, York. *H. G. Rchb. f.*

GALEANDRA MINAX, *ib. supra.*

Messrs. Veitch have informed me that the plant was flowered by Mr. Sillem, and not by themselves—a correction I think it my duty to make, to avoid all misunderstanding. *H. G. Rchb. f.*

CYPERUS LAXUS, *Lam.* §

A short time since Mr. W. Thomson kindly forwarded to us a Cyperus of very elegant habit (fig. 19), and one evidently well suited for decorative purposes. The plant was determined for us by Mr. Baker, and is a native of the West Indies of Central America and of Brazil. There seems some difference of opinion whether the plant be the same as the C. elegans of Linnæus, but we follow Grisebach in referring it to C. laxus of Lamarck. With reference to its use as a decorative plant Mr. Thomson writes:—

"It is difficult to imagine any form of plant better suited for table decoration than this beautiful Sedge, which I discovered this spring at the nurseries of Mr. Herbst at Richmond. In the colour of its foliage, also, it is as good as it is in form. It requires a damp greenhouse to grow it well. I have been keeping some plants of it in a warm fernery, and using them occasionally on the table, and they are none the worse for the treatment. One plant which has been standing outside a window-sill in London for a short time has had the tips of its leaves turned brown by the exposure; but it is nevertheless throwing up strong shoots of its usual elegant form and pale apple-green colour, and some of the leaves are showing variegations like the striped grasses. Its habit is to have its inflorescence clearly above the line of sight, and its foliage so low down that there is nothing but its flower-stems to interfere with the view across a dinner-table; and these stems are so slight and so little crowded that there is nothing in them to object to. I have tried to grow it in a pan of water, but it does not approve of this treatment. Its ally, Cyperus alternifolius, is of a much darker green, and of less elegant habit, and is rarely, if ever, furnished with foliage at the base, as this plant is. When it comes to be more generally known it is certain to be in great demand for all kinds of decorative work."

* Dense cæspitosa: foliis longe attenuatis lineari-lanceolatis acutis; pedunculis unifloris, supra basin vaginatis, validis; bractea cucullata pedicello multo breviori; flore aperto; sepalis semiovato-triangulis longe caudatis, caudis latiusculis, superficie interna hispidulis; tepalis basi utrinque angulatis, dein spatulatis obtusis, apice tetrapteris: labello basi utrinque angulato, carina angulata intus; lacinia antica dilatata subreniformi limbo involuto, hinc subsaccato, carina una per medium, columna apice postice acuta.

† Valde aff. Masd. Mastodonti, Rchb. f.; perigonii tubo vasto, mento obtusangulo ventricoso; sepalo superiori triangulo longe caudato, sepalis inferioribus longe ligulato connatis, apice in triangula duo cuspidata caudata extenso; tepalis ligulatis apice inique obtuse bilobis, medio inferiore obtusangulis, basin versus verruculosis; labello oblongo retuso medio utrinque obtusangulo dilatato, ciliato et acute papuloso; columna trigona, androclinii limbo postico quadrato superne lobulosa.

‡ Pseudobulbis dense aggregatis a basi lata triangulis compressis ancipitibus glaucis monophyllis; folio cuneato oblongo acuto glauco; spatha ancipiti ligulata acuta, pedunculi quartam subæquante; pedunculo apice racemoso; sepalis oblongis obtusis; tepalis subæqualibus; labello transverse semiovato, utrinque antrorsum acuto, medio prosiliente semi-oblongo emarginato (si mavis transverse rhombeo, apice emarginato, apicibus lateralibus antrorsis); callo depresso in basi antice trilobo, papula in medio; columna crassa trifida; laciniis lateralibus latis retusis.

§ C. laxus, *Lam.* Rhizoma short, stem triangular glabrous; leaves broadly linear flat, clusters in a compound umbel; involucre long, 6—12-leaved; spikelets oblong, bluntish, greenish or greenish-brown, 16—6 flowered; glumes roundish elliptical, mucronate, with a greenish spreading point, 3—7 nerved, with a broadly membranaceous margin, thrice as long as the naked furrow, half as long again as the elliptical 3-quetrous smooth achenium; stamens 3—2. Plant 3—2 feet high, leaves 4—2 inches broad, glumes ¾ inch long. — Grisebach, *Flora West India Islands*, p. 563.

BOTANICAL CONGRESS AT FLORENCE.

We supplement the information we have already given by the following particulars, taken from the report of M. Planchon in the *Revue des Deux Mondes*, and which refer to meetings held after the departure of our reporter:—

The Origin of Alpine Vegetation.—This subject was dealt with by M. Alphonse de Candolle. The idea of his memoir was that the localities that are rich in rare or numerous species throughout the whole extent of the Alpine chain, are those in which the glacial epoch ceased earliest. There is every reason to believe, he thinks, that the southern side, liberated from glaziers when the whole of Switzerland was still covered with them, preserved the remains of an anterior flora, alpine and sub-alpine, which was added to the modern plants. There are other cases in which the antiquity of vegetation in a particular place is a cause of richness. Compare, for example, the Cape and Brazil with the poverty of new islands, or of arctic regions lately under ice.

Fossil Plants in Granitic Rocks.—Professor Schimper, of Strasburg, who is botanist, geologist, and naturalist, in the largest sense of the terms, has succeeded in determining with certainty a fossil discovered by M. Sismunda, and preserved as a valuable specimen in the museum of Turin University. Though reduced to a single rosette, or verticil of leaves, the substance of which has been transformed into anthracitic carbon, this fossil is no other than the Annularia sphenophylloides, a plant, perhaps aquatic, widely spread in the coal strata of the system of Mont Blanc. The special interest attaching to this specimen refers to the nature of the rock enclosing it. It is a piece of protogine, which had come in the form of an erratic block from the sides of Mont Blanc into the plains of Piedmont. Now protogine, from its quality of granitoid crystalline rock, has long been regarded as Plutonic, that is, as produced by a state of igneous fusion. On such an hypothesis the presence of a fossil is inexplicable; but on the hypothesis of a Neptunian origin, by deposit in water of the elements of the rock, modified afterwards in structure by the metamorphic action of contiguous igneous strata, the facts are at once explained.

Nature of Lichens.—There is a controversy at present agitating the world of botanists with reference to the true nature of lichens. Whatever the external coloration—dull white, grey, bluish, greenish, yellow, or orange—of these plants, they present in the substance of their thallus (or leafy expansions) a certain number of green cells, or more rarely, yellow, blue, or brown. These are called gonidia. The tissue surrounding them is formed, partly at least, of filamentous cells called hyphæ—colourless cells, forming a close network, in which the gonidia are at once distinguished by their colour. For a long time the gonidia were regarded as constituent and essential parts of lichens, and only lately the similarity of these cells to certain inferior algæ, living an independent life on the ground, on stones, or on bark, has suggested the idea that the gonidia may be simply these same algæ encased in the tissue of lichens, and connected with the life of the latter by relations the nature of which has to be determined. Is it simple cohabitation, simple commensalism, to use the word applied to certain associations of animals, that, *e.g.*, of the oyster, and of small crustacea, which were already known to Aristotle under the name of pinnotheræ? Or may there be, on the other hand, mutual dependence between the lichen and the algal? and, if so, which is the parasite of the other, the algal of the lichen or the lichen of the algal? The first hypothesis has, *à priori*, little probability, for the different algæ with which the gonidia are identified are known as living apart, away from the tissue of the lichen. The parasitism of the lichen and the algal, or, to speak more properly, of the filamentous hypha and the gonidia, appears, on the other hand, a correct inference, from the fact that the filaments of the hypha are implanted in some sort in gonidian cells, which they inclose in their interlacings, becoming applied to the surface, and contracting adherence with their membranes, and they seem to exert a debilitating action on the cells, diminishing their volume and impairing their evolution.

This fact and others have led M. de Bary, in Germany, and M. Schwendener, in Basle, to suppose a parasitism of the lichen on the inferior algal which its tissue encloses. The lichen on this theory becomes a complex being, or rather a compound of two beings, one of which, the substratum, is an alga, and the other a sort of fungus living at the expense of the first—a bold hypothesis, no doubt, and even paradoxical, but one which, though it meets with opponents in the form of such learned botanists as Dr. Nylander, has found an ardent defender in Dr. Bornet, whose admirable works on subjects of micrography render him a high authority.

Dr. Weddell, correspondent of the Academy of Sciences, brought the gonidia question before the congress at Florence, having had an opportunity of inspecting the beautiful microscopic preparations of M. Bornet. Being decided on the point that the gonidia are algæ, he was full of reserve and doubt as to the parasitism of the hypha on the gonidia. The truth is, that parasitism itself presents many shades and degrees, from the absolute dependence of the complete parasite not able to prepare its own subsistence, and taking it ready-made from its victim (Strangle-weed, Dodder, &c.) to the half dependence of the green-leaved species which attach themselves by suckers to the roots of other plants, but which draw, in part, from the ground by other roots, without suckers, the raw materials of the sap which they elaborate (Osyris alba); and this, among other things, is a ground for reserve. What seems in every case to be beyond doubt (says our author) is the autonomy of the gonidia, that is, their existence as algæ, described and defined, capable of living apart from the lichen, but also of living in its interior. This fact itself is one of the most curious surprises that have been reserved in Nature for the sagacity of botanists.

MESSRS. ROLLISSON'S NURSERY.

This celebrated and well-appointed nursery is of easy access, by rail from London Bridge and Victoria stations, and by omnibus from Gracechurch Street and Charing Cross, at short intervals throughout the day. It has been established near upon a century, and is especially noted for the fine collection of Heaths, Orchids, and new plants, which are here cultivated in quantities. In Heaths more especially, both hard and soft-wooded varieties, the magnificent condition and quantities grown must be seen to be understood. Associated with these are new and rare plants, as well as a general collection of everything worth growing. The nursery abuts on the main road, the entrance from which is through a lofty, spacious conservatory, 125 feet by 28 feet, filled with an assemblage of large Tree Ferns with fine trunks, carrying magnificent heads, comprising Cyathea medullaris, with its ebony-black leaf-stems; Alsophila australis, with a trunk 12 feet clear, the head of the plant 16 feet across; and large numbers of Dicksonia antarctica, in all sizes, from those fit for the centre of a small greenhouse up to such as will form a commanding feature in the largest-sized horticultural erection. Entwining the upright pillars and gracefully festooning the roof of this house are a large number of Passion-flowers; in fact, this forms a sort of trial-ground to prove the general habit and properties of the different varieties. This is a most interesting feature, as these plants are general favourites; and here is an opportunity for determining the best varieties suitable for greenhouse culture by their moderate habit of growth and the beauty and diversity of their flowers. Nothing is more common than to see varieties of these and other climbers planted in situations for which they are totally unsuited by the over-vigorous habit of growth they possess, which causes disappointment and loss of time in replacing them with others more manageable in size. Here was the fragrant P. pedunculata, near which the lighter-coloured P. onychina, growing and flowering profusely. A good companion for the old P. cœrulea is the white P. Hartwegiana, in this neighbourhood hardy. P. Impératrice Eugenie, with white sepals, petals pale pink, and P. sanguinolenta. In this house also were flowering profusely Tacsonia Comte de Nesselrode and T. exoniensis, quantities of Yuccas, Palms and Camellias. I noticed here a very free-growing form of the Parrot's-beak plant, Clianthus magnificus.

Amongst Palms were Areca Baueri, A. sapida, Chamærops Fortunei, C. excelsa, Corypha australis. Here, likewise, is Araucaria Rulei, one of the finest of large conservatory plants; A. excelsa and A. excelsa variegata, A. Bidwillii, Cordyline australis. The plants are large and in fine condition, and as such are indispensable for furnishing, which Messrs.

FIG. 19.—CYPERUS LAXUS.

Rollisson undertake in quantity; here also were a number of plants of Greya Sutherlandii, which bears conspicuous terminal spikes of scarlet flowers; Fourcroya longæva, a useful decorative plant; Phormium tenax variegatum; Agaves, of which there are here a fine collection, amongst which I noticed a good plant of A. Gilbeyi. Hanging gracefully were Kennedya longifolia, K. Maryattæ, and K. lilacina.

Leading from the conservatory we come to the large general Heath-house, where most of the hard-wooded kinds are grown; here, in great quantities, are to be met with all the best of the older approved sorts in cultivation, such a Massoni major, in splendid health; eximia superba, Lindleyana, a magnificent Heath, with a good constitution, a better grower than many of this section; venosa, one of the very best of high-coloured Heaths; obbata, unequalled as a white by any variety in commerce; ampullaceas in their different varieties; large numbers of that most persistent flowering Heath, elegans; E. Shannoni (Turnbull's true); all the numerous family of tricolors, the best of which are t. Eppsii, t. splendida, t. Wilsoni, and t. impressa; E. Candolleana, still one of the best and most striking varieties grown; the scarce and beautiful E. Lambertiana rosea, E. vernix coccinea, E. Aitoniana Turnbullii, E. Aitoniana turgida, and the varieties of aristata, the best of which is aristata superba, the finest of these dwarf-growing hardest-wooded Heaths. Amongst these are hundreds of quarter-specimen plants in the finest possible condition, to meet the demand for such as require plants above the ordinary trade size. Lower down in the nursery are quantities of pits, range after range, scores of yards in length, filled with some quarter of a million Heaths, including every variety worth growing, both hard and soft wooded; the latter alone are well worth seeing, the whole in the most robust health, and as even in quality as it is possible to conceive. Later in the season these plants will go out by the thousand daily, all over the kingdom, for general winter decorative purposes, for which they are so well adapted. To the number of fine new Heaths raised and already sent out by Messrs. Rollisson, they have now in addition several others of sterling merit—their object being to produce varieties free from the sticky, glutinous coating on the flowers, so objectionable in even the best sorts, such as obbata, and which gives them an unsightly appearance if the least dust comes in contact with them—even the number of flies that lose their legs and become impaled altogether upon them, do not improve their appearance. I saw one quite free from the sticky substance, with flowers and general habit much in the way of obbata, and apparently in every way equal to that variety. This cannot fail to become general favourite with growers of these plants. noticed also a very high-coloured seedling, much in the way of metulæflora bicolor, with large whorls of bright red flowers.

Adjoining this is a house, 75 feet by 15, filled with Azaleas, wherein are all the new varieties and the best approved older kinds. They are kept here in different sizes by the thousand, from the ordinary trade-sized plant in 6-inch pots up to quarter and half specimens. In this house are planted out in the front and trained up to each rafter some dozens of Lapageria rosea, and its white variety alba. As greenhouse climbers there is nothing to equal these two plants. One great advantage they possess is that, being of moderate growth they can be so managed as never to exclude the light from the plants grown under them to the injurious extent that many climbing plants do, not necessitating the use of the knife to an injurious extent; when well established and of some size their flowering period extends over many months. Their beautiful drooping, bell-shaped flowers are alike most attractive, hanging in pendent branches on the plant or giving the most elegant finish to a vase of

other choice flowers, drooping from which the pure white and transparent red blossoms of the two varieties have no equal, especially when we find that they will last so employed for a week or ten days. When the white variety becomes sufficiently plentiful it will, next to the white Camellia, be the flower in Covent Garden Market. But for these plants to fully develope their natural habit, they should, as here, be planted out in a well-drained border, so as to allow a free percolation of the considerable quantities of water they require when in a growing state.

Next we come to the specimen Azalea-house, where are quantities of plants beautifully trained as pyramidal and dwarf bushes, as also large numbers of standards, so useful for conservatory decoration, and for which there is no family of plants so appropriate, as with good management, and a moderate number to work with, they can be had in flower the greater portion of the year. In close proximity is a large span-roofed house 50 feet by 24, cleared of its usual occupants, and now filled on both sides with their celebrated Cucumber Telegraph for seed. On the centre table are quantities of healthy young plants of Statice profusa, S. Holfordi, and S. intermedia; standing here in a good light house sufficiently far apart to prevent their becoming drawn, they thrive fast, and enjoy the partial shade afforded by the Cucumbers.

Adjoining is a house somewhat smaller, the centre stage of which was filled with numbers of healthy young hard-wooded plants, comprising Chorozemas, Boronias, Pimeleas, Aphelexis, Dracophyllum gracile, Leschenaultias biloba and formosa, Monochætums, &c.; on the outside stages was stood a row of stout young Vines in pots.

Next we came to a house filled with half and quarter specimens of hard-wooded greenhouse plants of all the most approved kinds, such as Hedaromas (Darwinia) tulipiferum and fuchsioides, Phœnocomas, Dillwynias, Eriostemons, Gompholobiums, and a number of the most beautiful Grevilleas—heterophylla, robusta, rosmarinæfolia and longifolia. For table decoration, so much in fashion at the present day, these plants are unsurpassed; their thin, graceful stems, clothed with elegant Fern-like foliage, adapt them in every way for the above purpose; they also have the advantage of being able to do duty in this way in the winter season without suffering, as the occupants of the stove do by being kept in a low temperature. For conservatory and ordinary greenhouse decoration they deserve to be better known, as, when judiciously intermixed with moderate-sized flowering plants, they much improve the appearance of such.

Next stands a house 65 feet long filled with home-grafted Camellias, comprising all the best sorts in cultivation. Here on shelves over the paths are some thousands of young Epacrises in small pots; these plants are now in great demand for winter flowering, and are receiving the attention which their adaptability for the production of flowers for cut purposes and general decoration entitles them to.

The next is a span-roofed house, some 60 feet in length, one side of which is partitioned off for the growth of Todeas of sorts, and containing over a hundred plants of T. superba, remarkably fine specimens, in the best possible health, as also quantities of T. pellucida, equally fine, and a number of newly-imported plants, starting freely into growth. The opposite side of this house is filled with greenhouse climbers in pots, good sized plants, that take little time to be effective when planted out in conservatory borders, or transferred to large pots. They comprise all the varieties of greenhouse Passifloras, Bignonias, Aristolochias, Ficus, Tacsonias, Kennedyas, &c. Here also I saw some thousands of seedling Gloxinias. This nursery has long been noted for raising new varieties of this popular flower, and fine as this lot of seedlings individually are, nearly the whole of them will be consigned to the rubbish heap, only a very few of the most distinct being retained.

(*To be continued.*)

THE CATALPA.

The large and handsome order Bignoniaceæ is not extensively represented in our gardens, a circumstance which is readily accounted for by the fact that the plants belonging to it are chiefly to be found in the tropical regions of the two hemispheres, and are consequently unsuited to our climate. It is not an order of great commercial or economical importance, but the brilliant beauty of the flowers fully compensates for the want of useful properties. A few members of the family, however, are not unfrequent in our gardens, such as the too seldom seen Trumpet Creeper (Bignonia or Tecoma radicans), and that handsome Chilian climber, Eccremocarpus scaber. The subject of the present paper is by no means an unworthy representative of the order.

The Catalpa (C. syringæfolia), a fine tree of which is now coming into blossom in Kew Gardens, is one of the handsomest of our summer-flowering trees, and, although of not uncommon occurrence, deserves to be grown more generally than is at present the case. The leaves are large and heart-shaped, growing in whorls of three, and the flowers, which are white, beautifully spotted with yellow and purple, are collected in large panicles at the ends of the branches, like those of the Horse-Chestnut, to which, indeed, they bear some resemblance.

In the Southern States of America, of which this tree is a native, it grows upon the borders of rivers, frequently exceeding 50 feet in height, and measuring from 1½ foot to 2 feet in diameter. It is a wide-spreading tree, with smooth greyish bark and few branches, and appears to be popular with the aborigines, who have introduced it to many of the places where it is now found growing. To the natives, indeed, the tree owes its popular as well as its scientific name, which is a Latinised form of Catawban, that being the title of an Indian tribe which formerly inhabited a large portion of Georgia and Carolina. Michaux says that the French of Upper Louisiana call it Bois Shavanon, from the Shavanon or Shawnee nation, which once existed in West Tennessee, on the borders of the river of that name, now known as Cumberland River. A form of Catalpa is also a native of Japan, where the leaves are laid by the Japanese upon parts of the body affected with pain, or used in fomentations, as they are supposed to be beneficial to the nerves. A decoction of these flowers and pods is also used as a remedy in cases of asthma. Its medicinal uses in the States are but very slight, although the bark has been recommended as a stimulant tonic. It exhales an offensive odour in the spring, when a portion of the outer layer is removed. The wood, however, is, when thoroughly seasoned, very durable, and has been employed for posts in the regions where it abounds with satisfactory results. It is very light, of a fine texture, and greyish-white colour, and, according to Michaux, is very brilliant when polished. It is of very rapid growth, as may be seen by the distance of the annual concentric rings. The branches have been employed in the dyeing of wool, to which they impart a kind of cinnamon colour. In Italy a decoction of the pods is used as a remedy for coughs, but the claims of the tree to notice rest rather upon its ornamental than upon its useful properties. It has been stated that the honey of bees which visit the blossoms is poisonous; but this requires confirmation.

The Catalpa was discovered in South Carolina by Catesby, and was introduced by him to England in 1726. Some fine examples exist in this country; one in the garden of Emmanuel College, Cambridge, has a girth of 8 feet at the height of 7 feet from the ground. A tree at Syon House reached the height of 52 feet, the spread of the branches covering a space of 50 feet. Fine trees are to be seen in many parks and pleasure grounds throughout the country; it is of rapid growth, attaining in ten years the height of 20 feet. Our columns for August 13, 1870, contained a description of a very fine specimen of the tree growing in Kent, which, although only 32 feet high, spread to a diameter of 60 feet; as many as 150 spikes of blossom were counted on 3 feet of the lower boughs. In Italy and the South of France, especially about Milan and Montpelier, the Catalpa is planted by the sides of the roads, and in the avenues leading up to houses. *B. M.*

THE FRUITS OF PERSIA.

(*Concluded from p. 67.*)

At Ispahan fruit is produced in such abundance that the inhabitants are able to procure every article of necessity or convenience in exchange. Orchards of Peach, Nectarine, Apricot, Pear, Apple, and Cherry are interspersed with the gardens (or "paradises" as they are called), for any spot where water and foliage predominate in Persia is grateful to the eye, and when seen from the high towers these have a most picturesque appearance. Apricots are in great abundance; the white Cherry and a black Cherry, likewise a small reddish yellow Plum and a sweet Bullace Plum, Mulberries white and black, are plentiful. The Oranges are of several kinds—the *madame*, a small fruit, resembling some sorts of Indian Orange; the sour Orange, used in cookery; another, similar to the common Portugal Orange, neither absolutely sweet nor sour, like the other two sorts; the common sour Lime, the sweet Lime, the Shaddock, a fruit said to have been introduced into Persia from Batavia by traders to Java. But none of these Oranges are by any means so good as those ordinarily procurable in our own markets. Orange trees of enormous size are found in the sheltered recesses of the mountains, and the deep warm sand on the shore of the Caspian is peculiarly favourable to the culture of the Citron, where the marshy tracts abound also with a kind of rush that serves for the fine Persian matting. There are Walnuts, Figs, Apples, and many varieties of Pears. The Musk Melon is the principal production, and is called the "pride of Ispahan." There are no Strawberries, though they are grown at Teheran, where they go by the name of the "Frank's Mulberry;" the wild sorts are found growing in abundance on the hills of Mazanderan. The Pine-apple is unknown in Persia. The common vegetables are Pumpkins of every kind, the round Gourd, the Snake Gourd, Egg-Plant, Peas, Lettuce, small Kidney Bean, Beetroot, Turnip, Cabbage, and Truffles. Cucumbers are consumed in such quantities by the people that bilious fevers are very common. The gardens are often attacked by a blight which they call "rust," caused by untimely rain, and the crops are not unfrequently destroyed by flights of locusts, which, with a small beetle, are unwelcome visitors. The Potato, or "ground apple," is cultivated, yet, strange to say, the Persians do not relish it. The snail appears to be unknown.

The Persian method of managing bees and of preserving the honey is curious enough to deserve attention. The hive is a tube of wickerwork plastered with cow-dung, about 3 feet long and 8 or 9 inches in diameter. Each end is closed with a round piece of board or tile plastered in, and one of these doors has a small hole in the centre for the egress and ingress of the bees. About the middle of May, or shortly before the sun enters Gemini, these cylindrical hives are packed on mules or donkeys, each animal carrying six or eight of them, and transported to some locality where the shrubs and plants which bees are fond of grow in greatest abundance. This is commonly some sequestered valley among the mountains. Here the hives are piled in small pyramids of three or four rows, the lower row consisting of five or six hives, and the upper of two or three, and one or two persons are left in charge of them. In the latter part of October, or as the sun is about to enter Scorpio, the hives are transported back to the village before the frost sets in, and kept there until the ensuing spring. When the honey is taken, the bees are first driven to the further end of the hive by blowing in smoke, which does not injure the bees, or taint the honey; the door is then taken out, and the honeycombs cut out and removed, leaving a small quantity as food for the bees during the winter. In this way any quantity of honey may at any time be obtained without injuring a single bee. In winter the hives are kept, arranged in the pyramidal form, in the yards of the proprietors' houses, and covered with straw and mud to defend them from the effects of frost and rain.

The northern provinces along the borders of the Caspian have a distinctive character; the belt of country between the sea and the mountains has a soil for the most part of a nature so soft and deep, that when soaked with the heavy rains which fall for many months in the year, the roads become totally impassable. When the sky is dark in the direction of the Caspian, the inhabitants are sure of wet weather, and when clear to seaward, whatever clouds may hang over the mountains in the south-west, they are equally sure of fine weather, and the mountains soon become clear in their turn. The road traversed by the traveller lies through a thick jungle, sometimes of lofty forest trees, but more frequently of Thorns, Brambles, and wild Pomegranates. At times it opens on the cultivation of a village beautifully situated amid swelling lawns, and rich, well-watered fields, interspersed with high trees and copsewood. The trees consist of Oak, Elm, Sycamore, varieties of the Beech, Ash, Alder, with some Walnut trees and wild fruit trees of various kinds. The *chenar*, or Sycamore, grows luxuriantly amidst the forests, and is one of the greatest ornaments of the country. The people have an idea that, when the Sycamore attains to a thousand years it takes fire, and burns spontaneously. The Oak is likewise a fine tree, but too frequently is drawn to a height, and becomes deformed in its branches; the Beech, as in England, is feathered with boughs, often to the very ground. The Boxwood grows among the underwood, and when close to the road, by the passage of cattle, it forms a perfect hedge. Ferns of gigantic size, which are very plentifully produced by the soil, border the path, growing among the underwood of every thicket, with the blue Hyacinths, yellow Lupins, and other wild flowers. The sea-coast resembles a thick marshy forest, extending a considerable distance to the foot of the mountains. The traveller is compensated for the toil through this jungle whenever he feels the exhilarating influences of the sea breezes, and sees around him all that is beautiful in Nature—the blue sea, the deep and mighty forests, interspersed with fields and cottages, the mountains rising like a wall to a height of 6000 feet, in every variety of form and tint. He passes through thickets of Boxwood, wild Quince, Apple, Pear, Plum, Almond, and Fig trees, interspersed with Grape Vines, Jasmine, Hawthorn, and many other fruit- and flower-bearing shrubs; upon a carpet of red, white and yellow Clover, Daisies, Blue bells, and Buttercups, springing from a rich close turf.

The inhabitants of the villages unwilling to lose entirely the shade of their forest trees, yet sensible that the influence of air and sun are required for ripening their crops, have adopted the expedient of pruning the greater part of their branches, leaving but a brush at the top, resembling a broom. Vines are often trained or grow spontaneously on these trees, covering

them with their picturesque festoons, and adding another peculiar feature to the scenery of the country. These gigantic skeletons may be seen everywhere towering above the thicket, and marking the spots where cultivation may be found. In some places the fences would do honour to the most experienced English farmer; the fields are interspersed with fruit trees, many of which are planted in the hedges. The land in Mazanderan yields only one crop in the year, but Barley is sown occasionally in spring for horses and cattle, as a green crop; when cut, the ground is ploughed up and planted with Rice. The food of all classes consists of Rice and sour milk, and a sort of poor cheese, butter-milk, and much of an acid which is made from sour Oranges and wild Pomegranates; Garlic is generally eaten, as it is thought to be a preservative against the humidity of the atmosphere. The best fruit trees which are indigenous to Mazanderan and Ghilan are suffered to grow without any care being taken of them. In some districts there are extensive plantations of fine Olive trees, capable of yielding large quantities of first-rate oil, under a better system of management than the one at present in vogue. There are no proper machines for expressing the oil, which is consequently made into a bad soap, the sole purpose for which it is fitted. The culture of Rice and of the Mulberry tree forms the principal agriculture, and is carried out in a most imperfect manner. The system of irrigation is so wasteful and bad, that not only the Rice plantations, but also the roads are laid under water, and thereby rendered impassable. Enough Rice is only cultivated to suffice for the wants of the inhabitants. This culture has been of late greatly increased in consequence of the failure of the silk-worm, but the landowners and peasants have no inducement to greater exertion on account of the want of means of communication to transfer the surplus to market. Wheat for the first time has been grown, and had this been done sooner the people and the Government would not have been obliged to import at enormous cost, and in the middle of one of the severest winters on record, supplies of Russian Wheat, to prevent the best part of the population of Teheran from dying of hunger.

In Ghilan the staple produce is silk, which is sent either to Resht and Enzella for export, or direct to Ispahan for home manufacture. The culture of the Mulberry forms the chief occupation of the peasantry, and around some of the villages the Mulberry trees may be seen surrounded with railings, to keep off the cattle. Indeed, so careful are the natives of this valuable plant that the inclosure of the fields recalls to mind the pleasure-grounds and plantations of our English country seats. More commonly the plantations have been formed by planting among the natural forest trees, merely lopping off their branches to give air and sun to the plants—a slovenly method in contrast to the more carefully tended. Owing to the silk-worm disease this province (the richest and most prosperous in Persia) has been brought to the verge of ruin. Many of the landed proprietors have been obliged to sell their household furniture and jewellery to raise money wherewith to satisfy the demands of the tax gatherer.

The prosperity of the foreign commerce of the country depends greatly upon the silk trade, as all the other productions of the kingdom which are suitable for exportation do not at present furnish returns sufficient to pay for one-half of the merchandise annually imported from Europe. This destruction of the silkworm in the north, followed by an unprecedented drought in the southern and eastern provinces, has been a serious strain upon the resources of Persia, causing great scarcity of metallic currency, which has been drained off in consequence, to defray the balance of trade. The misery which the country has suffered has been greatly aggravated by the imperfect means of transport, and the Government is directing its attention to the construction of certain railroads to connect the capital with the seaports it possesses near Resht, on the Caspian, and Bushire, on the Persian Gulf. Should the construction of these and other public works be carried out on a scale commensurate with their necessity and importance, there is good reason to hope that, with the influx of capital, abundance of food, and a brisk demand for labour, the country will before long rise from the depths of misery and inanition into which famine, pestilence and persistent oppression have plunged it. *E. T. B.*

DWARF PEAR TREES.

There is not, perhaps, in the whole range of horticulture any one subject upon which the public entertain opinions more diverse than upon the one selected, and this difference of opinion undoubtedly grows out of the fact that, although under a combination of circumstances that would produce the best possible results with standard Pear trees, a corresponding success might be expected from dwarfs, yet under other and less favourable circumstances the standard will grow and produce fruit where the dwarf will invariably fail. From this comes the general complaint, and some, having suffered repeated failure and disappointment, go so far as to declare the whole plan of raising and selling dwarf Pear trees an imposition upon the public by the dealers, who recommend and sell them with the full knowledge that they will soon die and have to be replaced with standard trees.

There is among tradesmen no class that receives more liberal censure than seedsmen and nurserymen, and that this censure is often in a degree merited in a business so complicated, requiring perfect system and great care to ensure entire accuracy, an experience of some thirty years convinces me is true; but that by far the larger portion of the wholesale denunciation which we hear belongs to the grower rather than the seller, is equally true.

The beginner in fruit growing visits the fall exhibitions, and, after carefully examining the long tables of Pears, notes in his memorandum book the names of such as please his fancy, and, without any inquiry or investigation as to the location, variety, and preparation of soil, or care of the trees that have produced the fine specimens he has seen, he goes the next spring to the nursery, and by referring to his memoranda he secures the varieties he wants, and usually about equally divided between dwarfs and standards. If his place is small and he does not employ regular help, he is obliged to entrust the transplanting to such aid as he can get at the busiest season of the year, and the chances are that the work is done with as little or less care than careful growers give to transplanting the most easily grown vegetables in the garden. Having secured his trees and had them placed in his grounds, he patiently waits for them to produce fruit similar to the specimens he has seen. Now, if the soil happens to be shallow, with a subsoil of gravel or sand, the probabilities are that at the end of five years his dwarf trees have all disappeared, while his standards, with their longer and stronger roots foraging over a larger space, have made some growth, and the earlier bearing varieties have produced some inferior specimens of fruit; but the result is very unsatisfactory, and exhibitions are declared humbugs, and the dealers in trees a fraud.

The production of good fruit is not the work of chance. The same causes, under the same or similar circumstances, must produce the same or similar results, subject only to the variation of the seasons, and it is well known that many of the largest and best specimens of Pears shown at the fall exhibitions are grown on dwarf trees. The Quince delights in a deep, strong, moist soil, and grafting the Pear upon it does not change the nature or wants of its roots.

I cannot better illustrate the effects of the soil upon the dwarf Pear than by referring to the experience of growers of these trees in Newton. During the past three years the Newton Horticultural Society have had the subject of Pear culture for discussion one evening each year, and these discussions have shown this fact, that the opinion of growers as to the general cultivation of dwarf trees was almost exactly determined by their location on one side or the other of the Boston and Albany Railroad. It will be remembered that this road runs along at the base of the hills, the land on the north side, between the road and the Charles River, being generally level, with a light dry soil, most of it having a subsoil of gravel or sand, and, unless heavily mulched, suffering severely in dry seasons. Here the dwarf trees, if set in the natural soil, even under the most careful culture, fail; the roots do not take hold of the soil, and though they do not die at once, they make feeble growth, and eventually become loose in the ground, and either blow over or are removed as unsightly objects from the ground; while, in the same situation and under the same treatment, the standard will grow and produce fair, and, in some instances, good specimens of fruit.

The land upon the south side of the road is generally hilly, and the soil upon the hillsides and in the valleys between is deep and moist, much of it requiring under-draining, which the sloping surface renders comparatively easy. It contains more or less stone, and has a hard clay subsoil on a granite bed. Here the dwarfs seem to have found a congenial soil and location, as they may be found in almost every garden, under all kinds of treatment, as strong and vigorous, and continuing for years to produce their regular crops with as much or more certainty than the standards among which they grow, one grower having several seasons within the past ten years picked 100 bushels of fine Duchess Pears from his dwarf trees.

I set out upon this kind of soil, in the spring of 1862, fifty Pear trees, one half dwarfs. The ground was thoroughly prepared to the depth of 2 feet. The trees were three years from the bud, small, but not stunted. They had the wood of the previous year well ripened, and good roots, carefully taken from the nursery rows, and not allowed to become dry before being reset. The dwarfs were low worked, or budded near the roots, and set so low as to leave 2 or 3 inches of soil above the Quince portion of the stock after it became settled around the trunk. These trees made a uniform growth the first season as strong as in subsequent years. The fruit-buds were all removed the first two years; the third year a few specimens were allowed to grow, and since that time the dwarfs have produced regular crops every year, and they have nearly, if not quite, all of them become partially or entirely standard trees, having thrown roots from the Pear stock below the surface. The dwarfs gave me the advantage over standards of their early fruiting, and have in the meantime become, partially at least, standard trees, though they retain the fertility, habit of growth, and other properties peculiar to the dwarf, producing those varieties so unreliable and often imperfect, especially in the first years of fruiting, on the standards, with the same regularity and uniform good quality as when wholly dwarfs.

Though most of the varieties of Pears may be grown upon the Quince, yet to a few of the more common and desirable kinds this stock seems especially adapted; in fact, were it not for the dwarf some of the best varieties would be unknown among small collections, of which they form so desirable a part. The Duchesse d'Angoulême, one of the best, though uncertain and often worthless, especially in the first years of fruiting, on the standard, is yet one of the most reliable on the Quince, often producing large and beautiful specimens among its first fruit as a dwarf. The Urbaniste is a Pear of excellent quality, but its value looks dim in the distant future if we have to wait for it on the standard; while as a dwarf it is an ornament in the garden, growing naturally in pyramidal form and commencing to fruit in five or six years from transplanting, after which it is among the most reliable for its yearly returns, and the fruit being distributed evenly over the tree, requires less thinning than many varieties.

The Vicar of Winkfield, though not a Pear of first quality, yet, on account of its large size and time of ripening, desirable, and found in almost every collection, makes a strong, vigorous growth as a dwarf, and its low, compact form, trained as a pyramid, makes it easily accessible for thinning the fruit, which must be severely done to ensure the best results. The Louise Bonne of Jersey, though it will fruit abundantly on either Pear or Quince stock, yet generally gives the best specimens from dwarfs, if the fruit-buds are all removed until the tree has gained a strong growth, and it is then allowed to bear only a moderate quantity, as its tendency is invariably to overcrop.

The list of varieties might be extended indefinitely, with their variations as dwarfs or standards, but those mentioned are among the most desirable, and are grown most successfully as dwarfs.

Leaving the question of orchard culture to those of more experience, it may be claimed for the dwarf Pear, among amateurs and the large number who have small collections, and who are giving every year more attention to the cultivation of this fruit, that to all starting new places and desiring fruit as soon as possible, it is a necessity, and in order that success may be assured, let the preparation of the soil be thorough, as the cause of failure will be more generally found in the want of preparation for, rather than in the subsequent treatment of these trees. If the land is springy, or its location renders it liable to contain stagnant water, let it be thoroughly underdrained and the soil well worked over and enriched to the depth of 2 feet. If, on the contrary, the soil be naturally shallow and dry, spread over the whole surface a rich compost of heavy loam and manure to the depth of 1 foot, and this, well worked in with 1 foot of the surface soil, will give the depth and quality of soil calculated to secure success with the Quince stock. But with this preparation it may be necessary to mulch the ground until the trees become established, as I found from experience last season. Having set some dwarf trees in the spring, they all started well; but, about the middle of July they stopped growing, and I found upon examination the soil seemed perfectly dry down to the roots of the trees. Upon giving the ground a good mulching and a thorough watering as far as the roots extended, they again commenced making growth. In selecting the dwarf trees, take only those that are low worked, or budded near the crown of the roots, so that when they are set the Quince portion of the stock may be placed at least three inches below the surface, without carrying the roots too low in the ground.

Much of the pruning usually done with the knife may be better and more easily done by frequently pinching-in the stronger growing shoots. If the trees are trained in the usual pyramidal form they will frequently push a few strong shoots, which, if allowed to grow, make large, soft, unripe wood, most of which has to be cut out to preserve the form of the tree. If those shoots are pinched in, after having made as much growth as can be retained, the wood will become hard, the sap will be thrown into the less vigorous branches, and a more uniform growth will be secured; and at the time of doing this the necessary thinning of the fruit may be performed. This is a harder thing to do, especially in the earlier years, when the dwarfs are the only source from which the supply of Pears can be expected, but, however thorough may have been the preparation and the cultivation afterwards, good fruit of most of the varieties will not be pro-

Fig. 20.—Wych Elm (Ulmus montana), Oakley Park, Gloucestershire.

duced, if all that sets is allowed to remain on the trees.

Remove all the fruit blossoms the first two years. From two to a dozen specimens may be allowed to grow the third year; a very moderate crop the fourth year; a fair crop may be expected the fifth year; and after this the trees, if in good condition and well cared for, will prove the most reliable for their yearly returns.

To those who have limited grounds the dwarf is a necessity, as, by due pruning, they may be grown several years in the limits of a circle seven feet in diameter, and thus many trees may be grown where it would be impracticable to set standards.

To those whose grounds are open and unprotected the dwarf is desirable, especially for the late and large varieties, as its low, compact form renders it much less exposed to the storms and winds than the higher and more spreading branches of the standard.

By all growers the dwarf must be used, if they would have some of the most desirable varieties of the best quality, and to those who, owing to conflicting opinions, are in doubt whether to set dwarf trees, the experience of many in this vicinity who have grown them for the past thirty years warrants the statement, that if in preparation of the ground the wants of the Quince roots are supplied, and the same care given them that is required to ensure the best success with standards, they will prove a continued source of satisfaction to the grower, and may be left, in full health and vigour, a legacy to those in middle life whose childhood was made glad with their first fruits. *E. W. Wood, in "Transactions of Massachusetts Horticultural Society."*

NOTES OF OLD AND CURIOUS WYCH ELMS.

St. Pierre, the author of *Studies of Nature*, remarks that old trees contribute to attach us to the places where we have once lived, for the memory fixes upon them as on points of reunion which have certain secret harmonies with the soul. This sentiment may well be applied to the Wych Elm (Ulmus montana), which is of a much more enduring nature than the common Elm, is rooted stronger in the soil, and not attaining such an altitude, but, spreading powerful arms laterally, is not so liable to be upset by boisterous winds. In fact, I have scarcely ever met with a Wych Elm that has been blown down, though the common Elm too frequently succumbs to that fate. The Wych Elm is a true British tree, delighting in upland woods, though often found in moist localities where its frondage spreads widely. It is well marked in spring by its very early flowers, succeeded by the hop-like clusters of its fruit, which ripen well, and consequently it does not throw off suckers like the common Elm. It also spreads long-extending arms on all sides, its branches, with their large rough serrated leaves hanging gracefully, but in general its central bole does not rise to any very lofty altitude, so that it stands secure in strength of roots and trunk, and if suffered to stand unmolested attains a longevity almost equal to that of the Oak. Gilpin in his work upon *Forest Scenery*, observes that "the Wych Elm is a native of Scotland, where it is found not only in the plains and valleys of the lowlands, but is hardy enough to climb the steeps and flourish in the remotest highlands, though it does not there attain the size which it attains in England."

Where the Wych Elm is planted in parks or enclosed grounds, it takes a magnificent growth, producing numerous boles, extending lateral branches widely, and attaining a great size. I have noticed a large and exceptionally lofty tree of this species in a field close to Chepstow Castle, Monmouthshire, which has four primary boles, is 36 feet in girth at a yard from the ground, and measures 42 feet round the base. But the grandest Wych Elm I have seen, and probably the largest in England, stands in Earl

Fig. 21.—Pollarded and distorted Wych Elm on rock near Cradley.

Fig. 22.—Stump of pollarded Wych Elm near Shrawley Wood.

Fig. 23.—Old battered and denuded Wych Elm near Llanfony, Monmouthshire, (girth at base, 25 ft.)

Bathurst's park, near Cirencester, Gloucestershire. It rises in three monstrous boles, with great lateral arms on either side, extending 64 feet from the main bole, and so requires to be supported by props. At 3 feet from the ground it is 36 feet in girth, and measures 47 feet round the base. It is represented in the woodcut, fig. 20. The lateral extension of the tree is a peculiar characteristic of the Wych Elm, and where it flourishes on the banks of the river Teme in the vicinity of Tenbury, Worcestershire, these lateral branches extend quite across the river, and place the stream as it flows over its rocky bed in deep shadow. Unlopped trees of the Wych Elm are, however, rare, except in parks or enclosed grounds; for, not being much cared for as a timber tree, the farmer pollards it unmercifully if at all near his homestead, and though living on in spite of this brutal treatment, its head swells disproportionately, the trunk becomes knotty, and the whole tree assumes a singularly gnarled, distorted, and most grotesque appearance. I have depicted a specimen of this description existing at Cradley, Herefordshire (see fig. 21), in which vicinity many others of like character may be seen, and two others of the same grotesque aspect are figured in the *Transactions of the Woolhope Club for* 1868. In these cases of dismembered pollards that the Herefordshire farmer delights to create, the bark of the trees becomes excessively rugged, and in this state it will exist for a very lengthened period. There is a curious stump of a Wych Elm, hacked, battered and hollow, but still maintaining vitality, seated on the top of a sandstone rock, on the edge of Shrawley Wood, Worcestershire, which makes a picturesque object and must be of considerable age (see fig. 22). It has sent down roots to the bottom of the rock, between 20 and 30 feet—and is thus firmly anchored for ages to come, while the rock itself is protected from crumbling away. It well exemplifies a poet's description:—

"Just on the precipice a Wych Elm stands
Old and decrepid, yet a monument
Of hoary Time, for there with outstretched hands
It cowers upon the ridge all hack'd and rent,
Till growing downwards, firmer are its bands,
Root becomes trunk in zig-zag pillars bent,
A mass deform'd of bole and roots and stone;—
So obstinacy, vainly crush'd, lives on."

The Wych Elm has powers of endurance almost equal to that of the Oak, and not uncommonly attains a bulk of from 20 to 24 feet in girth, and after becoming hollow still throws out abundant shoots, and its bole becomes protuberant with latent vitality. I once met with a small-leaved Lime and Wych Elm firmly inosculated together in a lonely dingle at Eastham, in Worcestershire, both hollow, and intermingling a dense mass of leaves and branches. The steadfast resistance a deep-rooted Wych Elm shows to time and tempest, and the strange appearance it makes when battered and broken by the storms of many hundred winters, hollow and divided, yet firm almost as a rock, is well shown in a very old tree that I observed some time since on the declivity of the mountain near Llanfony Abbey, Monmouthshire (see fig. 23). This tree, broken into two parts, was 26 feet in girth near the base, and had evidently, from its knotty condition, arrived at extreme old age. Another tree, its trunk covered with protuberances, but undivided, I have noticed near Ambleside, 20 feet in girth. Formerly, and in some places even now, this tree is called the Witch Hazel, and it is stated by Gerarde in his quaint *Herbal*, that "old men affirm that when long bows were in use, there were many made of the wood of this tree." This was before the use of the bow was laid aside by the rustic population, and when every boy, as Bishop Latimer tells us, was taught to "bend his bow" as an exercise of his strength, and fitting him for a redoubtable archer when grown to man's estate. The Ewe staves were too valuable to be commonly used. By Act of Parliament, 3 Henry VIII., c. 3, every bowyer was required "for every Ewe bowe" to make "at the least eleven bowes of Wiche Elme or other wood of mean price," under penalty of imprisonment if he failed to comply.

The prefix of Wych applied to this species of Elm seems to have arisen from an idea, whose origin is unknown, that this tree and its branches acted as a powerful preservative against witchcraft, and even in the present day in secluded rural parishes it is believed to act as a safeguard, and bundles of its twigs are gathered, tied together, taken home to the cottage, and there hung up by the credulous rustic. Dr. Bull, in his recondite history of the Elm in Herefordshire, given in the *Woolhope Transactions* of 1868, says that in his county "weird-like superstitions attach to the Wych Elm or Wych Hazel, as it is generally called. A spray of Wych Hazel, with its fine broad leaves, is at once a potent safeguard against witchcraft and a wand of awful import in the hand of a witch. It was formerly used as a riding-switch, to ensure good luck on the journey. Until quite recently, if not to this very day, not a rural churn was made in the midland districts without a small hole being left in it for the insertion of a bit of Wych Elm wood, in order to ensure the quick coming of the butter." So difficult is it to root out at least the memory of the superstitious usages of olden days.

The common Elm, when it grows in the vicinity of cities, is often ruined by the insidious attacks of a little beetle pertinently named Scolytus destructor, but I never observed this within the bark of the Wych Elm. The common English Elm is certainly the favourite for planting, but it is remarkable that in the present day nurserymen find it more convenient to send out the common Elm grafted on the Wych, as the trees are said to make wood more rapidly. But for a canopy of shade, where there is space for its extension, commend me to the Wych Elm, and there, reposing on the seat placed around it, as I have seen in a friend's grounds, the mind may surrender itself to the most pleasing and tranquil contemplations. As Strutt has well said in his *Sylva Britannica*, "a well-known and favourite tree is an object that no art can imitate, no substitute replace. It seems to live with us and for us; and he who can wantonly destroy the source of so much innocent and indeed exalted gratification, appears to commit an injury against a friend, which we find more difficulty in forgiving than one against ourselves." *Edwin Lees, F.L.S., Green Hill Summit, Worcester, June* 7.

ON HARDY SEMPERVIVUMS.

DURING the last few years that hardy Sempervivums have been so much in vogue for decorative purposes, I have often been asked by correspondents to draw up a classified list of the published species, so-called, for use in arranging collections, and showing which of the names used in gardens have really any botanical standing. I have always declined this request, on the ground of want of material for drawing up such a catalogue with a reasonable amount of accuracy. Many of the named forms, of which figures have been published, come so near to one another that I feel quite unable to say to which amongst several of them our garden specimens belong; and, on the other hand, several of the older named forms have never been figured, and even when we possess authenticated dried specimens they are of no use, because many of the distinctive characters are lost in the process of drying. However, having this summer made the attempt to draw up a classified catalogue, I now send you a copy of it, with the explanation that I only look upon it as a very imperfect performance. It is simply intended to be a catalogue of the names of the forms which have been duly described in botanical books, with a reference to the place where the best description which I know is to be found, and a reference always to any figure that has been published. I do not wish to be understood as guaranteeing that each name represents a distinct form. On the contrary, I believe that when the forms are compared many of these names will, even for garden use, have to stand as synonyms. It would be a useful service if some of your correspondents who have time and opportunity of travelling about to see different collections would take these plants in hand, and work up a monograph. What we want for a beginning is a set of drawings of the forms described in the papers of Lehmann and Schnittspahn and Schott, to be alluded to presently. I do not think it would be a difficult matter to get most of these, if any one who had a good opportunity would keep the matter in view for a couple of seasons; and these once fully understood, the later named forms would have to be compared with them. No doubt many of the garden forms are hybrids, perpetuated by vegetative reproduction.

Many or most of the names in garden use not included in the following list will, no doubt, be found on comparison to belong to plants already named according to botanical rule, and duly described. For instance, the plant widely spread in gardens as Sempervivum californicum (which is an absurd name to give to a species of a genus entirely confined to the Old World) is what Jordan fully described long ago, and has more recently admirably figured under the name of Sempervivum calcareum, and of course these published names get dreadfully maltreated and mangled on garden labels. To give one instance only, Sempervivum arvernense (which means growing in Auvergne), gets continually changed in the label writer's hands into Sempervivum arvense (which means growing in cornfields). At any rate my catalogue may help in remedying this evil.

The principal special papers on Sempervivum, where a considerable number of forms are fully described or figured, are the following:—1. A monograph of all the known species by Lehmann and Schnittspahn in the *Regensburg Flora for* 1855, beginning p. 1; followed, in the volume for 1856, at p. 58, by a list of 36 species. This is an excellent paper, but unfortunately there are no figures, and it is in German, but this would be the foundation to build upon for a monograph brought up to the present date. 2. A series of isolated descriptions by Schott, in *Œstereichisches Botaniches Wochenblatt*, beginning with 1853 and extending over several years: full excellent descriptions in Latin, but here again no figures. 3. *Etudes sur le genre Sempervivum*, by Lamotte, an 8vo pamphlet of 57 pages, published at Clermont-Ferrand, 1864. 4. Descriptions in the second part of Jordan and Fourreau's *Breviarum*, date 1868, pp. 28—46, of thirty-five species, so called, most of which are admirably figured life-size in the *Icones Floræ Europæ*, of the same authors, figs. 192—218. 5. A compendious classified summary of the garden forms in Regel's *Gartenflora*, 1872, pp. 233—238. Copies of all these are accessible in London, and have been used in drawing up the following catalogue.

GENUS SEMPERVIVUM, *Linn.*

Sub-genus 1. Sempervivum proper: petals and sepals each ten to twelve, spreading; carpels the same number, narrowed suddenly into short stellately divergent styles.

Division 1.—*True Sempervivums with red flowers.*

1. *Group of S. tectorum.* Leaves glabrous on the surfaces, bordered by a regular fringe of hairs not more than ¼—⅛ line long.

Sub-group 1.—Leaves large, obovate-spathulate, red-tipped, ¾ inch broad.

1. S. tectorum, Linn., as figured Eng. Bot., t. 1320; Curt. Lond., t. 105; Baxter, Brit. Bot., t. 401. (From this the plants called in gardens calcaratum, Royeni, rusticanum, and Rœgnerianum, differ very slightly.)

2. S. Reginæ-Amaliæ, Held. et Sart. I do not find any description of this, but it is mentioned in Boissier's Flora Orientalis.

Sub-group 2.—Leaves oblanceolate-spathulate, 1—1½ inch long, ⅜—½ inch broad, green or greenish, with a distinct tip of red-brown. (Many of these I am quite unable to separate, even as garden forms.)

3. S. Mettenianum, Lehm. et Schnitt., Flora, 1855, p. 4.

4. S. arvernense, Lecoq. et Lamotte, Cat., p. 179; Boreau, Flore du Centre, edit. 3, p. 259; Lamotte, Etudes, p. 24, with description of three varieties, vellarum, lesurinum, and pyrenaicum, of the first of which, S. Legrandi, F. Schultz, Flora, No. 30, Oct., 1867, is said to be a synonym *ex parte*.

5. S. alpinum, Griseb. et Schenck, Linnæa, 25, p. 600.

6. S. dolomiticum, Facchini, Flora, 1854, p. 482.

7. S. Guillemoti, Lamotte, Bull. Soc. Bot. France, 1856, vol. iii., p. 457; Etudes, p. 22.

8. S. Boutignyanum, Billot et Gern. Archives Flor. Franc., 1853, 263; Lamotte, Etudes, p. 32.

9. S. Schnittspahni, Lagger, Regens. Flora, 1858, 659.

10. S. rubicundum, Schur., Transyl., p. 229.

11. S. modestum, Jord. et Four., Icones, fig. 197.

12. S. robustum, Jord. et Four., Icones, fig. 200.

13. S. saxosum, Jord. et Four., Icones, fig. 207.

14. S. rigidum, Jord. et Four., Icones, fig. 208.

15. S. cantalicum, Jord. et Four., Icones, fig. 209.

16. S. leptopetalum, Jord. et Four., Icones, fig. 210.

17. S. erubescens, Jord. et Four., Icones, fig. 211.

18. S. dicranocladon, Jord. et Four., Icones, fig. 212.

19. S. corymbosum, Jord. et Four., Icones, fig. 213.

20. S. constrictum, Jord. et Four., Icones, fig. 214.

21. S. celsicaule, Jord. et Four., Brev. ii., p. 33.

22. S. collinum, Jord. et. Four., Brev. ii., p. 39.

23. S. speciosum, Lamotte, Etudes, p. 11.

24. S. brachiatum, Lamotte, Etudes, p. 13.

Sub-group 3.—Leaves shaped and coloured as in the last, but appreciably smaller, and flower-stems dwarfer.

25. S. parvulum, Jord. et Four., Icones, fig. 204.

26. S. constrictum, Jord. et Four., Brev. ii., p. 43.

Sub-group 4.—Leaves oblanceolate-spathulate, 1—1½ inch long, ⅜—½ inch broad, very glaucous, with a very distinct red-brown tip.

27. S. calcareum, Jord. Obs., vii., p. 26; Jord. et Four., Icones, fig. 194; Lamotte, Etudes, p. 34 (S. californicum, Hort.).

28. S. racemosum, Jord. et Four., Icones, fig. 195.

29. S. luxurians, Jord. et Four., Icones, fig. 206.

30. S. pyrenaicum, Jord. et Four., Brev. ii., p. 44.

31. S. columnare, Jord. et Four., Icones, fig. 196.

32. S. violascens, Jord. et Four., Brev. ii., p. 34.

33. S. seusanum, Jord. et Four., Brev. ii., p. 35.

34. S. trifurcum, Jord. et Four., Brev. ii., p. 41.

Sub-group 5.—Leaves same size and shape as in the last, glaucous, with an obscure red tip.

35. S. glaucum, Tenore; Lehm. et Schnitt., Flora, 1855, p. 3.

36. S. Camollei, Rotta, Fl. Berg., 100.

37. S. Schlehani, Schott, Œster. Wochen., 1853, p. 12.

38. S. Schottii, Baker; S. acuminatum, Schott, Œster. Wochen., 1853, p. 28: but the name had been used before for a Himalayan species by Decaisne, Jacquem. Voyage, tab. 74.

39. S. adoxum, Jord. et Four., Brev. ii., p. 40.

Sub-group 6.—Leaves same size and shape as in the last, but pale green or glaucous, concolorous (not red-tipped).

40. S. decoloratum, Jord. et Four., Icones, fig. 198.

41. S. beugesiacum, Jord. et Four., Icones, fig. 199.

42. S. blandum, Schott, Œster. Wochen., 1853, p. 29.

43. S. rhodanicum, Jord. et Four., Icones, fig. 201.

44. S. validum, Jord. et Four., Icones, fig. 203.

45. S. juratense, Jord. et Four., Brev. ii., p. 28 Reuter, Cat. Genev., edit. ii., p. 86.

46. S. præstabile, Jord. et Four., Brev. ii., p. 29.

47. S. sabaudum, Jord. et Four., Brev. ii., p. 29.

48. S. obovatum, Jord. et Four., Brev. ii., p. 32.

49. S. pallidum, Jord. et Four., Brev. ii., p. 33.

50. S. breviramum, Jord. et Four., Brev. ii., p. 36.
51. S. monticolum, Jord. et Four., Brev. ii., p. 37.
52. S. ambiguum, Lamotte, Etudes, p. 17.
53. S. Lamottei, Boreau, Mem. Soc. Maine et Loire, 1859, p. 86; Lamotte, Etudes, p. 7.
54. S. brevistylum, Lamotte, Etudes, p. 10.
55. S. Maitrei, Lamotte, Etudes, p. 19.
56. S. compactum, Lamotte, Etudes, p. 19.

Sub-group 7.—Dwarfer plants than the last sub-group, with oblanceolate-spathulate leaves, about 1 inch long, 4 lines broad, pale green or glaucous, without a coloured tip.

57. S. Verloti, Lamotte, Etudes, p. 21; Jord. et Four., Icones, fig. 216.
58. S. venustum, Jord. et Four., Icones, fig. 202.
59. S. pallescens, Jord. et Four., Icones, fig. 215.
60. S. lætevirens, Jord. et Four., Icones, fig. 205.
61. S. modestum, Jord. et Four., Brev. ii., p. 38.

2. *Group of S. fimbriatum.*—Leaves fringed with longer and closer ciliæ than in the tectorum group, and those of the top variously directed, the hairs sometimes extending a little to the back and face of the leaf.

62. S. fimbriatum, Lehm. et Schnitt., Flora, 1855, p. 16; the Himalayan plant figured under the same name by Klotsch (Reise Wald., t. 43), is a totally different species.
63. S. Funckii, F. Braun; Koch, Flora, xv., p. 4; Sturm, Deutsch. Flora, xvi., t. 67; Reich. Ic. Crit., t. 967; Jord. et Four., Icones, fig. 218.
64. S. Pomelii, Lamotte, Ann. Auverg., p. 27; Etudes, p. 49 (regarded as a hybrid between arvernense and arachnoideum); Jord. et Four., Icones, fig. 217.
65. S. angustifolium, Kerner, Œster. Wochen., 1870, p. 285.
66. S. piliferum, Jordan, Obs., vii., p. 27; Lamotte, Etudes, p. 44.
67. S. barbatulum, Schott, Œster. Wochen., 1853, p. 91.
68. S. atlanticum, Ball et Hook. fil., Bot. Mag., tab. 6055, as a sub-species of tectorum.

3. *Group of S. montanum.*—Leaves puberulent on the face, without any distinct fringe of hairs on the edges, as in the two foregoing groups. Habit mostly dwarf.

69. S. montanum, Linn.; Lehm. et Schnitt., Flora, 1855, p. 19; Jacq, Austr. Suppl., t. 41; D.C. Plant. Grasses, t. 105.
70. S. monticolum, Lamotte, Etudes, p. 52; "S. montanum, Linn. et Auct., *ex parte.*"
71. S. alpestre, Lamotte, Etudes, p. 54.
72. S. frigidum, Lamotte, Etudes, p. 56.
73. S. marmoreum, Griseb. Spicel. Rumel., i., p. 329; S. montanum, Sibth. et Smith, *non* Linn.
74. S. flagelliforme, Fisch.; Lehm. et Schnitt., Flora, 1855, p. 18.
75. S. pumilum, M. Bieb.; Boiss., Fl. Orient., ii., p. 796.
76. S. stenopetalum, Lehm. et Schnitt., Flora, 1855, p. 18.
77. S. rupicolum, Kerner, Œster. Wochen., 1870, p. 285.
78. S. caucasicum, Ruprecht; Boiss., Fl. Orient., ii., p. 796.
79. S. assimile, Schott, Œster. Wochen., 1853, p. 19.

4. *Groups of S. arachnoideum.*—Dwarf plants, with the tops of the central leaves of the rosette united by a web of fine white threads.

80. S. arachnoideum, Linn.; D.C. Plant. Grasses, t. 106; Jacq., Flor. Austr., t. 42; Bot. Mag., t. 68; Boreau, Flore du Centre, 3 edit., p. 261; Lehm. et Schnitt., Flora, 1855, p. 20.
81. S. Doellianum, Lehm., Flora, xxxiii., p. 449; Lehm. et Schnitt., Flora, 1855, p. 19.
82. S. rubellum, Timbal-Lagrave, Bull. Bot. France, v., p. 14; Lamotte, Etudes, p. 46 (as a hybrid between pyrenaicum and arachnoideum).
83. S. tomentosum, Lehm. et Schnitt., Flora, 1856, p. 57; S. Webbianum, Hort.
84. S. Fauconnetii, Reuter, Cat. Genev., p. 298; Gren. Flore Jurass., p. 280; Godet, Suppl. Jura, p. 88.
85. S. heterotrichum, Schott, Œster. Wochen., 1853, p. 83.

Division 2.—*True Sempervivums* (*sepals, petals, and carpels* 10—12), *with yellow flowers.*

86. S. Wulfeni, Hoppe; Koch, Syn., edit. 1, p. 262, edit. 2, p. 289; Sturm, Deutsch. Flora, vi., t. 23; S. globiferum, Wulfen in Jacq. Fl. Austr., v., tab. 40, *non* Linn.
87. S. albidum, Lehm. et Schnitt., Flora, 1855, p. 4.
88. S. armenum, Boiss. et Huet.; Walp. Ann., vii., p. 923; S. globiferum, Boiss., Fl. Orient., ii., p. 797.
89. S. Braunii, Funck; Sturm, Deutsch. Flora, 16, t. 67; Koch, Synops., p. 263; Lehm. et Schnitt., Flora, 1855, p. 7.
90. S. grandiflorum, Haworth; Lehm. et Schnitt., Flora, 1855, p. 7; S. globiferum, Bot. Mag., tab. 2115.
91. S. globiferum, Linn. *ex parte;* Bot. Mag., tab. 507; Koch, Bot. Zeit., xviii., p. 210, tab. 1; Lehm. et Schnitt., Flora, 1855, p. 6.
92. S. ruthenicum, Koch, Synops., edit. 2, p. 289; Lehm. et Schnitt., Flora, 1855, p. 5; S. arenarium, Steven, in Herb. Kew, *non* Koch.
93. S. Zellebori, Schott, Œster. Wochen., 1857, p. 245.
94. S. Pittoni, Schott; Nyman et Kotschy, Analecta, p. 19.

Sub-genus 2.—Jovis-barba, Koch (Diopogon, Jord. et Four.). Sepals, petals, and carpels only six each; the flower yellow; the carpels close to one another from base to apex, narrowed gradually into the long straight styles.

95. S. hirtum, Linn., Sp. Plant., edit. 2, p. 665; Lehm. et Schnitt., Flora, 1852, p. 21; D.C. Plant. Grasses, t. 107; Diopogon Allioni, Jord. et Four., Icones, fig. 192.
96. S. stramineum, Baker; Diopogon stramineus, Jord. et Four., Icones, fig. 193.
97. S. arenarium, Koch, Synops., edit. 1, p. 833; Sturm, Deutsch. Flora, xix., t. 83; Lehm. et Schnitt., Flora, 1855, p. 23; Schott, Analecta, p. 19; S. Kochii, Facchini.
98. S. hirtellum, Schott, Verh. Sieb., Verein, 1857, p. 171.
99. S. Neilrichii, Schott, Nym. et Kotschy, Anal., p. 19.
100. S. Heuffellii, Schott, Œster. Wochen., 1852, p. 18; Diopogon Heuffellii, Jord. et Four., Brev. ii., p. 46; S. patens, Griseb. et Schenk, Iter. Hung., p. 215; Boiss., Fl. Orient, ii., p. 797; S. Brassaii, Hort. Vindob.
101. S. debile, Schott, Œster. Wochen., ii., p. 18.
102. S. Hillebrandtii, Schott, Œster. Wochen., ii., p. 18.
103. S. transylvanicum, Baker; S. ciliatum, Schur., Fl. Transyl., p. 229, *non* Sims, Bot. Mag., tab. 1978.
104. S. soboliferum, Sims, Bot. Mag., tab. 1457; Koch, Syn., edit. 2, p. 290; Lehm. et Schnitt., Flora, 1855, p. 22; S. globiferum, Linn. *ex parte;* Reich., Ic. Crit., tab. 839; S. hirtum, Jacq., Fl. Austr., tab. 12.

J. G. Baker.

LETTUCES.

THE collection of Lettuces staged at South Kensington on the 15th by Messrs. Carter & Co. was interesting, in so far that it presented forms of both new and old kinds in comparison, but it was deficient of interest in so far that but few of the kinds had attained to their true form, and therefore the comparison was inconclusive. If, however, it should lead to a thorough trial of all known kinds of Lettuces at Chiswick next year, some practical good must arise out of it. I endeavoured to the best of my ability to classify the sorts staged, but it was a matter of some little difficulty, inasmuch as many of them had those intermediate features which in garden vegetables are common, and render actual arrangement into types anything but an easy task. The smaller forms of White Cabbage Lettuces were represented by the White Stonehead, Early Paris Market, Tom Thumb, and Earliest Small Egg-shaped. These had hearts about the size of an average tea-cup in various stages of compactness, the best being the Tom Thumb. I am not sure, however, that, as a rule, these come to maturity quicker than some of the larger kinds; they are specially useful for culture under handlights and frames, where they may be grown very closely together. The larger forms of the White Cabbage Lettuce were represented by White Dutch Cabbage, Victoria, which appears to be the same as the Leyden, White Dutch, Perpignan, and Nonsuch. The Victoria appeared to be the best of this batch, and if all were sown at the same time was certainly one of the earliest. Of brown Cabbage Lettuce there were Negrohead, Spotted Cabbage, Blood Red, very deep in colour; and Ne Plus Ultra. I missed that remarkably fine Cabbage Lettuce, the Stanstead Park, the nearest resemblance to it being found in the Ne Plus Ultra. I think most of these high-coloured Cabbage Lettuces must be grown chiefly on account of their peculiarity in this respect, as the colour renders them most objectionable for table use. The Cos Lettuces were small, and not half grown, and in that stage it would be not a difficult matter to select half-a-dozen sorts out of one kind. The largest was Carter's Giant White Cos, but it seemed to differ only in an infinitesimal degree from Paris White, London Hardy White, and Suttons' Superb White Cos. I missed from this section three well-known forms that have made not a little noise in their day, namely, Alexandria, Kingsholm, and Victoria Cos Lettuces, all of which I know to be of the highest order of merit.

The spreading forms of Cos were represented by Florence Cos, Ivery's Nonsuch, and Incomparable Cos. To these might have been added Murray's Champion, a very large form of this section, but of the distinctiveness of which, or indeed of any of them, I am not well assured. Then of Brown Cos there were Blood Red, a very loose form; Dunnett's Giant Cos, Bath Cos, Wiltshire Cos, a narrow-leaved kind; and the Longstander Cos, that has a spreading habit not unlike that of the Batavian Endive. Here, conspicuous by its absence, was the Sugarloaf Brown Cos, which is one of the finest hardy winter Cos Lettuces in existence. Of those in the list I considered the Bath Cos to be the best. Of curled Cabbage kinds the best representatives were the Neapolitan, large and loose; and the American Hanson, that looked to be an exact duplicate of the old Drumhead. There were also several kinds staged that were utterly useless, and might well be consigned to oblivion, unless it be to point out to growers what not to grow.

If a thorough trial of Lettuces should take place next year at Chiswick, I trust the fact will not be overlooked that we have winter as well as summer kinds, and that many of them should be sown both in the spring and in the autumn. The spring sowing will afford an admirable test for the summer kinds, and to prove the question of nomenclature. The autumn sowing will enable the hardiness of each variety to be thoroughly tested. Lettuces can be grown close together, and therefore need not occupy a great extent of ground, whilst few vegetables will admit of a more interesting, if not satisfactory trial.

Alex. Dean, Bedfont.

Natural History.

THE CUCKOO.—What lover of the country does not anxiously listen for the first notes of this bird in the spring—taking care, of course, to have a few coins in the pocket, which should be turned over to ensure a plentiful supply of cash all the year! This is a very common superstition. The inhabitants in the quiet though pretty vale a little above Derwentwater found out many years ago that the cuckoo always came with the spring, and it would be very desirable to have a continuance of the fine genial weather of spring all the year; to ensure this they imagined all that was neeedful was to keep the cuckoo in the valley the whole year. A meeting of the inhabitants was held, when it was resolved to build a high wall at each end of the valley, thus to prevent the escape of the welcome bird. It was commenced immediately, but, sad to relate, it was scarcely complete when the season for migrating again arrived, and the cuckoo flew over the boundary, thus they lost for ever the desirable genial spring weather.

I wish to bring before my readers a few facts relating to this bird, which may not be generally known. I spent my youth in an old-fashioned farmhouse on the borders of North Wales; behind the house was a very extensive orchard, containing a great variety of large fruit trees, in which the cuckoo often sang in the early morning. One tree in particular, a Pear tree, had been mutilated by having some of the lower branches cut off to make room for other trees. In one of the forks thus left, about 6 feet from the ground, a pair of flycatchers regularly each season built their nest and reared their young. It was thought very sinful and wicked by young people in those days to touch the eggs or young of these birds, which were called white robins; everything belonging to robins—robin redbreast or robin whitebreast—was sacred. This will account for the birds being suffered unmolested to rear in safety their brood. One morning I was carelessly sauntering near the nest, learning my ordinary school-lessons, when I heard the cuckoo; looking amongst the branches I saw a pair of these birds—wondering what their object could be, seated myself behind the trunk of an aged Apple tree, not far distant, and watched them. Presently one of the birds was prying into the flycatcher's nest, and evidently, from her motions, trying to insinuate herself into the cavity which contained it; this, however, was impossible, for it was barely sufficient to hold the nest. The cuckoo then jumped to the ground, as I at first imagined, with one of the flycatcher's eggs, because I had learned the notion, then very commonly believed, that the cuckoo sucked birds' eggs, to clear its throat, or to enable it to sing more clearly. In this case I was mistaken: it sat amongst the grass at the root of the tree for perhaps five minutes, then springing up to the nest, with what I believed to be an egg in its foot, immediately, as if with joy, flew away singing. I should probably have been disinclined to believe this had another person told me, but they say "seeing is believing." I was an eye-witness to the above.

Immediately the cuckoo had disappeared I procured a stool from which I could see into the nest, and I there saw the cuckoo's egg along with the five laid by the flycatcher—the cuckoo's egg was white, marked, however, very similarly to the other eggs in the nest, and slightly larger, perhaps, than the egg of the common thrush.

The poor deluded flycatcher sat patiently her allotted time on the whole of the eggs, and in due course I had the satisfaction to see five hatched; one of her own eggs proved infertile. Now comes the strangest part of my tale. The second or third morning—which, I now cannot say with certainty—I found all the young flycatchers dying amongst the grass, thrown out of the nest. My simple idea at this time was, that the cuckoo was grown too large, and the nest could not contain all the fledglings, thus the weaker ones accidentally fell out; since I have learned the truth by observing sky and titlarks, whose nests were on the level field, served in the same manner,—thus proving beyond a doubt that the cuckoo is the murderer. Many of the small birds, such as the robin and the hedge-sparrow, who are very slow in hunting their food, could not supply sufficient for four or five of their own young with a cuckoo at the same time. Is it not a wise law of Nature that the young cuckoo should destroy its foster-brothers, &c.? as by its being supplied only with a limited quantity of food it must naturally grow up weakly, and perhaps be unable to migrate in a few weeks after birth, and thus, being left behind, must perish in the following winter.

The flycatcher continued very assiduously to supply the young cuckoo with food for about a week, when it suddenly disappeared—we thought it had fallen a prey to some marauding cat, of which animal there were too many in this neighbourhood. *Note.*—I had only observed one flycatcher about the nest from the time the eggs were hatched—this was probably the female. I mentioned the circumstance to our family, but I need not have taken the trouble, for the cry of the cuckoo all day for food was so pitiful, and could plainly be heard in the house. Now, I thought, is to be an end of the stranger. Not so; wonderful to relate I saw with joy early the following morning a hedge-sparrow (dunnock, we called it) busy feeding the curious little fledgling. Everything now went on satisfactorily; but a gentleman in the village who studied ornithology, and whose favourite volume was the *Natural History of Selborne*, hearing of the cuckoo, was determined to try an experiment. He placed over the nest a limed twig in such a position that the foster-mother, when she came to attend to her charge, was sure to be caught; he had not long to wait before securing the poor dunnock, of which he took great care. The reason why he secured it was this—he had an idea that some other insectivorous bird, who had young in the nest at the time, hearing the plaintive cry of the starving cuckoo, would be attracted towards it and be compelled to feed it. Whether this law would hold good in every case I am not prepared to say; but I do know that before the evening, by crying out lustily, the cuckoo had as much food as he required taken to him by a thrush.

It is generally known that the thrush is a very affectionate bird, and I have seen a male in a cage rearing some half-dozen of its own species at the same time; and one in particular, which is now living, has reared in this manner, during the past two seasons, sixteen birds.

When our friend witnessed this, he at once liberated the hedge-sparrow, who speedily commenced her old work, to the evident annoyance of the thrush. The cuckoo soon afterwards left its nest, being fed for some short time longer by the dunnock, in a high bough; when it was full grown it disappeared, about the usual period of migration—when the mowers are heard whetting their scythes in the meadows.

This is the only instance which has come under my own observation of the cuckoo being fed by three distinct species in the nest; but I have heard it said by bird-catchers (who are generally men who have deeply studied practical ornithology, certainly not from books, for the majority are probably unable to read, yet they are thorough "field naturalists") that the cuckoo has the power to attract other birds to its aid. I cannot say how far this theory may be correct—I am only able to point to the above solitary example in its support. I hope shortly to lay before your readers a few more interesting facts respecting this strange, though welcome, summer visitant. *R.*

FIG. 24.—A TUSCAN LABOURER'S COTTAGE.

Foreign Correspondence.

ENVIRONS OF FLORENCE: *May* 15.—Would that it were possible, by means of pen and ink, to convey an adequate idea of the beauty of the country around this honoured city. Stand on either of the bridges, and look which way you will, you see a prospect that scene-painters and landscape artists might transfer to their canvas without altering or modifying it in a single point. But it is of the environs we would now more especially speak. At p. 639, vol. i., an attempt was made to give some idea of the general aspect and vegetation of the country from the vineyards of the Côte d'Or to the mountain valleys of Savoy, the rich agricultural district north of the Apennines, the pictural mountain scenery between Bologna and Pistoia, and the marvellously lovely plain in which the last-named city, as well as Florence itself, is situate. Much of this may be seen from the windows of the railway carriage, but much more by a walk or ride of but a few miles in the environs of Florence. Take Fiésole, as an instance. Leaving Florence by one of its more modern and least interesting quarters the road winds, white and dusty between stone walls, over the tops of which one sees Fig trees and Olives and clustering Roses—villa after villa as rigidly shut off from the gaze of passers-by as any English country house would be, and, indeed, much more so. These high walls, however, betoken, not only a desire for privacy on the part of the residents, but they are an indication that cold winds sweep down from the hills, and necessitate the walls as protectors. By-and-by, however, they come to an end, or rather, their continuity is broken by open spaces, by vineyards and olive grounds and corn fields, begirt by hedges of Roses—oh, those Roses!—only the common monthly Rose, but with a profusion of bloom almost incredible, and with an intensity and transparency of tint much beyond what we see in the same variety at home. And so we go on, steadily ascending, Roses to right of us, Roses to left of us, Roses beneath us, and above them the grey, scrubby-looking Olives alternating with the Vines. In amongst the cornfields and the fields of Lupin, as abundant as Poppies in an English Wheat field, are blue-flowered Irises (Iris germanica). The true Florentine Iris (I. florentina) is apparently not so common, or perhaps it flowers earlier. It grows, however, upon the old walls and towers of the city, and has been adopted in its armorial bearings. From its rootstock is prepared the well-known Orris-root powder. By the way, the Lilies of France are not Lilies, but Irises. It looks sacrilegious to uproot these old fallacies, but truth and accuracy are better even than romance and poesy. Mingled with the Iris are the common Gladiolus segetum, with its narrow spike of pinkish flowers; the Love in a Mist, Nigella damascena, and Venus' Looking Glass; and here is Scilla hyacinthoides, larger than we see it in English gardens, though scarcely more fragrant. Blue Salvias and yellow Lotus, white Cerastium, and strong-smelling Alliums, stately Asphodels, and Anthericums, Vetches with purple flowers and Vetches with yellow flowers, are to be found here, as well as Orchids in form and colour new and strange to northern eyes, though one familiar friend, Serapias Lingua, took us for doctors, and put out his tongue accordingly. Here, too, is the grand Lizard Orchis, so rare on our Kentish downs. All this time we are slowly ascending and winding in-and-out and around the dome-shaped Olive-clad hills. What geological cause could have produced so singular a result? Hills here, hills there, hills everywhere; not so much in continuous ridges and crests, but scattered like sugar-loaves over the plains, and rich exceedingly with verdure.

Truly does Byron say, speaking of Florence:—

> "Girt by her theatre of hills she reaps
> Her corn, and wine, and oil, and Plenty leaps
> To laughing life with her redundant horn."

On the very summit of one of these eminences stands the old deserted town of Fiésole, four or five centuries ago the rival of Florence, but given up now to a handful of straw-plait workers, a double handful of beggars, and a few priests and monks. Relics of old times—very old times—times that Livy talks about—are here in abundance, side by side with the monuments and churches of the Middle Ages. The monastery is quaint and dreary, with real live monks in it still—not the make-believe style of monk which has been seen here and there in England in these later days, but real, dirty, ill-looking, dogged monks, of a pattern which few would desire to see imitated, either in Italy or elsewhere. The view from the terrace in front of this monastery is something too wonderful for description, it must suffice to say that the element of all this beauty presents a singular blending of the handiwork of Nature and the handicraft of man. No view that the writer has seen seems to suit the narrative of the temptation of our Lord as this does. The mountain top, it is true, is not exceeding high, nor can one see from it "all the kingdoms of the world, and the glory of them," but if the narrative be read, as was probably intended, suggestively and poetically rather than literally, the terrace at Fiésole might well serve as the scene. Others may have been struck by the same idea, for according to the guide book there is in one of the many churches in the neighbourhood a fresco representing the angels ministering to Christ in the wilderness. Hereabouts, too, it may be mentioned, lived and exercised his talent the angelic brother, Fra Angelico. Behind the monastery the visitor looks upon a different aspect of things, one which is a positive relief after the beauty and cultural richness of the one just alluded to. Here, in fact, the visitor looks on the hills clad now, not with Olives, and Figs, and clustering Vines, but with dark sombre round-headed Pines, mingled here and there with lines of pyramidal Cypresses, often used, as it appears, as landmarks and boundary lines. The hill slopes are less highly cultivated, and the whole aspect of things is more like that which Salvator Rosa loved to paint.

The straw-plait business followed at Fiésole, however, is too interesting to be dismissed entirely without notice, spite of the importunate old harridanes who render themselves so objectionable to the tourist in their too earnest desire that he should expend his loose cash for their benefit. Straw-plait of a very elegant description is indeed one of the specialities of Florence, and a great deal of it is made in this town of Fiésole. The straws are exceedingly slender and short, and are woven into various patterns in a loom, the straws being rendered pliant by soaking in water. A peculiar dwarf kind of Wheat is said to furnish the straw, but though it must obviously be grown in considerable quantities, we were not fortunate enough to see it save in process of manufacture.

VILLA FENZI.—At a distance of some eight or ten miles from Florence, in a different direction from Fiésole, is situate the patriarchal home, to which we now propose to devote a few words. It is placed on the summit of one of the myriad hills already alluded to, in the midst of Olives and Vines, and commands superb views both over Florence and over the neighbouring country, which is thickly studded in all directions with white houses, the residences of the landlords and of their tenantry. The houses are mostly separate; villages in our sense of the term being rare. Access to the estate is gained by a road through a wood of Beech and Pines, and a noble Elm tree, one of the finest trees we saw anywhere in Italy, guards the hall door. Bordering the carriage-drive, in suitable situations, are placed various species of Bamboos, which one is surprised to see thriving so well in so dry a situation. Probably they make their growth in early spring, when there is still abundant moisture, and they are enabled to resist the summer drought. Some descriptive notes on these Bamboos were contributed to our columns by Signor E. Fenzi in 1872, p. 1228—notes which are the more valuable as so little is known in this country of the plants in question, many of which would, nevertheless, prove hardy in Devonshire or Cornwall, and in Southern Ireland, perhaps even in Western Scotland. Agaves also constitute a feature in this garden, the sunny rocky slopes of which appear to suit them well. We had occasion to remark that in the recent Exhibition at Florence two of the most remarkable "exhibits" were the hardy Bamboos and the Agaves exhibited by Signor E. Fenzi.

On the stone terrace in front of the mansion the plan of growing alpine plants on little mounds of Sphagnum, kept moist, has been adopted. The plan, so far, has hardly got beyond the experimental stage, but it certainly promises to be successful, and at least allows of the cultivation of the plants in question in spots where it would otherwise be impossible to grow them.

The woods around the mansion are largely composed of Pines—Pinus Pinea, halepensis, and Cypresses, and beneath them is an undergrowth of shrubs and flowers, which are very interesting to transalpine visitors. Here grow the wild Myrtle, the Oleander,

the Phillyrea, and the Juniper; Erica arborea forms a good-sized bush; Cytisus hirsutus grows side by side with our common Broom, recalling Virgil's allusion—

——"Cytisum lotosque frequentes."

Cistuses of various species abound, particularly C. salviæfolius; Ornithogalums, Anthericums, Muscari, are also represented; and, among Orchids, our English Orchis fusca towers up grandly amid others of its kith and kin, such as Serapias lingua, Orchis variegata, Cephalanthera grandiflora, C. ensifolia, Limodorum abortivum, &c.

The staple crops of the farm (if we may so call it) are Olives and Grapes. The Olive trees near Florence are by no means such fine trees as those which are met with in the Genoese Riviera—partly, perhaps, because the Olive will thrive on sterile rocky soil where other crops would be likely to fail.

"Difficiles primum terræ, collesque maligni,
Tenuis ubi argilla, et dumosis calculis arvis
Palladia gaudent silva vivacis olivæ."

"And first the churlish soils and crabbed knolls
(A lean argill, where scattered shingle rolls),
These bosky scrublands minister and cheer
The tough-lived Olive to Minerva dear."

R. D. Blackmore's Translation of the Georgics.

The produce of the Olive must be abundant, to judge from the huge oil-jars of earthenware which stock the spacious cellars of the mansion. These oil jars must be the lineal descendants of those in which the forty thieves of the *Arabian Nights* were concealed. They are remarkable not only for their great size, but also for the excellence of their manufacture. Pottery of this description seems to be quite a feature in Tuscany, as witness not only these oil jars, but the huge pots and tubs for growing plants. These latter are much larger than any we are accustomed to see in England in this material, and not only is the ware better, but the form and design are far in advance of what we are in the habit of seeing. In advance did we say? Why the oil-jars and earthen pots, like the lamps used by the villagers, have scarcely altered their form since Etruscan and Roman times. The peculiar shallow casks for the wine with deeply projecting rims are also made after the old patterns. From these casks the wine is decanted into large "Florence flasks" of coarse glass covered with wicker ware. No cork or stopper is used, but in place a teaspoonful of oil is poured into the neck of the flask, which floats on the wine without mixing with it, and keeps the air out. The oil is easily removed when desired by inserting a small plug of cotton wool to absorb it. In this way the visitor sees drays and barrows conveying these flasks into the towns for the daily consumption of the inhabitants.

Of the mode of cultivating the Vine we shall have occasion to speak more at length on another occasion; suffice it here to say that Signor Fenzi has introduced the French system of allowing but one or two rods to shoot from a short stock, and trains these rods along horizontal wires. By breaking away from the common Italian practice of growing the Vines in amongst other crops, and by the introduction of more careful methods of cultivation and preparation, it is hoped that the quality of the wine will be improved. The varieties chiefly grown on this estate are the Trebbiano, San Giovito, and Canailo.

It appears that the system followed here with regard to landlords and labourers is very similar to the French *métayer* plan. The landlord provides substantial houses, such as that represented in fig. 24, for which no rent is paid, the labourers give their services and receive no wages, but receive instead half of the crop or of the proceeds of the crop, assessors being appointed to apportion the share due to proprietor and labourer respectively. Whatever objections might be raised to this system—and it is obvious at once that it is a system not favourable to progress and improvement—this much must be said, that the land is well cultivated under the circumstances, and that the labourer is much better housed than his English brother, and is quite as well fed and as well clothed, considering the climate. Poverty is all but unknown; none are very rich, but none are poor. Recklessness and drunkenness are all but unknown. Education, formerly discountenanced, is making rapid strides. Judging, indeed, from what we saw of the populace, and of the resources of Northern and Central Italy, a glorious future is in store for this country if only a stable government be vouchsafed, and every day seems to render this more probable. With such a population, good government, and time to recruit the severe exhaustion of former times, Italy must once again take her place among the foremost nations of the world—great in all that the wealth of Nature and the mind of man can produce. The efforts of the latter to avail himself of natural advantages are supplemented by his power of supplying or compensating for natural deficiencies, thus realising the saying—"What mind can make when Nature's self would fail."

As we have mentioned M. E. Fenzi's name, we must not omit to allude in grateful terms to the zeal and energy he showed as one of the secretaries to the recent Florence Exhibition, and to the great courtesy he manifested to strangers. The writer has particular cause to remember the kindness shown him on this occasion.

THE FARM.

RAPE.—The different varieties of Rape which have found favour with the farmer are perhaps only forms of Brassica campestris, which, under different names, has been recorded from the borders of fields and waste places throughout Europe and Russian Asia.

Several sorts are in cultivation, as dwarf Rape, giant Rape, for feed; and for oil Coleseed and Colza. Others occur as garden greens which may properly be referred to the Rape series, one of which will be mentioned presently. Rape at the present moment assumes an unusual degree of importance, as the drought over a great part of the country, combined with insect attacks, has entirely destroyed the Swede; and as Rape is a rapidly-growing plant, it will be found that when it has been used to mend up the Turnip and other root crops, something like sheep feed may be ultimately expected. Even up to this present time Swedes twice sown on some very carefully winter-cultivated soil have utterly failed; it is too late to sow again, and even Turnips of any value may be expected to be a failure at this season. Well, this field will be followed with Barley, and we should therefore get a bite of some sort to fold the sheep thereon before ploughing up for the grain. We are now, therefore, thinly sowing Rape by hand, and shall hoe up the weeds, regulate the Swedes where there are any, and bury the Rape seed at the same time. Where Rape was sown early in the season a promising crop may occasionally be seen; and for ourselves we are only sorry that, as in ordinary seasons, we have used the plant for mending up and for the occupancy of the headlands in the root-fields after the horse-hoe had done its work, so that we have now no fine Rape, but according to appearances we are led to think that after all we shall have to rely more upon our late Rape than formerly.

In sowing Rape for a self crop we usually drill it in rows 18 inches apart, and then one hoeing by way of rough regulation; and this, succeeded by horse-hoeing, is all that it requires.

We usually employ our early Rape the moment its outer leaves begin to succumb to hot weather, by folding sheep upon it. The later Rape is used as occasion may require, and from this latter crop we have adopted a plan of securing a quantity of early spring feed that we have found so useful as to induce us to describe it.

A portion of the autumn Rape crop is mown, and the green tops removed for sheep or cattle; the stumps are then lifted, and after the roots have been a little trimmed they may be planted in some convenient plot of ground not wanted for Barley. We plant in rows 18 inches apart, and place the sets 1 foot apart in the rows, and from this we have usually obtained in early spring a mass of fresh vegetable growth which can either be employed as sweet greens (and they meet with a ready sale at market), or they throw up a large quantity of highly nutritious food very valuable so early in the season.

Of the value of Rape as a fattening plant for going-off sheep we may be assured from the following remarks by Dr. Voelcker. He says:—"Green Rape is rich in flesh-forming constituents, as well as fatty matters; it ought, therefore, to be a valuable feeding substance; and experience has taught, indeed, that green Rape is given with much advantage to fattening sheep. It contains about as much of protein compounds as Cabbage, but is considerably richer in fatty matters than this or any other plant which is used as green food for animals." We have indeed in practice found all these remarks to be amply verified, and where early Rape is fed off in the field we have found it to be an exceedingly good preparative for Wheat.

For the last few seasons a plant has been before us which is a favourite with the cottagers, under the name of Lapland Greens. It is only a fine form of Rape, but is remarkable for the readiness with which it sends out green sprouts around the pinched-off head; these sprouts again, on being topped for the table, soon yield half a dozen for one, so that it almost seems to increase more rapidly upon being picked, and this for so long a time that fine greens are thus obtained until spring Cabbage first hearts-in. We feel convinced that this plant, topped for the winter, and used as sheep feed, would send up a larger supply of green food in spring than any other we have tried, and in order to test it we have an acre now sown to test its value; but, alas! the weather has been all against it, though after twice sowing at last we have a promising plant. For garden use a couple of dozen plants will provide enough sprouts for a large family, and continue to do so for some time. It is, therefore, much more prolific than any ordinary Rape, and as it has proved to be even more hardy with us than ordinary Rape, we fancy it will prove to be more valuable. We may, therefore, when our trials are completed, refer to this subject again.

DRY SUMMERS.—The unusual drought of the present summer leads one naturally to look back in search of parallel seasons. It is often said that drainage and improved cultivation have so thoroughly changed the character of our climate, that drought prevails now much more seriously than it did formerly, and that the cold has now become so much moderated that we shall never again witness "an old-fashioned winter." Without at present discussing the general question—how far the climate has been modified by cultivation—we propose to arrange some facts to show that dry summers are not peculiar to the present generation. The summer of 1868 was remarkable for its heat and drought. The month of July was notable for continuous dry weather, with easterly winds, much sunshine, and great heat during the day, but considerable depression of temperature at times during the night. The barometer was remarkably steady during the month, the whole range being only from about 29.35 to about 30.05 inches. In some parts of the country almost no rain fell during the month; in other places as much was poured out in two or three showers as usually falls during the whole month of July. At Trant, in Sussex, for example, a thunderstorm which lasted three hours occurred during the night of the 9th, when 1.73 inch fell, being exactly the amount that had fallen from April 20 till that time. On the evening of the 12th another storm occurred at the same place, with brilliant lightning and dreadful crashes of thunder, and with a fall of rain which raised the total for the month to 2.37 inches, or about 0.12 inch above the average for July. But the storms were very partial, and the earth all over England was parched, so that grass, Turnips, and even shrubs, were burned up. Water became so scarce that in some English towns the inhabitants were restricted to a certain quantity of the liquid treasure, while in many places it had to be carted miles for the use of sheep and cattle. The height of the temperature announced by some observers was almost fabulous. At Wimbledon, during the meeting of the volunteers, it was registered as high as 101° inside a tent on July 21. On the same day the thermometer registered 92° at Putney, 91° at Epping, and 93°.3 at Camden Square, London. On July 15, 96° was noted at one place in England, but the majority of observers made it 93°.3 on that day, which was probably as great an amount of heat as was ever noted in England under properly regulated conditions as to shade. One peculiarity was the continuation of these high thermometrical readings for a succession of days extending to about a fortnight without any break by thunderstorms. The hottest day of the month (meaning by day the round of twenty-four hours) was the 22d, when the mean was 80°.2. At Cheltenham it was 83° at midnight, 81½° at 6 A.M., 81° at 8 A.M., and 83° at 9 A.M. The night temperature in London, with all the doors and windows open, was 80°, and outside the windows it was 73°. The unusual and continued heat of July, 1868, was found by the Registrar-General to be very detrimental to the public health, and the mortality increased as much through the excessive heat as it usually does with intense winter cold. Among other causes of death, sunstroke was frequent both in Britain and America. The cases of sunstroke in New York, recorded in the newspapers, were read like the roll of men struck down in battle, or dying from an outbreak of cholera. Another notable circumstance was the appearance of mosquitos in various parts of England. By some it was questioned if the veritable pest of warm countries had in reality made its appearance among us, and it was conjectured that, owing to the great heat, some native insect had attained remarkable size and vigour, and so was mistaken for a mosquito, but by good judges it was strenuously maintained that England had been visited by genuine mosquitos. Another feature of the year 1868 was the early and abundant harvest of Wheat, especially on rich and deep soils. In the South of England the harvest began early in July; in the first week of August half the crop in East Lothian, the Merse of Berwickshire and Teviotdale was cut, and all over the country Wheat was early and abundant, but pastures were burned up, and Turnips were a failure. In 1868 the unusual heat and drought were attributed to the extension of thorough draining, and predictions were freely hazarded that wet seasons had for ever ceased, a prediction eminently falsified in 1872, which was the wettest season on record. In truth the year

1868 bore a remarkable resemblance to the year 1826, which was before the epoch of thorough draining. In 1826, as in 1868, and as in the present season, there was a remarkably dry spring; but it was on May 26 when the severity of the drought began in Scotland, though in London it rained heavily on the last three days of that month. The barometer in 1826 was remarkably steady, usually above 30 inches, and there was little or no wind. Towards the latter end of June the heat became excessive, the thermometer standing daily from 80° to 90° in the shade. London and other parts of the country were visited by tremendous thunderstorms, especially about the 27th and 28th of June, by which great damage was done, but the storms were partial and the rainfall was insignificant. In that year, as in 1868, extensive conflagrations occurred on the moors, and many sheep-walks were entirely destroyed, especially in Yorkshire. The harvest of 1826 was the earliest on record, and the Wheat crop was good, but other crops were seriously deficient. Potatos were not more than half a crop; Oats were so short that they had to be pulled instead of being cut, and hay was not more than one-third of a crop. Throughout August the drought and the great heat continued, and the weather did not break till the first week of September. The autumn and winter were remarkably fine, and the only occasion before Christmas when the thermometer sunk below the freezing point was November 25, when it was 31°. The year 1818 was remarkably similar. On May 7 and 8 it rained a perfect deluge for thirty-six hours, and then there was not a drop of rain or dew till August 5. During August there were a few showers, but it was not till September 4 that steady rain set in, and throughout the whole winter there was neither ice nor snow. Similar instances can be culled from more remote dates; and the inference seems obvious, that whatever results have flowed from thorough draining, the character of the seasons has not been materially changed. It seems also to be a rule that after a dry summer there generally follows a mild winter; and if the autumn be dry a mild winter is still more certain. So far as it has gone the present season is dry, but not so disastrously and uninterruptedly so as 1868, 1826, and 1818. *T., Roxburghshire.*

Notices of Books.

The Natural Principles of Landscape Gardening: *or the Adornment of Land for Perpetual Beauty.* By Joseph Forsyth Johnson, Curator of the Royal Botanic Garden, Belfast, and Landscape Gardener. Belfast: Printed for the Author; sold by Aitchison, 12, Castle Place, Belfast.

We have here a well-meant attempt to explain the theoretical side of landscape gardening, to make plain to the observant student the natural principles which should be followed in beautifying the surface of the land, and to "help those who are really desirous of compassing the decoration of the soil." In carrying out this design some 150 ample pages are devoted to a series of remarks, suggestions, and reflections, occasionally of the rhapsodical type, arranged under three books, headed respectively — Beauty, Laws of Order, and Principal Effects and Styles of Scenery. The volume is illustrated by eleven plates, showing the writer's views as to the various character of outlines or grouping and massing, and setting forth picturally the effects of columnar and other trees.

"The decorative gardener," observes our author, in the course of his introductory chapter, "should never be governed by the idea that one plant is better than another, for this is quite a mistaken idea. Each plant will invariably look better in a suitable position, and to see this object properly carried out ought to be the designer's constant care. The style of scenery is not sufficient, but to judge by the efforts of some it might be supposed that one single character of scenery and thought and feeling was the grand necessity of life. There are in each of us thoughts and feelings beyond all power of utterance. And there is perhaps no scenery in the world, this considered, that would entirely satisfy us. The beauties of Nature impress the heart and mind of all, but the real life of Nature is only revealed to those who love her. Many commit a most grievous error in judging Nature by cold technical laws instead of by the law of love, and thus they never catch a glimpse of that beauty which she manifests to those, and those only, who seek her."

This is followed up by chapters on the materials for land decoration, on the lines of beauty and fitness, and on colouring. Colouring, it is remarked, "does not receive that degree of attention which the subject so well deserves, as may often be seen exemplified in our parks." Colour, indeed, our author holds to be of great importance in developing outline and form, for while, in respect of subordinate tints, dark shades impart a sense of depression, lighter ones convey an impression of elevation.

In the second book, designated Laws of Order, are discussed such questions as lines of sight, lines of distances, sites, character of plants, time, &c. The third book is devoted to the effects and styles of scenery, in which occur chapters on principles and style, on parks and woodlands, with an extract from which latter we conclude our notice. In reference to woodland scenery, through which, in many instances, miles of walks are led, we are told that—

"An effort should always be made to realise pleasing combinations. The Salix with its coloured stems, and the scarlet-hued Dogwood, often serve to enliven a bosquet otherwise too sombre. Picturesque trees already subsisting, some grand old Oak with gnarled stem and twisted branches should be carefully cherished. The indigenous flora, naturally so lovely, will be greatly set off by varieties of strong-growing herbaceous plants. As a basis for woodland decoration the Rhododendron is admirably well suited. We must, however, bear in mind that the middle line of sight will furnish us with very valuable material for decorative purposes. The common Yew, as already mentioned, adapts itself most capitally to hollows, as does the Buxus to high situations.

"In woodland scenery, we find that those plants which hold but a secondary place in the shrubbery assume a position of much importance. How frequently do we witness the most striking scenes in open spaces, bright glades where tree and bush and flower all blend in harmony together. The light foliage, it may be, droops on some emerald bank, while here and there spring up the sweetest woodland flowers."

We recommend the patient and thoughtful reading of Mr. Johnson's book to those who are concerned in the important subject to which it is devoted. We should ourselves indeed have preferred a more methodical treatise on the practical aspect of the subject, yet not a few sound and useful hints and ideas and suggestions may be gleaned from what has been advanced under the several heads to which we have briefly alluded.

Flora of Dorsetshire, &c. By J. C. Mansell-Pleydell, B.A., &c. Whittaker. 8vo, pp. 320.

The increase in number of our local Floras is, fortunately, attended with a corresponding increase in the interest attaching to them. The time is gone by when a simple list of names and localities was sufficient; the time has passed when a botanical ramble involved simply the collection of as many plants as could be found, and when their discrimination, correct or faulty, according to circumstances, constituted all that was thought necessary. Now-a-days, the geographical distribution of plants, thanks specially to the writings of Mr. Watson, their dissemination according to varying conditions of soil, altitude, exposure, humidity, &c., are all taken into account. And more than this, the immense impetus given to the study of plant life, through the publications of Darwin, has opened up new sources of interest, new subjects for investigation, in the meanest weed. Soon we shall hope to hear the last of the barren discussions whether this species has a tubercle and that a wart, and whether the plant called by one learned botanist Ineptia parva is or is not precisely the same as that described by another as Ineptia exigua, or whether it should not be more properly referred to Ineptia pusilla. It is to be hoped that this sort of laborious trifling will be replaced by accurate investigations into the causes of the differences of construction met with in plants, their life-habits and their relation to surrounding conditions. Dorsetshire is one of the very best counties for a Flora on the modern pattern—its extent and variety of surface, the diversity of its geological conformation and its sea-board, all render it a particularly interesting district to the botanist. In no county that we are aware of is the relation of plants to varying conditions of station—hill, wood, moor, sea-coast, inland lake, and so forth, better marked than in the district around Poole harbour. In no county is the relation between varying conditions of soil and the kinds of plant growing on it so well shown as in the district from the south shores of Poole harbour, past Studland Bay and Ballard Down, and thence past Swanage to St. Alban's Head and Lulworth.

The district in question affords examples of almost all the several formations, from the alluvial and tertiary beds, the chalk, the green-sand, the Hastings sands, the Purbeck and oolite hills to the lias, and the vegetation is varied accordingly. We had hoped that we might have found some reference to these matters in Mr. Pleydell's volume, but, save a few generalities, we find but little evidence that this important subject has attracted much of his attention. We have indeed a sketch of the geology of the county and of its fossil flora, but few or no attempts to co-relate existing vegetation with the nature of the surface soil. On the other hand we have a good deal of matter inserted which has only a very indirect relation to the Dorset flora.

A peculiarity of this volume is the introduction of the synonyms, if they are really synonyms, of Caspar Bauhin, Ray, and other ante-Linnean authors, and, what is more useful now-a-days, a slight account of the distribution of each species, not only in adjoining counties, but also in Normandy. Had the distribution in the Channel isles been also added the value of this portion of the book would have been enhanced.

—— The last issued part of the *Transactions of the Linnean Society* contains the following papers:—On the Tree Ferns of Sikkim (received as far back as February, 1870), by Mr. John Scott; on Some Recent forms of Lagenæ from Deep Soundings in the Java Sea, by F. W. Owen Rymer Jones; on the Three-banded Armadillo, by Dr. Murie; and an Enumeration of the Orchids collected by the Rev. C. Parish, near Moulmein, with descriptions of the new species, by Professor H. G. Reichenbach. Mr. Scott's paper contains some interesting remarks on the economic uses, the structure and specific distinctions of various Ferns, and is copiously illustrated by eighteen quarto plates. Mr. Scott shows that the distribution of the woody bundles in the stipes of Tree Ferns has reference to mechanical conditions; and he incidentally states that the huge buttresses sometimes found in tropical trees, especially where the roots do not penetrate the soil deeply, represent "an effort of Nature to complement the stability lost in the distribution of roots near the surface." Trees with deeply penetrating roots are comparatively free from these buttresses. Professor Reichenbach's paper is prefaced by a few general remarks, in the course of which he states that the Lindleyan genus, Monomeria, so-called from its being supposed to have no petals, is really provided with those organs. Habenaria pelorioides has a regular five-parted perianth, without any spur, like Dendrobium normale. Mention also is made of the singular and beautiful appendages to the sepals of Bolbophyllum lemniscatum, on which we are promised further information hereafter. Several new species are described.

—— The last issued Part of the new edition of the *Micrographic Dictionary* (Van Voorst) brings the work to the letter "P," while a prospect is held out of a speedy termination of the entire work, long recognised as indispensable to microscopists.

—— The first two Parts of Dr. Carrington's *British Hepaticæ* (Hardwicke) have been issued. The size and typography of the work are uniform with Syme's edition of *English Botany*. Each species is carefully and scientifically described, and a large number of them are figured. It is a long while since any important publication on this family has been issued in this country; scarcely, indeed, since the magnificent work of the late Sir W. Hooker. This fact, coupled with the reputation of Dr. Carrington in this branch of science, has led botanists to await with some impatience the issue of the present work. We believe that their legitimate anticipations will be fulfilled, but reserve further comments till the work is further advanced.

—— The three last parts, for March, April, and May, of Regel's *Gartenflora*, have lately reached us all together. The plants illustrated are Aster novi Belgii var. minor, Dendrobium densiflorum var. Farmeri, Philodendron Melinoni; Tulipa Hageri, a new Grecian species, with red flowers, banded with yellow, and with a blue eye; Odontoglossum nævium var. majus; Dicksonia squarrosa; Calochortus Gunnisoni var. Krelagei, a beautiful variety; Abutilon Darwinii var. trinerve; Spirydium globulosum, and Pomaderris phillyreoides. We shall probably again allude to these in due course, and to an article on the native country of the Sweet Flag (Acorus Calamus), from the pen of the veteran Dr. Goeppert.

—— *The Complete Measurer*, by Richard Horton, (second edition, Lockwood), is a valuable collection of tables for the use of timber-growers, merchants, surveyors, architects, builders, masons, &c. The instructions for measuring growing timber, pollards, &c., are very much to the point. The book is indispensable as a practical guide to the classes above-mentioned.

—— The last number of the *Journal of the Scottish Meteorological Society* contains an elaborate and exhaustive account of our present knowledge of ozone, and which, while it indicates that the absence of ozone may be taken as a sign that the atmosphere is vitiated, by no means confirms the exaggerated opinions as to the importance of this agent that have been promulgated. Then follows the second report of the committee appointed to investigate the relations of the herring fishery to meteorology, an interesting and important subject. The committee appear likely to arrive at valuable results, but they say it would be premature at present to draw any general conclusions. The usual elaborate returns of the state of the weather from the various stations are given, as well as observations on the crops, &c.

—— *Beeton's Gardening Book*, &c., amply illustrated (Ward, Lock & Tyler). This consists of a series of paragraphs, many of which have been extracted from the works of standard writers or from nursery catalogues, with due acknowledgment. A monthly calendar of operations follows, and, whatever criticism might be passed on it, the book is worth the shilling it costs.

WANTED, a GREENHOUSE suitable for a Show House, 55 feet by 16 feet, in good condition.—B. A., *Gardeners' Chronicle* Office, W.C.

WANTED, a SMALL NURSERY in a Populous Neighbourhood, with a good Retail Trade, and where there is an opportunity to do a Bouquet and General Floral Decorative Business. Terms must be moderate, and the Business a substantial one. Nothing will be entered upon without satisfactory investigation. No agents need apply.—Apply to HENRY OSBORNE GARFORD, Florist and Horticultural Decorator, Grove Place, Southampton Street, Camberwell, London, S.E.

HENRY ORMSON,
HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

GLASS for HORTICULTURAL PURPOSES is forwarded by Messrs. LOWELL AND CO., to any part of England at considerable reduced prices.
Estimates sent by return of post upon receipt of sizes and thickness. Dealers in all descriptions of Glass, White Lead, Oil Colours, and Varnish.
LOWELL AND CO., 53, Red Lion Street, Holborn, London,
Established over one hundred and fifty years.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
CORN MANURE, for the spring.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
6, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.
MADE OF PREPARED HAIR AND WOOL.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes.
THE CHEAPEST AND MOST DURABLE
SHADING.
"FRIGI DOMO" CANVAS.

Two yards wide	.. ..	1*s.* 10*d.* per yard run.
Three yards wide	.. ..	3*s.* per yard.
Four yards wide	.. ..	3*s.* 10*d.* per yard.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.
E. T. ARCHER, Stanstead and Brockley Roads, Forest Hill, London, S.E. All goods carriage free to London.
NOTICE.—REMOVED from 3, CANNON STREET, CITY.

MILDEW.
The best and most easily applied composition for the Prevention and Destruction of Mildew is
EWING'S INFALLIBLE COMPOSITION.
Can be had retail through all Seedsmen and Florists, in bottles holding about ¼ pint, sufficient to produce 8 gallons of fluid fit for use, at 1*s.* 6*d.* per bottle: or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, carriage paid to any Railway Station in the United Kingdom for 24 penny postage stamps.

RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS have the most PERFECT SYSTEM of VENTILATION combined with COMPLETE PROTECTION from the WEATHER. They are forwarded, ready glazed and painted, carriage paid and safe, to any part of the United Kingdom.
Apply for particulars, enclosing stamp, to W. RICHARDSON AND CO., Horticultural Builders and Hot-water Engineers, DARLINGTON; or (for London and South of England to W. H. LASCELLES, Steam Joinery Works, 121, Bunhill Row, London, E.C.

J. G. SMEATON & CO.,
Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.
THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES for JUNE, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

MARENDAZ AND FISHER, RUSSIA MAT MERCHANTS, 9, James Street, Covent Garden, W.C., Importer of RAFFIA FIBRE, TANNED GARDEN NETTING, &c.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s.*
For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

Leighton Buzzard, Beds.
TO BE SOLD, the unexpired term in a LEASE (upwards of 40 years to run, at a moderate ground rent) of FOUR substantially-built and well-arranged RESIDENCES, with good gardens, in a healthy locality, standing on an eminence, commanding extensive views, and in the centre of a hunting district, within an easy distance of London, and 15 minutes' walk from the London and North-Western Railway. Full particulars to be had on application to Mr. J. DOUGLAS DICK, Secretary's Office, Royal Horticultural Society, South Kensington, S.W.

Midland Counties (1927).
Occupying a capital position in a large and flourishing Town.
A LUCRATIVE SEED BUSINESS, with a Good Connection. The Stock in Trade (which is limited) and the Shop-fittings by valuation.
For particulars, apply to Messrs. PROTHEROE AND MORRIS, Horticultural Agents, 98, Gracechurch Street, E.C.

Middlesex (1905).
A DESIRABLE MARKET NURSERY, 7½ miles from Covent Garden, and 1¾ acre in extent, with Dwelling House, several Glass Erections heated on modern principles, capital Outbuildings. Price required for 8 Greenhouses and Fittings thereto, Stock and Utensils in Trade, together with the beneficial interest in the Lease, only £375.
For further particulars see the "Horticultural Register" for this month, to be obtained of Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, corner of Leadenhall Street, London, E.C.

SALES BY AUCTION.

Third Great Sale of the Meadowbank Orchids.
MR. J. C. STEVENS has been instructed by the Executors of the late Mr. Thomas Dawson to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, THURSDAY, and FRIDAY, August 5, 6, and 7, at half-past 12 o'Clock precisely each day, the third portion of the great Collection of ORCHIDS grown at Meadowbank. Among these will be offered some of the largest specimens of the collection, and some species and varieties of rare and beautiful character. The finest specimen and the finest variety of VANDA BATEMANNI GIGANTEA in Europe, the plant being over 10 feet high, in perfect order, with four strong beaks, each a good plant of itself, and the variety, as to size and colour of flower and length of raceme, quite unrivalled. Along with the above will be offered some magnificent plants of ANTHURIUM SCHERZERIANUM, with numerous brilliant spathes, quite in first-rate ornamental order, one of the varieties being a totally new and distinct one, of marked dwarf habit, and of unusual length and brilliancy of spathe. Most of the lots to be offered are in superb health; many of the plants (both as regards health of plant and quality of flower) are quite unique. There are 900 lots included in this sale, and are all to be sold without the least reserve.
Full particulars and detailed Catalogues to be had on and after July 20, of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Important Sale.
BLOUNTS FARM, SAWBRIDGEWORTH, HERTS.
G. E. SWORDER has been favoured with instructions from John Prout, Esq., to SELL by AUCTION, on the Premises, on TUESDAY, July 28, at 11 o'Clock, excellent Growing CROPS of CORN upon 375 acres, comprising 310 acres of Wheat and 65 acres of Oats, together with the whole of the Straw; also 42 acres of second cut Clover, and 2 stacks of capital Clover Hay.
The Company is requested to meet at Blounts Farm House on the morning of Sale, where Luncheon will be provided at 10 o'clock.
The Crops may be viewed at any time previous to the Sale.

Important Sale of Valuable and very Choice Exhibition STOVE and GREENHOUSE PLANTS, and very beautiful Rustic GARDEN FURNITURE.
MESSRS. CHESSHIRE AND GIBSON will SELL by AUCTION, at the Masonic Rooms, in New Street, Birmingham, on FRIDAY, July 31, commencing at half-past 11 o'Clock punctually, a valuable Collection of EXHIBITION STOVE and GREENHOUSE PLANTS, including a grand plant of Phormium variegatum Colensoi, without doubt the finest piece in the country, with upwards of 140 leaves and nine growths; a remarkably fine specimen (perhaps unequalled in cultivation) of the large-leaved Anthurium Scherzerianum, 4 feet over, and having 150 to 160 leaves, in magnificent health; splendid Palms, Tree Ferns, Camellias, Caladiums, Marantas (several extra fine specimens), Phormiums, and a neral collection of choice Stove and Greenhouse Plants. At the same time will be Sold a large assortment or very beautiful Rustic GARDEN FURNITURE, including Chairs, Tables, Vases, Flower Stands, &c.
Will be on view on Thursday next, the 30th inst., in the afternoon prior to the Sale.
The Auctioneers invite the attention of parties wishing to secure plants of a superior description, as the above Sale will include many very choice specimens.
Full particulars in catalogues to be obtained at the Offices of the Auctioneers, 93, New Street, Birmingham.

WORCESTERSHIRE AGRICULTURAL SOCIETY.
MEETING at DUDLEY, on AUGUST 25, 26, and 27.
President—The Right Hon. the Earl of Dudley.
A GRAND HORTICULTURAL EXHIBITION, in connection with the above, will be held in the SHOW GROUND, at Dudley, when Prizes to the amount of nearly £200 will be offered.
Prizes are also offered for competition to all Cottagers residing in Worcestershire and within 12 miles of Dudley. Entries close August 18.
For Schedule of Prizes and Rules, &c., apply to ALBERT BUCK, Secretary, Worcester; or to J. S. HAYWOOD, Nurseryman and Seed Merchant, 26, Broad Street, Worcester, Hon. Sec. to Horticultural Show.

FLORAL AND HORTICULTURAL FETE to be held on the Race-course, Northampton, in connection with the NORTHAMPTONSHIRE AGRICULTURAL SOCIETY'S ANNUAL SHOW, on FRIDAY, September 18, 1874. Silver Cups and Premiums to the amount of £200 will be offered for competition. Open to all England. Prizes to be paid on the day of Exhibition.
Presidents—The Worshipful the Mayor of Northampton, and Pickering Phipps, Esq., M.P.
Treasurer—Mr. Mark Dorman.
Hon. Secs.—Mr. John Phipps and Mr. Thos. L. Cordeux.
The Schedules and Rules may be obtained at Dorman's Library, or of F. PERKINS, 2, Gold Street, Northampton.

Asclepias tuberosa.
E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, the Netherlands, will have to offer next autumn an immense stock of the above named beautiful orange-flowered herbaceous plant, in flowering tubers, as well as in stronger plants. Price per 100 and per 1000 on application. Large quantities of flowering tubers can be supplied at very moderate terms, orders for which are now being booked.

To the Trade only.
A. M. C. JONGKINDT CONINCK'S WHOLESALE LIST, including a fine stock of Maiden Apples, Pears and Plums, Moss Roses, Dwarf, Half-standard and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants, is now ready, and will be sent, post free, on application.
Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

The Best Hardy Bedding Plant.
CLEMATIS JACKMANNI.—Flowers rich purple, 4 inches across, and so profuse as to completely cover the bed. Begins to bloom in June, and continues until severe frost. It is perfectly hardy, and the stools improve annually. The only secret of success is a rich soil, to keep up free growth. 12*s.* per dozen. Other sorts of Clematis and Climbers in great variety. Descriptive LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

To the Trade Only.
E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem (the Netherlands), are publishing a New Series of the Wholesale CATALOGUE of their Horticultural Establishment; it will be published in different parts, which together every year will form a volume. The first volume, for 1874—75, is the sixty-fourth year of the establishment of the firm. The first part, containing Dutch Flower-roots, Hyacinths, Tulips, Crocuses, Narcissi, Fritillarias, &c., has been generally distributed, and will be sent post free on application.
An American Edition of the said Catalogue will be sent to the Trade of the United States of North America, post free, on application.

CHOICE FLOWER SEEDS for present Sowing, post free.

	Per packet.—*s.*	*d.*
LEE'S CHOICE CALCEOLARIA, extra fine	2	6
LEE'S CHOICE CINERARIA, extra fine	2	6
LEE'S CHOICE CYCLAMEN, extra fine	2	6
NEW DOUBLE CINERARIA, choice mixed	3	6
PRIMULA FIMBRIATA, choice mixed..	2	6
PRIMULA, Fern-leaved, choice mixed	2	6
PRIMULA, Fern-leaved, double white	2	6
PRIMULA FIMBRIATA, double carmine	2	6
PRIMULA FIMBRIATA, double white..	2	6

JOHN AND CHARLES LEE, Royal Vineyard Nursery and Seed Establishment, Hammersmith, W.

Choice Seeds of Prize Flowers (Post free).
SOW NOW.
MR. WILLIAM BULL recommends the following:—

	Per packet.—*s.*	*d.*
PRIZE PRIMULA SINENSIS, Red and White.. each	2	6
PRIZE PRIMULA SINENSIS, Fern-leaved, Red and White .. .. each	2	6
PRIZE PELARGONIUM, Gold and Bronze	2	6
PRIZE CINERARIA	2	6
PRIZE CALCEOLARIA	2	6
PRIZE GLOXINIA..	2	6
PRIZE BEGONIA, handsome-flowered..	3	6
PRIZE AURICULA, Alpine	2	6
PRIZE CARNATION	2	6
PRIZE COLEUS	2	6
PRIZE FUCHSIA	2	6
PRIZE PETUNIA	2	6

Establishment for Choice Seeds and New and Rare Plants, King's Road, Chelsea, London, S.W.

Early Flowering Iris.
E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, the Netherlands, are now ready to send out the following extra ornamental and rare IRIS, flowering in the early spring, viz.:—
IRIS RETICULATA (Bieb.).—The true dark-blue, sweet-scented sort, as figured in "Regel's Gartenflora," December, 1873. Good bulbs, 1*s.* each, 10*s.* 6*d.* per dozen, 72*s.* per 100, 700*s.* per 1000.
IRIS KRELAGEI (Regel).—With purple flowers, only a few days later in bloom than I. reticulata. Figured in "Regel's Gartenflora," December, 1873. Good bulbs, 7*s.* 6*d.* each
IRIS HISTRIO (Reichenb. fil.).—With light blue flowers of a delicate odour; opening in the middle of January in the open ground. Figured in the "Botanical Magazine," tab. 6033, May, 1873, as Xiphion Histrio (T. D. Hooker). Offered now for the first time to the trade. Good bulbs, 21*s.* each, 190*s.* per dozen.
Discount to the Trade. Please send Orders immediately to E. H. KRELAGE AND SON, Haarlem, the Netherlands.

Noteworthy Horticulturists and Botanists.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6*d.* each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.
W. WILSON SAUNDERS, F.R.S.
Rev. M. J. BERKELEY, F.L.S.
M. DECAISNE.
G. F. WILSON, F.R.S.
Dr. MOORE, of Glasnevin.
Professor REICHENBACH.
Rev. S. R. HOLE, M.A.
E. J. LOWE, F.R.S.
JAMES MCNAB.
ROBERT HOGG, LL.D.
Dr. REGEL.
JAMES BATEMAN, F.R.S.
BERTHOLD SEEMANN, Ph.D.
ARCHIBALD F. BARRON.
Hon. MARSHALL P. WILDER.
JOHN GIBSON.
Professor ASA GRAY.
I. ANDERSON-HENRY.
Professor KARL KOCH.
Baron VON MUELLER.
JOHN SMITH (Kew).
Professor WESTWOOD.
Dr. THWAITES.
Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5*s.* 11½*d.* | Six Months .. 11*s.* 11*d.*
Twelve Months .. £1 3*s.* 10*d.*

FOREIGN SUBSCRIPTION.

£1 6*s.* *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10*s.* 4*d.* *for* 12 *months, including postage to*—
AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14*s.* 8*d.* *for* 12 *months, including postage to*—
RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, JULY 25, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	July 28	Tewkesbury Horticultural Society's Show. Buckingham Horticultural Society's Exhibition. Highland and Agricultural Society's Meeting at Inverness—to 31st. Hales Owen and Hagley Horticultural Society's Show. Ditchingham Horticultural Society's Show.
WEDNESDAY,	July 29	Errol Horticultural Society's Show. Castle Donington (Derby) Horticultural Society's Show.
THURSDAY,	July 30	Royal Oxfordshire Horticultural Society's Show. Woolton Horticultural Society's Show.
SATURDAY,	Aug. 1	Southampton Horticultural Society's Grand Show and Gala (Saturday and Monday). Heywood Horticultural Society's Show. Earlsheaton and Chickerley Horticultural Society's Show.

THE subject of the PERIODICAL PHENOMENA OF VEGETATION, which was brought prominently before the British Association at its meeting at Cambridge in 1845, seems again likely to excite some attention. The Meteorological Society has announced its intention of taking up the matter, and of arranging some co-operation among the Fellows of the various learned societies, so that such observations may be recorded in a systematic manner, and may furnish data on which conclusions may be satisfactorily established. Under these circumstances it may be worth while noting what has already been done in this country which bears upon the matter.

It must be admitted that, mainly through that want of co-operation which it is now proposed to supply, the results of such examinations have been by no means satisfactory. We in England can boast of no such systematic records of different observers as were obtained by the various Belgian naturalists who, under the leadership of M. QUETELET, commenced their simultaneous observations in 1841, and carried them on during the following years. Mr. THOMAS D. COUCH is the only authority for England whose observations have been made in accordance with M. QUETELET'S plan ; and it is only from general observations throughout a country that anything like general conclusions can be drawn.

Confining our observations to the vegetable kingdom, the following are the points most worthy of note :—The periods of leafing, flowering, fruiting, and leaf-fall of plants ; of the opening and closing of certain flowers which are especially sensitive ; the position of the locality in which the observations are made ; besides any additional particulars which may appear to bear upon the phenomena recorded. For this purpose a general list may be kept by those who have leisure and opportunity for such a work ; but it is necessary for purposes of comparison that a list should be drawn up and issued to those interested in the work in which a certain number of common and easily observable plants should be set down for especial examination. Such a list must not be too lengthy—a point on which M. QUETELET seems to have rather exceeded due limits—nor, on the other hand, must it be too brief.

The interesting series of articles on "Climatal Changes" which lately appeared in these pages terminated with an epitome of STILLINGFLEET'S *Calendar of Flora*, kept at Stratton in Norfolk over a hundred years ago. This, and similar observations made by GILBERT WHITE, MARKWICK, and others furnish many interesting particulars, and will always be valuable for reference. But the most complete and careful record of the periodical phenomena of vegetation is that which has already been referred to in these pages (Feb. 28, 1874, p. 281), and is to be found in the report of the Marlborough College Natural History Society for midsummer, 1873. We have in this laborious and valuable report, compiled by the Rev. J. A. PRESTON from the records of the Society, a summary of the observations made upon 124 common (mostly British) plants, extending over a period of nine years. The reproduction of the tables in full would be of course out of the question, but we may refer the reader to our previous article for a specimen, and for some further comments on them. The importance of Mr. PRESTON'S labours has been fully appreciated by the Meteorological Society, as is shown by the fact, which we have already mentioned, that they have selected him to draw up a list of plants for general observation. The list which Mr. PRESTON has been requested to furnish will no doubt be a satisfactory one ; it might with advantage include those British plants which Mr. WATSON, in his recent *Topographical Botany*, has indicated as absolutely common ; that is to say, which are found in each of the 112 "counties" into which he has divided Britain for which he has any records. These are—Ranunculus acris, R. repens, R. Flammula, Sagina procumbens, Cerastium triviale, Trifolium repens, T. pratense, Lotus corniculatus, Centaurea nigra, Senecio, Jacobœa, Achillea Millefolium, Bellis perennis, Plantago major, P. lanceolata, Rumex Acetosa, R. Acetosella, Lolium perenne. (It seems strange, by the way, to find Groundsel and Shepherd's Purse absent from a statistical list of the commonest plants.)

We hope, too, that ample provision will be made in the list issued by the Meteorological Society for the observation of the dates of leafing and fruiting. These are rather more difficult to observe, but are not less important than those of flowering, and should certainly find a place among the records of periodical phenomena.

HEARTILY do we congratulate Mr. W. PAUL, of Waltham Cross, on the success of his attempt to break away from the conventionalism and formality with which a ROSE SHOW is invested. Again and again we have protested against the ugly way in which our Rose shows, and we may specially add our fruit shows, are arranged. Only a week or two ago we remarked that the arrangement at Rose shows seemed intended to exemplify how even such beautiful flowers as Roses might be rendered ugly and unattractive. At that time we were not aware what Mr. PAUL had in store for us, and did not know that he had planned for the highly successful evening *fête* at the Royal Botanic Society in the Regent's Park, a series of beds and combinations which were the talk of the town the next day, and which will, we hope, silence those who have said so often that the thing cannot be done. Admitting that for the moment Mr. PAUL was an autocrat, having only his own will to consult and his own materials to work upon, he has nevertheless proved that something tasteful can be accomplished, and that vastly increased attractiveness is the result.

Conventional usages take a long time to uproot, especially when, as in this case, they have some admitted advantages. For our own parts we do not think these advantages at all outweigh the distressing ugliness of what should be the loveliest of floral parqueterie. It is difficult to understand why we have put up so long with long straight stages, and ugly rectangular boxes with flowers jammed into them, and all packed closely side by side without variation of level, with nothing to set off, vary, harmonise, or contrast with the masses of colour. Why, even Roses themselves cannot bear such a test as that without suffering—a good Rose loses half its attractiveness, a bad one shows its defects more fully than it otherwise would do. "But the judges—ah ! the judges have to be considered." Undoubtedly they have. They should have every facility given them for comparing the flowers, and for coming to a right conclusion as to their merits. But surely he must be a very inefficient manager who, in such a case as this, could not so contrive his plan as to satisfy at once the requirements of the judges and the tastes of the spectator. Again, it is said the exhibitors would raise objections. Perhaps they might at first, but they are far too long-sighted a race not to see that, if the arrangements were well carried out, and facilities given for comparison, that their interests would be far better served than they now are. In the case of a Rose show, and still more in the instance of a fruit show, it would be a much more easy task to fulfil the requirements of good taste, to satisfy the convenience of the judges and of the exhibitors, than in a general flower show, and yet as a rule it is precisely in these less complicated shows that the least attempts are made at good grouping.

Mr. PAUL has now shown us how the thing can be done, and the advantages are so self-evident that we shall expect to see many others following in his footsteps. The annexed plans (fig. 25) will show the general method of arrangement better than long description, and will, we think, make it manifest that it is quite possible to secure a beautiful and effective arrangement without interfering with the convenience of the judges and connoisseurs. Almost any change would be a relief from the stereotyped monotony and ugliness of our present system.

The idea of Mr. PAUL, which he so successfully carried out, was to show the effect of groups of beds of Roses on grass, with due attention to harmony of colours. In most cases each bed was occupied with one variety only, but beds of mixed colours were occasionally introduced for the sake of variety. In some groups strong contrasts were arrived at, in others harmony of colouring, shade softening into shade. The flowers were placed in short stone bottles, in which the flowers were loosely arranged with buds and leaves as they grow naturally on the bushes. The extent and com-

pleteness of the arrangement may be surmised from the fact that about 6000 trusses of flowers were used. The varieties employed were those best suited for planting in masses, such as Général Jacqueminot, Firebrand, Madame Victor Verdier, crimson; Marquise de Castellane, Peach Blossom, Mademoiselle Thérèse Levet, rose coloured; Madame Plantin, and Mrs. Bosanquet, white; Madame Falcot, yellow; and most of the leading Roses, new and old, of every colour and shade. Taken ndividually Firebrand, which may be described as a crimson Baronne de Rothschild, was the most effective in the show.

The figures will serve to show the arrangement of the colours; thus in A the space numbered 1 was filled with crimson Roses; 2, with blush varieties; 3 and 4, with flowers of rose-coloured hue.

In B, 1 was filled with maroon flowers; 2 and 3, with rose; 4 and 5, with crimson; 6 and 7, with white; 8 and 9, with rose; and 10, with crimson-coloured flowers.

In C, 1 and 2 were filled with white Roses; 3 4, and 5, with rose; and 6, 7, 8, with crimson-coloured flowers.

The arrangement of the flowers in D was as follows:—1, 2, 3, yellow; 4, 5, 6, 7, rose-coloured; 8, 9, 10, crimson; while 11 was occupied with white Roses.

The long bed E was filled with Roses of different colours, thus:—1, 2, white; 3 and 4, crimson; 5, 6, mixed; 7, 8, rose-coloured; 9, 10, crimson; 11, 12, yellow; 13, 14, rose; 15, 16, mixed; 17, crimson.

When a Rose grower and a Rose exhibitor of eminence sets the example, we see the fallacy of the objections commonly raised; and we say to flower-show managers and to Rose exhibitors—go and do likewise.

—— Since writing the paragraph in the report of the last meeting of the Scientific Committee, at p. 83, we have had an opportunity of inspecting the Hollyhocks in Messrs. Downie, Laird & Laing's nursery at Forest Hill, and which have so far been effectually cured of the disease (Puccinia malvacearum). This terrible pest first appeared in this nursery last autumn, when but little was generally known about it, much less a remedy. It was on the plants, it appears, when they were put out this spring, and spread so rapidly, that had not stern measures been taken, the whole collection must speedily have been decimated. If allowed to have its own way, the plants must soon have been destroyed; so, kill or cure, Mr. Laing cast about for an antidote, and decided to try the effect of alternate applications of Gishurst Compound and flowers of sulphur, having much faith in the latter as a means of destroying all forms of parasitical fungi. The Gishurst was first applied at the strength of a 1s. box to 12 gallons of water, followed the next day or so by a good syringing and subsequent application of sulphur through one of Pooley's distributors. These two distinct operations were performed twice a-week, the Gishurst being gradually increased in strength to a 3s. box to 12 gallons of water, which is a very strong dose, and perhaps more powerful than is necessary. The leaves were held up by a boy, so that the under-surface could be thoroughly dosed, as it is there the evil chiefly exists; but care was taken that every part of the plant should receive the application. Sulphur was also liberally dusted over the surface of the soil near the plants. Certain it is that a cure has so far been effected, and the plants are now clean and free from the disease, and growing away well considering the heat and absence of rain. Anything that will save these plants, and especially the finer varieties, from total extinction, will be hailed with joy by every grower, and if after a trial of Mr. Laing's method on full-grown plants infested with the disease, it proves to be equally efficacious, the lovers of the Hollyhock will owe Mr. Laing a heavy debt of gratitude; for anything more deplorable than the losses already sustained through this disease has not been felt amongst horticulturists for a very long time.

—— Mr. Bolam, steward of the Aylesbury estates at Savernake Park, Wilts, has, says the *Times*, in concert with Mr. J. Downie, Manager of the British Dynamite Company, introduced the employment of Dynamite as an explosive agent for the more effectual Extirpation of the Stumps and Roots of Trees, boulder-stones, and other obstacles to the economic cultivation of woodland and rough and uncultivated ground. Some recent trials, at which Professor Abel was present, with other gentlemen, have satisfactorily shown that by boring an auger-hole in the middle of the stump of a tree that has been felled, or diagonally beneath it, and exploding therein a small charge of dynamite, the stump is so effectually shattered and split up as to render its subsequent removal easy. Also a small cartridge of dynamite exploded on the surface of a boulder will effectually break it up into small fragments easy of removal. Similar results have been obtained at Lord Dudley's limestone pits at Dudley, and at the Mount Sorrel granite quarries, Leicester.

—— In French markets may be seen country-women offering bunches of White Lily Flowers for sale. A great number of these are purchased, not to make bouquets, but to preserve in brandy. The petals are pulled off one by one and put into wide-mouthed pickle bottles containing ordinary *eau-de-vie*. They are kept in this way from year to year. When any one receives a cut or wound a brandied Lily-petal is produced, applied to the place, and fastened there with a bandage. Very powerful healing virtue is attributed to this floral plaister; and so general is the belief, that many grocers' shops keep in stock a glass jar of Lily petals, which they retail at a sou a-piece. But it is more probable the benefit proceeds rather from the stimulating action of the brandy than from any virtue extracted from the flower.

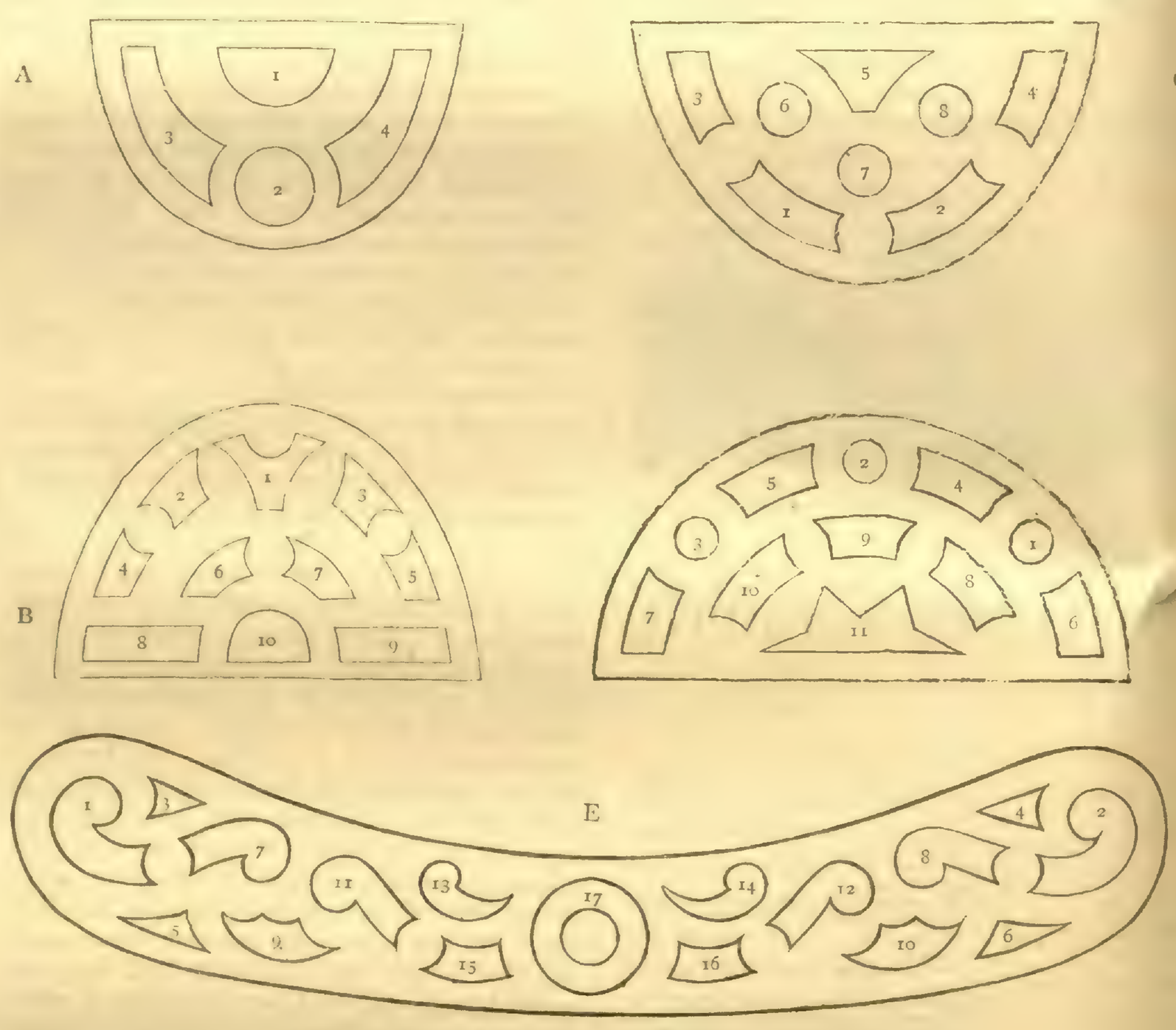


Fig. 25.—New Style of Showing Roses: Plan.

References to Plan:—(A) 1, Crimson; 2, Blush; 3, 4, Rose-colour.—(B) 1, Maroon; 2, 3, Rose; 4, 5, Crimson; 6, 7, White; 8, 9, Rose; 10, Crimson.—(C) 1, 2, White; 3, 4, 5, Rose; 6, 7, 8, Crimson.—(D) 1, 2, 3, Yellow; 4, 5, 6, 7, Rose-colour; 8, 9, 10, Crimson; 11, White.—(E) 1, 2, White; 3, 4, Crimson; 5, 6, Mixed; 7, 8, Rose, various; 9, 10, Crimson, various; 11, 12, Yellow, various; 13, 14, Rose, various; 15, 16, Mixed; 17, Crimson.

—— On Thursday, July 16, at the Zoological Gardens, Clifton, Mr. Dodds, of Bishopston, was presented with a testimonial, the result of subscriptions amongst his friends, upon his retirement from the position he had so long held as gardener to Sir Greville Smyth, Bart., Ashton Court. The testimonial, which was presented in the name of the subscribers by Mr. R. Coles, consisted of a silver cup and a purse. The cup bore the following inscription: "Presented, with a purse containing forty-three guineas, to Mr. Wm. Dodds, by a few friends, on the occasion of his retirement from active life, in acknowledgment of his success in promoting horticulture in the neighbourhood during the eleven years he superintended the Ashton Court gardens, and also as a mark of respect for his sterling character. Bristol, July, 1874." The compliment was appropriately acknowledged by Mr. Dodds.

—— The Society of Agricultural Co-operation, whose headquarters are in Millbank Street, Westminster, and who have depots in Liverpool, Hull, Southampton, Totnes, and Newcastle-on-Tyne, have lately held their seventh annual meeting at No. 6, The Crescent, Bedford. The Society took this house as a private hotel for the use of its members attending the Royal Agricultural Show. In 1868 this Agricultural and Horticultural Association had but 174 members, it has now, we are told, 878. Its capital, which seven years ago was £1666, is now stated to be £21,000. The profit earned for its members in 1868 was £493, during the past year it has been £3,000, in addition to the profit resulting to its members from the purity and high quality of the manures and seeds supplied to them. During the past year the Council has added eighty-six analyses to the large numbers previously made by it. It was stated at the meeting that the success of the Association shows the advantages which it is possible for farmers to command for themselves by co-operation. The chair was occupied by Mr. E. Vansittart Neale. Professor Sibson was re-appointed Analytical Chemist to the Association. The distribution of profits during the ensuing year was fixed at 5 per cent. interest on capital, and half the gross profit on goods to be returned to purchasers. An interesting discussion took place on the best means of obtaining artificial manures of the highest percentage of strength in the necessary drynesss of condition.

—— A means of preventing the spread of the Vine pest, the Phylloxera vastatrix, is said to have been found, in the spreading of a layer of fine sand on the ground round the stems of the plants. The sand is said to be too loose for this insect to pass through, and the consequence is that it is intercepted in its passage from one plant to another. A different explanation is given in another column. We are sorry to hear a report that this plague has found its way into Australia. The Vine growing districts of our Australian colonies are becoming so important that we trust this report may be unfounded. At all events steps should be taken to prevent its introduction into any of our colonies: such a measure will be easier than its destruction, should it ever gain a footing in them. *Nature.*

—— M. F. Barillet, in a recent number of the *Revue Horticole*, speaking of the Hygienic Properties of Parks and Plantations, gives the following interesting details. The air vitiated by three persons is purified by a hectare (a hectare = 2½ acres nearly) of forest. This must be a very general statement, but taking it as a basis M. Barillet proceeds to tell us that the city of Paris within the fortifications comprises 7802 hectares. If a third of this surface, that is, about

2600 hectares, were covered with trees, the purification so effected would neutralise the vitiation caused by 7800 inhabitants. This would be a slight matter for a population of 1,800,000 inhabitants, without reckoning domestic animals, factories, &c. To compensate for all this a forest of 600,000 hectares would be required. The area occupied by squares, public gardens, promenades, &c., in Paris, is only 7522 hectares; hence, according to the foregoing calculations, more than 500,000 hectares would be required to compensate for the deterioration of the atmosphere caused by the respiration of man and animals, &c. Without stopping to test the accuracy of M. BARILLET'S calculations, we can yet sympathise with the desire to increase the number of public gardens in all our towns; and it may be as well to state that it is not necessary, however desirable, to occupy such an extent as M. BARILLET indicates, seeing that he has apparently left out of his calculation the diffusion of gases and the replacement of impure by pure air which is always going on more or less, and without which life in towns would be unendurable.

—— Among the miscellaneous exhibits at the Royal Horticultural Society at the last Wednesday meeting was a case of DRIED FLOWERS remarkable for the manner in which the colour of the flowers had been preserved. The flowers were from the Cape of Good Hope, and it was stated that the lady (Mrs. ASTON, 6, Elgin Road, St. Peter's Park, Bath) by whom they were prepared would communicate her method of procedure in return for a donation to the funds of a South African hospital in which she is interested. Many ladies might with advantage try this process, and be serving the interests of the sick and needy at the same time. The colours were certainly singularly well preserved.

—— The influence of FORESTS in drawing MOISTURE from the heavens (we quote from the *Californian Horticulturist*) may be seen from the experience of San Diego, California. Previous to 1863 there was yearly a rainy season, which made the soil nourishing and productive. In 1863 a destructive fire swept over the greater part of the country, destroying the forest and blackening the hills. Since then there has been no rainy season at San Diego.

—— The suggestion has been made, says *Nature*, that KANGAROOS might be generally cultivated in parks and other enclosures in this country; and it is probable that they would prove quite as useful as deer. A French naturalist, M. CORNÉLY, has recently published some novel information on the subject, which seems to show that the proposal is perfectly feasible in every way. The experience of the various zoological societies in Europe shows that this marsupial will thrive and breed in our climate, damp being the only condition which is fatal to it. It will bear great extremes of heat and cold without injury. M. CORNÉLY says that they are not destructive to trees and shrubs, and that if any individuals contract the habit of barking trees they can be broken of it by shutting them up for two or three days without food. On being released they are so eager in search of grass that they do not touch the trees. As an ornamental adjunct to an English park, the presence of kangaroos would prove very valuable; their skins are highly prized on account of the quality of the leather, and most probably the principal obstruction to the more general cultivation of the animal is the prejudice that exists against the introduction of novelties. But what fence, we may ask, would keep them in?

—— Some time since we alluded to the CITRUS TRIFOLIATA which we met with in the garden of the School of Medicine at Paris. Mr. FORTUNE now tells us that it is used by the Chinese as a stock for the Kum Quat, and that it was introduced by him many years since to this country.

—— One of the finest plants for conservatory or greenhouse decoration at this season of the year is the old shrubby MIMULUS (DIPLACUS) GLUTINOSUS. Some plants we recently saw at the Birmingham Botanic Garden were literally masses of flower, the plants being dense bushes some 3 feet through or more. The plants required nothing beyond ordinary greenhouse treatment; and we understood from Mr. LATHAM that his practice was to turn them out-of-doors with other greenhouse plants as early as possible in the summer, bringing them into the positions required when they reached the flowering stage. Doubtless the red-flowered M. puniceus would prove amenable to the same treatment.

—— The prospectus has recently been issued of THE ROYAL AQUARIUM AND SUMMER AND WINTER GARDEN SOCIETY (Limited) which has for its object the provision in the heart of London of an Aquarium and Summer and Winter Garden, and in connection therewith to afford facilities generally for the promotion and encouragement of artistic, scientific, and musical tastes. A freehold site has been procured which may fairly be termed unrivalled, facing as it does the Houses of Parliament and Westminster Abbey, and being within a few minutes walk of Charing Cross, St. James's Street, Piccadilly, and the St. James's Park and Westminster Bridge Stations of the Metropolitan District Railway, and lying between the new Government Offices in Victoria Street. The centre or main transept of the building will be constructed principally of glass, forming a large conservatory and promenade, surrounded by galleries. In this a concert will be held every afternoon and evening. The band will rank second to none in the world. Special concerts (vocal and instrumental) will be held every Saturday, at which the most eminent and favourite *artistes* will appear. Performances of an attractive and varied character will also take place on stated days; at Christmas an entertainment will be provided specially acceptable to children and families. In connection with the main building there will be rooms for private concerts and for the delivery of popular lectures on matters pertaining to science and art, and other subjects of public interest. The hall will be so arranged that artistic, literary, and private societies can engage it for the purposes of meetings, *conversaziones*, &c. A reading and writing room, as well as a library, will also be opened for the use of visitors. Throughout the season flower shows, *fêtes*, &c., will be organised in the central hall, which will be peculiarly well adapted for these purposes. A picture and fine art gallery will also be opened; and to this department offers on loan from influential quarters have already been made. The Council of Fellows comprises many names well known in the scientific, artistic, financial, and fashionable world; and the capital proposed to be raised is £200,000, in 40,000 shares of £5 each.

—— The following plants were in flower in the latter half of June in Mr. HANBURY'S garden at Mortola, near Mentone, mentioned in our last issue:—

Melaleuca ericifolia	Aloe tenuifolia
Rhynchospermum jasminoides	,, umbellata
Swainsonia Osburnii	Lomatophyllum macrum
Tacsonia Van Volxemii	Crassula tetragona
,, ignea	Agave Bouchei
Gladiolus cardinalis	Pithecoctenium sp. ? (Mello, 17**)*
Cotyledon teretifolia	Heteromorpha arborescens †
,, nuda	Tripteris sinuata †
,, orbicularis	Statice macrantha
,, coruscans	Tacsonia mollissima
Opuntia cylindrica	Salvia chamædryoides
,, Lemaireana	Olearia lepidophylla
,, vestita	Genista manthica
,, microdasys	Mesembryanthemum falciforme
,, coccifera	Cereus Spachianus ‡
Echinopsis Eyriesii	
Aloe depressa	

—— It may interest those who are fond of using foliage plants in their summer gardens, but who yet have no heat in which to raise tender things, to learn that plants of PACHYPHYTUM BRACTEOSUM can be raised in a very simple manner—in so simple a fashion as to make it easy for window gardeners. If some of the thick fleshy leaves towards the base of the plant be taken off in the early part of the month of May, and then laid in pots or pans of fine soil, so that the stem of the leaf can just touch it, and the soil be kept nearly dry, or only very slightly moist, many of them will form young plants in the course of a few weeks. In the case of the most successful attempt that has come under notice, the leaves were laid on the shelf of a greenhouse for three or four days to get "callused" as it is termed; they were then laid on the soil, and some fine soil shaken over them sufficient to cover them about one-third of their depth. The pots were then placed on a greenhouse shelf in a hot dry position, and the soil was slightly sprinkled once or twice a week during hot weather. Nearly every one of the leaves has given forth a young plant at its base, that is rapidly growing into size. The same result would take place if the pots or pans of soil were placed in an ordinary sitting-room window. Good established plants of Pachyphytum bracteosum will bear exposure to a few degrees of frost with impunity, if kept dry; they cannot be kept too dry during winter, and really suffer more from damp than from cold. Leaves of P. roseum, treated in the same way, have thrown out young ones just as readily, and of the two it is surer than P. bracteosum, as the leaves do not appear to be so readily affected by damp.

—— The Lepchas of Sikkim, says Mr. SCOTT in the *Linnean Transactions*, eat the cellular portions of the stem of several TREE FERNS, and prepare an intoxicating fluid from them. Angiopteris evecta is also used, by slicing the root and roasting it in ghee. The tubers of Nephrolepis tuberosa are also made use of for food.

—— The Caen Academy of Science and Art, as we learn from *Nature*, proposes as the subject of the LE SAUVAGE Prize, of the value of 4000 francs, to be awarded in 1876, the question of the FUNCTION OF LEAVES IN THE VEGETATION OF PLANTS. The Academy does not want simply an exposition of the present state of science on this important question; it requires, besides, from competitors, exact experiments performed by themselves, and new facts tending to throw light upon, invalidate, confirm, or modify doubtful points in the theories at present accepted. The memoirs ought to be sent to the Academy before January 1, 1876.

* For the first time at Mortola.
† Both, I believe, for the first time at Mortola.
‡ A noble flower: corolla 16 centimètres in diameter.

—— We learn with great pleasure, says *Nature*, that during the last three years there has been a very successful CLASS FOR BOTANY in connection with the Royal Veterinary College. From some notices of excursions made during the present summer, which have been sent us, we see the field-class is one of the largest in London, or anywhere else we should think, and that the excursions are made the means of valuable training as well as of conveying solid information.

—— We understand that, in addition to the cups and prizes offered for competition at the Great International Show of Fruit and Flowers to be held in the Botanic Gardens, Belfast, when the British Association visits that city, the Messrs. METHVEN, of Edinburgh, have added (in addition to a liberal donation) a 5-guinea cup for twelve plants suitable for table decoration, in pots not exceeding 6 inches, to be competed for by amateurs.

—— The large VINERY at GUNNERSBURY, the residence of Baron LIONEL DE ROTHSCHILD, is just now very interesting to Grape cultivators. This fine range of four vineries was planted about three years ago, and the young Vines are just getting into excellent bearing condition. They are all planted inside the house, but a border has just been prepared on the outside also, and three or four years hence the products of this range of vineries will no doubt be surpassingly fine. The two centre houses have been used as early vineries, and are planted with Black Hamburgh, with here and there a cane of the Royal Ascot. The latter it is Mr. RICHARDS' intention to remove altogether; only a few bunches remain in one of these houses, the other being entirely cleared. The western house is planted with Muscat of Alexandria and Madresfield Court Black Muscat, the condition of the last being most satisfactory. One Vine has borne nine bunches, eight of them of good size, the berries large, plump, and even, and colouring well. Any one desirous of seeing this fine Grape in good condition during the month of August would do well to visit Gunnersbury. The eastern house is wholly planted with Muscat, the bunches just beginning to colour. These are also in excellent condition, and they give abundant promise of what may be looked for in these vineries a few years hence. Mr. RICHARDS does not thin out the wood of his Vines after the fashion of some cultivators. He recognises the reciprocity of action between root and branch, and in doing this shows also that it is not inconsistent with the production of fine crops of Grapes.

THE PHYLLOXERA.

IN the *Journal des Débats* M. Henri de Parville says that the increasing invasion of the Phylloxera, and the slight success of the attempts hitherto made to stop it, have caused serious alarm amongst the proprietors of vineyards. For the last ten years the evil, instead of diminishing as was hoped at first, has steadily continued to increase. In 1865 the Phylloxera appeared at Rouquemaure, in the Department of the Gard; the following year it attacked the Department of Vaucluse and of the Bouches-du-Rhone; in 1868, that of the Drôme, spreading southwards as far as the Mediterranean. Next, by successive bounds, we find it reaching the Department of the Rhone, and shooting out rays into those of the Hérault, the Var, the Ardèche, &c. In a little while, unless the most stringent measures are taken, we shall see it in the district known as the Mâconnais. After the south, Burgundy will have its turn of calamity and ruin. The march of the scourge is slow, but sure and inexorable; we might calculate the moment when every Vine will disappear, devoured by the insect. On that day, which may be not far distant, France will have lost one of the most important sources of her national wealth. Already the loss is estimated by milliards of francs; the country's capital is in the way of diminution. There is no longer time to enter into learned disquisitions respecting the habits and migrations of the creature. Some decisive action must be taken, and that with as little delay as possible.

It is in this light that the matter has been regarded by the Académie des Sciences. M. Dumas, President of the Commission on the Phylloxera, has given expression to the anxieties of the viticultural population, and has drawn a gloomy picture, unhappily only too exact, of the ravages caused by this little pest, which is, perhaps, just now, the cruellest enemy that France has to fear. "I am convinced," he said, "that the invasion of the Phylloxera will be mastered, and that we have no cause to despair of our

vineyards; but to put down the plague there must be united action, which ought to have been concerted at an earlier date, and which must be agreed upon at latest during the present year." M. de Parville, therefore feels it his urgent duty to indicate the means which the eminent permanent secretary of the Académie judges fittest to grapple with the danger.

The Phylloxera, as is known, has two existences: one subterranean, in the wingless form, during which it seems possible to reach it, since it is fixed upon the roots of the Vine; the other aërial, in the winged form, in which it is almost unseizable, and during which its functions consist rather in providing a new field of action for future generations of its race than in inflicting injury through its own individual agency. The Phylloxera, therefore, must be attacked whilst underground. Three ways of doing so present themselves:—To drown the insect by submerging the Vine is the method successfully employed by M. Faucon [Originally, we believe, by Mr. Dunn, now of Dalkeith. EDS.]. When submersion is not possible, doing the same thing with sand is a mode which, according to M. Lichtenstein, is attended with excellent results. When neither water nor sand can be employed, poisoning must be resorted to. The effects of submersion are easily understood; the creature is suffocated. Sand acts in the same way. M. Duclaux had already observed that the insect does not increase rapidly either in very compact or in sandy soils. In sand, it cannot get on or make its way: it is choked to death. In sand, even if a female is found surrounded by her eggs, the young, when hatched, are hampered in their movements by the shifting soil, which prevents their escape and causes them to perish. In the Camargue (a remarkable, wide, uninterrupted plain, stretching from Arles to the sea, and eastward nearly as far as Marseilles, including the delta of the Rhone), M. Espitalier succeeded in resuscitating the half-dead Vine stocks in his vineyard, by surrounding them with the sand of the Rhone. Even in localities where sand is scarce and only obtainable in small quantities, rootlets may still be made to grow, and the Vine consequently saved, by cutting a small trench in the ground across the roots and filling it with sand. A path is thus opened for fresh radicles to make their way unhurt. As a matter of course, it is indispensable to mulch the plant with some manure—ashes and guano, for instance. The sand acts not only by hindering the insect from leaving its retreat, but still more by plugging up its respiratory orifices. It is known, in fact, that the insecticide powders which have become so important an article of commerce are efficacious, not because they poison the insect, but because they prevent the air from entering its breathing apparatus.

When water and sand are not to be got, poisoning must be had recourse to. It is stated that, in those cases, the surest plan is to surround the roots, and thereby the insects, with poisonous gas or vapour. But a difficulty immediately presents itself; will not the artificial atmosphere thus produced in order to kill the insect, also kill the Vine? The employment of sulphuret of carbon, which produces heavy vapours easily penetrating underground, had been strongly recommended. Several viticulturists have tried it, but doubtless in too profuse proportions. They killed the insect certainly, but they also killed the Vine with the Phylloxera. It is only just to add that sulphuret of carbon judiciously employed may exercise an efficacious action without causing injury to the plant.

M. Dumas has put the public in possession of a method of testing the simultaneous action of a deleterious substance on the Phylloxera, and, at the same time, on the Vine; for (and it must not be forgotten) we have to spare the one while we kill the other. His plan is very simple. Two stout glass tubes, about 4 inches long, are placed side by side, one above the other, and communicating with each other by a tube. The upper one contains a few flocks of cotton, the other one the insects. You close the tube containing the insects; you pour into the other a few drops of the liquid whose action is desired to be ascertained. The vapour of the liquid descends into the test tube and kills the insects, or leaves them unharmed, according to the dose. When sulphuret of carbon was employed 50 grammes of liquid were poured into three holes, which were then stopped up. These 150 grammes of sulphuret per Vine-stock developed almost instantaneously 50 litres (say quarts) of vapour. The vacuum (of earth) or empty space in the soil occupied by the Vine roots corresponds to about 350 litres. There was thus produced one volume of sulphuret for six volumes of air, which was considerably too much, as will be seen from M. Dumas' experiments.

Phylloxera vastatrix does not exist in Paris. M. Dumas employed other insects, varying the species. The results accorded sufficiently for them to be relied on as applicable to the enemy of the Vine. In a mixture consisting of 9 parts of air and 1 of sulphuret of carbon vapour, flies are killed in thirty seconds. With 24 of air and 1 of sulphuret, a minute suffices. With 33 of air and 1 of sulphuret, they die in two minutes and a half. With 75 of air, they try to fly, fall on their backs, and perish in seven or eight minutes. With 114 of air, they are much weakened the first few minutes, and dead in half an hour. With 254 of air, the flies flutter their wings, fall into a sort of drowsy coma, and cease to live in an hour and a quarter. As it is of little consequence whether the Phylloxera is killed in a few minutes or in a day, provided that it be but killed, we see that the poisonous atmosphere may be largely diluted, and yet retain its efficiency. If the sulphuret of carbon be replaced by alkalines of tar, it is found that those alkalines are active, though less so than the sulphuret, and that Petroleum approximates very closely in toxical power to them.

The little apparatus which serves to measure the poisonous action of vapours on insects may be equally well employed to ascertain that a plant can support the dose which is fatal to an insect. The roots of the plant are plunged in the insect tube, the leaves remaining in the open air, and the condition of the plant under the influence of the poison is watched. Sulphuret of carbon, in the proportion of 1 part to 300 of air, which perfectly settles the Phylloxera's business, is without effect upon the Vine. But the poisons which will destroy the Phylloxera are still under investigation, and the best and the most economical cannot yet be indicated. Nevertheless, M. Dumas recommends more particularly a trial of the substances which have just been mentioned.

The sulphydrate of ammonia appears to furnish good results in every respect. It is this compound which seems to give efficacy to certain remedies that have already been tried, such as night-soil, gas-water, sulphurets, &c. Its vapour is sufficiently heavy to sink into the fissures of the ground. It is prepared where required by putting sulphuret of potassium in contact with sulphate of ammonia. The two substances are mixed in the proportion of 55 of sulphuret to 66 of sulphate. Moreover, the potash and the azote of this mixture are nutritive elements for the Vine. Sulphuret of carbon may be successfully employed, but it is important to diminish its volatility by associating it with resinous or oily soaps, having potash for their base.

The alkaline sulpho-carbonates studied by M. Dumas possess a combination of properties which naturally point them out to the attention of viticulturists. These salts are formed of sulphurets of potassium, or of sodium united with sulphuret of carbon. They strongly attract the atmospheric moisture, and in contact with water they immediately disengage sulphuretted hydrogen, a poisonous gas, and sulphuret of carbon, a poisonous vapour. Carbonic acid decomposes this salt. The very respiration of the Phylloxera, a source of carbonic acid, will determine the production of the two poisons which are fatal to it, and the insect thus becomes the agent of its own destruction. This salt presents sulphuret of carbon in a solid uninflammable form, not volatile, and therefore transportable and manageable, and not putting forth its peculiar qualities until it is required to turn them to account. Finally, the sulpho-carbonate of potassium, by the potash which it forms in decomposing, supplies the Vine with one of its most necessary elements. Unfortunately, the sulpho-carbonate of potassium has hitherto been produced in laboratories only. It is to be hoped that we may soon be able to obtain it with facility, and at a moderate price.

Repressive measures, then, against the Phylloxera, are these:—Drowning, burying in sand, and poisoning. But still further precautions must be insisted on. If one female insect full of eggs escapes the influence of poison, sand, or water, a focus of infection will survive sufficient to contaminate the whole of the land. More rigorous measures are, therefore, necessary.

(To be continued.)

PLANTS HARDY IN THE BOTANIC GARDEN OF BREST.

THE following list and comparative tables of latitude, longitude, and temperature, derive their value not merely from their own intrinsic interest, but because there are numerous localities in the southern and western parts of the United Kingdom whose climate is so analogous to that of Brest that similar cultural results may be fairly reckoned upon; indeed, many of the species are hardy in both situations. Although the friend who supplies them prefers to withhold his name, the reader may rest perfectly assured that the facts have been observed with the utmost care.

Alpine plants have not succeeded at the garden, but it is believed that, with suitable and proper management, they might be made to prosper satisfactorily, if not equally well, with other introductions. Perhaps one of these days the *Gardeners' Chronicle* will give full directions for the treatment of alpines in lowland gardens, thereby helping the collectors of those floral gems, as well as probably increasing the number of their cultivators, for to know them is to admire and grow fond of them, especially after finding them in their mountain homes.

Woodwardia radicans, Sw., Teneriffe
Sporobolus tenacissimus, Lk., India
Chloris truncata, R. Br., New Holland
Eustachys petræa, Sw., Tropical America
Coix lacryma, Sm., Cape
Pennisetum longistylum, Hort., Abyssinia
Andropogon squamosum, L., India
Commelyna tuberosa, L., Mexico
Cyperus alternifolius, L., Madagascar
,, vegetus, Willd., Antilles
,, asperifolius, Desf., India
Myrsiphyllum asparagoides, Willd., Nepal
Dianella cœrulea, Red., New Holland
Charlwoodia congesta, Sw., New Holland
Xerotes longifolia, Lab., New Holland
Caladium esculentum, L., Antilles
Richardia æthiopica, Kth., Cape
Ornithogalum thyrsoides, Jacq. Cape
Eucomis punctata, L'Her., Cape
Tritoma (genus)
Aspidistra lurida, Bot. Mag., India
Ophiopogon japonicus, Ker., Japan
Ruscus androgynus, L., Canaries
Asparagus sarmentosus, L., Ceylon
Agapanthus umbellatus, L'Her., Cape
Polyanthes tuberosa, L., India
Aloes (genus)
Yucca aloifolia, L., Carolina
Phormium tenax, Forst., New Zealand
Gladiolus, Ixia, Sparaxis, Babiana (genera), Cape
Morea iridoides, Aubl., Cape
Cipura cœrulea, Aubl., Brazil
Hypoxis villosa, L., Cape
Agave (genus), Tropical America
Zephyranthes rosea, Lindl., Cuba
Hedychium coronarium, Willd. India
,, Gardnerianum, Vahl., India
Canna (genus), Tropics
Strelitzia regina, H. K., Madagascar
Wachendorfia thyrsiflora, L., Cape
Watsonia rosea, L., Cape
Antholyza Cunonia, L., Cape
,, ringens, L., Cape
Sagittaria chinensis, Sm., China
Osteospermum moniliferum, L., Cape
Gasteria pavonia, Andr., Cape
Gazania speciosa, Less., Cape
Delairea scandens, Lem., Mexico
Cineraria Petasites, Bot. Mag., Mexico
Verbesina serrata, Cav., Mexico
Borrichia frutescens, D.C., Jamaica
Conyza ivæfolia, L., Peru
Neja gracilis, Don, Mexico
Erigeron mucronatum, D.C. (= Vittadinia triloba, D.C., of gardens)
Eurybia argophylla, Cass., New Holland
Solanum radicans, L., Peru
,, reclinatum, L'Her., Peru
,, marginatum, Lam., Abyssinia
,, bonariense, L., Plata
,, Pseudo-Capsicum, L., South America
,, trigintum, Car., Mexico
,, auriculatum, Lam., Mauritius
,, jasminifolium, Hoffm., Mauritius
Brugmansia suaveolens, Don, Peru
Fabiana imbricata, R. and P., Chili
Calceolaria integrifolia, Murr., Chili
Phygelius capensis, Meyer, Cape
Pentstemon gentianoides, Don, Mexico
Russelia juncea, Zucc., Mexico
Veronica (genus), all those of New Holland and New Zealand
Eccremocarpus scaber, R. and P., Chili
Myoporum tuberculatum, R. Br., New Holland
Myoporum ellipticum, R. Br. New Holland
Lippia chamædrifolia, Steudel, Brazil
Aloysia citriodora, Ort., Chili
Cedronella triphylla, Moench, Canaries
Salvia Grahami, Bth., Mexico
,, aurea, L., Cape
,, africana, L., Cape
Myrsine africana, L., Cape
Erica (genus), Europe and Cape
Azalea indica, L., India
Rhododendron (genus)
Cistus (genus)
Camellia japonica
Sparmannia africana, L., Cape
Malva miniata, Cav., South Europe
Sphæralcea umbellata, Adr. Juss., Columbia
Sterculia heterophylla, P. Beauv., New Holland
Rhus lucida, L., Cape
,, semialata, Mus., Macao
Geranium anemonæfolium, L'Her., Maderia
Pistacia Lentiscus, L., South Europe
Melianthus major, L., Cape
Porliera hygrometrica, R. and P., Peru
Cassia falcata, L., South America
Edwardsia chilensis, Mieq., Chili
,, grandiflora, Salisb., New Zealand
,, microphylla, Salisb., New Zealand
Erythrina crista-galli, L., South America
,, laurifolia, Jacq., Brazil
Medicago arborea, L., Italy
Raphiolepis salicifolia, Lindl., China
Eugenia apiculata, D.C., New Holland
Myrtus, Leptospermum, Callistemon, Eucalyptus (genera) New Holland
Melaleuca thymifolia, Sm., New Holland
Rhexia virginica, L., Tropical America
Lagerstrœmia indica, L., China
Colletia spinosa, Lam., Chili
Cuphea (genus)
Haloragis erecta, Murr., New Zealand
Fuchsia (genus), S. America
Aralia papyrifera, Hook., Formosa
Escallonia (genus), Tropical America
Cereus peruvianus, L., Peru
Crassula obvallata, Haw., Cape
,, lucida, Lam., Cape
Arenaria balearica, L'Her., Balearic Islands
Mesembryanthemum (genus) Cape
Boussingaultia baselloides, Quito
Ercilla spicata, D.C., Chili
Muchlenbeckia nummularia, Meisn., Portugal
Mirabilis (genus), Tropical America
Oxybaphus (genus), Tropical America
Ampelogonum chinense, Lindl., China
Gunnera scabra, R. and P., Chili
Kadsura japonica, Kæmpf., Japan
Illicium floridanum, L., Tropical America
Cheiranthus longifolius, Vent., Madeira
,, mutabilis, L'Her., Madeira
Phytolacca dioica, L., Brazil
Pittosporum Tobira, H. K., China
,, undulatum, Vent., New Holland
Celastrus multiflorus, Lam., Cape
Acacia dealbata, Lam., New Holland.
Eriobotrya japonica, Lindl., Japan
Rhynchospernum jasminoides, Japan, China
Arauja alba, Don, Rio Grande
Ephedra altissima, Desf., Algeria
Aristotelia Macqui, L'Her., Chili
Quercus glabra, Thunb., Japan
Datura Meteloides, D.C., Texas
Nicotiana wigandioides, Hort., South America
Chamærops humilis, L., South Europe

Brest enjoys an essentially maritime climate. Placed at the extremity of the department of Finisterre, whose shores are bathed by the last ramifications of the Gulf Stream, it receives warm winds nearly all the year round, seeing that on an average they blow 200 days between south and north-west.

The mean temperature of Brest differs but little from that of Paris, but at Paris the extremes of temperature are separated by an interval attaining as much as 50° Centigrade, whereas at Brest they seldom reach 35°. It rarely freezes, and the frost never penetrates to the roots of vegetables. The hoar frosts scarcely ever cause injurious effects, because at sunrise mists almost always come from the sea, screening the sun's rays and preventing their scorching the vegetation. The rainfall is considerable. Winter has twenty rainy days per month, and the whole year 154 days. The rains are seldom heavy, but their frequency is a great obstacle to agriculture. The deficient heat of summer, the mean of whose warmest month is 17° C., is a great hindrance to the full development of plants in the open air, many of which do not ripen their fruits. Several even do not flower every year. Thus, Euonymus japonicus, one of the commonest shrubs in gardens, rarely flowers. The Ricinus, which ripens its seed in the course of the summer throughout a great part of France, fails to do so at Brest, although it frequently survives the winter (being a perennial shrub or small tree in countries where there is no frost). Amongst naturalised plants must be mentioned Aponogeton distachyon—a familiar favourite at Montpellier and elsewhere. It covers a small stream at Lambezellec, in the environs of Brest, with its long petioled leaves and its twin spikes of white sweet smelling flowers, to such an extent as to be troublesome. In the Botanic Garden it thrives well enough, but does not increase. On a previous occasion it has been stated that Helichrysum fœtidum, from the Cape, has established itself on the cliffs of the harbour, and Hypericum hircinum on the banks of several streams. Gynerium argenteum acquires a very vigorous development on the slopes surrounding the Port de Commerce, the port for merchantmen, where it is completely naturalised. Eucalyptus globulus is unable to resist the violence of the winds. In the neglected gardens of the Château de Penandreff (a little way off the road from Brest to Ploudalmézeau) is a group of Araucaria imbricata, which well deserves a pilgrimage. Sown in 1823, the tallest is now more than 60 feet high and nearly 9 feet in circumference. The branches, which start at about a yard from the ground, cover a circle not far short of 30 feet in diameter.

Two of these Araucarias produce female cones; no male cones have hitherto shown themselves, And here is an instance how unsuspectingly one may be led to a wrong conclusion. The gardener or man in charge, who spoke no French but Breton only, told us, through the interpretation of his daughter, a girl twelve or thirteen years of age, that notwithstanding the absence of male flowers the seeds of the cones grown on those trees were fertile. He had sown them, as we understood him, and they produced plants; and in confirmation he showed us what were unmistakably seedling Araucarias, sown by his own hand. Here was a puzzle. Was it a case of parthenogenesis? Was the A. imbricata another Cœlebogyne ilicifolia? No male Araucaria was known to exist nearer than Quimper, almost at the other extremity of the Department, miles and miles away as the crow flies. The prevailing winds do not blow from that direction; but was it possible for the pollen to have been borne by some circular storm or long-radiused whirlwind from Quimper to Penandreff? We were non-plused, and so the matter rested until my friend and guide received a letter from the owner of the château informing him that the little Araucarias were not the offspring of the home-grown cones, but of naturally and duly fertilised cones, which had been brought to his father from South America. The mystery was solved without any shock to botanical science.

In spite of its natural advantages and attractions, Brittany is very far behindhand, both materially and intellectually. The face of the country has an unkempt look, from which it is not saved by the beauty of the golden Broom and the purple Heath. The natives think them the loveliest of flowers. One cottage we passed showed the taste of its inmates by growing the wild white Convolvulus, C. sepium, as an ornamental climber twining up strings. Hedges of stunted Oak frequently divide the land, instead of Hawthorn, as with us. A hoary granite crop, from which, as the first Napoleon would say, a dozen centuries or more may be looking out, marks the entrance to many a barren heath, whose chief ornaments are Furze bushes delicately veiled with spider webs. Next come roadside houses, whose interiors as well as their outsides are stable-like—magnified pigsties, expanded calves' cribs, we might, perhaps, call them. If a building be but solid, the details and adjuncts are of minor importance. Thus, we have churches built and paved with granite and ceiled with wood; houses, stone boxes, divided into rooms by wooden partitions, with plenty of little images of the Virgin stuck about everywhere—for the religious or superstitious element of the country forces itself incessantly upon your notice. One of its worst plagues, mendicity, is all the more ineradicable because it is made to be closely mixed up with religion. There is the land, begging to be cultivated, and there are the arms which refuse to cultivate, preferring to hold out their hands as beggars. The untilled soil is of melancholy extent. Brittany comprises five of the departments of France, but it is believed that, if effectually farmed, that grand ancient province would have the importance of seven. We came upon a fine old ruined castle, tenanted aloft by cawing jackdaws, and below and within by a herd of cows and their guardian young bull, all chewing the cud in the stony and nettled shade, and making their entrances and exits through a dilapidated gateway. Attached to the castle was a tragical legend, combining supernatural agencies with fierce human passions—the whole scene typical of Brittany.

What farming there is, naturally has its local customs. In so rainy a climate, one would hardly expect to see horses treading out *escourgeon* or four-rowed Barley on a hardened floor in the open air. Parsnips are grown in fields, for cattle, not for human food. Stable and cow-house manure is piled in square heaps, so tall and shapely that all the juice and goodness oozes out and drains away. But for manure the inhabitants find a great resource in seaweed, which they employ largely with the best results. It is possibly beneficial to cultivated plants, both directly by the salts and other elements which it contains, and indirectly by the effect those salts may have in destroying or deterring the grubs of insects. The seaweed crop is of the utmost importance to the Bretons, on account of the soda extracted from it, as well as for agricultural and gardening purposes.

Annexed is a statement of the temperatures of Brest and of a few other places, whose plants are cultivated at Brest. The meridian reckoned from is that of Paris; the temperatures are given in degrees Centigrade and their tenths.

	Latitude.	Longitude.	Annual Mean.	Winter.	Spring.	Summer.	Autumn.	Coldest Month.
Brest	48°.23′ N.	6°.50′ W.	14.7	7.6	10.6	16.9	12.1	January .. 3.2
Paris	48°.50′ N.	0°.0	10.8	3.3	10.3	18.1	11.2	,, .. 1.8
Toulon	43°.07′ N.	3°.36′ E.	15.1	8.6	13.3	22.3	16.3	,, .. 7.5
Naples	40°.51′ N.	11°.55′ E.	16.4	9.8	15.2	23.8	16.8	,, .. 9.2
Algiers	36°.47′ N.	0°.43′ W.	17.8	12.4	17.2	23.6	21.4	March .. 14.5
Les Palmas, Canaries ..	28°.00′ N.	17°.51′ W.	21.8	18.0	19.4	23.8	26.4	January .. 17.8
Buenos Ayres	34°.37′ S.	60°.44′ W.	16.9	11.4	15.2	22.8	18.1	July .. 11.0
Cape..	33°.55′ S.	16°.08′ E.	19.1	14.8	18.6	23.4	19.4	,, .. 14.3
Paramatta	33°.50′ S.	148°.50′ E.	18.1	12.5	19.2	23.3	18.2	,, .. 11.7

Of the plants which usually pass the winter outdoors in the botanic garden of Brest, a good many were destroyed by frost in the winter of 1870-71, and that under noteworthy circumstances, as appears from observations made by M. Blanchard, *jardinier-chef* in the establishment. For instance, Agave americana froze with 7° in the first part of the garden, which is moister than the others, whereas in the more elevated portion, where the thermometer descended to 9°, it resisted perfectly. A plant of Phormium tenax, which had grown in a basin for fifteen years previously, was frozen to the root. The plant growing in its place, where labelled in the Ecole de Botanique, did not suffer; and a third plant, growing beside the Agave in the upper garden, was completely frozen. With these two plants, therefore, the very reverse took place. The Agave in the Ecole de Botanique froze, whilst the Phormium took no harm; in the upper garden it was the Phormium which froze and the Agave which resisted. Gunnera scabra froze completely at the edge of a small stream, just escaped in the middle garden, and was not touched in the loftier portion where the drier soil prevented the frost from penetrating. Dracæna congesta froze to the ground and sprung up again in summer. Veronica salicifolia is found to resist cold better than V. Lindleyana; it is "acclimatised" in sheltered and stony localities in the environs of Brest. V. decussata is perfectly naturalised in the Islands of Molène and Ouessant, where they give it the name of Myrte d'Ouessant. Eucalyptus viminalis has its stem frozen every winter, but shoots up again from the stock. None of these plants receive any covering or special shelter. *E. S. D.*

EFFECTS OF CULTIVATION.

PRUNING, &C.—In very many ways do we see the direct influence that a thorough system of culture has upon members of the vegetable kingdom. By cultivation I do not mean the superficial culture of field and other crops, or the hoeing amongst them and keeping them clean and free from native weeds, &c. I refer more especially to the reproduction of plants by artificial means, apart from the more directly natural one of seed sowing, and more particularly to periodical or occasional transplanting of such. An upward growth seems the initial tendency of all plants and trees which grow upon good rich soils, in the fight for supremacy waged by the majority of plants. Planters read the glowing accounts of travellers and collectors regarding the altitude various objects attain to in their native habitats, and proceed to dig, delve, and plant the self-same objects at home, thinking they will "go and do likewise." The Sequoia gigantea (Wellingtonia) and the Blue Gum tree (Eucalyptus globulus), attain to the height of 250 feet in their respective native forests. In planting the former in this, or the Blue Gum tree in other countries, it must, however, not for one moment be supposed that they will ever attain to a similar height. They must know upon consideration what the notes are intended to convey—that, though a tree gains vastly under a true system of culture on the one hand, it loses on the other. Cultivation gives to all better form, symmetry, expanse, &c., and these at the expense of a lessened height. This is seen on all sides, and is the natural sequence of transplanting generally, of striking plants from cuttings instead of raising them from seed—of striking, in fact, the more minute parts of branches, the very practice of which gives to the progeny thus artificially formed a greater bushiness and greater tendency to expand, &c. To question these facts would be to deny the possibility that plant-sports may be perpetuated by means of striking and growing cuttings from such sports onward, or to shut one's eyes to the highly characteristic growth and formation of every kind of young tree grown in nursery grounds, than which no example we could point out can be more striking. These facts made clear, does the general cultivator give to what may be described as superficial aids to high-class culture that amount of consideration they seem to demand?

I refer to much beyond the practices of digging, manuring, planting, watering, or hoeing and staking. Take, for instance, the summer pruning of trees and all valuable plants of extensive growth—wall-trained Pear trees, espalier fruit trees, Currants, Apricots, Figs, &c. Why should any or all of these be permitted to grow rampant, to furnish shoots wildly at random and indiscriminately throughout all the main growing parts of our summer months? We dare not perpetrate the same practices in relation to Peach and Nectarine trees, because to do so would most assuredly destroy the crop first, and the trees themselves next.

Look to your Red and White Currant "bushes;" seldom do they carry a crop such as a Currant naturally cultivated should do, owing to the fact that endless young shoots are permitted to grow upward during the whole summer in such a manner as to bury the base of the older wood, and to make it nearly impossible for bloom buds to form. The consequence is, between what fruit the trees may carry, and the exhaustion caused by unlimited growth, the tree inevitably suffers, growth becomes so dense as to weaken and quite blanch the inner and lower leaves and shootlets, and so exhausts the superstructure as to create a very nursery for aphis pests. These issuing forth attack the young leaves at the tips of the growing shoots, giving to them a roseate hue which, however attractive, no gardener can contemplate with perfect equanimity; the fruit themselves being destroyed irretrievably by being blackened with the excrement of these pests—a deposit which it is not possible to cleanse away—by modern naturalists called honey-dew.

Pear trees wall trained, Apple trees of the grosser growing kinds, especially espalier grown, such for instance as the Emperor Alexander, possessing large leaves and numerous robust shoots, displaying anything but an overfree tendency to abundant fruitfulness, will still further illustrate the *pros* and *cons* of culture as I would explain them. It is customary to plant these in the best and richest soil, so as to give them an initial, and subsequently a perpetual, growth of the first order. Does the usual subsequent treatment tally with the higher aims of superior fruitfulness, however? What is the practice? Primarily we induce the most robust and abundant growth possible; and subsequently we waste a tithe of this same strength by an entirely mistaken system of pruning. We not only permit a multitude of strong shoots to grow and to perfect their growth annually upon all, but also cut them away again so soon as that growth is made. This is not only a waste in wood substance, but acts also at the expense of fruitfulness. Besides, these wood growths perpetuate like growths from year to year, not only owing to a deficiency of fruit upon each tree, but also owing to the fact that these gross shoots become the precursors of equally strong and abundant roots, which in their turn produce other equally strong growths in the spring following, and so on *ad infinitum*.

Here, then, are "cultural influences" misdirected. Rather should we here, also, revert to disbudding, or to such practices as are followed in the case of Peaches, Nectarines and Vines, and so stopping all wood growths save such as are wanted for the extension of the framework of each tree. Were a similar practice of disbudding carried out we should at once lessen the initial velocity of the root-action, and by neutralising the upward flow of grosser sap so created, more nearly secure the necessary conditions for a more perfect state of fruitfulness. I am not sure but that we should in the end lessen labour besides, from the fact that once a perfect state of fruitfulness be induced it may be maintained ever afterwards. There may be those who would tax me with a desire to initiate the dwarfing process, or what may be termed the retrograde system of culture, for which the Chinese are so celebrated. Though I do not desire this I may express my opinion that it is only by subduing the natural grossness, brought on by artificial means, that the counter-action caused by cultural influences, resulting in perfect fruitfulness, can be assured.

The French system of growing horizontal ground cordons confirms all this, and although I cannot fully endorse the profit which is said to result form that especial practice, I do endorse the principle comprised in the restraint therein practically followed out.

Again, how observable are well directed cultural influences in connection with transplanted subjects of the less permanent kinds. Lettuces, Endives, Parsley, and all such subjects, receive in process of transplanting some kind of aid, which forms a nucleus, compelling them to assume the desired "standard" of the most critical culturist's rules: this in all but the most arid and exceptionally destructive weather. Moreover, it is when this said excellence has been attained that it is possible to fix the same by simply seeding from such plants. This is seen in the progeny which springs from selected Onions, Beet, Turnips, and the like, as opposed to the same kinds which are permitted to seed as they grow *en masse*, and their progeny.

Selections well and ably made, and selected seed-parents treated liberally throughout, and enabled to perfect seeds with the least possible exhaustion of parts generally, stamp the progeny resulting from such with a mark of excellence unmistakable. It will be seen, then, how vast are the influences we may assert authority over, and so reduce to the most perfect obedience—influences distinct from all the more superficial practices of the culturist, yet bearing equal, if not, indeed, more weight, than all these last in the ultimate profit they repay the painstaker. *William Earley, Valentines.*

SEED EXPULSION.

Besides the fruits and seeds provided with arrangements for their distribution by wind, animals, and water, there are a number whose arrangement is such that they are forcibly expelled at the proper time, and scattered in a greater or less circle round the parent plant. The mechanism of this curious process has lately been studied by M. Hildebrand, who contributes a paper on the subject in the *Jahrbücher für Wissensch. Botanik* (bd. ix., s. 235). We quote the following concluding remarks:—

"If, now, we take a comparative view of the morphological character of the parts in which the mechanism for expulsion of the seeds is situated, we meet with only one case, that of Oxalis (which, of course, presents many varieties), in which this mechanism is found to be in the structure of the seed itself; and the cases seem to be about as rare in which the parts round the ovary bear the expelling organ. It is rather (nearly always) the ovary itself, which, developed into fruit, occasions, by its structure, the expulsion of the seeds. In these kinds of fruit we have found a difference, some being juicy, others dry.

"In the case of the juicy fruits the mechanism (as might be anticipated) consists of a layer, whose cells are strongly turgescent, and show a tendency to expand, which, however, is opposed by another and less tense layer of tissue limiting the former. But when, at length, the tension of the expanding cells becomes too strong it overcomes the continuity of the seed-walls at certain parts structurally adapted for this, and they burst into pieces, which curl towards the side on which there is weaker expansive tendency, and this takes place so suddenly that the seeds within the fruit are thrown out. A rolling of the fruit walls inwards may be observed in Impatiens; outwards, in Cyclanthera and Cardamine. An exceptional case is that of the fruit of Momordica Elaterium, in which the exterior strongly stretched fruit-wall does not burst, but by pressure on the internal parts of the fruit forces out the stalk, whereupon the seed is forced with violence out of the opening thus formed.

"Greater variety is presented by the numerous, well-known, dry, expelling fruits, in which the mechanism of expulsion is everywhere based on the fact that certain cell layers, in drying, contract less, and in a more particular direction, than those lying upon them; so that thus, ultimately, the continuity of the fruit-walls, and also, it may be, the connection of the base of the fruit with the stalk, is destroyed, and the seeds are thrown out. And here it may occur that the fruit-walls themselves are not thrown off with the seed (Viola, Leguminosæ, Hamamelis), or that portions of these do so escape (Diosmeæ, Euphorbiaceæ); or that the entire fruit, undivided or in pieces, is thrown off, in which last case the seeds are either at the same time expelled from their envelopes (Collomia, Acanthaceæ, Eschscholtzia, Geranium), or remain in them (Erodium, Scandix). All these phenomena arise from the fact that the fruit-walls at certain parts have such a structure that here, as with the juicy fruits, a rent may readily appear, and that in certain cases (Acanthaceæ, Collomia, Eschscholtzia), where this rent is caused along with the breaking away of the bottom of the fruit, the hard parts of the capsule are not in direct connection with those of the fruit-stalk, but there is an intermediate layer of soft cells.

"Lastly, it may be noticed that several of the fruits under consideration take, at the time of maturity, a different position from what they previously had (Viola, Dictamnus, Oxalis), and in this way such a direction is given to the expulsion as to produce the widest scattering of the seeds around."

The foregoing examples suffice to show the interest attaching to the anatomical structure of plants in its biological relations. *A. B. M.*

Home Correspondence.

The Lavender Fields.—An afternoon's stroll through the adjoining parishes of Mitcham, Wallington, and Beddington, which are well known for growing some of the finest Lavender and Peppermint that can be obtained from any part of the world, show how severely these crops have all suffered by the cold weather and drought that have marked the spring and vegetating period of this year as an unusual season. At Mitcham, where the cultivation has probably degenerated from former days, the depth of soil above the substratum of gravel is at all times unable to retain sufficient moisture, and rain would always prove acceptable once in every twenty-four hours: here the prospects are woefully bad. It seemed scarcely possible to credit the reports of the people that the same might be anticipated if we continued our walk to the richer, deeper, and more prolific soils of Wallington; but this unfortunately turned out to be the true state of the case. Fields that last year resembled the perfect level of a billiard table in their aspect, showing scarcely a single defect, each plant covered alike with long spikes of flowers, and every sign of abundance, have many places completely bare, with the resemblance of having been burnt, the whole more or less uneven, and those plants which are growing to the best advantage have only a scanty supply of buds. The black and white Peppermint, and the Camomile, that flourish luxuriantly side by side with the Lavender, are very short and scanty, and there is nowhere to be seen that spread of unbroken sparkling white that contrasts with the other warmer colours around. During the past three weeks these have fortunately much improved, otherwise there was a prospect of a complete failure, and even now the results of the yield under the most favourable circumstances are likely to be very indifferent. The Roses have suffered from mildew, and the many herbs grown have been and are more or less affected in like manner. This locality, which generally presents a glowing picture, unique in its character, when the radiant colours are heightened by the bright glow of sunshine amidst the roads and green lanes well shaded with trees, is now overcast at the prospects of the harvest; and the forebodings of the country-folks, that so bad a time for the grower has never been known for the last twenty years, seem inevitable. The quantities to be carried to the distilleries must be very much less than usual, and the oils when extracted will most probably be enhanced in value in consequence of this deficient supply. *E. T. B.*

Honey-dew.—In a matter of which such various views are taken as that of the origin of honey-dew, any practical suggestions as to the special points desirable for investigation are doubly valuable, and I gladly respond to Mr. Murray's remarks at p. 78 with such observations as I have been able to make on the points he more particularly suggests for experiment. First, with regard to whether the nature of the honey-dew corresponds to that of the plant on which it is found. A good example of this not being necessarily the case may be found at the present season by examining honey-dewed leaves on any plant growing beneath an aphis-infested Poppy. If such leaves (say those of a Pentstemon) are touched with the tongue, they will be found to taste strongly of the peculiarly-flavoured juices of the superincumbent Poppy in all the parts coated with honey-dew. This, however, only bears on the origin of the dew, not on its method of transmission, which must in a great degree find its explanation from minute microscopic observation of the habits of the aphides, and thus I have endeavoured to trace to their source the drops of dew on the under surface of honey-dewed and aphis-infested leaves. These are in some degree visible to the naked eye, and with a magnifying glass may be seen lying amongst the aphides, but I have never been able to detect a drop in the act of exudation from the leaf. By careful examination these drops may be seen sometimes close to the tail, sometimes in connection with the tip of the abdomen. I have seen them so with the Rose aphis, and still more numerously with the Beech aphis, but still though the insects walked about with these excretions attached to the tip of the tail, a further step seemed needed, and profiting by Mr. Murray's suggestion, I selected an aphis on a leaf just gathered from a Beech and watched it continuously till the whole process of expulsion was shown. The aphis was sucking the leaf with much vigour; close to its tail lay two balls of the dew, and the tail tip itself was clear of all moisture. After sucking some time expulsion began, the first result being a minute speck of moisture ejected from the abdomen; further expulsions of clear fluid followed, forming a drop constantly attached to the tail, at intervals of almost invariably from 2 to 2½ minutes for about half an hour, when I ceased watching for a time, and returning again in an hour from the first commencement of the formation of the growing drop, found the expulsion from the abdomen continuing and the drop still attached. Viewed through a two-third object glass the operation of excretion showed plainly—the expelled fluid was suddenly forced into the inside of the attached drop, spreading visibly, and gradually inflating it, till in half an hour from the commencement of its formation the diameter of the excreted drop equalled the joint width of the two terminal rings of the abdomen. Taking this as the uniform rate of progress, it would require about three hours to form one of the smallest sized drops of dew on the Beech, which is peculiarly adapted for observation from the greater tenacity of its dew. Unfortunately, after an hour's observation I was obliged to move the microscope, and the aphis being disturbed walked from the field of sight bearing off the drop of dew still attached to the extremity of the abdomen, but still in its unwished for disappearance possibly giving the reason of the varying sizes of the honey-dew when seen in dewdrops. Apparently the aphis drops the attached globule at any stage of its formation, according to any impelling cause previous to the attainment of the size which makes parting with it a necessity. At present aphides and honey-dew are very plentiful, and if whilst the season lasts the real difficulties as to the deposit could be brought forward and investigated, the cause of origin might possibly be absolutely proved. *O.*

Roses Madame Lacharme and Reynolds Hole.—Some doubts having been expressed as to the value of these Roses, it may interest your readers to know that I visited Messrs. Paul & Son's nurseries at Cheshunt last week, and ascertained that the former is decidedly perpetual, and not, as was feared, a second Miss Ingram; and that the latter was the very best dark Rose in the nursery, and worthy of the name it bears, both in habit and appearance. *D., Deal.*

Monstrous Pentstemon.—I send you a monstrous flower, taken from the point of a spike of blooms growing on one of our seedling plants. I have found blooms of this kind common on the Foxglove, but have never before met with such an one on the Pentstemon. *Alexander Dean, Bedfont.* [The condition is exactly the same as that so often seen in the Foxglove, where the terminal flowers become united together into one large, erect, cup-shaped flower. The reason seems to be, that the common flower-stalk is somehow or other arrested in its growth, and the flowers which should be separated by inter-spaces are thus crowded together in the young state, and become united. Eds.]

Potato Disease, and How to Avoid it.—The writer was an observer of the progress and effect of the Potato disease during the Potato famine years of 1845, '46, and '47, and his attention has been engaged upon that subject every year when it has occurred since that time. The disease has invariably been preceded by a long term of dry, warm weather, followed by heavy rain late in July or during August—very soon after which the disease has almost as surely begun to appear with greater or less destructive effect in proportion to the longer continuance of the warm weather. The writer has, hence, arrived at the conclusion that the Potato disease must be caused by the carbonic, sulphuric, nitric, and other acid matters (some of which are more or less poisonous to plants), and which matters are constantly accumulating in the atmosphere during dry weather, until they unite with showers of rain, by means of which they are deposited upon whatever plants or soil such rain may fall. And as the leaves are the lungs of plants,

and the Potato is a tender plant, as shown by the effect of slight frost upon its young shoots, the poisonous atmospheric acids of long summer droughts are thus thrown by heavy rain upon the leaves or lungs of the Potato plant, from whence those acidulous matters are thereby quickly communicated to its fruit also, and hence the cause of the brown Potato disease. Therefore the surest remedy to avoid that disease appears to be to dig the Potatos and store them before the summer rain commences, provided, like corn, they are nearly ripe—that is, when the stalks begin to wither, or when the skin cannot be rubbed off with the thumb. *Edward West, 12, Parsons Street, Banbury, July 21.*

Daniel's Duke of Edinburgh Cucumber.—The decisions of the Fruit and Floral Committee of the Royal Horticultural Society are generally given with so much care and correctness that they are seldom called in question. Perhaps, too, the fact of these decisions being so often given in reference to novelties with which the major part of your readers have little or no acquaintance may partly account for the general acquiescence with which their estimate is received of the worth or worthlessness of particular varieties. Be that as it may, assuredly the committee have made a mistake in refusing an award to the above Cucumber on the ground of its not being sufficiently distinct from the Marquis of Lorne. I grow both side by side, and it would be almost impossible for two Cucumbers corresponding nearly in length to be more unlike each other. In colour, in texture, in height, in quality, in form, in bloom, they are almost as unlike as Telegraph is to Blue Gown. The committee must have had the wrong variety of either one or the other Cucumber before them, or they could never have made such a mistake. In colour and bloom there is the widest difference, while in quality, which might not be tested by the committee, the difference is wide as the poles asunder, the Marquis of Lorne being one of the worst, and the Duke of Edinburgh (Daniel's), one of the best long Cucumbers grown. I may add that it took the prize at the Bury St. Edmund's show in competition with several model braces of the Marquis of Lorne, shown by other exhibitors and myself. So much I have felt compelled in justice to say, as a grower of both Cucumbers. I have not grown Monro's Duke of Edinburgh—a totally different Cucumber, of the Telegraph or Ipswich Gem type, and also, I believe, of excellent quality. The two of one name is unfortunate, but they are totally distinct, and both good in their class; and the two varieties of one name could not, of course, influence the Fruit Committee to declare that Daniel's Duke of Edinburgh was not sufficiently distinct from Marquis of Lorne to be certificated; on the contrary, the distinction is almost emphatic, I might add glaring. *D. T. Fish.*

The Size of Peaches.—Mr. Murdoch has misunderstood my letter respecting the size of Peaches. When I wrote, I referred as far back as the middle of June, and there were no Strawberries or Gooseberries ripe here at that time, or Apples fit for culinary purposes, though we had Strawberries as early as Mr. Murdoch states—Fairy Queen and Garibaldi—which latter is, I think, one of the best for in or outdoor purposes. Of course the Peaches I wrote about were forced, as it would be useless to attempt to grow them out-of-doors here; in fact, our Apricots did not ripen for the last two years on a south wall. I have not been able to get the Noblesse and Royal George to measure 11 inches in circumference, but we do not thin any of them except what fall off at the stoning. I will now give the names and sizes of a few varieties as I measured them:—Royal George, 9 to 10 inches; Noblesse, 9½ to 10 inches; Royal Charlotte, 9 to 10 inches; Grosse Mignonne, 10 to 10½ inches; Mountaineer, 10 to 10½ inches—one of the best varieties we have; Barrington, 10 inches, but it measures more from point to point; Bellegarde, 9 to 10 inches; Late Admirable, 10 to 10½ inches; Walburton Admirable, 10 to 10½ inches; and Shanghai, close on 11 inches. I have seen some very fine ones exhibited this year, measuring about 9½ inches, but Peaches measuring 11 inches are seldom seen, especially Royal George and Noblesse, though it has been greatly exceeded by other varieties, one of which, I think, is Mr. Rivers' raising. *Wm. Paul, Edinburgh.*

On Packing.—It is to be hoped that equal care is bestowed by all nursery gardeners in packing their goods, but there is certainly a difference in their knowledge of the art. I could name a distinguished firm whose plants after travelling the length of the kingdom have a far smaller percentage of loss than many which come from a short distance. I wish, therefore, to inquire whether there is any horticultural reason against the sprinkling with water of the straw covering the roots of plants which are packed for conveyance before the air has become thoroughly saturated with moisture by the November rains? *H. K.*

Forestry.

REPLANTING OF FORESTS, &c.—The highly important subject of the replanting of hills and other forest-lands appeals to so many interests, sanitary, economical, agricultural, and manufacturing, that the inquiries and action of the French authorities on the subject during late years will be read with great interest.

Amongst the many interests largely dependent on a good supply of timber is that of mining, and the very existence of water in many localities depends on the preservation, or the replanting of trees, which prevent the too rapid escape of rain-water, and the consequent washing away of vegetable mould.

The quantity of timber required in coal and other mines is enormous; in the basin of the Loire it is estimated that the cost of the timber there used in the mines amounts to about one-tenth of that of the coal got out. At present there is a stock of timber existing which will suffice for some years, but scarcity is within sight and prices are increasing with terrible significance; the consequence is that proprietors are selling their timber at high prices, and thinking little of the future. A scientific society in the district, aware of the improvidence and danger of this neglect, has drawn up a report on the subject with the hope of arresting the mischief.

The reporters say that the expectation that the adoption of iron in many manufactures would cause a decrease in the demand for wood has not been realised; that in fact, as in the case of horses since the establishment of railways, the demand for wood has increased in place of falling off—it has, in fact, kept full pace with the increase in the application of iron. Looking at the imports from France we find that the quantity of wood brought from abroad increased in value from 70 millions of francs in 1855 to more than 187½ millions in 1869.

The serious point in the case is that the increase in the consumption of timber in France is in inverse proportion to production. It appears by the commercial statistics of the *Conservatoire des Arts et Metiers* of Paris, that the general consumption of the country amounts to 10,000,000 cubic metres for construction and industry, 30,000,000 stères for burning, and 15,000,000 stères for charcoal making. The dearth of wood is, therefore, certain in the future, unless determined action be taken with respect to replanting and the bringing waste lands into forest cultivation; for it is certain that the imports will not long put off the evil day, and it is well known to statisticians that other countries are far from as well off as they used to be with respect to timber. Sweden and Norway, whence the French departments of the coast obtain all their supplies, have already to consider the state of their forests, the felling having already arrived at a maximum point; England is affected by the diminution of the resources of India and Canada, and even North America begins to see the end of her forests through a vista of no very great length.

The consumption of wood in the coal mines of the basin of the Loire is stated at 110,000 cubic metres per annum; the forests of the department are quite insufficient for the supply, which is obtained from the adjoining departments, from Switzerland, and Savoy. The cost of the wood increases annually, and there is no hope of amelioration in that respect; the only chance, and that is a slight one, lies in the diminution of the cost of transport and in the extension of the fields of purchase; but then the latter would have a tendency to raise the price of charcoal. Manufacturers and mine proprietors cannot, therefore, regard these remedies as anything more than of slight and temporary effect.

The mining company of the Grand Combe in the department of the Gard has long since taken measures for its future supply; it has purchased, and is still purchasing, all the available land fit for timber trees in its neighbourhood, and it already possesses a fine young forest of 2000 to 3000 acres in extent. The Agricultural and Industrial Society of the Loire recommends the mine owners of that department to adopt a similar course; and the inquiries and statistics obtained in looking into the subject surprise us by the amount of land not yet brought into cultivation. It appears that in the department of the Loire alone there are no less than 100,000 acres of uncultivated land, and that in the neighbouring departments of the Allier, Ardèche, Haute-Loire, Puy de Dôme, and Rhône there are about 1,000,000 of acres of waste land capable of growing Pines. The Loire at present produces only 34,000 cubic metres of pine timber, and uses at least 110,000.

The Government expends annually a certain sum in the replantation of forest lands, but this is found totally insufficient for the purpose in view, and it felt that without individual or combined action, encouragement in the form of grants or rewards, and, principally perhaps, in teaching the world the enormous importance and large future profits to be derived from the cultivation and extension of forest lands, very little indeed will be done towards staying the destruction of the timber resources that is now going on.

The subject interests all countries, and it behoves us in England, and especially our countrymen in India and the colonies, to give it due attention. *Iron.*

Reports of Societies.

Bishop Stortford Horticultural: *July 8 and 9.*—Bishop Stortford has had several excellent shows, but unfavourable weather has prevented its getting the amount of support it richly deserved, and had it not been for the untiring efforts of Mr. Smith, the secretary, supported by Messrs. Watkins & Co., must have fallen to the ground; but on this occasion fortune favoured them with charming weather, an excellent show, and such a brilliant company as never before assembled at Bishop Stortford. And now for a few particulars that I noted whilst walking through the tents, which were six in number, one of which, as usual, formed the centre of attraction, the large and most important classes. The premier prize here was taken by Mr. Ward, gr. to G. F. Wilkin, Esq., with finely grown plants of Ixora amboynensis, Statice profusa, Dipladenia amabilis, and others equally good; whilst Mr. Wheeler, gr. to J. Philpot, Esq., was a capital 2d, with such as Stephanotis floribunda, and Bougainvillea glabra. These two collections were the gem of the show.

In the class for ten foliage plants Mr. Ward was again 1st, having Cocos Weddelliana, Alocasia Lowii, and other finely-grown plants; Mr. Hill, Poles, Ware, 2d; Mr. Glassy, Down Hall, 3d. Ten Ferns were also well competed for—Mr. Ward 1st, Mr. Hill 2d.

Ten Orchids in this collection: Mr. Ward 1st, with fine plants of Lælia elegans, Odontoglossum Bluntii, and Alexandræ; Mr. Hill 2d, with a remarkably fine specimen of Vanda Batemanni, a plant rarely seen at exhibitions, and Dendrobium Pierardi, a finely-grown plant, well adapted for suspending in baskets. Cape Heaths were much finer than were seen at the metropolitan shows. The competition here was between Mr. Ward and Mr. Wheeler. In the subscribers' class the plants were unusually fine, and well deserved a lengthened notice, but space will not permit. The prizes for six stove and greenhouse plants were taken by Messrs. Wheeler, C. Tyler, and B. Calvert. Six variegated plants were competed for by Messrs. C. Tyler, J. Wheeler, E. Spring, B. Calvert, and W. Glassy. There was some misunderstanding here between the exhibitors and the schedule, some believing that such as Palms would be considered variegated plants; but the prizes seem to have been arranged so as to please everybody. There were many other classes in this tent well represented, which did great credit to the exhibitors generally.

Mr. Bester, of the Pine-apple Company, put up a choice and interesting miscellaneous collection not for competition, which included a new Lobelia named Sparkle, having the habit of growth of pumila, with large light blue flowers; this was awarded a First-class Certificate.

Fruit: in the collection of six dishes, open to all England, Mr. W. Bones was 1st, with splendid Grapes, Peaches, Pines, &c.; Mr. C. Taylor, 2d—in this collection there were some magnificent Buckland Sweetwater Grapes; Mr. Spring, 3d. Although the prizes were justly awarded the collections were as nearly as possible equal. The subscribers' class for fruit was well filled, and the prizes taken chiefly by Messrs. Bones, Hill, Spring, Glassy, and Wheeler.

Vegetables are always shown here remarkably fine, especially the basksts containing six sorts. The prizes here were taken by E. Spring, T. Powell, and J. Tomes.

Cut Roses, forty-eight varieties, open to all England, were next competed for: some good flowers in each stand, but not superior to what we have before seen here. The prizes in this were taken by F. Farren, Paul & Son, C. Birt, and E. P. Francis & Co. The centre of one tent was quite filled with table devices, bouquets, and buttonholes—Mr. Glasscock taking the 1st prize for the table device, which was neat and elegantly arranged; C. Spencer for the hand bouquets; and A. Watkins for the buttonhole.

The cottagers' tent was a marvel of excellence, in many cases equal, if not superior, to the subscribers', especially with Peas, Beans, Potatos, and Onions, as well as pot plants, Balsams, Fuchsias, and Pelargoniums, beautifully grown, showing very clearly the great advantage the horticultural shows have throughout the county, especially among cottagers. *From a Correspondent.*

Chelmsford and Essex Horticultural: *July 8.*—The annual summer exhibition of the above Society was again held at Hylands Park, by the kind permission of A. Pryor, Esq., when prizes to the value of nearly £100, and two silver cups, of the value of £5 5*s.* each, were offered. This Society is one of the oldest established in the country, and has done much to promote horticulture in Chelmsford and its neighbourhood. This year's show was much above an average in point of number of entries, while the quality of the different productions staged was such as is seldom excelled at a local show.

Taking the schedule as it stands, we find the first cup was offered by the members for West Essex for the best nine stove and greenhouse flowering plants, and for this prize five collections were entered. Mr. Simpson, the Gardens, Broomfield Lodge, was the fortunate winner, and was very closely followed by Mr. T. Miller, gr. to A. Canning, Esq., Halstead. Mr. Simpson's collection included large plants of Allamanda Hendersoni, Clerodendron Balfourianum, Erica ampullacea Barnesii, Anthurium Scherzerianum, &c., while Mr. Miller had good plants of Stephanotis floribunda, Statice profusa, Bougainvillea glabra, &c. The second cup was offered by the President, H. C. Wells, Esq., for nine variegated foliaged plants, and this prize attracted seven entries. Mr. Simpson had an easy victory in this class also, and showed fine Crotons, Sanseviera zeylanica, Maranta zebrina, Alocasia macrorhiza variegata, Yuccas, and Acalypha Wilkesiana—all a very even lot of large plants. Mr. Wilks, gr. to J. Church, Esq., Hamlet House, was 2d, with much smaller plants of mostly the same subjects; and Mr. Southgate, gr. to A. May, Esq., Laurel Grove, was 3d.

The 1st prizes for six stove and greenhouse plants, single specimen ditto, six Gloxinias, six Petunias, six miscellaneous plants, and six Achimenes, all went to Broomfield Lodge. Mr. J. Arnold, gr. to G. Wood, Esq., Rochford, contributed the best six foliage plants, and this group contained one of the best specimens of Anthurium cordifolium in the country. Exotic Ferns were well shown by Mr. T. Harris, Baddow Road Nurseries, and A. Pryor, Esq., Hylands, both of whom staged fine Dicksonias, Alsophilas, Gymnogrammas, and the lovely Adiantum Farleyense. Fuchsias were represented in large numbers, and were mostly of the pyramid form, Mr. T. Harris, Mr. Wilks, and Mr. Small, gr. to R. Woodhouse, Esq., Writtle, taking the prizes in the order named. Table decorations, too, were a striking feature; Mr. Southgate, Mr. Wilkinson, gr. to the Countess Waldegrave, and Mr. Wilks, were the prize-takers. Zonal and Nosegay Pelargoniums in pots, were well shown by Messrs. Saltmarsh & Son, the Nurseries, Chelmsford, Mr. Meadmore, nurseryman, Romford; Mr. T. Harris, Mr. Small, and Mr. Wilks, all of whom were prominent among the prize-takers.

Cut flowers were the poorest feature in point of quantity exhibited, but not in point of quality. Messrs. Saltmarsh, Mr. John Harris, nurseryman, Broomfield, Mr. James Christy, Boynton Hall, and Mr. May, Stisted Rectory, showed very fine Roses, whilst Mr. Small and Mr. Simpson divided the honours for Pelargoniums. Of fruits and vegetables there was a very large and tempting display. For the best collection of eight dishes of fruit Mr. Simpson was 1st, as usual, and A. Pryor, Esq., 2d. The first named exhibitor had the best Pines and Grapes in his collection, but Mr. Pryor had far the best Peaches. The best Pine-apple, too, was contributed by Mr. Simpson, the second best by Mr. Pryor, both exhibitors showing Queens, upwards of 4 lb. in weight. There were thirteen entries for Black Grapes (three bunches), and Mr. Simpson again secured 1st honours; Mr. Southgate and Mr. Wilks being 2d and 3d respectively. In White Grapes Mr. Tidbold and Sir John Tyrrell were the successful exhibitors—Buckland Sweetwater and Muscat of Alexandria being the varieties represented. Mr. Pryor was 1st for a single dish of Peaches, and Mr. Simpson 1st for ditto of Nectarines. The vegetables occupied a separate tent, and, judging from the quantity and quality of the exhibits, there is no scarcity of good vegetables in this neighbourhood. Potatos were uniformly good.

The cottagers also made a very creditable display, and it is but true to state that they nearly or quite equalled the professionals. In Cabbages, Peas, and Beans, the cottagers had the best of it. It is particularly pleasing to notice the effect that horticultural shows have upon the cottager. Would there were more of them. *From a Correspondent.*

Maidstone Horticultural: *July* 8.—The annual exhibition of this Society, of which Viscount Holmesdale is President, was held in a field at Rocky Hill, kindly lent for the occasion by Dr. Monckton. The Rose Club, which was only formed last year, and consequently did not then take a very prominent part in the exhibition, afforded on the present occasion an exquisite display of every variety of Rose. A group of eighteen varieties, one bloom or truss of each, was exhibited by H. Bensted, Esq., which gained the 1st prize, a challenge cup, value £12, and formed a truly handsome collection. In the open class the 1st prizes were awarded to E. L. Pemberton, Esq., for six foliage and six flowering plants; and in the subscribers' class, the 1st prizes for stove and greenhouse, eight varieties; stove and greenhouse, four varieties; Pelargoniums, tricolor, six varieties; and Ferns, grown under glass, all of which were perfect specimens of their kind, were also awarded to him. Viscount Holmesdale's collection of plants, flowers (cut or otherwise), fruits and vegetables, shown together, in the open class, for which he received a silver cup, value £10 10s., presented by Edwin Amies, Esq., were most beautiful. An excellent collection of very rare and valuable plants, which were not for competition, were exhibited by Mr. J. H. Ley, from the Exotic Nursery, Croydon, and for which he was awarded a special prize and a Certificate of Merit. Mr. T. Frost, of Maidstone, also contributed to the array of plants, &c., by a choice collection of neatly-arranged flowers. The fruit tent embraced a very meritorious display of all descriptions of fruit; and G. A. Dodd, Esq., obtained, for the best collection of six dishes of fruit, the 1st prize. The Grapes were large and fine, particularly some black ones exhibited by Captain Brenchley, for which he was awarded a prize. A capital display of other kinds of fruit was also noticed, and, in fact, in this department there was a general improvement on last year's exhibition. The marquee, designed for the cottagers' exhibition, was well filled with good productions. Six stalks of Rhubarb, exhibited by G. Baker, of Loose, were very favourably spoken of; also six new kidney Potatos, by G. Brooker, of Boughton, Monchelsea; six new round Potatos, by B. Smith, Loose; and six spring-sown Onions, by G. Lampard, Hollingbourne; three Cabbages, by G. Hollansbee, of Teston, were of unusual quality and size. The Cucumbers exhibited were also very good. *Maidstone and Kentish Journal.*

Enfield Horticultural: *July* 14.—This is a suburban society which holds an exhibition twice a year—one in June and one in September. It was held this time in the grounds of Forty Hall, the residence of J. Meyer, Esq., a charming old-fashioned place, the mansion designed by Inigo Jones, the grounds well-wooded, boasting of some fine Cedars of Lebanon, and with one of the most picturesque kitchen gardens of the old style one could well imagine. The kitchen garden, which is oblong in shape, has numerous walks, edged on all sides by a miniature hedge of Box, about 18 inches in height and over a foot in breadth, kept closely clipped and perfect throughout. There is a very interesting old sundial in the centre of the garden, and on one side of it is a broad turfy walk, shaded with trees on either side, and also having side borders of mixed flowers, giving a succession of blooms almost throughout the year. There are some fine old standard Roses about the kitchen garden; one was on a huge stock, and the head must have been fully 8 feet in diameter.

This show was shorn of much of its usual proportions by means of the loss of some leading exhibitors. The principal exhibitors on this occasion were Mr. Farrow, gr. to G. Butters, Esq.; Mr. Wilson, gr. to Mrs. Adams; Mr. Goodenham, gr. to E. Ford, Esq., &c. In one collection of stove and greenhouse plants was a specimen of Lagerstrœmia indica that appeared to have been hard cut back and somewhat starved, but which was beginning to bloom freely. Two or three fine specimens of Allamanda Schottii were staged, and some nice Ferns, both exotic and British, Balsams, Achimenes, variegated Pelargoniums, foliage plants, Cockscombs, &c., were also present.

Stands of cut Roses came from Messrs. Paul & Son, Cheshunt, a fine lot; and from Mr. W. Rumsay, Waltham.

In the way of fruit some excellent Peaches and Nectarines were shown by Mr. Hyde, gr. to H. C. B. Bowles, Esq.; and among the Grapes were two bunches of Josling's St. Alban's. There was a spirited competition in the collections of vegetables; a basket of twelve varieties, set up by Mr. Wilson, gr. to Mrs. Adams, were thoroughly good throughout.

Brighton and Sussex Horticultural: *July* 15 *and* 16.—The twenty-second annual summer exhibition of flowers and fruit took place on Wednesday and Thursday, in the Pavilion and adjoining grounds. Although a pretty good display was made, and some classes, notably those for table decorations, were well filled, as a whole the exhibition was scarcely equal to what we have seen in former years. This may be partially accounted for by the lateness of the season, and partially by the drought, which has been severely felt in this county. There appears to have been some doubt whether a summer show would be held, the funds being low, and the financial success of a show at this season uncertain. However, at the last moment, some of the more energetic of the townspeople set to work and formed a liberal schedule of prizes; and we learn that the success of the show has been greater than was anticipated. The practice of closing the show at 6 o'clock, just at the time when the heat of the day has so far diminished as to render getting about less fatiguing, seems a bad arrangement, especially in the middle of July, when many people would not care to go out before 4 or 5. We scarcely think the exhibitors would object to an extra hour on the first day, and we venture to offer this suggestion for the consideration of the committee.

Prizes were offered in two divisions, the first open to all England, and the second restricted to amateurs and gentlemen's gardeners of the county of Sussex. The principal prize in the open division was offered for a collection of ten varieties of stove and greenhouse plants in bloom, which brought three competitors into the field, Mr. Gilbert, nurseryman, Hastings, taking the 1st with a very good lot of plants, but they included no novelty. Mr. Knight, Fairlight, was 2d, and Mr. Morse, Epsom, 3l. Orchids, eight varieties, were represented by two nearly equal collections, contributed by Mr. Rutland, gr. to the Duke of Richmond, and Mr. Morse, nurseryman, Epsom. Mr. Rutland's eight were a more even lot, and rather fresher. They included a good Cattleya Mossiæ, Saccolabium guttatum, S. Lobbii, Aerides odoratum, and Cypripedium Stonei. The effect of this neat little collection of Orchids was considerably increased by the presence of a profusion of Adiantum cuneatum growing over and concealing the baskets and pots. Mr. W. Knight, gr. to W. D. Lucas Shadwell, Esq., Fairlight, took the 1st prize for eight Heaths.

Pelargoniums, Fuchsias, and Begonias had better have been unrepresented—they were so poor. Variegated plants, ten varieties, were moderately good in Mr. Meachin's collection, and poor and badly staged in the only other, exhibited by Mr. Knight. Mr. Gilbert was again 1st in the "fine-foliaged plants" with a good lot of healthy plants, including a fine Stevensonia grandifolia. Exotic Ferns, eight varieties, were exhibited by Messrs. Gilbert, Jobson, gr. to W. H. Stone, Esq., Havant, and Balchin and Nell. These collections were very good, and occupied two sides of the large saloon in which the table decorations were displayed. These decorations were extremely well arranged all through, not one out of the eight sets being badly done, and some of them (notably Mr. Hudson's, 1st in the open class) exceedingly effective. Roses, considering the unfavourable season, were pretty good, and all the classes were fully represented, Messrs. Mitchell, Knight and Woollard taking the chief prizes. Mr. Gilbert brought a capital collection of cut flowers, and Mr. Jobson and Mr. Morse were a good 2d and 3l. Plants in bloom in the second division were on the whole very inferior, and many classes were not represented. Fruit (usually so well represented at Brighton) was far below the average in most kinds, Grapes alone, perhaps, maintaining their position. Vegetables were limited to three collections, Mr. Holman, at Lord Chichester's, taking the 1st prize.

Foremost in the "miscellaneous class" we must mention the artificial flowers contributed by Miss Weekes, Miss Gurr, and Mrs. Snelling. These productions invariably form a prominent feature of the Brighton shows, and they are so truthfully made as to merit general commendation. Mr. Spary exhibited some interesting hybrid Ferns. One appeared to be intermediate between Pteris serrulata and biaurita, and a Lomaria, a very free growing plant, possessing some of the characters of L. gibba, with broader pinnæ, resembling those of Blechnum corcovadense. The affinities of a third are not so evident, and it is probably a natural form. We may notice this again, when we have an opportunity of determining it. A small plant of the curious Desmodium or Lourea vespertilionis, was exhibited by Mr. Brice, gr. to Major Wisden, Broadwater. Messrs. Cripps, of Tunbridge Wells, sent a fine collection of seedling Clematis, Mr. H. Hemsley his improved Mignonette, and Mr. Miles and Mr. Spary collections of Coleus. Mr. Voice, amongst other things, exhibited a new contrivance for ventilating frames and pits, which we shall describe at another time.

In conclusion we may mention a fine bright purple and white double Petunia, exhibited by Mr. Fish, of Midhurst. *From a Correspondent.*

Stevenage Horticultural: *July* 15.—This small society, which devotes its energies mainly to the encouragement of cottage gardening, holds two exhibitions annually in the Town Hall, one in July and one in September. What with the division known as general classes, with the amateurs' and cottagers' classes, the building is always well filled with very creditably grown produce, and the occasion of the shows is a sort of holiday or festive occasion for the quiet country town. The expenses incurred in working the show are but slight, and a comparatively small income enables the prize lists to be prepared. This year, owing to the falling-off of the subscriptions the prize list has been reduced, but it is hoped that next season will witness an influx of new subscribers.

In the cottagers' classes there are those for a single Fuchsia, Pelargonium, and Calceolaria, and also for a plant in a pot other than these. At Stevenage the plants are always of *bonâ fide* window growth, and the best Fuchsia was trained to a large fan-shaped wire trellis, and well-grown and flowered Pelargoniums were very creditable indeed, some of the large-flowering section, and also double varieties especially so; in the class for any other plant could be seen some excellent double Petunias and Coleuses. Then

three collections of vegetables, then single dishes of the same, hardy fruits and flowers, all go to prove how much these exhibitions encourage a higher order of cottage gardening.

Some nice Fuchsias were the leading feature among the plants produced in the open classes, but the small amount of the prizes scarcely encourages the production of many plants. Vegetables and hardy fruits were finely shown both in the open classes and by amateurs. What are termed in the schedule baskets of mixed vegetables are a sight to look upon; a large number are mixed up together, but yet laid with some taste in a large square or circular shallow basket that appears to have been manufactured for the purpose, and the competition that takes place between the Rev. Canon Bloomfield, Vicar of Stevenage, and the Rev. J. O. Seager, is always remarkably close and exciting. The same holds good of the baskets of vegetables supplied by amateur cultivators, only the collections are not so extensive. The Stevenage Horticultural Society is doing a good work in an unobtrusive manner, and that it may continue to prosper is the earnest wish of all lovers of gardening in the neighbourhood.

Woodbridge Horticultural Society: *July* 16.—It was remarked on the ground by a gentleman professionally connected with horticulture throughout the whole of England, that, with the exception of that at Tunbridge Wells, and one or two other places, this show was the finest he had ever seen in the provinces. The tents, seven in number, were erected, through Col. Long's kindness, in the Abbey grounds, than which perhaps there is no place better fitted. In the fruit classes many of the products were simply enormous. The Strawberries which took the 1st prize, and which were shown by Mr. Irving, gr. to the Duke of Hamilton, were some of the most gigantic as well as the most luscious we ever saw. Melons were a fine collection, the 1st prize going to E. St. George Cobbold, Esq., Ufford, and the 2d to Mr. Keen, of Campsea Ashe, gr. to J. G. Sheppard, Esq., but the whole collection was so good that 3d, 4th, and 5th prizes were also awarded. Mr. W. Nicholl, gr. to Capt. Powell, Drinkstone, was 1st for White Grapes, with three fine bunches of Muscat of Alexandria, from pot Vines; Mr. H. Fisher, gr. to Lord Waveney, of Flixton Hall, took the 2d prize, with three bunches of the same variety. Mr. Fisher also took the 1st prize for four bunches of Grapes (two black and two white), with two bunches of Muscat of Alexandria, and two bunches Lady Downe's seedling, the latter very fine. The 1st prize for the two heaviest bunches of black Grapes was taken by Captain E. St. George Cobbold, with two fine bunches of Black Hamburghs, and the special 1st prize for the two best bunches of the same Grape went to Mr. Nicholl.

There was a very good competition in the classes for table decorations, &c., but the wild flower decorations were undoubtedly far superior to the others. In the 1st prize specimen, shown by Miss Marshall, of Woodbridge, the Orchis pyramidalis was a prominent and beautiful feature, and also the Butomus umbellatus. The 2d prize was taken by Mrs. Wrinch, whose arrangement altogether was very elegant. No. 64 was also a very prettily arranged stand. The 1st prize for hand bouquets went to Mrs. Keen's exhibit, which was small, choice, and elegant; the 2d to Mrs. Wrinch, which contained masses of beautiful white flowers, which were perhaps too prominent. For bridal bouquets the 1st prize went to Mrs. Keen, of Campsea Ashe; and the 2d to Mr. Southgate, gr. to R. J. Pettiward, Esq., Finborough. The special 1st prize for buttonhole flowers, in groups of three, was awarded, and very justly, to Mrs. Mill, of Rendlesham Hall, who exhibited three charming little groups of Orchids, backed with Adiantum, Lilies of the Valley, Roses, and everlasting flowers; the 2d to Messrs. Gilbert & Son, of Ipswich; and the 3d to Mrs. Wrinch, whose arrangement of colour was very tasteful. Mr. Keen, gr. to Mr. Sheppard, Campsea Ashe, without doubt exhibited the best decoration of flowers and fruit combined. The buttonhole bouquets (single) were all good and elegant, and the 1st prize was well won.

Peaches, again, were extremely good. Currants, red, white, and black, which were largely shown, were simply a collection of giants, the black being perhaps the least attractive of the three. Gooseberries were a large and fine collection, and the same may be said of Raspberries. A few Apples and Pears were shown, for the season, remarkably good. Nectarines were only a small collection, the prize going to Mr. Keen for a very nice plate. Cherries, both black and white, were a very fine show, and the 1st prizes in both classes were awarded to fruit of Ipswich growth—the 1st prize for the former description going to Mr. Hayward, of Ipswich, and that for the latter to Mr. Austin, for splendid plates.

The show of vegetables was also excellent, and the specimens shown were for the most part as fine as need be. The Onions were a perfect marvel, and for the season the collection of Carrots was good. Potatos formed one of the finest collections probably ever exhibited at this time of the year, and we might add the same thing of Peas. There were a few good Lettuces shown, and a number of fine Cucumbers. The show of Cauliflowers was small, but extremely good.

Exotic Ferns formed a fine and good collection. The best specimen Fern shown, Thamnopteris Nidus, a native of East India, is the property of Mr. George Berry, of Ipswich, who also took the 1st prize for the best Tree Fern, the Dicksonia antarctica, a plant indigenous to New Zealand. The extra prize for Tree Ferns also comes to Ipswich, being awarded to the Alsophila excelsa, shown by Messrs. Gilbert & Son, who had, however, nothing to contend against.

The collection of specimen stove and greenhouse plants was simply gorgeous, and one, both number and quality being considered, such as few provincial shows could ever get together. It would be almost invidious to distinguish any single specimen; all were fine and in beautiful growth. Mr. Mill, gr. to Lord Rendlesham, took the 1st prize for Orchids with four beautiful specimens. For single Orchids, E. Packard, Esq., of Birkfield Lodge, Ipswich, took the 1st prize. Fancy Pelargoniums were a fine lot; and the collection of Fuchsias displayed some beautifully-shaped specimens, finely grown and flowered. There was a good collection of Achimenes, and the pot plants in form were far above the average. We may add that the tricolored Zonal Pelargoniums were a very fine collection. The prize for Hydrangeas was taken by Mr. Spink, gr. to T. Grimwood, Esq. There were also some fine and choice specimens of Caladiums, and a good collection of beautiful-leaved plants, amongst which a grand specimen of Martinezia Lindeniana was especially noticeable.

Two nice baskets of cut flowers also commanded some attention. There was a large and admirable collection of cut Roses, and Pelargoniums formed a very fine collection also. Cut Verbenas were only a small show, and the same may be said of Picotees and Carnations, which were, however, of a very fine character. Herbaceous cut flowers were a good level show.

Amongst the cottagers' productions some extraordinarily fine Onions were exhibited, and Potatos here were also remarkably fine and very clean. The other objects of note in this tent were the collections of vegetables, which were very good; Turnips, Parsnips, and Carrots, a fair average show; two well-arranged collections of wild flowers, in which were to be found the Centaurea Cyanus; and one good collection of fruit. The show of plants was very poor, but in other respects the show was above the average. There were several lots of honey shown, of which the quality was good. *Ipswich Journal.*

Ealing, Acton, and Hanwell Horticultural: *July* 16.—This Society, which started a few years ago as a small organisation for the encouragement of horticultural pursuits amongst cottagers and amateurs, has, by reason of the great growth of the neighbourhood, become a somewhat extensive affair, the cottager class contributing largely to the show. There are a large number of allotment gardens in the parish of Ealing, and a large number of the holders of these compete for prizes at the annual show. It took place in the grounds of Hanger Hill House, which crowns a wooded eminence on the north-east side of Ealing, and has fine views of Harrow and the surrounding country in the North. The exhibition was held a week later than usual, and this resulted in many of the plants being past their best; still, foliage, stove and greenhouse plants, Ferns, Fuchsias, and such like, were well represented, some of the best being shown by Mr. W. Cole, gr. to J. S. Budget, Esq., Ealing Park (the residence of the late Mrs. Lawrence), who bore away the first prizes in all the leading classes. The best Fuchsias, nicely done, but yet not up to the mark seen at some country shows, were shown by Mr. Parsons, gr. to R. Attenborough, Esq., Fairlawn, Acton. In the class for a specimen foliage plant, Mr. Cole had a fine Latania borbonica; and Mr. M. Walker, gr. to H. J. Atkinson, Esq., Gunnersbury, a capitally grown and coloured Croton variegatum.

The leading feature of the exhibition was the class for forty-eight cut Roses, three trusses of each, and here Messrs. C. Turner, of Slough, and Paul & Son came into competition, Mr. Turner gaining the 1st prize by reason of the freshness of his blooms. The leading flowers were Marie Rady, Victor Verdier, Fisher Holmes, very fine; Marie Baumann, La France, Francois Louvat, Madame Lacharme, Pierre Notting, Black Prince, Elie Morel, Madame Caroline Kuster, a beautiful Tea-scented variety; Belle Lyonnaies, Maréchal Niel, Xavier Olibo, and Countess of Oxford. Messrs. Paul & Son had fine examples of Xavier Olibo, Maréchal Niel, La France, Marie Rady, Marie Baumann, Dr. Hooker, Reynolds Hole, Gloire de Santenay, Beauty of Waltham, Charles Lefebvre, Horace Vernet and Souvenir de Malmaison. A box of remarkably fine blooms of Reynolds Hole, a shaded crimson H.P., was also staged by Messrs. Paul & Son, and awarded a First-class Certificate. In the amateurs' class for twelve varieties of Roses, in addition to the usual money prize there was also a special prize of a set of handsome plated salt-cellars, subscribed for by the amateur Rose cultivators of the neighbourhood. This was won by Mr. W. H. Connolly, who also had the best twelve Roses in the open class.

There was a nice show of fruit, which included the pot Vines grown by Mr. W. Cole, and done in his usual excellent style. Mr. Cole was also 1st with black and white Grapes, three bunches of each, as well as with a collection of fruit in six varieties. Vegetables were well shown, especially by the cottagers, who grow excellent vegetables round Ealing, and so keen is the competition every year that it has been found necessary to give eight prizes in the classes for Potatos, Peas, Beans, Carrots, &c. The cottagers at Ealing not only grow things well, but grow good things also, which is always shown by the character of the exhibits found on the exhibition tables. Prizes are given, also, for the best kept allotment or cottage garden, and also for the best flower garden. The Baroness de Rothschild and other ladies and gentlemen give special prizes in these classes, and a most remarkable competition ensues; in fact, any one interested in gardening could spend a very profitable day in going round the village inspecting these gardens, and noting the excellent order in which they are kept. During the afternoon of the exhibition day the prizes were handed over to the cottagers by the Right Hon. S. H. Walpole, M.P., the President of the Society—not one of the least interesting features in the day's proceedings. But the social observances properly belonging to a flower-show are well observed at Ealing. At many shows it is the practice, after the judges have done their work, to give them what passes under the name of luncheon in a very rough way, the officials acting as if they had borne with the judges as a necessary evil, and were heartily glad to be rid of them as soon as possible. At Ealing the committee always invites the judges to luncheon with them after the awards are made, feasting them right royally, and drinking with the judges a few complimentary toasts in a pleasant and agreeable manner.

Flower Show at Lambeth Palace: *July* 20.—The annual flower show of the parish of Lambeth was held, by permission of the Archbishop of Canterbury, in the grounds of Lambeth Palace, on Monday last. The parishes represented were St. Mary the Less, St. Peter's, Vauxhall; St. Phillip's, Kennington; St. Ann's, South Lambeth; Verulam, Emmanuel, and Holy Trinity, and the competitors were confined to working men and women, and to children attending the several schools. The plants exhibited consisted of Fuchsias, Calceolarias, Pelargoniums, Ferns, and other plants, and were divided into three classes—those grown in windows, on the premises of exhibitors, and in window-boxes. Every plant had been inspected a month previous to the exhibition by a committee and a seal placed upon it, and only those with seals untouched competed. The prizes, in the absence of Mr. Alderman M'Arthur, M.P., were presented by the Rev. A. T. Edwards. Upwards of 3000 persons were present in the evening, and the private gardens of the palace were thrown open to the visitors. The proceeds of the show will be devoted to a fund to enable the poor of Lambeth to enjoy the benefits of the convalescent ward of Mrs. Tait's Orphanage at Stonehouse, Broadstairs.

City of London Flower Show: *July* 23.—The City of London eastward of the Temple is about the last place in which one would expect to find a garden, still less a flower show. Still, thorough-bred Londoners know that within stone's-throw of the Bank and the Stock Exchange there is such a garden—that belonging to the Drapers' Company. In that garden was held on Thursday a flower show of a remarkable character, inasmuch as it consisted of "exhibits" of plants grown by amateur exhibitors within the City limits. Here were to be found Pelargoniums, Creeping Jennies, Nettle-Geraniums, Begonias, Oranges, Stonecrops, Houseleeks,—ay, even a Date Palm—all grown in windows in the City. Window-boxes were also to be seen, some very well done. Fern cases, thanks to the late Mr. N. B. Ward, can be as well done in the City as anywhere else, so that good as they were we do not think so much credit is due to those who exhibited them as to those who managed to cultivate Dahlias in pots under such adverse circumstances. We shall probably report more at length in our next issue, suffice it now to say that the exhibition was of a very satisfactory character, and that it was supplemented by some remarkable cut blooms of Roses from Messrs. Paul of Cheshunt, and Turner of Slough. The flowers sent by the former exhibitor were particularly noteworthy, and included fine examples of Maréchal Niel, Marquise de Castellane, Céline Forestier, Alfred Colomb, Marie Rady, Madame George Schwartz, François Michelet, Reynolds Hole, Dr. Hooker, and others.

A dreadful rumour was current that the Drapers' Company intend to sell this open space—about an acre, as we surmise—for building purposes. We are loth to believe that a wealthy company can be so deficient in public spirit as to permit this.

The prizes were distributed by H.R.H. the Marchioness of Lorne.

The Villa Garden.

Making a call a few days ago on a neighbour who has a small conservatory attached to his Villa residence, we found that, under the impression he was ripening their wood and laying the foundation of a good head of bloom next spring, he had placed some Azaleas out in the burning sun, where they were suffering from the intense heat, and losing their leaves as fast as possible. This was a serious error, and it is one that should be avoided on the part of those who grow Azaleas for decorative purposes in the spring. Another mistake had been committed—the plants had flowered freely and had produced plenty of seed-pods, and these had been allowed to remain on the plants, and thus a certain portion of the energy of the plants that should have gone to the production of wood had been used up to mature the seed-vessels. As soon as Azaleas have done blooming the seed-pods should be picked from the plants, and the plants placed where they can be encouraged to make free growth, to furnish flowers next spring. The best plan is to keep the house in which they are growing rather close and moist, but this can only be done in cases where a small house could be entirely set apart for their culture; but where there is only one house, in which many kinds of plants have to be grown, then the best plan is to give the Azaleas a shady portion of the house, free from cold draughts of air as far as possible, and encourage them, by keeping the roots moist, to make a vigorous growth. As a rule, in cold houses Azaleas have been very backward this season; some late varieties have only just gone out of bloom, and unless these plants have some attention as soon as they are out of flower there will be little chance of getting them set for bloom: hence the necessity for making the most of the present favourable weather. Such as require more pot-room should be repotted at once, and in doing this get from some reliable nurseryman some proper Azalea soil—a mixture of sandy peat and leaf-mould, with just a few handfuls of light fibry loam. Give the plants ample drainage—a precaution all the more necessary if they are to occupy a cold house during the autumn and winter. Do not put Azaleas into the first soil that comes to hand, quite irrespective of its adaptability to the plants, but get some proper soil, as just directed. The potting done, set the plants in a shady place in the house, and syringe freely while the weather is hot and dry. Don't over-pot Azaleas. This is a very common error with amateur cultivators of this beautiful flower. If properly attended to good-sized plants of Azaleas can be grown in 48 and 32-sized pots. What is wanted is the pots to be well filled with roots; when that is the case, and there is no stint of water at the proper season, Azaleas can hardly fail to do well.

Now is the time to prune and tie the plants into shape. In pruning thin out judiciously, and if a shoot has to be cut away, cut it back to the main branch. Encourage the plants to make a nice free bushy growth—shrub-like, and not a growth that requires to be tied into an unnatural shape so as to give a semblance of form to the plants. Plants that have bloomed early, and that have made their growth and set their flower-buds, may be removed to a cool, shady position in the open air; but it should be shady and also free from the action of the wind as much as possible. If the points of the shoots that have matured their growth are plump and swollen, then it will be known they have set their flower-buds.

A few Camellias are pretty well certain to be grown, for who is there that does not feel proud when he can cut a flower of his own blooming? Azaleas are comparatively easy to grow and flower, if proper care be taken of them; Camellias can be just as easily grown, but they want more care at the blooming season, as they are so apt to drop their buds. But this is not an insurmountable difficulty, and need not deter any one from attempting their culture. Camellias will now be making their growth, and they, too, should be carefully shaded from bright sunshine—syringing them freely overhead at least every evening, and as far as possible affording them a moist atmosphere. Any of the plants that require more pot-room should be shifted at once, using as a fitting soil one made up of about equal parts of good fibrous loam and peat, with a free admixture of silver sand. Those plants which have fairly formed their flower-buds should either be placed out-of-doors, or in a cool dry house; and it is recommended by some cultivators that they be kept rather dry at the roots (always supposing they have formed their flower-buds) just now, as this will prevent them making a second growth, which young vigorous plants are apt to do if kept in a close moist situation after they have formed their flower-buds.

Balsams will now be coming on fast, and should have plenty of room in which to grow to keep them from being drawn. Only keep a Balsam growing,—give it root-room, branch-room, light, air, and water, and capital specimens can be grown in 48 and 32-pots. Those who cultivate Balsams for market grow really wonderful plants in the 48-pots, and what they do can be at least approximately done by others. Balsams are strong succulent growing plants; give them good soil to grow in, and then an abundance of water, and some weak liquid manure-water occasionally when the pots are full of roots, and fine heads of double flowers will be certain to result. In hot dry weather they may be frequently syringed with much advantage. A great many of the complaints which arise as to the want of quality in the flowers—*i.e.*, a tendency to come single instead of double, is in the great majority of cases traceable to the plants being starved when they should be generously treated.

Fuchsias are such charming summer blooming plants for a conservatory, that any expedient by which the season of flowering may be prolonged should be heartily welcomed by all Villa Gardens. Now nice pyramid plants can be grown in 48-pots, small, but yet quite large enough for decorative purposes. It is a good plan to cut back some of these after they have thrown their first crop of flowers, then to remove the upper soil, and replace it by some fresh rich soil, and induce the plants to break into new growth. This they will readily do, and bloom freely at the end of the summer, by the time that the larger plants are exhausted and getting a little shabby. Allow a plea to be put in for the fine old Fuchsia fulgens, with its long trumpet-shaped rosy pink tube and carmine corolla. It is very distinct in character both in flower and foliage, and its continuous blooming character is another valuable trait no gardener will overlook.

May I recommend to the special notice of villa gardeners who have little time, and it may be less means, to devote to their plot, the cultivation of sundry species of Stonecrop (Sedum)? They are very cheap, pretty, and hardy. They will bear any amount of ill-usage and will give pleasure alike in summer and winter. They will grow in towns, on balconies, in windows, on roofs, on walls, literally with a minimum of attention. An undulating mound which does duty for a rockwork in my garden has of late been exceedingly bright and beautiful. It is devoted entirely to the growth of Sedums, and is pretty at all seasons. The low-growing species, such as S. acre, with green foliage, S. hispanicum, and that called S. Lydium, cover the ground the whole winter. Of the two latter the former has dense grey foliage, the latter equally dense red tufts. In early spring the golden variety of Sedum acre gives a brilliant effect. In the beginning of summer the mound is all ablaze with the yellow flowers of S. acre, and these are followed by the dense masses of the white S. album, the bold clusters of S. rupestre, which not only throws up fine trusses of yellow flowers, but is a striking plant all the year round, with its tufts of glaucous leaves shading into pink; the yellow flowers of S. sexangulare, and the pink ones of S. spurium. There are many varieties of this latter, ranging in colour from almost pure white to deep rose-coloured. Of all plants this surely is the most accommodating. Neither drought nor damp, smoke nor dust, blazing sun nor semi-obscurity seems to hurt it. Whatever else may fail this will grow. Of course, it looks better in some places than in others, but come what may it will grow.

Another grand plant for Villa Gardens of the kind mentioned is Sedum spectabile, which comes into bloom in late summer and early autumn. It would be difficult to find a plant, all things considered, more valuable than this, and you have only to break off a piece and stick it in the ground—you needn't trouble yourself to tell it to grow, it is sure to do so. When in bloom, be sure if there is a butterfly in the neighbourhood it will alight on this plant. In my suburban patch I have seen literally dozens of Vanessas, Io, Atalanta (Peacocks, Admirals, &c.) on my plants at the same time. *Jack Towel.*

Obituary.

We learn with deep regret that Mr. Robert Godfrey, of Homelands, Ryde, and formerly of Knap Hill, died from the effects of sunstroke and over exertion in travelling, early on the morning of the 20th inst. Mr. Godfrey was a nephew of the late Mr. Michael Waterer and Mr. Hosea Waterer, the successive proprietors of the Knap Hill Nursery, and he passed his earlier years as an assistant in that establishment. At his death, Mr. Hosea Waterer, the surviving brother, left the Knap Hill Nursery to his two nephews—the late Mr. Robert Godfrey and the present owner, Mr. Antony Waterer; and the business was for some years carried on most successfully and much extended by the two cousins, under the style of Waterer & Godfrey. Mr. Godfrey was always regarded by those competent to form an opinion as one of our best and most experienced and energetic nurserymen, and during the continuance of his bodily powers was devoted to his profession. He, however, some years since fell into bad health, and being also a martyr to gout, he gave up business, and retired to an estate which he purchased in the Isle of Wight. There, with rest, change of air, and careful treatment, he so far recovered from the effects of his maladies as to be able to devote his attention to stocking his garden and grounds with the choice trees and plants which he knew and loved so well, and during the past few years he seemed, in fact, to have regained much of his former vigour. Only a few days since we met him, apparently in robust health, at the Birmingham Show, where he seemed to take an interest in all the details of the exhibition. The fatigue of travelling, and the excessive heat, appear, however, to have been too much for him, and now comes the sorrowful intelligence that he died, almost suddenly, at 3 A.M. on Monday morning last. So passes from amongst us one of the most genial and warm-hearted of men. Mr. Godfrey was in his 63d year. *M.*

Apiary.

Honey Supers.—We are happy to know honey is a luxury not confined to the wealthy, but is equally to be found on the table of any poor man who has a little spare room in his garden for a small bee-bench. It is, indeed, a blessing, and as such was held forth to the wandering Israelites. When weary of their journeying in the wilderness, God, to encourage them, said He would bring them to a land "flowing with milk and honey, the glory of all lands." With what pleasure they must have beheld, for the first time, "honey flowing from the rock."

Much though we like to see honey on our breakfast-table, we care not to see a small quantity of treacle-like mixture placed in a common white jar or druggist's gallipot. This will not encourage an appetite, and very few would care to take the trouble to spread it on the bread. When it does appear, as either a luxury, or an ordinary part of the table equipage, let it be something nice and pleasant to look upon. To have it in a pure condition we must never think of taking it from the breeding part of the hive, but in supers to which the queen cannot gain access, then we shall have an article both pure, or free from impurities, and something worth exhibiting to our friends on the tea or breakfast-table.

Not only so, but the super should be made of glass. It is all very well, as in many of our popular bee-books, to recommend a common flower-pot: we do not deny that we can secure a fair quantity of good super honey in the comb in any kind of receptacle, but before it can be brought to the table it must be cut out, and then in a mangled dirty condition placed on a dish.

What we want is some neat glass receptacle that, whilst showing off the honey to advantage, will look handsome in itself. Bell-glasses have been very commonly used; these, however, do not answer as a table decoration. There are two glass supers, which can be purchased in most towns, which we can recommend with confidence to every bee-keeper; indeed, we should like to see them in general use, feeling sure of one thing—if bee-keepers, who keep bees simply for amusement, and to secure a little pure virgin honey, would introduce them to their apiaries they would soon be led to take a greater interest in these insects, and by introducing the product of their industry thus to their friends would soon extend apiculture to something like the position it occupies in Germany. They are very reasonable in price, costing but little more than ordinary bell-glasses of the same size.

The one we are most partial to is the Manchester super; we give it this name because it was originally introduced in Manchester. It has a neat and elegant appearance on the table, especially when placed on a clean white cloth spread over a dish. It is the most simple super with which we are acquainted, nothing more is required than when the bees show signs of swarming to take off the cover or lid and place it on the hive, covering it with old sacks, &c., so as to keep up the temperature. The bees take to it very readily,

and will not be long in filling it with pure honey if they are a strong stock.

The other is called the Abingdon super. This is not so simple as the Manchester super, and is liable, without great care, to be upset. The pedestal on which the super is placed is removed when in use in the apiary. The bees are liable to build their combs to the lid: this is a serious objection. It is also much more expensive, and is made in three pieces—the body, the lid, and the stand, whereas the one with only body and lid is much preferable.

We know of no ornament so beautiful on our small table, and we shall feel glad if we can induce others to work them in preference to flower-pots, which are certainly out of place in the beehive. *R.*

HOW TO DESTROY BEES.—Will any of your correspondents give me advice how to destroy a swarm of bees which last year came into a small hole in my house-wall, the said wall being of stone faced lined with brick. I fear to smoke them in such a position. Also from the space left between the walls it may be unlimited, and if the hole were filled up we fear the bees would find an exit through the window-pulleys and such holes into the rooms. I am induced to write this to-day as the bees are fierce and attacked me just in passing, leaving two stings in my face. *W. J.* [Chlorine gas would quickly destroy them, but it could not be applied without expensive apparatus. Under all circumstances the best plan to pursue would be to inject about half an ounce of pure chloroform with a small syringe. Choose some evening when they are all quiet and settled for the night, then inject the chloroform and immediately close up the entrance with mortar or cement. It will not only stupify them, but, if used in sufficient quantity, and in a confined atmosphere, will in a few minutes kill the whole colony. *J. F. R.*]

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON, FOR THE WEEK ENDING WEDNESDAY, JULY 22, 1874.

Month and Day	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall
	In.	In.	°	°	°	°	°	°			In.
July 16	30.04	+0.23	74.9	53.7	21.2	63.3	+ 0.9	53.8	71	E.	0.00
17	30.08	+0.28	76.5	49.7	26.8	62.2	0.0	51.0	67	E.	0.00
18	30.05	+0.25	76.8	46.2	30.6	61.7	− 0.2	51.4	69	E.	0.00
19	29.89	+0.09	88.7	53.0	35.7	67.7	+ 6.1	59.6	75	E.N.E.	0.00
20	29.69	−0.10	91.8	55.4	36.4	73.2	+11.8	56.4	56	S.E. : W.	0.00
21	29.62	−0.16	80.0	57.1	22.9	66.7	+ 5.2	53.1	62	W.	0.00
22	29.75	−0.04	75.0	52.9	22.1	60.1	− 1.4	50.2	70	WSW	0.00

July 16.—A fine day; a few light clouds were generally prevalent.
17.—Very fine; cloudless with slight exceptions.
18.—Very fine. In the morning a few light clouds prevailed; cloudless throughout the rest of the day.
19.—Overcast and misty in early morning; fine, with variable amounts of cloud afterwards.
20.—Haze and mist were prevalent in morning; cloudy and sultry during the day; generally overcast at night. At 9 in the morning the temperature of the air was 73°, at noon was 89°, increased to its maximum, 91°.8, a little before 1 P.M., and decreased to 70° by 9 P.M. The highest reading of a blackened bulb thermometer in vacuo, with its bulb fully exposed to the sky, was 158°.
21.—Generally cloudy but fine. A little thin rain fell in the afternoon.
22.—The amount of cloud was generally large, and a few drops of rain fell occasionally after noon.

— In the neighbourhood of London the reading of the barometer at the level of the sea increased from 29.97 inches at the beginning of the week to 30.13 inches by the morning of the 13th, then it decreased to 29.93 inches by the afternoon of the following day, then increased generally to 30.28 inches by 9 A.M. on the 18th, and was 30.19 inches at the end of the week. The mean reading for the week was 30.15 inches, being 0.02 inch higher than that of the week ending July 11, and 0.16 inch higher than the average of the corresponding period, as deduced from observations extending over eighteen years.

The mean high day temperature of the air in the shade at 4 feet above the ground was 79¾°; the extreme readings were 86¾° on the 14th and 75° on the 16th. The lowest temperatures at night were variable, that on the 12th being 59¼°, and that on the 18th 46¼°, with a mean value for the week of 54½°. The daily ranges of temperature were all greater than 20°, and the range on the 18th was 30½°. The mean daily temperatures of the air, with departures from their respective averages, were as follows:—12th, 66°.8, +4°.8; 13th, 69°.5, +4°.2; 14th, 70°.9, +8°.4; 15th, 68°.4, +5°.9; 16th, 63°.3, +0°.9; 17th, 62°.2, 0°.0; 18th, 61°.7, −0°.2, showing that the weather was considerably warmer on the first four days than during the latter portion of the week.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 149° on the 14th, 150° on the 17th, and 154° on the 18th, and the mean of the maximum readings of this instrument for the week was 143°. The mean of the lowest readings at night of a thermometer on grass, with its bulb fully exposed to the sky, was 47°, the values on the 17th and 18th being as low as 40° and 37° respectively. The general directions of the wind were W.S.W. and E.; its strength was very gentle, and at times the air was almost calm. Light clouds were frequently prevalent, and the weather was fine. No rain fell during the week.

In England, the extreme high day temperatures exceeded 85° at Blackheath, Wolverhampton, and Manchester, and were 77° at Newcastle-on-Tyne, and 78° at Hull, with a general average of 82°. The extreme low night temperatures ranged between 46° at Hull and 55¼° at Liverpool, with a general average of 50½° nearly. The range of temperatures in the week varied from 24° at Newcastle to 40° at London, the average range from all stations being 31½°. The average of all the high day temperatures was 75°.9, and of all the low temperatures 55°.6; the difference between these numbers shows the average daily range to have been 20¼°; the mean daily range at Newcastle was 12¾, and at Wolverhampton 26¾°. The mean temperatures of the air at Wolverhampton was 66½°, and at Hull was 60¼°; the average from all the stations was 64° nearly.

The fall of rain in the week was variable; there was none at the south coast and up to latitude 52°. A little rain, to the average of three-hundredths of an inch, fell over the midland counties; at Liverpool and Manchester about three-quarters of an inch fell; about half an inch at Bradford and Leeds, and about one-tenth of an inch at Sunderland and Newcastle; the general average fall was about two-tenths of an inch.

In Scotland, the temperature of the air exceeded 81° at Edinburgh and Leith, and the general average of the highest observed temperatures was 78¾°. At Edinburgh the lowest temperature was 44¼°, and the general average of lowest temperatures over the country was 48°. The range of temperature within the week at Edinburgh was 37°.1; at Perth it was only 24°; and the general average was 30¾°. The mean temperature at Glasgow was 63°, at Edinburgh and Dundee 62¼°, and the general average was 61½°. The fall of rain was variable: at Greenock 0.16 inch fell, whilst at Aberdeen the fall was 1¼ inch nearly; the general average fall was 0.56 inch.

At Dublin the highest temperature was 81½°, the lowest 48°, and the range of temperature in the week was 33¼°; the mean temperature was 63½°, and the fall of rain was 0.14 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—If we have a continuance of the excessive hot weather experienced for the last few weeks, it will necessitate continual and careful attention in watering. It frequently happens that a plant in vigorous growth, and possessing an abundance of roots, may not, at the time of the general morning's watering, appear sufficiently dry to require water, yet before evening may suffer severely; or a plant may, even where ordinary care and attention are bestowed, get overlooked, and through such cause be in danger of death or serious injury. When such is found to be the case, the first impulse often is to get the water-pot and give the plant a soaking, but if a tender-rooted subject, this is generally the last application that it requires. In an hour or two the plant will freshen up, and appear all right for a week or two, even longer if dull weather ensues, after which it will be observed to flag a little at the points when exposed to the full sun. The soil is examined and found wet enough, in fact, the operator feels surprised that it has dried so little since the last watering. In a day or two it flags more, and very soon seems to be dead. It is then removed to some out-of-the-way corner, and nothing more thought about it; yet if at once turned out of the pot, and the roots examined, the whole will be found not only dead, but rotten up to the collar, having been killed as effectually as if vitriol had been applied, by the water given to them in the full sun, at a time when the whole energies of the plant, and more especially the root functions, were paralysed and suspended through its want. This is the cause of sudden and mysterious death in many a fine plant, and which would not have occurred if the treatment had been different. When a plant is found dry in the way above described it should be at once removed into the shade, or well shaded where it stands, the atmosphere surrounding it thoroughly moistened by the copious application of water, wetting the outside of the pot repeatedly with the syringe until it has absorbed all the water it will take, slightly syringing the plant overhead to check leaf evaporation, until this can be supplied through its natural channel, the roots, to which it may be given thoroughly in the evening, when the sun declines. Many gardens are at the present time in a sorry plight for water, even so far as the supply for the different subjects grown under glass—soft-water cisterns, even where most capacious, being long since exhausted, and no resource left except springs, rendered more than ordinarily hard by the unusual absence of rain and excessively dry state of the substratum. Where such is the case, everything possible should be done to prevent the injurious effects produced by applying water to plants in this, to them, unnatural state, by not simply pumping up and exposing it to the air for a few hours before it is used, in the way often advised, but by providing sufficient accommodation, fully exposed to the air, that will allow of its being subject to the softening influence for several days before it is required.

Azaleas.—Young plants that are being pushed on for size as quickly as possible, and were started early, will now be setting their buds; these should, as soon as formed, be pinched out, and the plants liberally supplied with heat and moisture, to induce a second growth. This pinching-out of the flower-buds should not be deferred too long after they are formed, or the plants will make little further growth, but merely break, and set flower again with little or no extension of the wood. Keep a good look-out for thrips and red-spider: this is the season these insects usually make their appearance; where they exist no time should be lost in washing the plants with tobacco-water, to which Gishurst Compound has been added, prepared as advised in previous Calendars.

Heaths.—All the early-flowering plants should at once be got out-of-doors, and placed where they will be somewhat protected from the sun in its full noon-day force, but without being too much shaded. Whilst exposed to the open air do not elevate the plants, as is sometimes done, upon inverted pots or similar contrivances; in such a position they are too much exposed to drying currents, and are somewhat deprived of the natural moisture arising from the ground when actually standing upon it. This latter should consist of the usual bed of ashes sufficiently deep (not less than 6 inches) to exclude worms, keeping it always moist. Heaths so treated are not often seen with their leaves in the brown, hungry-looking state too often met with, where they stand during their season of outdoor exposure, elevated from the ground as above described. These plants, although not often subject to the pest, are sometimes attacked with red-spider; but where any rusty appearance of the leaves exists, the plants should be carefully examined, and if found to be affected they should be laid on their sides and thoroughly washed with clean water two or three times in a fortnight. Let the water supply at the roots be regulated by the strength and vigour of the plants; the freer the growth the greater the power of absorption.

Camellias. — Where a portion of the stock is planted out, and others are in pots or tubs, there is sometimes a difficulty in regulating the time of flowering the planted-out portion. When the latter have set their buds, and are sufficiently forward for the particular season they will be required at, it becomes at once necessary to stop anything approaching to further excitement, even if the pot plants happen to be more backward than desirable. In such case these latter should be at once removed to a house where they can be accommodated with the necessary treatment to finish their growth and complete the setting process. It is necessary to keep this matter in view, as if *Camellias* get too forward for the time their when flowers are required, there is no help for it during the current season, as on they will come, despite every attempt at retarding them; on the other hand, if required early in the autumn they can only be had by correspondingly early growth, and keeping the plants under such conditions as are calculated to bring their flowers on gradually: anything approaching to forcing in the later stages will only end in the buds dropping. Time was when to have Camellias in flower before December was considered simply to waste them, but now in some establishments they are even in greater demand before than after Christmas.

Soft-wooded Greenhouse Plants.—Early-flowering Pelargoniums, if not already turned out-of-doors in the full sun, should be put out without delay,

to thoroughly ripen their wood previous to cutting down, giving just as much water as will keep the plants from flagging, but do not allow them to get too wet. The blue and white varieties of *Campanula pyramidalis* make fine plants for conconservatory or general decoration; plants now coming into flower should be liberally treated with clear weak liquid manure-water twice a week Take off suckers, and pot singly in small pots; they like good fibrous loam, using more sand in the soil than will be ncessary after they have got well rooted. *Lilium auratum* plants coming on for later flowering will now require every attention with water; keep them well supported with sticks as if out-of-doors; they are otherwise in danger of being broken off at the base with strong winds. Plants of this Lily that have done flowering should be placed out-of-doors and also well attended to with water, as the longer their foliage keeps healthy the greater amount of strength is accumulated in the bulbs, on which their next year's flowering is much dependent. Pay every attention to the different varieties of *L. speciosum*; if a number of bulbs are grown in a pot keep the stems well tied out, so as to admit plenty of light and air. These, with a vigilant look-out for aphides, from which they suffer much, a liberal supply of liquid manure, and never allowing them to get dry, will insure their retaining their leaves in a healthy condition down to the base until their flowering is over, without which half their beauty is destroyed. *Chrysanthemums* must be staked and tied up as they advance in growth; if neglected in this matter they are very subject to get broken with the wind.

Conservatory.—Here tasteful arrangement of the foliage plants, intermixed with such flowering subjects as are at command, may in some measure compensate for the paucity of blooming stuff. The application of water here to the plants overhead is often objectionable, but without this it is impossible to keep down red-spider. Lose no opportunity of giving a thorough washing with the syringe or garden-engine when it can be done, so as to admit of the house getting dry before it is required for the admission of company. *T. Baines.*

FRUIT HOUSES.

PINES.—The fruits of early sorts, which started at an early period of the present year, will now be ripened off and gone, and those of later varieties, which came up at about the same time, will be sufficiently advanced in ripeness, so that they can be removed to a vinery or elsewhere to finish. Take advantage of this additional available space at once, in order to give the successional plants the benefit of more room, as in most places these plants generally need it before it is to be had. In the preparation of beds at this period of the year care must be exercised, especially in the case of those beds which are composed of fermenting materials only; considerable experience and judgment are required in this matter, particularly at this season, to avoid the baneful consequences attending the production of too much heat at the roots. Fermenting beds which had a liberal supply of new material in the spring will scarcely require any more now, merely turning such beds over a foot or 18 inches deep will suffice; those which were not refreshed with new stuff at that time, if it be necessary, should have an additional foot of new tan, to be incorporated with the old to the depth before named. If possible, avoid making new beds now, but if it be a matter of necessity, about 2 feet of new tan will be ample. Suckers of simultaneous growth with the fruits referred to above will now be ripe, and in a fit state to be potted whenever it may be deemed expedient to do so and, the means for the purpose are in readiness. At this season rootless suckers thrive best in a close moist pit or frame, having a fermenting bed, with a temperature of about 90°. In potting such plants ram the fibrous loam firmly into the pots and also round the base of the sucker; water them once over and plunge without much delay, at the same time cover the surface of the soil in the pots with the plunging material, so as to prevent it from becoming parchingly dry at the top. Under such conditions, with due regard to shading effectually from powerful sunshine, and ventilating slightly at about 85°, the plant will make roots quickly. More water will scarcely be needed until new roots are made, but a light syringing occasionally will be advantageous. *G. T. Miles, Wycombe Abbey.*

MELONS.—In the Melon-house proper let the last batch be now got in without much delay. By the term "Melon-house proper" is meant such structures as are entirely devoted to the purpose of growing Melons through the spring and summer months, and where a plentiful supply of hot-water pipes, or the old-fashioned flues, are at command. The present condition of the weather is such that fire-heat would be injurious; let fires, therefore, be dispensed with for the present, and this will lessen the necessity for shading over-much. But fire-heat will be necessary hereafter, to finish off the crop now about to be got in. We shall this week plant out our last batch in boxes, in the same place and position as the first batch was grown, and where we shall be able to afford them plenty of heat when the time for it arrives. This crop will come off about the middle of October. In regard to shading see what is recommended in this week's Calendar for Cucumbers. In pits and frames the last batch should now be either setting their fruit or fast advancing towards that condition, at which time be very sparing in regard to the supply of moisure; but do not permit severe flagging. Syringe freely, and afford a plentiful supply of water to the roots of all growing crops not actually in the setting or ripening stage, and use the knife freely except when the fruits are setting. Earth-up those plants which have just set their fruit. Beware of cracked fruits and canker at the collar, and attend to what has been previously laid down as a certain preventive and cure for the same. Do not fumigate during the setting period. Employ a liberal dusting of flowers of sulphur weekly. *Thos. Simpson, Broomfield.*

CUCUMBERS.—The present hot weather is rather trying for Cucumbers, especially if they are growing in a due south aspect. The only means of obtaining a free and fruitful growth just now is to pay a close and regular attention by way of ventilating, watering, shading, stopping, and well thinning out the growths periodically. Spare no effort, therefore, to secure this end, for Cucumbers are now in daily request. Avoid the bad practice of letting down the blinds at a given time each day, and, worse still, of allowing them to remain down all the day, regardless of the state of the weather; on the contrary be careful to draw up the blinds, if only for a quarter of an hour, at mid-day, whenever the state of the weather will permit, and see that the blinds work well. I have previously advised that the shading material should be thin, and that it should only be employed so far as to prevent severe flagging. Now is the time when houses facing either east or west are of great service, as much of the cost and trouble of blinds is avoided, with many of the evils attendant thereon. Complete the preparations for the autumn fruiters, as advised in last Calendar, and in removing exhausted plants preserve all the small fruits, which will be useful for pickling. Water copiously, and syringe freely between 3 and 4 P.M. Plants growing in pits or frames must be regularly watered and syringed, and the lights closed about 4 P.M.; no fire-heat will be required just now. Ridge Cucumbers are not doing much yet; let them be well mulched and regularly watered, and be dusted with flowers of sulphur about once a-week; the shelter of a few green boughs, to break the force of the sun, would be beneficial. *T. Simpson, Broomfield.*

HARDY FRUIT GARDEN.

Look frequently over the various kinds of fruit trees trained to walls, &c., and nail or tie-in leading shoots, and remove those which are superfluous. *Apricots* are mostly becoming quite ripe, and although not a heavy crop the fruit is exceedingly fine, and requires much attention to prevent it being injured or disfigured by insects of various sorts, such as ants, earwigs, woodlice, wasps, flies, hornets, slugs, snails, &c., as well as blackbirds and thrushes, during dry weather, and also tomtits, blackcaps, &c. But, of all the enemies which the ripening fruit has to encounter, the ants are the most ubiquitous and troublesome; and, as regards the fruit of the Apricot, it unfortunately happens that the side exposed to the sun becomes frequently quite ripe while the shaded side remains hard and green; and should ants take a fancy to the ripe portion of the fruit the injury they will speedily inflict upon it will be followed by rapid decay, which will set in even before the ripening process in the other portion of the fruit has been completed. Guano strewed in the runs of the ants is said to be distasteful to them, and so is boiling water poured upon them, when a sufficient number can be found together to render this operation effective. Possibly the best remedy, however, is to place a number of jars at the foot of the wall where the fruit is ripening, each jar containing honey and water, to the depth of an inch, less or more; and in this they will drown themselves by thousands. Earwigs may also be trapped in pieces of beanstalk cut into lengths of about 6 inches and inserted among the branches, examining them every morning and blowing the insects which may have concealed themselves inside the stalks into a pail of water. Wood-lice may be caught in small pots, which should be baited with a small portion of cooked Potato, covered loosely with a little dry moss or soft hay. Slugs and snails generally leave unmistakable evidence of their visits, and as these are generally paid nocturnally, the visitors should be looked for late in the evening, picked up and destroyed. When the ordinary pace of these unprepossessing molluscs is considered, it is somewhat difficult to give them credit for the very considerable distances they will travel during the night for the sake of ripe fruit.

Late Cherries should by this time be carefully netted, to preserve them from birds. The leading shoots should be nailed or tied in, while the fore-right shoots, or a portion of them, may be left until the fruit is gathered, as they help to keep the net at a distance from the fruit, and the partial shade which they afford is also an advantage to the same. *Vines* on open walls are in some instances being attacked by mildew, and wherever this is perceived dust at once with flowers of sulphur, or syringe with "Ewing's Infallible Composition." One or two applications of the latter will generally prove effectual in arresting the further progress of this parasitical fungus. Let such fruit trees on walls as the *Peach*, the *Nectarine*, the *Plum*, and the *Pear*, which are all now swelling off or finishing their fruit, be assisted by liberal waterings of diluted sewage, if procurable, and be afterwards mulched with manure, as this will tend greatly to counteract the ill effects of the prolonged drought.

Raspberries have this season been exceedingly abundant, and the fruit has been much finer than could have been expected. As the crop will now be in most instances gathered, the bearing canes should be all cut out, while the young canes may be thinned out to four or five of the strongest and best placed, which may also be slightly shortened and left untied, so that sun and air may have free access amongst them, to ripen and mature the wood and buds. The autumn-bearing varieties should now be encouraged by mulching and watering, and will probably require to be supported by stakes. Continue to pot runners of *Strawberries* of various sorts, as they can be procured, for the purpose of forming new plantations about the end of September, or for the purpose of forcing, when they may also be planted out, as soon as the fruit is gathered from them; and let forced plants which may have been planted out during the months of May or June last have liberal treatment, and an abundant autumnal crop may be reasonably expected, which it will be necessary to protect by nets from the ravages of birds. *P. Grieve, Culford, Bury St. Edmunds.*

KITCHEN GARDEN.

With the unusually long period of dry weather, no rain having fallen with us since May 14, the earlier kinds of Potatos are generally quite ripe and should immediately be taken up, as with a change of weather it is very probable the disease may set in. The crops, though short in quantity, are excellent in quality. In taking up, the larger tubers should be selected and stored up for use, while those intended for seed may be placed in an open airy shed, so as to be well dried and greened before stowing away. Taking up, if not already planted between the rows, the ground should be regularly forked over, and will then be available for a late sowing of Turnips, or the dwarf kinds of Savoys or Coleworts may be planted. The earlier kinds of autumn-sown Onions, Garlic, Shallots, &c., should also be taken up when growth has ceased, spreading the bulbs over the ground for a few days so that they may be well dried before taking them in. Where the planting out of late crops of Broccoli, &c., has been deferred, it becomes a necessity to proceed, as we have at present no indications of a change, and the season is fast passing away. Presuming ground is prepared, the rows should be marked out and drills drawn along the line 4 to 6 inches deep, in which to plant out. Previous to planting, the roots of the plants should be well puddled in a thick mixture of clay and water, and followed by a good watering to each, so as to well settle the soil about the roots. Where water is obtainable, rows of late Peas, Runner Beans, and in fact all crops required for autumn use must be liberally supplied. Lettuce is a most difficult crop to keep in good condition; we find it a good plan to mulch the Cos varieties with half rotten manure between the rows, giving occasionally a free supply of water over the whole surface of the ground. Ground should now be prepared for the main crop of autumn sown Onions, winter Spinach, Cabbage and Lettuce. Sow Chervil and Corn Salad; these will now stand for late use. Continue to sow and plant out the earlier sown Endive, and earth-up the earlier crop of Celery, making sure there is sufficient moisture at the roots, as after earthing-up there is little chance of water getting down to benefit the plants. Strawberry plants layered in due time should now be in fit condition for putting into their fruiting pots: lose no time in completing this, and place the plants as potted in an open situation, where they can get full advantage of light and air. *W. Cox, Madresfield Court.*

FORESTRY.

The late dry weather will still render necessary copious waterings to trees lately planted, especially to those which are not fairly established in growth. Do not be deceived by a heavy shower or two upon the surface. Waterings to be effectual should reach to the full depth of the pit that has been taken out. Clear grass and rank weeds out from open ditches. Keep down Bramble, Furze, &c., on division roads, which

are apt to grow grass on those not much used. Cut Ivy running up the stems of trees. Drain ground planned off for planting, and proceed with pitting on that not requiring drains. The *Robinia Pseud-Acacia* is a tree worthy of being recommended for planting by way of diversity on account of its fine foliage amongst landscape scenery. It is most attractive and highly ornamental when in flower. There are several within the grounds here standing as single specimens, from 40 to 50 feet in height, and with stems upwards of 2 feet in diameter. The white racemes of flowers contrast finely with the rich, lively, green foliage. The tree should be planted in good soil, and have a well-sheltered situation, where it will form a fine contrast amongst the ordinary class of forest trees. The timber is hard, and suitable for cabinetmaker's work. Clean hedges, and those having their summer growth completed may now be clipped or switched. Late removed trees or shrubs in the nursery department will require attention, to see that they do not suffer for want of watering. *J. Webster, Gordon Castle.*

Variorum.

"UNDER A HEDGE." (*T. Bayley.*)

[Sung by Miss JESSIE ROYD at the thirty-first anniversary of the Gardeners' Royal Benevolent Institution.]

A florist a sweet little blossom espied,
Which bloomed like its ancestors by the roadside;
Its sweetness was simple, its colours were few,
Yet the blossom look'd fair in the spot where it grew.
The florist beheld it, and cried, "I'll enchant
The botanical world with this sweet little plant;
Its leaves shall be shelter'd, and carefully nursed,
It shall charm all the world, though I met with it first
Under a hedge."

He carried it home to his hothouse with care,
And he said, "Though the rarest exotics are there,
My little pet plant when I've nourished its stem,
In tints and in fragrance shall imitate them,
Though none shall suspect from the roadside it came;
'Roadum-sidum,' I'll call it, a beautiful name!
While botanists look through their glasses and view
Its beauties, they'll never suspect that it grew
Under a hedge."

The little pet plant, when it shook off the dirt
Of its own native ditch, soon began to be pert,
And toss'd its small head, for perceiving that none
But exotics were round it, it thought itself one.
As a wild flower all would have owned it was fair,
And praised it though gaudier blossoms were there;
But when it assumes hothouse airs we see through
The forced tint of its leaves, and suspect that it grew
Under a hedge.

WEST HAM PARK.—On Monday last this park, 80 acres in extent, was opened as a place of public recreation by the Lord Mayor, on behalf and in the name of the Corporation of London. The park, according to an interesting statement circulated upon the occasion, was for many years the residence of the late Mr. Samuel Gurney and of Mrs. Fry, whose names were for a long period "household words" for deeds of pure and thoughtful philanthropy. That such a residence should be thus preserved as a blessing for all time, is due first and foremost to the liberality of the owner, Mr. John Gurney, and the members of his family; secondly, to the untiring efforts of a local committee, who dedicated themselves heartily and zealously to the accomplishment of so excellent an object; and, lastly, to the liberality of the Corporation of London, who, at a time when all local resources were exhausted, and the whole matter seemed on the point of falling through, generously stepped forward and supplied the deficiency. In no position of the metropolis could a more fitting spot be found for such a work. The parish of West Ham contains a population numbering nearly 70,000, the large majority of them poor, hard-working people, engaged in useful and necessary, but by no means healthful, employment. The miles of streets swarm with children (there being in the parish no less than 15,000 of school age); the numerous factories send forth their noxious effluvia, and to any thoughtful and philanthropic man or woman passing the streets the idea must have occurred—what a boon it would be if so teeming a population had some beautiful spot within a short distance where they could breathe the pure air of heaven. When Mr. Gurney, the owner, contemplated selling the old park for building purposes, he was offered £25,000 for it. He then stated that he and the members of his family, retaining a warm interest in the welfare of West Ham, would subscribe £10,000, provided the remaining £15,000 could be otherwise raised, in order to present the park for ever as a place of public resort. A local committee was at once formed, and public meetings were held. It was found, however, that, though subscriptions in the district came in freely, £15,000 was a large sum to raise by such means anywhere. West Ham, moreover, is comparatively a poor parish, the local rates being something like 8*s*. in the pound, after every persevering effort, there was still a deficiency of over £10,000. The committee then, through Alderman Sir Thomas White and Mr. J. T. Bedford, applied to the Corporation of London, who, after very carefully considering the matter, unanimously agreed to contribute £10,000, the balance required to complete the purchase. An enthusiastic public meeting, held at the Town Hall, Stratford, thanked them heartily for their liberality. Since then a licence has been obtained from the Crown, allowing the Corporation to hold the park for ever in trust for the people, and, in accordance with the deed of transfer, a committee of management has been formed of fifteen members. The Corporation voluntarily agree to keep it in order, so that not one shilling of expense, directly or indirectly, will have to be borne by the locality. The Corporation have long shown a great interest in the preservation of open spaces, especially in the east of London, and they are now engaged in an expensive contest to preserve the rights of the people in Epping Forest, but this did not prevent their giving a ready response to the appeal from West Ham.

A HUMBLE BOTANIST.—Among the many eminent botanists in Glasgow and throughout Scotland, there are few who have attained a more thorough knowledge of plants and flowers than James Wellwood, handloom weaver, Parkhead. When quite a young man, Mr. Wellwood turned his attention to the science of Botany, and occupied his leisure hours during the summer season in gathering wild plants and flowers in the surrounding neighbourhood. He afterwards extended his researches to the counties of Renfrew, Dumbarton, Stirling, Argyle, Bute, and Ayr, with the view of obtaining additional information on the subject. During holiday seasons, when many of his brother craftsmen were frittering away their time in frivolous enjoyment, this humble disciple of Linnæus might be found picking up plants and flowers among hills and glens, in the tangled copse, or on the banks of some quiet stream, far from the din and bustle of the city. Though unobtrusive in his manner, and of a retiring disposition, James nevertheless attracted the notice of some of the most distinguished botanists in the West of Scotland, who kindly favoured him with the best works on the subject, and these he has perused to excellent advantage. He is familiarly acquainted with the common and technical names and distinctive qualities of every class of plants in this country, and also many exotics. Lecturers on the subject frequently find it necessary to consult him on some disputed point, and almost invariably they find his opinion to be correct. James Wellwood, though now in the "sere and yellow leaf," is as enthusiastic on the subject of botany as when he first turned his attention to it some half-a-century ago. *Glasgow Evening Citizen.*

FRENCH GUIANA.—The following description of French Guiana is from a recent report by the British Consul at Cayenne. He says:—

"Very little is known of the interior, except to an average distance of 25 miles from the coast by water, travelling to any distance by land being totally impossible for man or horse. Dense, impenetrable, dark green forests, with tangled underwood and submerged masses, are the powerful preventatives. Only by means of the rivers and creeks can one penetrate, and that by slow and laborious means, for, after ascending a few miles, and as the land gradually rises, formidable objects bar the way; there are concealed rocks to avoid, and rapids to surmount, trying alike to the most courageous and most patient.

"It is said that there are eighty-five known varieties of woods in the forests, from a quality as hard as Oak, used in building the craft of the colony and for posts and beams in house-building, to the softest; and from the coarsest grained to the finest, some of which are most beautifully marked and most delicately tinted. Almost everything in Nature grows there; gums, resins, balsams, and other oleaginous substances, abound therein; in fact, French Guiana is the richest of lands in natural resources, and it is the most shunned and despised. There are very few known aborigines inhabiting the interior, which may be attributed to the density of the vegetation and the extravagance of its growth, to the unceasing drenching rains, encouraged by hundreds of square leagues of forests, and to the presence of wild beasts and venomous reptiles and insects. Game large and small also abounds n the colony, and birds of the most gorgeous plumage exist in myriads.

"The cultivated part of the colony is that lying along the coast from the River Oyapack to the River Maroni, to the average distance inland as before mentioned. These lands are, however, interspersed by woods and marshes, and along the whole of the shore of the colony has sprung up an artificial rampart of vegetation consisting of tall, slender trees, densely packed, called in the colony 'Palituviers' (Rhizophora Mangle), nourished in a belt of alluvial matter deposited by the Great Guiana current, which sweeps the coast in a N.N.W. direction from the mouths of the Amazon, whence the alluvial is brought. This tall brushwood ceases to grow beyond the alluvial, and gives place to groups of larger trees; and as you proceed inland, and the surface becomes more undulating, these groups join and form one vast forest, intersected by rivers and a network of creeks.

"There are four large rivers in French Guiana (not including the Maroni, which separates French from Dutch Guiana on the North-west, and the Oyapack, which separates it at the south from Brazil and a large territory, of which I think it unnecessary to speak further), and sixteen other smaller rivers, some with names and others nameless, running into the sea, having their sources, no doubt, in the vast savannahs swollen by the incessant floods. The length of the coast line of French Guiana is about 340 miles, and is divided into thirteen quarters, in each of which is a bourg or village, under the authority of a commissionaire commandant and a municipal council. The soil is clayey and fertile, and produces Manioc, Coffee, Cocoa, Cinnamon, Sugar-cane, Rice, corn, &c., the Arnotta tree (Bixa Orellana), whence roucou is manufactured, Limes, and every class of tropical fruit and vegetables, such as Yams, Sweet Potatos, Pumpkins, Spinach, the Egg Plant, Cucumbers, &c. In the hills and valleys of the interior the soil is argillaceous schist, abounding with quartz containing quantities of gold, some iron and lead. The prospecting of gold is the all-absorbing industry."

ACCIDENTAL NATURALISATION OF PLANTS.—It is well known that many of our most pernicious weeds are foreign plants that have been accidentally introduced into this country, where they have become naturalised and have spread in some cases far more rapidly than on their "native heath." M. Balansa relates two striking cases of this kind in his account of New Caledonia, the island to which so many of the French Communists have been transported. In the first instance, about four years ago, a gendarme, who was transferred to this island from Otaheite, brought with him a bolster filled with the feathery seeds of Asclepias curassavica. Having occasion to wash the tick-cover, he opened the bolster at the Pont des Français, when some of the seeds were carried off by the wind, and the plant has since then increased to such an extent as to seriously interfere with cultivation, its roots running under ground to considerable distances, and sending up shoots in all directions, so that it is difficult to eradicate it. In the second case, M. Balansa relates that, a few years ago, some boxes arrived from Sydney containing various articles packed in European hay. This was thrown out and left on the ground where the boxes were unpacked. In the following year a new graminaceous plant was observed growing plentifully where the hay-packing had been left. This proved to be common Couch-grass (Triticum repens), and it has spread so rapidly that M. Balansa states that it is already exterminating the native grasses.

A NOVELTY IN GAS-MAKING.—Some time ago we noticed a new method of heating applied to the conservatories and greenhouses at Niddry House, whereby a great saving of coal was effected. Within the beautiful grounds which surround Mr. Wauchope's mansion a small limekiln was erected, in the flues of which two of the ordinary puddle boilers were fitted up. Attached to these are some 2000 feet of piping, extending to the most distant of the greenhouses, and the fact that an equable heat has been maintained by this system is abundantly proved by the thriving state of vegetation in the houses. The heat of the kiln being, however, more than sufficient for the boilers of this apparatus, it occurred to Mr. Gordon, gardener on the estate, that the surplus might be turned to account in making gas; and accordingly in February last an ordinary retort, 5½ feet long by 12 inches in the bore, was built horizontally into the kiln, just above the cast-iron door by which it is fed. The mouthpiece of the retort projects about a foot from the front wall, and from its upper side there rises a pipe by which gas evolved within it is conveyed to a hydraulic main over the top of the furnace. Through this main the gas passes to condensers, then to the purifiers, and finally to a gas-holder, about 100 yards from the furnace, from which pipes are laid to supply the house. The experiment has proved eminently successful, and it is found that of the heat generated by the burning of the lime there is yet a good deal to spare. By one charge of the retort with common gas coal about 100 cubic feet of gas are distilled, and it may be noted that the kiln which supplies heat to the boilers and retort is one with a draw of half a ton per day. The limestone is used in the proportion of two-thirds to one-third of coal, and it is expected that by selling the burnt lime the expenses connected with the making of gas, as well as the heating of the conservatories, will be nearly covered. Were the system carried out to any extent—provided always that limestone could be obtained at small cost—there would actually be a profit on the operations. Mr. Wauchope proposes, we understand, to take out a patent for the principle, which can hardly fail to commend itself to country gentlemen and horticulturists. *The Scotsman.*

Notices to Correspondents.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. Letters relating to advertisements should be addressed to the Publisher.

BOOKS: *J. H. W.* The last edition of the *Cottage Gardeners' Dictionary* was published in 1868. The publishers are Messrs. G. Bell & Sons, and the price is 6*s*. 6*d*.

BUDDING ROSES: *B. H.* The cross cut is sometimes made below instead of above, but we are not aware of any special advantage in practice.

Carter's Exhibit of Lettuces at the Royal Horticultural Show, July 15.—In our report upon the above we omitted to mention the recommendation of the committee that a Bronze Medal should be awarded by the Council.

Dock: *H. M. H.* Unless you cut well beneath the crown, at whatever depth that may be, you will be liable to a new growth.

Names of Plants: We have again to request correspondents sending plants to be named not to wrap them in cotton wool. A bit of oiled silk or gutta-percha membrane is the best thing—anything but cotton wool. —*C. W. D.* Verbascum Blattaria.—*A Student.* 1, Melampyrum pratense; 2, Lysimachia nemorum; 3, Agrimonia Eupatoria; 4, Stellaria graminea; 5, Hypericum Elodes; 6, Circæa luteiana. *Hardiwick.* Erythræa Centaurium.—*An Old Subscriber.* 1. Chrysanthemum fœniculaceum; 2. Phillyrea angustifolia; 3. Leucopogon; 4. Dracophyllum secundum; 5 and 6, indeterminable.—*E. C. M.* Alstrœmeria psittacina.—*Justice.* Very large growth of Adiantum Capillus-Veneris, probably of the form known as Moritzianum, which is not British. Whether your specimen is British or exotic we cannot say; we have, however, seen native (especially Irish) specimens even larger than yours.

Peach Shoots: *T. Paslett.* The young points of the shoots of your Peach trees seem to have suffered severely with mildew. Dust them with flowers of sulphur. The leaves are also punctured by the garden weevil, a small black beetle. As these pests hide themselves during the day, and commence their ravages at night, the only way to get rid of them is hand-picking at night.

Prize Schedules: *W. G. P.* The prize is for the best "miscellaneous collection of 24 plants, not to include stove plants, Ferns, or hard-wooded greenhouse plants;" and you ask three questions, which we answer separately:—1. Are Coleuses stove or greenhouse plants? Certainly stove plants.—2. Are Fuchsias hard or soft-wooded greenhouse plants? Soft-wooded. —3. To what class of plants do Cannas belong? This is more difficult to settle. They are tropical plants, yet with protection they may be wintered out-of-doors. As the best mode of treating them is to preserve the tubers, and start them like Dahlias, we should be inclined to class them as greenhouse or half-hardy plants—certainly not as stove plants.

Strawberries not Colouring: *J. L., Sweden*, asks if some of our correspondents will obligingly say what can be the reason of forced Strawberries not colouring. The first picking is generally very good, but the second turns yellow, and gradually gets worse.

Catalogues Received. — William Henderson (86, Hamilton Street, Birkenhead), Catalogue of Dutch and other Flower Roots.

Communications Received:—E. Abbott.—G. S.—E. T. B. —Justitia.—E. S. D.—T. S.—J. L.—W. P.—W. T.—J. B.—W. C.—M. Y.—H. W.—J. C. & Co.

Died, on the 10th inst., by accidental drowning in a large water-tank in the kitchen garden, Lindley George, youngest son of Mr. T. Simpson, the Gardens, Broomfield Lodge, Chelmsford, aged twenty months.

Markets.

COVENT GARDEN, *July* 23.

Markets remain firm at last week's quotations, and are well attended. Supplies good. *Thos. Taylor, Wholesale Apple Market.*

Fruit.

	s. d. s. d.		s. d. s. d.
Cherries, p. lb.	0 6– 2 0	Nuts, Cob, p. lb.	.. ..
Gooseberries, p. qrt.	0 4– 0 9	Oranges, p. 100	6 0–16 0
Grapes, English, p. lb.	2 0– 6 0	Peaches, p. doz.	8 0–18 0
— finest, do.	8 0– ..	Pears, p. doz.	2 0– 3 0
— Muscats, do.	4 0–10 0	Pine-apples, p lb.	3 0– 6 0
Lemons, per 100	14 0– ..	Strawberries, p. lb.	0 6– 1 6
Nectarines, per doz.	6 0–12 0	Walnuts, p. bush.	20 0– ..

Vegetables.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Leeks, per bunch	0 2– 0 4
Asparagus, per 100.	3 0– 8 0	Lettuces, per doz.	1 6– ..
Aubergines, per doz.	6 0– ..	Mint (green), p. bun.	0 6– ..
Beans, Broad, English, per bush.	3 0– 3 6	Mushrooms, per pott.	1 0– 2 6
— French, per lb.	1 6– ..	Onions, young, bun.	0 4– 0 6
Beet, per doz.	1 0– 2 0	Parsley, per bunch	0 4– 0 6
Cabbages, per doz.	1 3– 2 0	Peas, per quart	1 0– 2 0
Carrots, new, p. bun.	0 9– ..	Radishes, per bunch.	0 2– 0 4
— English, do.	0 9– ..	— black, Turnip, do.	.. – 0 6
Cauliflowers, per doz.	2 0– 6 0	Rhubarb, p. bundle	0 4– 1 0
Celery, per bundle	2 0– 3 0	Shallots, per lb.	0 6– ..
Cucumbers, each	0 6– 3 0	Salsify, per bundle	1 6– ..
Endive, per doz.	1 0– 2 0	Spinach, per bush.	5 0–
Herbs, per bunch	0 2– 0 4	Tomatos, per doz.	3 0– ..
Horse Radish, p. bun.	3 0– 5 0	Turnips, per bundle	1 0– ..
		Veg. Marrows, doz.	3 0– ..

New Potatos:—Round, 5*s.* to 7*s.* per cwt.; Kidneys, 6*s.* to 8*s.* per cwt. Supplies large, and trade bad.

Cut Flowers.

	s. d. s. d.		s. d. s. d.
Carnations, per doz. bunches	4 0– 9 0	Pelargoniums, per 12 sprays	0 6– 1 0
Corn-flower, p. doz. bunches	2 0– 6 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Eucharis, per doz.	4 0– 9 0	Pinks, mixed do.	2 0– 4 0
Escholtzia, p. 12 bun.	2 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Gardenias, p. doz.	3 0– 9 0	— Outdoor, do.	0 4– 1 0
Heliotropes, per doz. sprays	– 0 6	— Moss, 12 bun.	6 0–12 0
Lilies, red, p. bunch	0 6– 1 0	Spiræa, per 12 sprays	1 0– 2 6
— white, do.	2 0– 2 6	Stephanotis, 12 sprays	3 0– 9 0
Mignonette, 12 bun.	2 0– 6 0	Sweet Peas, 12 bun.	3 0– 6 0

Plants in Pots.

	s. d. s. d.		s. d. s. d.
Begonias, per doz.	6 0–12 0	Heaths, in var., doz.	12 0–30 0
Bouvardias .. do.	9 0–18 0	Hydrangea .. do.	9 0–24 0
Calceolarias, shrubby	6 0–18 0	Liliums, in var., each	1 0– 3 6
Cyperus .. do.	6 0–12 0	Mignonette, per doz.	4 0– 6 0
Dracæna terminalis	12 0–30 0	Myrtles .. do.	3 0– 9 0
„ viridis .. doz.	12 0–24 0	Pelargoniums do.	9 0–24 0
Fairy Roses, p. doz.	6 0–12 0	do, Scarlet .. do.	3 0– 9 0
Fuchsia .. do.	4 0–12 0	Rhodanthe .. do.	6 0–12 0

SEEDS.

London: *July* 23.—Increased activity is now visible in the seed trade. For new Trifolium, both French and English, there is now a good inquiry at advanced prices. New English winter Tares are now beginning to put in an appearance on our market. For yearling parcels more money is asked. A few samples of new home-grown Trefoil seed have been shown, but prices have not yet settled down. White Mustard continues very firm. Of Rape seed the crop is said to be good, and quotations have opened at a reasonable figure. Hemp and Linseed meet with no attention. Should the present drought continue much longer there will undoubtedly be a heavy demand for seeds during the autumn. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

There was a small attendance of millers at Mark Lane on Monday, and, convinced of the excellent condition of the crops, they would not operate in Wheat unless at a reduction, which exceeded 1*s.* per quarter in English and 2*s.* in foreign. The first sample of new Talavera Wheat, grown near Reading, was offered at 70*s.*, but its weight was noticeably light. Barley was quiet, without change in price. Malt was dull, and easier in some instances. The better qualities of Oats made occasionally a slight advance. Maize was steady. Beans and Peas were at about late rates. To effect sales in flour less money had to be taken.—The market on Wednesday was steadier in tone, but very far from active. Wheat, both English and foreign, was purchased to a small extent at Monday's reduction; no change occurred in the price of flour, but Oats were in moderate request, and the value of this as of the remaining descriptions of storing corn was well supported. The average prices for the week ending July 18 were—Wheat, 60*s.* 10*d.*; Barley, 39*s.* 6*d.*; Oats, 31*s.* 2*d.* per quarter. For the corresponding week in 1873—Wheat, 59*s.* 6*d.*; Barley, 35*s.* 10*d.*; and Oats, 27*s.* 4*d.*

CATTLE.

In the Metropolitan market on Monday there was no improvement in the quality of beasts offering. The dry weather causes a great many to be sent to market before they are fit for the butcher. Choice ones being scarce sold readily, but many inferior remained unsold. The number of sheep exceeded the demand. Prices were no better, and a clearance could not be effected. Trade was excessively dull for lambs and calves, at, on the average, lower prices. The quotations were:—Beasts, 4*s.* 4*d.* to 5*s.* 10*d.*; calves, 3*s.* 8*d.* to 5*s.*; sheep, 4*s.* to 5*s.* 2*d.*; lambs, 5*s.* to 6*s.*—On Thursday beasts of choice quality were scarce, and on the average prices were rather better than on Monday. For sheep trade was dull at last prices. A large number of middling lambs made very low prices. Trade is worse for milch cows.

HAY.

Whitechapel market has been moderately supplied with fodder, the demand for which continues very steady at the following prices:—Prime Clover, 105*s.* to 115*s.*; inferior ditto, 50*s.* to 70*s.*; prime meadow hay, 94*s.* to 104*s.*; inferior ditto, 50*s.* to 70*s.*; and straw, 36*s.* to 40*s.* per load. The Cumberland Market quotations are as follows:—Superior old meadow hay, 112*s.* to 120*s.*; inferior do, 88*s.* to 100*s.*; new hay, 90*s.* to 112*s.*; superior old Clover, 112*s.* to 120*s.*; inferior do., 90*s.* to 100*s.*; new do., 90*s.* to 110*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

We learn from the Borough Market report that the supplies continue to increase. Round Potatos are quite abundant, and English Regents have begun to arrive. The arrivals of foreign are less extensive. The trade is steady at—Shaws, 5*s.* to 6*s.*; Regents, 6*s.* to 10*s.*; and Kidneys, 7*s.* to 10*s.* per cwt.—The Spitalfields Market report notes that, with some increase in the supply, prices are more in favour of the consumer, and a steady moderate demand prevails. Quotations:—Regents, £7 to £7 10*s.*; Shaws, £6 to £6 10*s*; Kidneys, £7 10*s.* to £8 per ton.—The imports of foreign Potatos into London last week consisted of 180 sacks from Boulogne, 2263 Jersey, 57 casks Gibraltar, 825 boxes Barfleur, 10,051 Rotterdam, and 2 packages Oporto. The arrivals into Southampton were only 4685 bags, &c.

COALS.

Monday's market was a quiet one, without any change in prices. The only quotations to hand for that day are:—Walls End Hawthorn, 21*s.* 3*d.*, and Walls End Kelloe, 21*s.* 6*d.* The market on Wednesday was dull, and the top price of house coals was reduced to 25*s.* per ton. The latest quotations are:—Hastings Hartley, 22*s.* 3*d.*; West Hartley, 22*s.* 3*d.*; Weardale screened, 18*s.* 6*d.*; Walls End—Bishops Close, 19*s.*; Harton, 21*s.*; Haswell, 25*s.*; Lambton, 24*s.* 6*d.*; Tunstall, 21*s.* 3*d.*; East Hartlepool, 24*s.* 9*d.*; Original Hartlepool, 25*s.*; South Kelloe, 22*s.* 3*d.*

Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which Hill & Smith will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

Unsolicited Testimonial just Received.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 7, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.* amount due to Messrs. Hill & Smith, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

Caution.—It having lately come to the knowledge of Hill & Smith that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

EXTERMINATES VERMIN

OR COCKROACH AND BEETLE POISON

CANTHARIKOPHO

EFFECTUALLY DESTROYS BEETLES COCKROACHES RATS & MICE *and will attract its victims until* ALL ARE DESTROYED.

Is indispensable to Nurserymen, Gardeners and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1*s.* and 1*s.* 6*d.*, and sent post free with directions, for 1*s.* 3*d.* and 1*s.* 10*d.*, by the Proprietors—

William Rollinson and Sons, Tooting, London, S.W.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.

Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA, BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*

Manufacture of Cocoa.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*

Made simply with boiling water or milk.

Sold by Grocers, only in packets, labelled

JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS, 48, Threadneedle Street, and 170, Piccadilly, W. Works:—Euston Road, and Camden Town, N.W.

Lea & Perrins' Sauce.

THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.

ASK FOR LEA AND PERRINS' SAUCE.

Beware of Imitations, and see the names of LEA AND PERRINS on all Bottles and Labels.

Agents—CROSSE AND BLACKWELL, London, and sold by all Dealers in Sauces throughout the World.

DINNEFORD'S FLUID MAGNESIA

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W., and of all Chemists throughout the World.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 31.—Vol. II. { New Series. } SATURDAY, AUGUST 1, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Acorus calamus, the Sweet Flag 135
Agave americana .. 142
Allium Bauerianum .. 131
Alphonse Karr (with portrait) 137
American Arbor-vitæ (with cut) 145
Apiary (with cut) .. 147
Balearic Isles 141
Books, notices of .. 139
Canned goods 142
Cardinals 142
Churchyard flowers .. 136
Cuckoo, the 147
Drought, the 134
Earth, the 139
Fir of Scripture, the .. 146
Florists' flowers 147
Foreign correspondence :—
Nice 147
Queensland 147
Forestry 143
Frenzelia californica .. 142
Garden operations .. 150
Greenhouse plants: their culture and management 137
Horticultural heresy .. 146
Hypoxis pannosa .. 130
Italian gardens (with cuts) 132
Japanese paper 145
Lilium auratum, a monstrous 142
Malformed Privet (with cut) 142
Myosotis dissitiflora .. 146
Natural history (with cut) 143
Neglected plants .. 143
Nursery, Messrs. Rollisson's 131
Paper, new material for . 129
Peloria in Linaria (with cuts) 142
Phylloxera, the 135
Plants, new garden .. 130
Plea for wild flowers.—III. 138
Rollisson's Nursery, Messrs. 131
Rose shows, a new feature in 141
Samphire 146
Selborne 131
Size of Peaches, &c. .. 146
Societies :—
City Flower Show .. 148
Frome Amateur Rose Club 148
Grantham Horticultural 148
Massachusetts Horticultural 149
Variation in Peas .. 146
Villa garden 149
Weather, the 150
Window garden plants . 141
Winter, the last 146

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION *to the* GARDENERS' CHRONICLE, *including postage to the United States, is £1 6s.*

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.
NOTICE.—FRUIT and FLORAL COMMITTEES' MEETING, on WEDNESDAY next, August 5, at 11 o'Clock. GENERAL MEETING at 3 o'Clock. Admission 1s.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.
An EXHIBITION of CARNATIONS and PICOTEES will be held in the Gardens, Old Trafford, on FRIDAY and SATURDAY, August 7 and 8. Floral and Horticultural Meeting in connection with the above.
BRUCE FINDLAY, Botanic Gardens, Manchester.

HEREFORD HORTICULTURAL SHOW will be held at Hereford, in conjunction with the Show of the Herefordshire Agricultural Society, on TUESDAY, WEDNESDAY, and THURSDAY, August 11, 12, and 13. Schedules of Prizes can be obtained on application to
H. EDMONDS, Broad Street, Hereford.

WESTON-SUPER-MARE and EAST SOMERSET HORTICULTURAL SOCIETY.
The ANNUAL SHOW will be held on TUESDAY, AUGUST 11. £200 in Prizes.
Schedules of Prizes may be obtained of the HONORARY SECRETARY, Weston-Super-Mare.

GLAMORGANSHIRE HORTICULTURAL SOCIETY.—The TWELFTH ANNUAL FLOWER SHOW will be held at Cardiff, on WEDNESDAY, August 19 (being the day before the Pontypool Show, which is within easy distance of Cardiff), when £300 will be given away in Prizes. For Schedules and full particulars apply to
HENRY BOWEN, Hon. Sec., Cardiff.

PONTYPOOL HORTICULTURAL SOCIETY.—The SECOND ANNUAL FLOWER SHOW will be held at Pontypool on THURSDAY, August 20 (being the day after the Cardiff Show, which is within easy distance of Pontypool), when £100 will be given away in Prizes. For Schedules and full particulars apply to
MARTIN EDWARDS, Hon. Sec., Glanwern, Pontypool.

Transit Agency for Plants, Seeds, &c.
C. J. BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

FOR SALE, TWO ORANGE TREES, about 8 feet high. For further particulars and price, apply to S. FAY, Elm Grove, Southsea, Hants.

FOR SALE, 2,000 SEEDLING PRIMULA JAPONICA, in six Varieties. Strong Plants 10s. 6d. per 100, extra ditto, 21s. Carriage paid on 100.
J. S., St. John's Wood Terrace, St. John's Wood, N.W.

Change of Address.
WM. WOOD, Gardener to the late Osgood Hanbury, Esq., of Holfield Grange, Coggeshall, begs to inform his Friends that he has REMOVED from the above Address, to the Gardens of SAMPSON HANBURY, Esq., BISHOPSTOWE, TORQUAY.

Twelve Acres of Roses in one Patch.
RICHARD SMITH invites inspection of his ROSES, now in fine bloom, at The Nursery, St. John's, Worcester.

To the Trade, &c.—Roses! Roses! Roses!
EWING AND CO. are offering very fine plants of the best varieties in cultivation. Twelve new varieties of 1874, in fine well-established plants, sent, carriage and package paid, to any Railway Station in the United Kingdom, on receipt of Post Office Order for 31s. 6d.
Descriptive and Priced CATALOGUES, and further information, gratis and post free on application.
The Royal Norfolk Nurseries, Norwich.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

Rose Culture.
THE COLLECTION of ROSES is NOW in FULL BLOOM. The Nurseries are situated between the Harlow and Sawbridgeworth Stations (G.E.R.).
The *Rose Amateur's Guide*, 10th Edition (by Thomas Rivers), may be had, post free, for 4s.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Orchard-house Culture.
A LARGE COLLECTION of FRUIT TREES, in pots, can NOW be SEEN in FULL BEARING. The Nurseries are situated between the Harlow and Sawbridgeworth Stations (G.E.R.).
The *Orchard-House Book*, 15th Edition (by Thomas Rivers), may be had, post free, for 3s. 6d.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Australian Seeds and Plants.
SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.
SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

To the Trade.
EPIPHYLLUM TRUNCATUM, good grafted plants, of the best varieties, 9s. per dozen, 65s. per 100. The New Double CINERARIA, strong plants, 9s. per dozen, 70s. per 100. Strong CINERARIAS of Messrs. Standish's fine strains, 2s. per dozen. STRAWBERRY RUNNERS, in great variety, 2s. per 100. Terms cash.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

For Present Bedding.
ALTERNANTHERA MAGNIFICA, Echeveria secunda glauca, Iresine Lindeni and Herbstii, Double and Single Petunias, Heliotropes, Dwarf Ageratums, Cineraria maritima, Blue Salvias, Mesembryanthemum cordifolium variegatum, Ivy-leaved Geranium (La Elegante), Purple, Crimson, and White Verbenas, Cupheas, Konigas, &c., all at 2s. 6d. per dozen, basket included, for cash.
JAMES HOLDER, Crown Nursery, Reading.

Splendid Herbaceous Calceolaria.
LUCOMBE, PINCE, AND CO., can offer good packets of their superb strain at 2s 6d., 3s. 6d. and 5s. each; also their celebrated strains of CINERARIA, PRIMULA and CYCLAMEN, at 2s. 6d., 3s. 6d. and 5s. each. PRIMULA JAPONICA, new seed, 1s. 6d., 2s. 6d., 3s. 6d. and 5s. per packet. Exeter Nurseries, Exeter.

Cineraria, Primula, Calceolaria, and Cyclamen.
WM. CUTBUSH AND SON very highly recommend their choice strain of the above, which always gives satisfaction. In packets, 2s. 6d., 3s. 6d., and 5s., post free. Highgate Nurseries, London, N.

DOUBLE FLOWERED CINERARIA, as exhibited at the Royal Horticultural Society, Kensington, supplied in Seed Packets, at 3s. 6d., 7s. 6d., and 10s. 6d. each. Also CALCEOLARIA, PRIMULA, CYCLAMEN, and CINERARIA, of extra quality, mixed, or in separate colours, in 1s., 2s. 6d., and 5s. packets.
E. G. HENDERSON AND SON, Wellington Nursery, St. John's Wood, London, N.W.

Balsams.
F. AND A. SMITH'S extensive Collection of BALSAMS are NOW in BLOOM, and may be seen every day, Sunday excepted.

WANTED, CAMELLIA STOCKS, fit for working.
E. COOLING, Mile Ash Nurseries, Derby.

WANTED, 24 good Plants of CUCUMBER, ROLLISSON'S TELEGRAPH.
E. COOLING, Mile Ash Nurseries, Derby.

WANTED, fine handsome CONSERVATORY PLANTS and TREES.—The Pine-Apple Nursery Company having a great demand for large Conservatory Plants, are open to purchase to any extent large well grown specimens of an ornamental character. Please address, with full particulars, to
Mr. JOHN BESTER, the Manager, Pine-Apple Nursery, Maida Vale, W.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from
Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

Seeds for Present Sowing.
JAMES DICKSON AND SONS can supply, of best quality, all SEEDS, including Turnip, Rape, Mustard, Trifolium, Cabbage, Vetches, Italian Ryegrass; mixed Grasses and Clovers for permanent pasture; also all other Farm Seeds, as well as Garden and Flower Seeds of all sorts.
108, Eastgate Street, Chester.

New Turnip Seeds for Present Sowing.
H. AND F. SHARPE are now harvesting TURNIP SEEDS, of 1874 growth, and are prepared to execute Orders from the Trade at very moderate prices, and on receipt of Letter or Telegram.
Seed Growing Establishment, Wisbech.

British Fern Catalogue.
ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Lily of the Valley.
ROBERT NEUMANN, The Nurseries, Erfurt, begs to offer large quantities of strong flowering roots, for forcing, of the above, at 45s. per 1000.
Also strong clumps of SPIRÆA (HOTEIA) JAPONICA.

LILY of the VALLEY.—Strong 3-yr. old clumps for forcing, 6s. per dozen, or 40s. per 100; variegated do., 6s. per dozen.
ANTHONY WATERER, Knap Hill, Woking, Surrey.

Early White Roman Hyacinths.
DOUBLE ROMAN NARCISSUS.
E. H. KRELAGE AND SON, Haarlem, the Netherlands, will be ready to supply the above named articles in quantity in the second part of August next.
Prices on application.

Scott's Wasp Destroyer.
J. SCOTT, SEEDSMAN, Yeovil, offers his well-known preparation to Fruit Growers at 1s. 9d. and 2s. 9d. per bottle, post free, on receipt of stamps. No one who has fruit to preserve should be without it. It is also useful in the destruction of Flies, Cockroaches, and Crickets. See testimonials. None Genuine except the Corks bear "Scott, Seedsman, Yeovil."
The Trade supplied. Prices on application.

GREENHOUSES, VINERIES, ORCHARD HOUSES, &c., erected in any part of the Country. Every description of HOT-WATER WORK and PLANTHOUSE FITTINGS made and fixed. PLANT PRESERVERS, neat, useful, and portable. PLANS and ESTIMATES supplied without charge.—WILLIAM JAMES RIVETT, Horticultural Builder, Stratford, London, E.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO. 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

TANNED GARDEN NETTING, to protect Fruit from Birds and Blight. Suitable for Poultry, 1d. per square yard; whole Nets, averaging 600 yards, £2 2s.; widths cut from 1 to 12 yards, any length over 50 yards.
C. COTTON, Potter Street, Worksop.

Indestructible Terra-Cotta Plant Markers.
MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing. Second sized Archangel, 100s.; Petersburgh, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; packing Mats, 20s., 30s., and 35s. per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

CYPERUS LAXUS.

One of the most graceful and elegant Plants in Cultivation for Drawing-room and Dinner-table Decoration.

J. WILLS having purchased the entire Stock can now supply Strong Plants at 7*s.* 6*d.* each, or 70*s.* per doz.

Extra Strong Plants 10*s.* 6*d.* each, or 105*s.* per. dozen.

JOHN WILLS,

ROYAL EXOTIC NURSERY AND WINTER GARDEN,

ONSLOW CRESCENT, SOUTH KENSINGTON, LONDON, S.W.

N.B.—For description of the above plant see *Gardeners' Chronicle*, July 25, 1874.

CINERARIA HYBRIDA FLORE-PLENO

HAAGE & SCHMIDT,

NURSERYMEN and SEEDSMEN, ERFURT, PRUSSIA,

Have now the pleasure to offer Seeds for present sowing of their Double Cinerarias.

Copy of Certificate of the Royal Horticultural Society, London.

"We hereby certify, that the Council of the Royal Horticultural Society, upon the award of the Floral Committee, have presented this First-class Certificate to Messrs. Haage & Schmidt, for Seedling Double Cinerarias, exhibited at a meeting held on the 27th day of May, 1874."

G. W. Eyles, Secretary of the Committee.
W. B. Kellock, Chairman. Henry Webb, President.

Royal Botanic Society of London, Gardens, Regent's Park, N.W.

To Messrs. Haage & Schmidt.

"Gentlemen,—I have the pleasure to forward to you, herewith, a Certificate of Merit awarded to you for Double-flowered Cinerarias, exhibited by you at the Exhibition in these Gardens, on Wednesday, June 10, 1874. The flowers were much admired.—I have the honour to be, Gentlemen,

"Your obedient servant, Wm. Sowerby, Sec."

A Silver Medal was awarded for Seedling Plants at the May International Exhibition at Florence.

We beg to refer to the remarks in the *Gardeners' Chronicle*, No. 22, May 30, 1874, at p. 701:—

"Some persons appear to have doubted the genuineness of the Double-flowered Cinerarias to which we have referred on more than one occasion. We had not, however, recommended them without evidence, since a box of cut blossoms were last year sent to us for examination. The plants shown on Wednesday by Messrs. Haage & Schmidt, at the Floral Committee meeting, must have settled the question definitely; they were, notwithstanding the journey from Erfurt, beautifully flowered dwarf plants, the flowers being large and fully double, and the colours various shades of rose, crimson, and purple. So fine and effective they were, that the Committee did not hesitate for a moment to award them a First-class Certificate."

The same number, page 706:—"Floral Committee.—R. B. Postans, Esq., in the chair. Messrs. Haage & Schmidt, Erfurt, sent some growing plants of their double Cinerarias, which, on account of their rich and varied colours and fine habit, promise to be largely sought after where cut flowers are in demand."

PRICE OF SEEDS IN SEALED PACKETS:—

20 Seeds, 4s. 6d.; 50 Seeds, 9s.; 100 Seeds, 15s.

Of a New Strain, including margined and very large flowered varieties,

20 Seeds, 8s.; 50 Seeds, 16s.; 100 Seeds, 28s.

Which will be forwarded direct, or by application to

MESSRS. HURST & SON, 6, LEADENHALL STREET, E.C.

Also by the Leading Houses in Great Britain and Ireland we are in connection with.

TRADE PRICE ON APPLICATION.

FINEST ONIONS in the WORLD.

Carter's

PRIZE ONION SEED,

for Present Sowing.

NEW GIANT TRIPOLI
NEW GIANT ROCCA
NEW EARLY WHITE NAPLES
NEW NEAPOLITAN MARZAJOLE

1s. per pkt. post free.

P.S.—J. C. & Co. think it necessary to caution the Public against purchasing spurious varieties under the above names.

CARTER'S
The Royal Seedsmen,
237 and 238, HIGH HOLBORN, LONDON, W.C.

WHEELERS'

CHOICE SEEDS

For PRESENT SOWING.

WHEELERS' COCOA-NUT CABBAGE.

Wheelers' Cocoa-Nut is a new and very early variety, perfectly distinct, of most excellent flavour. It should be planted 18 inches apart; will yield an early and continuous supply. This Cabbage is a decided novelty and a great acquisition.

Per ounce, 1s. Packets, 6d. each, post free.

"I consider the Cocoa-Nut Cabbage the best I have ever grown."—A. W. Harper, Westhall Hill, Burford, Oxon.

"I grew the Cocoa-Nut Cabbage last year, and admire them very much."—Robert Mangham, School House, Kingsbarn.

"I have some of your Cocoa-Nut Cabbage growing in my garden now from seed sown last March. They are such fine ones,—it is a pleasure to look at them."—George Evans, Abergwilly.

"I have given some of the Cabbages (Cocoa-Nut) to my friends, and they all say they are the best they have seen."—J. Bratley, Briggs.

"In my experience Wheelers' Cocoa-Nut Cabbage is far superior to any other in cultivation."—James Harris, Sunninghill.

"Will you be so good as to send me a packet of your Cocoa-Nut Cabbage; I find your Lettuces so good that I never grow any other, and I hope the Cabbage will prove equally good."—A. Phillips, Windsor Cottage.

WHEELERS' TOM THUMB LETTUCE.

A small compact Lettuce, of fine flavour and of excellent quality; a capital variety for winter and early spring.

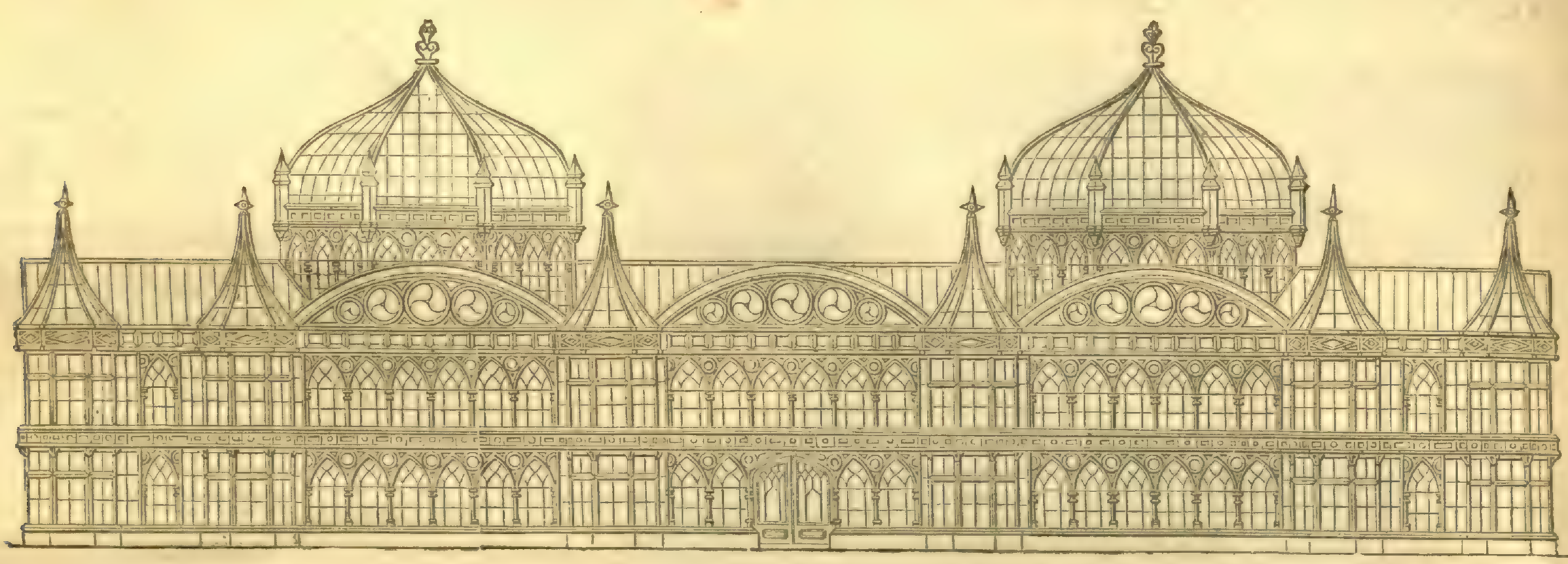
Large packet, 1s.; small packet, 6d., post free.

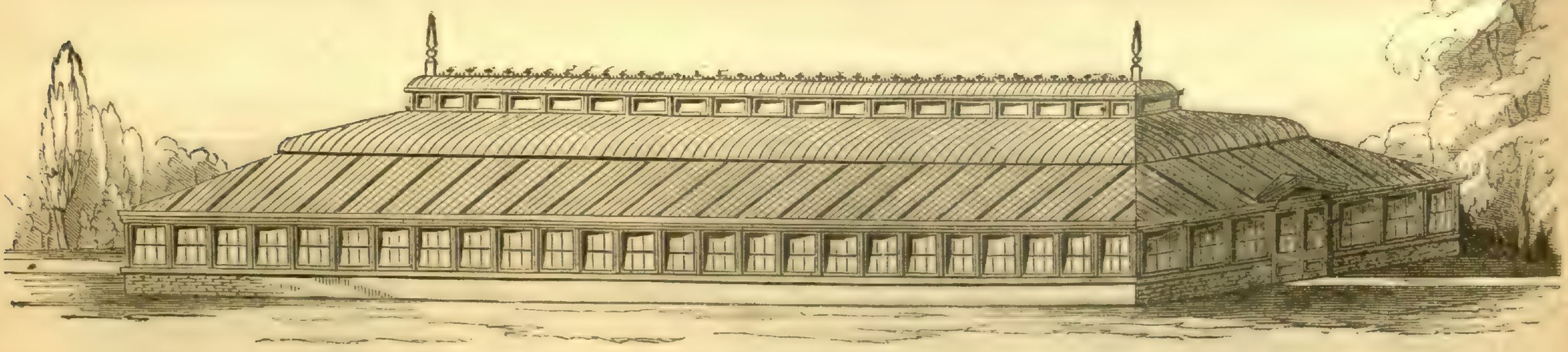
"I am going to try how your Tom Thumb Lettuce will stand the winter. As a summer Lettuce it is invaluable, and not to be approached by any in cultivation."—Chas. Bretting-ham, Goodwick.

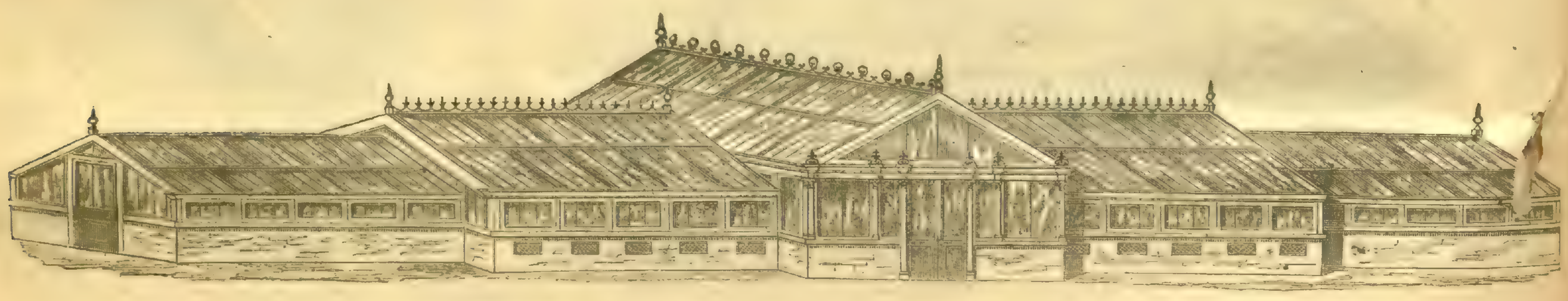
"Please forward me two packets of your most excellent Tom Thumb Lettuce, the best Lettuce ever introduced into this country."—C. Thurnall, Whittlesford, near Cambridge.

"Your Tom Thumb Lettuce is the most tender and delicious of all Lettuces.—W. M. Thomas, Fanfield, Bedale, Yorkshire.

J. C. WHEELER & SON,
SEED GROWERS, GLOUCESTER, and 59, MARK LANE, LONDON, E.C.







HENRY ORMSON,

DESIGNER AND BUILDER OF CONSERVATORIES AND WINTER GARDENS,

EITHER PLAIN OR ORNAMENTAL, CONSTRUCTED OF IRON OR WOOD,
OR A COMBINATION OF BOTH.

Plans and Estimates for Horticultural Buildings of all descriptions to suit any Garden, large or small.
Gentlemen waited on and Surveys made in any part of the country.

Estimates given from Architects' Drawings.

BOILERS and HEATING APPARATUS of the best description.
HOT-WATER PIPES and CONNECTIONS and a variety of the best BOILERS always kept in Stock.

PRICES AND ESTIMATES ON APPLICATION.

HENRY ORMSON,

HORTICULTURAL BUILDER AND HOT-WATER APPARATUS ENGINEER
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

NEW QUEEN ONION.

THE EARLIEST IN CULTIVATION.

Sown now will produce nice Onions, fit for use, this year, and will keep late into next spring. Seed per ounce, 2*s.* 6*d.*; per packet, 1*s.*

Also the following choice varieties for present sowing:—ITALIAN TRIPOLI, GIANT ROCCA, WHITE TRIPOLI, and GIANT MADEIRA, each 1*s.* per ounce; 6*d.* per packet, cheaper by the pound. WHITE LISBON, a fine Onion for spring use, 4*d.* per ounce. EWING'S No. 1 CABBAGE, one of the earliest in cultivation, a fine selected stock, per ounce, 1*s.* WHEELERS' COCOA-NUT ditto, per ounce, 1*s.* 6*d.*; per packet 6d.

For other Choice Seeds for Autumn Sowing see our "Illustrated Guide for Amateur Gardeners," price 1*s.*; gratis to Customers.

DANIELS BROTHERS,
The Royal Norfolk Seed Establishment, Norwich.

Sutton & Sons

ARE PREPARED TO OFFER
NEW SEEDS
OF THEIR CHOICE STRAINS OF
FLORISTS' FLOWERS
FOR PRESENT SOWING.
Post Free.

SUTTONS' SUPERB CALCEOLARIA.

Our Stock of this favourite Greenhouse Flower has been saved from the finest strains only. Price, 2*s.* 6*d.* per packet.

DOBSON'S, JAMES'S, THOMAS'S,
And other Strains can be supplied at the advertised prices.

The following can also be supplied:—
SUTTONS' CHOICE CINERARIA, 2*s.* 6*d.* per packet.
SUTTONS' CHOICE PRIMULA, 2*s.* 6*d.* per packet.
SUTTONS' CHOICE CYCLAMEN, 6 varieties, 5*s.*

Complete particulars of other CHOICE FLOWER SEEDS for present sowing, gratis and post free.

SUTTON and SONS,
SEEDSMEN BY APPOINTMENT TO THE QUEEN AND PRINCE OF WALES,
ROYAL BERKS SEED ESTABLISHMENT, READING.

Sutton & Sons

RECOMMEND THE FOLLOWING
CHOICE
ONION SEEDS
For Present Sowing.

The varieties, if sown at once, will come to a very large size next Spring and Summer.

NEW QUEEN.—The earliest of all Onions, if sown at once will be ready for use this Autumn. 1*s.* 6*d.* per packet.
NEW GIANT ROCCA.—Very large, mild flavour, can be grown 2 lb. to 3 lb. in weight. 1*s.* per ounce.
LARGE EARLY RED ITALIAN and LARGE EARLY WHITE ITALIAN.—Very large, hardy, and good keepers. Each 1*s.* per ounce.
GIANT LATE RED ITALIAN and GIANT LATE WHITE ITALIAN.—Coming in a fortnight after the preceding, very large. Each 1*s.* per ounce.
NEAPOLITAN MARZAGOLA.—Very quick growth. 1*s.* per packet.

☞ Postage 2*d.* per ounce extra.

Particulars of other Choice Vegetable and Flower Seeds for Present Sowing, Gratis on application.

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

SATURDAY, AUGUST 1, 1874.

NEW MATERIAL FOR PAPER.

WHILE the archæologists are discussing the Zizanion of St. Matthew (the "Tares" of the English version of the famous parable), it would appear that in the Zizania of Linnæus there is a most valuable resource for modern manufacturing industry. The former question doubtless has its value, but it is the latter to which practical men will turn with most interest. The names which the ancients bestowed on plants were often transferred by Linnæus, when he recast the general fabric of botanical nomenclature, to very different ones, and in many cases to plants of which antiquity had no knowledge, as exemplified in Strychnos, Cactus, Zea, Itea, and many others: it was therefore no more than consistent with his general practice to transfer the name Zizania to a grass confined to North America, or at all events to a plant quite unknown in South-Western Asia and to the people to whom the parable was addressed. Very singular, however, is it, as the matter now turns out, that Linnæus should have selected the name of a pestilent weed, the only association we have with which is the uninviting one of the "Prince of Darkness," for a plant which, after the lapse of 120 years from the time of its christening, is about to prove itself an inestimable boon, and an auxiliary to the diffusion of the light of knowledge. The Zizania, in a word, has been ascertained to be a first-rate material for use in the manufacture of white paper, a use which is second only to that of supplying food, though, as we shall see presently, the Zizania does both. "Among the many things," said the *Publishers' Circular* of Dec. 18, 1872, "which science is unanimously requested to do, there is one which concerns publishers, booksellers, authors, and book-buyers, very nearly. Will science, can science, discover any material from which we can make paper abundantly and cheaply?" The answer appears to be furnished in the plant before us, and if all be well sustained that is asserted of its adaptiveness to what is certainly one of the greatest requirements of the age, Zizania will acquire a significance in the nineteenth century more remarkable perhaps than any other term of primitive times, or with a companion only in *electron*, which word with the ancients denoted no more than amber—the substance wherein the subtle agent which now helps us to converse at will with the most distant regions of the earth was first observed, though at that time with no idea of its marvellous potentialities.

Before proceeding to particulars of the discovery lately made in regard to the fitness of the Zizania as a material for paper, it may be well to give a short account of the plant considered as an object of botany, few people in this country being acquainted with more than the appellation. It is a grass of the tribe Oryzeæ, thus having a degree of affinity with the Rice plant of oriental Asia, but from which it is well distinguished at the same time by the structure of the flowers. In the Rice plant, Oryza sativa, the flowers are bisexual, or provided individually with both stamens and pistil, whereas those of the genus Zizania are monœcious. The stamens in both plants, as in most or all the rest of the tribe Oryzeæ, are six in number—an interesting fact, seeing that the grasses which clothe our English soil with its sweet green turf, and even the weedy species of the waysides, the woodlands, and the seaside sandhills, never have more than three, while the sweet-scented vernal grass that gives the odour to the hayfield has only two, and in the little Festuca Myurus there is abortion of all these organs but one. Five species in all have been discriminated of the genus; Z. aquatica, however, is the only one of importance, and it so happens that the structural characters of the flowers are sufficiently unlike those of the others as to have led some of our botanists to distinguish it under the name of Hydropyrum esculentum. For convenience sake, at all events in relation to paper-making, it is better to let the Linnean name remain, and to call the plant, as it were, emphatically Zizania. Like the beautiful silky-plumed Reed-grass, or Phragmites of our own country, to the bent and crossing stems of which, secure from capture, the sedge warbler attaches its nest, the Zizania is a thorough water plant, having its habitat in swamps, ponds, and shallow streams, which it fills during the summer and autumn with a mass of herbage almost incredible, and which even the forest-like Phragmites represents but imperfectly. The density and luxuriance are so much the more remarkable since the plant is only an annual, though in truth, if we want to learn what an annual grass can accomplish in six months, we have only to look at our fields of waving Wheat, to say nothing of what is achieved by Indian Corn. The constant and abundant supply of moisture of course goes a long way towards promoting the immense development. Rising to an average height above the surface of the water, of fully 7 or 8 feet—the maximum having been observed, not uncommonly, to be 12 to 14—the density of a Zizania grove, as met with in the remote wilds of North America, and the ease with which the light canoe of the Indian can brush its way among the reedy and flexible stems, combine to render it an admirable place of concealment. The natives are prone to seek its shelter, especially in times of peril, or at all events they were accustomed so to do in days gone by, as many a time pictured graphically by the American novelists. Occasionally, however, the growth is so dense that even to paddle a canoe among the myriads of slim green shafts is no longer possible. The culms and foliage of this remarkable plant present no features materially different from those of the other large aquatic grasses, nor is there anything very striking in the inflorescence, which is quite devoid of the rich colour and the velvet touch of the Phragmites, approaching more nearly to the plain fashion of the Poa aquatica. As in the last-named, it is terminal and erect, and of great size, the rachis of the specimen in my herbarium being 15 inches long. A drawing of the plant in the *Linnean Transactions*, vol. vii., fol. 13, gives a very fair idea of the usual appearance, and from this it would appear the little woodcut in Loudon's *Encyclopædia* was diminished, as also that in the *Treasury of Botany*. The seeds are so large, and in substance, when quite ripe, so bland and farinaceous, that they furnish nourishment to countless flocks of water fowl, especially geese and wild swans, both of which, at the breeding season, resort to the Zizania groves as if by instinct. Because of these excellent qualities, and their really nutritious value, the seeds are employed as food by the human aborigines. Many of the wandering tribes of native Indians depend on the Zizania harvest, called by them Tuscarora, as their principal source of food during the winter. They suffer seriously if by any mishap the supply runs short, looking to it in much the same manner that the Arabs do to their Palm-

trees and their Dates. The gathering of the grain generally falls to the lot of the squaws, or native Indian women, who collect it in their canoes by bending sheaves of the great panicles towards their bodies, and then threshing them with the paddles employed for the propulsion of their simple vessels. Subsequently it is dried in the sunshine and winnowed, the grain being enveloped, when it drops from the stem, in plaited and cucullate glumes, such as in other plants would constitute a husk. In an account we once had before us of a missionary journey undertaken in 1855 from Toronto to the wild country which lies to the north-west of Lake Superior, the Zizania grain was described as the chief *pabulum* of the entire party for a considerable period, every one who ate it declaring it not only agreeable but quite as nutritious as any cereal obtained by agriculture. So pleasant indeed is the Zizania to eat that people who in the fall of the year make their way, out of curiosity or from love of adventure, into the region of its production, never fail to bring home a sackful as a present to the friends they rejoin, and it would seem to be accepted invariably as a dainty.

There is, indeed, nothing new in the fact of the grain of this grass being so good an esculent. Linnæus himself classes the Zizania with the cereals, saying, in the *Philosophia Botanica*, p. 279, "Cerealia sunt semina majora graminum, quo hominibus quotidie in cibum veniunt; oryza, triticum, secale, hordeum, avena, zizania, mays, &c." The date of the preface to this celebrated volume is Sept. 16, 1750. Later authors have repeated what Linnæus says, Loudon, for instance, in the *Encyclopædia of Agriculture;* while Pinkerton, in his work on the *Geography of North America*—esteemed when such books were rare—goes so far as to claim for the Zizania a pre-eminence such as usually is awarded only to the cereals of the Old World. After praising it for its good qualities he expresses his surprise that "productive as is this excellent plant (the Zizania), and habituated to an ungenial climate and to situations which refuse all cultivation," it should nevertheless "be so little cared for by the European settlers in the more northern parts, who, as yet," he continues, "have taken no pains to cultivate and improve a vegetable production which seems intended by Nature to become, at some future period, the bread-corn of the North" (iii., 330). No wonder that, with these good qualities, the Zizania has come to be called, in its native country, by the name of "Canada Rice," which, if an "English" appellation be insisted upon for the plant, though it still be a misleading one, is the name that now seems likely to cling to it. It is also called "lake Rice," and "wild Rice"—names that may do in the vernacular, and with the uninformed, and, what is worse, with that larger unhappy set, the people who don't want to be informed; but the intelligent will, of course, always prefer to call it Zizania, a name to which there can be no possible objection, and which is every bit as easily pronounced as Rhododendron, or Chrysanthemum, or Calceolaria. As intimated above, the plant is totally distinct from Rice itself—true or East Indian Rice, the Oryza sativa; and ought on no account to participate in the name. It differs not only in the particulars above mentioned, but in the look of the grain, which is more like Oats than like Rice, and at the same time is much sweeter than the Oriental grain. True or Oriental Rice, as every one knows, has long been cultivated in Carolina, and in the warmer parts of South America, a circumstance which in itself recommends that the names of the two plants should in no way be confounded. The Zizania was introduced into England, as a botanical curiosity, as far back as 1790, when it appears to have been cultivated by Sir Joseph Banks. But like other exotics, unpossessed of any particular claim upon popular interest, it obtained no permanent place in our collections, and seems to have been entirely lost until reintroduced within these last few years, under the encouragement of the Acclimatisation Society. The practical idea was to establish it on the borders of the Scottish lakes, with a view to its supplying food to water-fowl, as in America. Messrs. Lawson, of Edinburgh, appear in particular to have exerted themselves strenuously, but with what success we are not aware. A difficulty exists in regard to the preservation of the full vitality of the seeds during the transit from Canada—many packets that have been forwarded from time to time having become so dry that germination was greatly hindered, and occasionally, so it would seem, entirely negatived. Methods have now been contrived for obviating this difficulty, and, as a bushel of the seed has been promised to be sent to Kew, next year may see the commencement of permanent culture, as well as that of the application of Zizania we have yet to speak of. One would suppose that if packed in winter in a box of the mud in which the plant is accustomed to sow and root itself, the seeds would keep good for growing purposes during any length of voyage or travel.

Now as to the employment of Zizania straw as a paper material. That other grasses have been utilised for this purpose needs no saying. Many people, however, have no idea of the extent to which grass is employed in paper-making. Sufficient is it to say here that in 1873 there was imported into England for the exclusive use of the paper-makers no less a quantity of Esparto-grass than 100,000 tons—London, Liverpool, Newcastle and Hull being the chief receiving ports. It is for the same general descriptions of paper for which Esparto has proved so serviceable that Zizania is adapted—the descriptions, that is to say, which are in demand for newspapers, books and magazines. Zizania yields fully as much of the raw material, so to speak, as Esparto, and has the great and peculiar merit of being comparatively free from silicates. Paper made from it is quite as strong and quite as flexible as that which is made from rags; it is easily bleached, economical in respect of chemicals, pure in colour, and remarkably free from specks and blemishes. Samples in our own hands at this moment present a surface of perfect evenness, and in general appearance conform exactly with the best papers of the same class we have ever seen, no matter what made from. Zizania paper has the further merit of receiving a very clear impression from the types employed by the printer; it is also remarkably well adapted for the reception of woodcuts—perhaps Mr. Worthington Smith's new auxiliaries to Box-wood for wood engraving, and the new paper made from Zizania straw, may find each in the other a kindly friend. The manufacture of Zizania paper has a claim upon public regard beyond even what has been said. The preparation involves much less river-pollution than is the case with other materials, and every one knows what this means for the nose and eye, to say nothing of the comfort of the fishes and the recreation of the Izaak Waltons of the adjacent country.

New discoveries usually have some hindrance to contend with. In the present instance there is a check, only temporary it is to be hoped, to the extensive use of Zizania in England, in the enormous cost of the conveyance of the rough straw across the Atlantic. The freight is charged, it would appear, not upon the weight but upon the space occupied, and as the bulk is very considerable this becomes prohibitive. Five tons of Zizania that were recently imported for first experiments occupied a space equivalent to 30 tons. The bulk might, of course, be reduced by hydraulic pressure, but the cost of this in turn would be too serious to justify resort to it. Commercially regarded, Zizania, in a word, is too bulky to be imported for manufacturing purposes, except at a loss. Could it be converted near where it grows into what the paper manufacturers call "half-stuff," the latter could be imported at a cost that none would complain of, and that would allow of a profit on the finished paper. To prepare it thus far a company is in course of formation, and before long it is to be hoped British America will supply the mother country with abundance. By no means restricted to British America, the Zizania is nevertheless most particularly a plant of our own territories, a circumstance which with Englishmen should again count in its favour. The particular districts of its occurrence we are enabled to indicate by inspection of a map obligingly communicated by Mr. A. M. Dawson, of Liverpool, and from which it may be seen that the Zizania districts occupy a large extent of territory on the shores of Lakes Erie, St. Clair, Ontario, &c., and that there is abundant means of transport both by water and rail to Montreal, from which port it can be shipped to England. An annual supply of at least 100,000 tons appears assured. It is not as if the growth of the plant depended on human agency, nor yet as if it were exposed to the possibilities of human destruction, or (being a water-plant) to the casualties of weather. In these respects it is like the Zostera of our shores. The cutting, which is effected by a machine, is said to cause the plant to thrive and multiply even more than before, operating as a kind of tillage. The ground it occupies is not available for other purposes, so that no landowner will ever desire to interfere with it for the sake of introducing a different plant; and as for exterminating it by drainage, one might as well talk of draining the Thames. Finally, in price and quality, Zizania paper is distinctly stated by the promoters of the manufacture to be one that has "nothing to compete with it." The company have obtained the concession of the whole of the province of Ontario, the only one in which the plant grows to any useful extent; and the least one can do is to wish them success in their undertaking. *G.*

New Garden Plants.

Hypoxis pannosa, *Baker.**

This is a yellow-flowered Cape species of Hypoxis, with hairy leaves arranged in a dense tristichous rosette, like those of H. Rooperi and H. stellipilis (lanata of Ecklon). Botanically it comes near H. Rooperi and H. obtusa, but it is not nearly so fine a plant as the former for garden purposes, the flowers being fewer, less showy, and overtopped by the tuft of leaves. The most distinctive points about it are the very long, soft, but moderately tenacious white hairs that clothe both sides of the broad leaves, and a more produced style and filament than usual, in combination with narrow perianth segments. I do not know from what district of the Cape it came. The specimen from which these notes were taken flowered in the Kew collection in June of the present year, and was received at Kew some time ago from the Royal Horticultural Society. When the Cape species of this section, Hypoxis, come to be thoroughly worked up, there will, no doubt, be a great many novelties to describe, as the genus has been much neglected of late, there having been no general synopsis published for something like forty years.

Rhizome tuberous. Leaves 15—20, arranged in a dense tristichous tuft, lanceolate, tapering gradually from the base to an acute point, a foot long at the flowering time, ¾—1 inch broad, thin and moderately firm in texture, acutely channelled down the keel, clothed except down the centre of the face, more densely all over the back, with firm soft white hairs 1½—2 lines long, many of which are adpressed to the

* Foliis 15—20 dense tristicho-rosulatis recurvatis lanceolatis tempore florendi pedalibus e basi 9—12 lin. latis sensim attenuatis acute carinatis utrinque præter carinam faciei superioris pilis patentibus albidis firmulis mollibus 1½—2 lin. longis nonnullis adpressis reliquis subpatentibus dense vestitis; pedunculis gracilibus pilosis cernuis foliis triplo brevioribus bifloris; pedicellis flore superantibus; perianthii segmentis 9—10 lin. longis oblanceolatis obtusis intus splendide luteis, extus viridibus pilosis; filamentis antheris æquilongis; stylo cylindrato stigmate æquilongo.

blade, but others spread more or less. Peduncles from the axils of the leaves slender, cernuous, 3—4 inches long, bearing in the specimens seen only two flowers each, clothed like the pedicels and outside of perianth with adpressed white hairs like those of the leaves. Pedicels 1½ inch long, with a small adpressed linear bract at the base of each. Ovary turbinate, ¼ inch long. Perianth-segments oblanceolate, ¾—⅞ inch long, spreading when expanded, under ¼ inch broad above the middle, bright yellow on the face, greenish and hairy on the back. Stamens half as long as the perianth-limb, the filament ¼ inch long, equalling the linear-oblong anther. Style cylindrical, as long as the triquetrous stigma. *J. G. Baker.*

Allium Bauerianum, *Baker.**

This is an Allium which belongs to a small section called Melanocromyum by Webb, and distinguished as a genus by Salisbury under the name of Canidia, which is especially worthy of the attention of cultivators, because in flower and habit the plants which it includes are amongst the most striking of all the Alliums, and are entirely destitute of any garlicy scent. Structurally this section is marked by a pistil in which the style is not thoroughly gynobasic, and an ovary in which the ovules are numerous and superposed in each cell, not in basal erect pairs as in the great bulk of the strongly scented kinds, so that it forms a connecting link between Nothoscordum and typical Allium. Our present plant has been long known. It is well figured by Bauer under the name of Allium nigrum in Sibthorp and Smith's splendid *Flora Græca*, from specimens gathered in the island of Cyprus, and we have grown it for many years at Kew in the herbaceous ground side by side with the well-known Linnean plant of that name, the same of which a bulbilliferous variety is often called Allium magicum, and the two are evidently quite distinct, though so closely allied in general habit that it would be difficult to separate herbarium specimens. In A. nigrum the flowers are pure white, with a smaller ovary, always glabrous and shining, at first green, but soon becoming nearly black, and furnishing a strong foil in colour to the pure white perianth. In A. Bauerianum the flowers are pale red, with a distinct rib down the back of the segments, and the ovary is larger, and of a permanent dull pale green, it being so densely coated with minute glands as to seem to be puberulent, which a lens shows to be not really the case. Whence the Kew specimens came we are not able now to say, but a plant from the Crimea in the Kew herbarium is most likely what I am now describing. Another closely allied is the Allium atropurpureum of Waldstein and Kitaibel, a plant with deep red flowers, and narrow lanceolate acute segments, figured at tab. 17 of their *Flora of Hungary*.

Bulb straight, large, globose, with bulbillæ and pale membranous tunics. Leaves usually three, basal, lanceolate, bright green, fleshy, glabrous, channelled, narrowed gradually to a point, 1—1½ foot long, 1½—2 inches broad, scentless, like the rest of the plant. Scape firm, terete, 2 feet or more in height. Spathes two, rarely three, membranous, deltoid, ¾—1 inch long. Flowers 30—40 in an umbel, not mixed with bulblets. Pedicels 1—1½ inch long, several bracteated inside the spathes, dilated to a turbinate apex ⅛ inch thick. Perianth ½ inch deep; the segments rotate when expanded, so that the flower measures an inch across; pale red lanceolate acute, with a distinct two-nerved keel of green. Stamens falling a third short of the perianth, lanceolate, distinctly joined at the base; anthers versatile, pale purple, oblong, ⅛ inch long. Ovary ½ inch broad, bluntly horizontally three-lobed, pale green, as if puberulent from a dense coating of minute glands. Style purple, entire, ⅛ inch long, not completely gynobasic; ovules superposed, 6—8 in a cell. *J. G. Baker.*

SELBORNE.

In one respect Selborne is like Niagara. The first view is a disappointment, but you get over that soon, and the *genius loci* comes to you just in time to restore the balance. The church is a poor, square, squat-towered thing, but it improves on acquaintance, and by the time you have noticed the wild Ivy that rambles over Gilbert White's grave, and the tablet within that briefly tells the story of his life, you begin to love it, and its homely walls seem to glow with the light that fancy calls for as a feature of a shrine.

The Plestor fills the space between the church and the birthplace of the good man. It is the only spot in the village on which the proposed monument to White's memory could be appropriately or conveniently placed; and we see it, in our mind's eye, suitably adorning a spot that really needs a mark of some kind to show that the inhabitants respect the memory of the brightest light that has ever burned among them.

The real lion of Selborne is the house, which, regarded from an artist's view, is exquisitely picturesque, and almost unreal in its beauty. The present owner and occupant is Professor Bell, the eminent zoologist, who evidently values his privileges as an inmate of this famous and charming abode, for the place is superbly kept, and the pious pilgrim is granted ready admission. Perhaps it may be proper to say that Selborne is not a show place. No one appears to have discovered the art of fleecing the tourist; and Professor Bell should be put to the least inconvenience possible by applicants for admission to see the house. The presentation of your card is enough; for the act of elegant politeness follows, and you are admitted to the rooms that Gilbert occupied in the long years of his happy and quiet life in Selborne.

The most interesting objects within are the portraits of the Whites. That of Gilbert represents a large-faced, serious man of Flemish cast, rather sallow, very thoughtful, with a Johnsonian expression, and evidently one whose fame was not lilliputian. The best scene without is the Hanger, and the grandeur of this woodland height justifies all White's praise of it, as it explains also the interest he took in its features and productions. The lovely garden slopes down to a stream, beyond which lies a broad tract of grassland, and thence rises the Hanger, clothed with the glossy Beech, and repeating in its rich lights and shades the picturesque phenomena of the fleecy clouds above it, as they now roll into wreaths of grey, and now open to permit egress to a flood of sunshine. The Hanger is a magnificent feature of the scenery, which is everywhere beautiful and surprisingly various. "The soils of this district," says White, "are almost as various and diversified as the views and aspects." *Shirley Hibberd, in "Pictorial World."*

MESSRS. ROLLISSON'S NURSERY.

(*Concluded from p.* 100.)

We now come to a span-roofed stove, 65 feet by 14, filled with all the most popular stove plants of the day, including Palms, Dracænas, Pandanus, Crotons, Caladiums, Dipladenias, Marantas, Allamandas, Anthuriums, Ixoras, Gardenias, &c. Trained on the roof is a very large plant of Stephanotis floribunda, covering, not so thickly as to exclude the necessary light, a great portion of the house. Here was a beautiful plant of the elegant-leaved Jacaranda (Cupania) filicifolia, one of the most elegant free-growing plants existent, and which deserves a place in even the most select collection. Near it stood a good plant of the Stag's-horn Fern (Platycerium grande). Here also was the curious Mussænda frondosa, a plant not so often grown as its general merits deserve; its ample pure white bracts encircling the small canary-yellow flowers, relieved with its bright green leaves, are always attractive. The plant when in flower (which it produces freely twice a year when well-managed) is always a most striking object, quite distinct and unlike any other in cultivation. By its side was a good specimen of Ficus dealbata, a most distinct plant, with elliptic leaves a foot long, the upper surface a deep green, underneath a thick silky coat of snowy whiteness, very remarkable in the young unfolding leaves. Beautiful plants of Livistona altissima, one of the best of the Fan Palms, and another unnamed, in the way of Martinezia erosa. The light elegant feathery appearance of some plants in this house, placed in juxta-position with the broad massive leaves of others, has a most striking effect. Following is a house similar in size to the last, principally devoted to the growth of exotic Ferns, most noticeable amongst which, in a large glass case, was a monster plant of the rare Todea intermedia, 4 feet 6 inches across. It is here showing its natural tree-like habit, having got quite a stem. Here are most of the stove Ferns in cultivation, in large quantities, clean and healthy. The house has a fine tropical appearance from the effect produced by the roof-covering of Ficus barbata, F. falcata, and F. repens; these plants are grown to shade the Ferns, and are trained up the rafters, from which they extend in all directions, so as to effectually break the sun's rays, and hang in graceful festoons. For such situations these plants are well adapted, being free growers, and will bear cutting in to any extent necessary for the well-being of the plants grown underneath, all that is necessary being that when first planted they are free from insects, especially scale, and that nothing in the shape of this intolerable pest is afterwards allowed to establish itself upon this roof-drapery, otherwise it soon spreads and is communicated to every plant standing under it. I noticed here a splendid plant of Alsophila contaminans. The house is still further improved by numbers of hanging baskets filled with Ferns, the whole of the surface covered with Lycopodium.

We then come to a lean-to house filled with all the new varieties of Dracænas, Crotons, Dieffenbachias, Pandanus, and Palms; of the latter are numbers of young thriving stock of all the best kinds, of moderate growth, now deservedly so much in demand. We in this country are conservative in our likings for plants as in other things. Our neighbours on the Continent have been a long way ahead of us in their appreciation of elegance of form in vegetable life; of this nothing is more confirmatory than their almost universal culture of Palms, which, until recent years, were so little known in this country as to be, in our ideas, only associated with gigantic species, fit only for a few of the largest public gardens, and even in such were continuously struggling to get their heads through the roof. But at last the spell is broken that bound us exclusively to colour in the plants we cultivated under glass. Now, in addition to all the finest dwarf Palms we grow everything that has elegant or nobly massive foliage, and the danger at the present day would appear to be lest we get too far in this direction, to the undue exclusion of flowering plants. I noticed here the rare and beautiful Dracæna (Cordyline) lentiginosa, with narrow linear leaves of a brownish purple colour. It is a plant of distinct and elegant appearance. Near it stood a magnificent specimen of the charming Aralia Veitchii, 3 feet high, and clothed with healthy green foliage down to the pot; this plant is even more telling as it gets larger than in the small state usually seen. Dracæna amabilis, a magnificent plant, 4 feet high: this is one of the very best of the Dracænas, with leaves 2½ feet long, green, suffused with white and edged with pink; it appears to be a free grower, and is a fitting companion to the darker leaved kinds of this popular genus. D. magnifica, which produces leaves some 2 feet long by 8 inches broad, rich bronzy red suffused with pink, is another fine variety, and D. imperialis is one of the most distinct of the family.

The next house contained a splendid lot of Adiantum farleyense, in all sizes, from small trade plants up to good specimens, the fine metallic tinge on the young leaves evincing their strong healthy condition. There was here a fine plant of Anthurium crystallinum; this appears to be far the best of the large-growing Anthuriums, not getting so long in the foot-stalks as A. magnificum, its beautiful silvery veins on the ample olive-green leaves setting it off to great advantage. Here also was the Brazilian Bromeliad, Encholirion corallinum, a fine plant, throwing up from its centre erect spikes of crimson yellow-tinged flowers, also small plants of the newest Dracænas and Palms, with a good stock of Nepenthes. Adjoining is a long lean-to house filled with quantities of newly imported Tree Ferns, commencing to grow freely; they have fine clean straight stems, and from present appearance will soon make beautiful plants.

The Orchid-houses form a long span-roofed range, divided so as to secure the requisite degrees of heat and moisture.

The first division contains large quantities of Cattleyas, Lælias, Miltonias, and Dendrobiums from the hill regions of India; these water-loving plants do much better grown in the comparative low temperature of the Cattleya-house than roasted, as often seen in the East Indian compartment; in the latter situation they make larger growth, and for a time they may be more taking in appearance, but they neither flower so freely nor continue to go on improving. Here in flower I noticed in good condition Aerides suavissimum, Thunia Bensoniæ, Masdevallia Harryana, Odontoglossum cordatum, Lælia purpurata, Aerides Lindleyanum, A. odoratum pupurascens, Trichopilia tortilis, and the old but very scarce Phajus bicolor.

In the next division were large quantities of Miltonia Regnellii, M. candida; Dendrobiums of all the best kinds, including D. albo-sanguineum, D. clavatum, D. Falconeri, D. formosum, D. eburneum, in very great numbers, and D. tortile; Cymbidium eburneum (true), a large importation of Cypripedium concolor, Odontoglossum Phalænopsis, quantities of Vanda tricolor, V. insignis, and V. suavis, Angræcum eburneum, Aerides virens, A. Lobbii, A. virens superbum, A. affine, A. affine superbum, the scarce A. Ellisii, and A. quinquevulnerum; Saccolabiums in large masses of S. guttatum, S. Blumei, S. Blumei majus, S. Harrisonianum, S. violaceum, S. Holfordii, and S. curvifolium; quantities of Phalænopsis, fine established plants of P. Schilleriana, P. amabilis, and P. grandiflora; the old but distinct Calanthe Masuca; numbers of Cypripediums, including C. lævigatum and C. caudatum superbum.

In a third division were again large quantities of Cattleyas, and plants requiring a similar temperature. I noticed here the scarce C. Walkeriana (syn. bulbosa), and the true original C. labiata, the yellow-flowered Anguloa Ruckerii, with most other Orchids usually met with, in good condition, grown without

* Bulbo globoso magno recto tunicis pallidis membranaceis; foliis 2—3 basalibus lanceolatis glabris canaliculatis 1—1½ pedalibus 1—1½ poll. latis; scapo firmo tereti 2—3-pedali; umbellis 30—40 floris; spathæ valvis 2—3 brevibus lanceolatis; pedicellis 12—18 lin. longis apice turbinatis; perianthii segmentis lanceolatis acutis semiuncialibus pallide rubris extus viridi-vittatis flore expanso rotatis; filamentis lanceolatis monadelphis conformibus inclusis; antheris oblongis rubellis; ovario triquetro-globoso obscure viridi densissime papilloso; ovulis in loculo 6—8 superpositis.—A. nigrum, *Sibth. and Smith, Flor. Græc., t.* 323, *non Linn.*

the amount of excessive heat these plants are sometimes subjected to. There is also a house devoted to the cultivation of Odontoglossums, Masdevallias, and other plants requiring similar cool treatment, and which are deservedly now so much in fashion.

This nursery is also famed for its wealth in hardy herbaceous and alpine plants, of which those who saw the fine collection of eighty varieties and species, for which Messrs. Rollisson obtained the 1st prize at the last great show—the Manchester—will have some idea. It is gratifying to the lovers of these fine old things—possessing sterling merit—that they are again taking that position which they never should have lost, and which was anything but an evidence of good taste in the gardening community.

Everywhere outside, as well as in the houses, there is an evidence of perfect cleanliness and order amongst the plants, which gives pleasure to look upon, and reflects creditably, not only upon the general management, but upon those in charge of the several departments. *T. Baines.*

ITALIAN GARDENS.

Villa Demidoff.—At a very short distance from the Cascine, the Hyde Park of Florence, is the residence of the Prince Demidoff, at San Donato, interesting to British horticulturists on many accounts. It contains one of the finest collections of plants in Europe, the rich accumulations of Baron Hügel having been transferred here from Vienna in 1850. It was till recently under the charge of a well-known English gardener, Mr. Goode, who had charge of Mrs. Lawrence's establishment at Ealing in its palmy days, and it was the subject of a botanical work by M. Planchon, which recalls the *Hortus Cliffortianus* of Linnæus. Our visit to this celebrated garden was paid under somewhat disadvantageous circumstances, as numbers of the finest specimens were for the time removed to the exhibition building in Florence, whose great height somewhat dwarfed the proportions of these noble plants. Nevertheless, the exhibition owed no little of its appearance to the size, variety, and number of the specimens derived from San Donato. Visitors to the exhibition will remember the fine Palms and Tree Ferns, and specially the rich collections of Proteads, Casuarinas, and Araliads which were furnished from the garden in question. Out-of-doors at San Donato one is glad to find green turf, and this makes it only more and more obvious that green turf in such a climate is by no means an impossibility, provided only the necessary management be forthcoming. Relatively speaking, the cost of turf in a first-class establishment, with every provision for watering, &c., is not large. It is the want of knowledge, of the care required in mowing and rolling, which seems chiefly defective in Continental establishments. Planted on the lawn are some fine Deodars, one in particular of a remarkably handsome habit, with heavy drooping boughs like ostrich feathers. Other fine Conifers, such as a fine set of the species of Podocarpus, Taxodium distichum and T. sempervirens, Salisburia adiantifolia, and Picea cephalonica, are scattered here and there. Shrubberies of Ghent Azaleas in full bloom strike the northern visitor with surprise. Camellias also thrive well out-of-doors, as do likewise many of the New Holland plants, and sundry Palms, such as Chamærops Fortunei. Several splendid Magnolias are dotted about on the lawns, and among humbler plants fancy Pansies are a feature of the garden, and so are the belts and edgings of the bright showy Ixia crocata. The stoves and greenhouses and ferneries are numerous and spacious, and despite the fact that many of them were temporarily emptied of their contents enough remained to show the importance of the collections.

The principal range extends for more than 600 feet, and we believe it is in contemplation to erect a new house, nearly 400 feet in length by 12 in width and 14 in height. The greenhouse and conservatory were mostly empty, their contents being either in the exhibition, or placed out-of-doors for the summer. The collections of Acacias, Proteads, and New Holland plants, as well as of the more tender Conifers, are extraordinarily rich. The fernery also is well furnished, and amongst other fine specimens one of Platycerium grande deserves special mention.

We have more than once alluded to the magnificent Crotons grown here, much exceeding in size and in the superb colouring of the foliage anything that we have hitherto seen in England. In the stoves may be seen the ordinary run of stove plants, with Caladiums, Alocasias, Tydæas, Nepenthes, and the like, all much better cultivated than is usual on the Continent, and proving that the traditions left behind by Mr. Goode have not been forgotten by the existing *chef*, M. Steffatschek. We were happy to see by the Italian papers some time since that the Prince, in order to mark his sense of the zeal and ability displayed by his gardener, as testified by his success at the Florence exhibition, had at once made him a handsome present. Encouragement under such circumstances is always welcome and never misplaced. Reverting to the stove plants, we may allude to a plant that has almost dropped out of knowledge in England, but which was grown here in such quantities, and which was so effective, that we should be glad to see it restored to popular favour. The plant in question is Chirita Moonii.

Among Orchids in bloom we noticed Cypripedium Lowii, Calanthe veratrifolia, Dendrobium anosmum, Cattleya Aclandiæ, &c. Orchid culture, however, even here, has not attained the same amount of success as it has with us. Here, however, we believe, was successfully accomplished one of the first attempts at propagating Orchids in the case of Limatodes rosea: the upper portion of the constricted pseudobulb was taken off and struck as a cutting. The houses have mostly curvilinear span-roofs of glass and iron, and are better adapted for plant growing than is the case with most Continental structures of a similar kind.

We have penned this notice with a view of recommending those who may visit Florence to make a point of seeing this fine establishment. Its temporarily dismantled condition and the absence of the director

Fig. 26.—THE CHINESE GARDEN AT THE VILLA PALLAVICINI, GENOA.

at the time of our visit, prevent us from doing it the justice which its importance demands.

GENOA is certainly one of the oddest cities of the world. If in some particulars it amply justifies the epithet "superb," in others the qualification "squalid" is equally applicable. In point of site it is not unlike Dover, the crowded filthy streets by the harbour are very suggestive of Thames Street and Covent Garden Market, while the stately residences recall Pall Mall. An intricate network of the narrowest of streets at high levels, at low levels, and at every intermediate altitude, is spread out around the larger streets, just as the threads of a spider's web are woven in and out the branches of a shrub. In point of situation it is magnificent; in point of architecture, in its more imposing edifices, simple and stately to a degree that makes one sigh over the frivolous meaningless attempts of so many of our own architects. Its cathedral and churches of chequered black and white marble are very striking; its crescent-like marble terrace girting the harbour and affording a view over the port and the sea, is quite unique. But it is not so much with its architectural as with its horticultural features that we have to do. These latter are naturally dependent on the climate, which is similar to that already alluded to at Monaco and Ventimiglia, and judging from the aspect of the place, and the state of the vegetation, must probably have hotter summers and colder winters than the localities just mentioned. Shade is a great desideratum in such a climate, and this is afforded in the public promenades by rows of evergreen Oaks, Pinus Pinaster, Pinus halepensis, and P. Laricio; the dark sombre aspect of the avenues of Conifers and Oaks being relieved by occasional avenues of deciduous trees, such as Planes, Acer Negundo, Judas trees, Melia Azedarach just in bloom (May 20), and Schinus Mulle. Turf is not attempted here, though with attention it might be had, and its verdure would be infinitely more agreeable to the eye than the bare gritty soil. At one end of the promenade is a rocky eminence, rising abruptly from the street level, and commanding from its summit a glorious prospect over the town and the sea-coast adjoining. The sides of this hill have been converted into a "rockwork garden," with winding zig-zag paths bordered with shrubs, such as Pittosporums (the flowers of which are no bad substitutes for Orange blossoms), Oleanders, Oranges, Camellias, and Proteads. Among shrubs in bloom in the open air may be noted Lagerstrœmia indica, Habrothamnus, Magnolia fuscata, Gardenias, Solanum jasminoides, &c.; Agaves, Opuntias, and succulents crop out between the rocks in all directions, and give a richness of effect which is quite indescribable. Mesembryanthemums grow as luxuriantly as Ivy does in England, with the additional attraction of gorgeously coloured flowers, while Sedums supply, in no mean degree, the place of grass. Date Palms and Chamærops are judiciously placed where their effective forms are seen to the best advantage, and here and there are small plantations of coniferous shrubs, among which the Deodar and the Cupressus glauca may be noted. The latter has here a spreading Deodar-like habit, and is very handsome. In one corner is a cascade (*acqua sola*), the water falling naturally over and among the rocks, the interstices of which are planted with Agaves and shrubs, into a pool at the base surrounded with Caladiums, Colocasias, and the variegated Arundo Donax. Weeping Willows are generally appropriate enough features in such a landscape, but in this case they seem out of place, probably because they do not assort well with the Agaves in their proximity. Of the strikingly effective bedding with succulents on the terraces of this garden mention has already been made (p. 797, vol. i., 1874).

VILLA PALLAVICINI.—At a short distance from Genoa along the coast, where the inhabitants, young and old, male and female, seem to devote their whole energies to the building of ships, is the village of Pegli. Villas of all sorts and sizes abound—the suburban residences of Genoese citizens. Each has a garden enclosed within high white walls, and one may occasionally see through the gateways that Lemon trees, here grown espalier-wise on trellises, and a small-leaved dwarf variety of Orange, grown as Gooseberry bushes would be with us, constitute the chief care of the gardener. Sturdy bushes of scarlet Pelargoniums and white Pyrethrum fruticosum are to be seen, and gorgeous beds of Gazanias. Date Palms and Eucalypti raise their heads over the walls here and there. Withal, it must not be imagined that gardening for gardening's sake, for the recreation of the mind, or the gratification of the senses, is at all general. You see it here and there, around the larger villas; but for the most part the substantial benefits that accrue from the cultivation of Lemons and Figs are preferred to the less tangible, but not less real, advantages that a garden affords.

The gardens of the Villa Pallavicini, however, are of a different stamp. They have evidently been laid out *à l'Anglaise*, they are extensive and beautifully disposed, they command superb views, and were they not disfigured by cockney conceits and puerile shams, might be held up as models for imitation where mean permit. These grounds constitute one of the shows places around Genoa; access to them is readily obtained, and a large staff of gardeners is employed in acting as guides to the visitors.

Advantage has been taken of a wide ravine, on one side of which the garden has been formed, with winding walks ascending the slope of the mountain, embowered in shade-giving trees and rendered musical by the rippling of a falling streamlet. Erica arborea here justifies its name: one specimen measured 15 feet in height, and it was by no means a solitary example. Evergreen Oaks, Cork trees, Q. Suber, Arbutus Unedo, and A. procera, together with Pinus Laricio, halepensis, and Pinea, constitute the bulk of the tree vegetation. Beneath them an undergrowth consisting of Smilax aspera, Ruscus Hypophyllum, and Ophiopogon, may be mentioned as valuable evergreen plants, thriving in the shade, and the two last of which are as hardy or nearly so in most places in England as they are in Italy. Summer-houses abound, some appropriate enough, others are

FIG. 27.—THE WATER-TEMPLE, VILLA PALLAVICINI, GENOA.

costly shams designed to represent the horrors of war! —to suggest the burned cottages, the dismantled mansion, nay, even the burial-place of the combatants and the grave of the hero. There is no accounting for taste. We only trust that such a taste, so repulsive in itself, and so foreign to the ideas connected with gardens and pleasure-grounds, may not find imitators. There is, too, a sham stalactite grotto arching over a pond, by courtesy called a lake, over which, in and out between the make-believe rocks, the visitor is ferried by a Charon-like attendant, who demands for the service an obolus in the "Please to remember the grotto" fashion. Emerging at length from the cavernous recesses of this grotto, after a vain attempt to make-believe that it is a very large and imposing affair, and to be duly impressed with the gloomy grandeur of the cave, the visitor is suffered to emerge into the light of day on "the bosom of the placid lake." The lake is placid enough, and it is surrounded by a well-kept grass-plot, as green as any in England; and, were it not for the pretentiousness of the whole thing, it would really be very pretty. But it is really the tiniest of lakelets, and in the middle of it is placed a white marble temple almost as big as the lake itself. The disproportion is by no means so evident in our illustration (fig. 27) as it is in reality, so that our criticism may be thought severe. A few paces or oar-strokes from the temple is situated the Chinese bridge, shown in fig. 26. Here the traveller lands from his adventurous journey, but as he sets foot on shore he is assailed by jets of water from the bridge. Naturally alarmed he seeks safety in flight, only to be met in the middle by a more formidable foe. Resistance and flight alike hopeless he surrenders himself a prisoner. The fight ceases. The visitor seeks repose and tranquillity; he seats himself in the swinging-seat (see fig. 26). Alas! vain hope. Again the tyrant water streams in his face, he shifts his position only to encounter another jet in another direction, and so on. All this may be very amusing, but it seems out of place in one of the best sites of the garden, with natural rocks and hills, (strongly reminding one of the Scottish highlands but Olive-crowned to their summits), in full view on the one side, and a lovely view of the Mediterranean and of Genoa on another.

More agreeable is it to turn to the little forest of Orange trees, whose flowers scent the air in all directions, and to note the towering Eucalyptus globulus, by the side of the mansion. This noble specimen has been planted eight years, and was full of blossom. It is the highest the writer saw anywhere along the coast, though unfortunately no record could be obtained of what its real height is. It must be considerably higher than that in the garden of Mr. Hanbury at Mortola, planted two years afterwards, the dimensions of which are given at p. 69.

A fine Camphor tree, Laurus Camphora, near the lake, is also worthy of attention; it is as big as a moderate sized Oak, and was in full bloom on May 20. Among other noteworthy trees may also be mentioned Araucaria Bidwillii, A. Cunninghami, A. excelsa, and various species of Dammara. Among Palms the Date Palm and Chamærops humilis and Fortunei may be noted. All these thrive perfectly well in the open air, as also do various Agaves and succulent plants. The chief interest naturally centres in the outdoor plants, it may, therefore, suffice to say that lofty conservatories of an old-fashioned pattern are to be seen here filled with Palms, Agaves, Bromeliads, and the usual occupants of such structures, none of which call for special mention.

THE DROUGHT.

The following extracts are taken from *Symons' Monthly Meteorological Magazine*, and relate to two papers recently published in France by MM. E. Belgrand, E. Lemoine, and V. Raulin:—

The object of this note is to announce that the streams and springs of the basin of the Seine will continue to decrease from now to the middle of next October, when their discharge will be very low.

By this warning, which applies to more than four months, we do not wish to imply that there will be no rain during the summer, but that, however rainy the summer months may be, the yield of the springs will not be affected to any extent. The slight river floods, which might even result from summer rains, would very rapidly disappear, and the springs will nevertheless yield a very greatly diminished supply.

M. Dausse has proved that the rain of the summer months scarcely at all increases the volume of streams, as most of it is carried into the air by evaporation. The result of our own observations in the Seine basin has been that when at the end of May the yield of the springs is low, it does not increase during the hot months, and we know that the minimum yield usually occurs in October.

Hence it will be understood that from the rainfall of the cold months one can foresee within certain limits what will be the state of the streams during the ensuing summer. If the cold season has been a wet one, we may rest assured that the springs and water-courses will yield well, up to the ensuing autumn. If on the contrary, the cold season has been very dry, the springs and water-courses will be, throughout the hot season, at a very low point.

Resting upon these principles, we, on June 4, 1870, gave warning of the great dryness of the streams which prevailed even to the winter of 1870-71 (*Annales des Ponts et Chaussées*, t. xix., 1870). We now attempt, for 1874, similar forewarnings.

A division of the year into two halves commencing and ending on May 1 is very convenient for many hydrological questions. In the basin of the Seine the six months, May 1 to October 31, form the hot season; and the six months, November 1 to April 30, the cold one. What have been the characteristics of the past cold season?

1. The rainfall from November 1, 1873, to April 30, 1874, has been, throughout the basin of the Seine, exceptionally small. In many parts it hardly reached half its usual amount, as is shown by an inspection of the observations collected by the hydrometric service of the basin of the Seine. The table not only brings into juxtaposition the average rainfall and that of the past season, but it also includes that preceding the great droughts of 1858 and 1870. These two cold seasons were very remarkable for their small rainfall; but in that of 1873-4 it has been still less.

After a cold season with slight rainfall, it may sometimes happen that partial compensation is afforded by rain at the commencement of the hot season, when May is very rainy. It was in this hope that we have delayed, until the present date, the warning which is the purport of this note, but nothing of this kind has occurred. We have at Paris (La Villette) in May only had 0.87 inch instead of 2.24 inches, which is the mean amount for this month. This will, therefore, not lessen the deficiency.

2. The streams have, in every respect, faithfully agreed with the rainfall of the cold season 1873-74. It would be difficult, throughout the entire extent of the observations made upon the Seine and its tributaries, to find a winter and a spring when the waters have remained at a lower level. There was a slight flood on the Seine at the end of October, 1873, but it only gave a maximum of 4 feet on the scale on the Pont d'Austerlitz at Paris. Since then the highest points have been 3 feet 3 inches from December 1 to 5, 1873, and 3 feet 7 inches on January 4, 1874. On May 31 the river had fallen to 4 inches. From 1854 to 1870 the Seine had every year reached a higher point than 6 feet 7 inches on the Pont d'Austerlitz. In the cold season of 1866-67, it exceeded 13 feet 2 inches during 62 days, and in the cold season of 1872-73 on 34 days.

The mean height of the Seine deduced from daily observations at the Pont d'Austerlitz, from November 1, 1873, to April 30, 1874, has been exactly 2 feet. Now, from 1732 to 1854, that is to say, in 122 years (1776 being lost), the mean of the same months has once been less; and there are only seven instances of its being less than 3 feet 3 inches on the scale on the Pont de la Tournelle, Paris.

Before the construction of the weir near the Pont-Neuf, the indications on the scale of the Pont de la Tournelle agreed with those on that of the Pont d'Austerlitz.

3. The springs have, during the cold season just ended, presented characteristics analogous to those of the Seine, the height of which faithfully epitomize the meteorological phenomena of its whole basin. Usually, the yield of the springs gradually increases during the cold months, and is at its maximum at the end of March. This year, on the contrary, it has not increased throughout the winter. These facts are very clearly proved by the observations of the springs of the Vanne, which are intended to be brought to Paris. The tables [which we are obliged to omit] show that in March and April, when the yield is usually greatest, there is this year less than at the same period in 1870. The streams during the hot season of 1870 were exceptionally low, and this year the same causes will produce the same effects.

Even in the middle of spring the want of water was felt in the country. For instance, at certain farms near Noyers (Yonne) they were obliged, at the end of April, to send carts to the river for water. This is the beginning of a scarcity from which we shall suffer much during the next three or four months, and nothing now can prevent it.

4. The springs, though principally regulated by the rainfall of the cold season, are, nevertheless, like all natural and physical phenomena, influenced by precedent conditions. A dry winter will produce a much smaller summer discharge, if, during the previous summer, the springs have been lower than usual. We may consider that, under these circumstances, the subterranean waters continue to diminish. It was thus that the dryness of 1870 was increased by that of 1869 and 1868; and that of 1858 by that of 1857.

In what condition was the ground at the beginning of the cold season of 1873-74? During the hot season of 1873 the yield of the springs was in no respect unusual, there was no deficiency. We may easily perceive why that was the case, for the cold months of 1872-73 had been, starting from October, 1872, exceptionally rainy, so that the soil had regained its normal condition. From this time the yield increased sufficiently until the spring of 1873, and kept the rivers adequately supplied. This is corroborated by the table of the minima of the Seine at Mantes during each hot season from 1857 to 1873, the minimum height of 1 foot 7 inches in 1873 notably exceeds that of the driest years; it should, however, be regarded as very low, since the *étiage* adopted for the Seine at Mantes corresponds to 2 feet 7½ inches.

This storage of moisture in the lowest beds of the soil might have been sufficient to diminish the intensity of the scarcity of spring water which is now beginning; but the past cold season has been so dry, that this natural store from the season 1872-73 has completely disappeared. This is the result of the actual discharge of the springs up to the present time.

To sum up—the principles upon which we rest do not permit us to foresee the weather of the summer and autumn of 1874. It may be that they will be very dry, or very wet—we are, in this respect, in absolute ignorance.

But, whatever may be the meteorological characteristics of the hot season now beginning, its hydrological character is now fixed. We may say that, in all probability, the watercourses and springs of the basin of the Seine will fall between now and the middle of next October to almost the lowest point yet observed. After the middle of October the streams may further diminish, but we cannot speak positively on the subject. To prevent the perfect fulfilment of our forewarning, altogether exceptional rains (like those of Sept., 1866) must occur; but at this period of the year they have not occurred more than once in a century.

We know how numerous are the material necessities of mankind which depend upon our streams; it may be very necessary for agriculture, for the supply of canals, and of towns, not to be unprovided against the dearth of water, which has already commenced, and can only increase from now until October next.

Prof. V. Raulin writes that that which Messrs. Belgrand and Lemoine have announced for the North of France, and especially for the basin of the Seine, is perfectly applicable to the south-west, and in particular to the basins of the Garonne and the Adour.

In fact, since the months of October and November, which were very rainy, the six months December to May have been, three of them extraordinarily dry, and three of them very dry, whence it results that the whole six months have only furnished a very small quantity of water; relatively less indeed than has fallen in the North of France.

In the basin of the Seine they have not registered more than half of the usual rainfall. In the south-west of France, the quantity fallen during these six months hardly reaches two-fifths of its mean amount. This is the result of the observations made at the Botanical School of Bordeaux by myself, and at Marcenx by M. Claverie.

This dearth of water during the last six months appears to have extended over the whole plain of south-west France, and to the Pyrenees, for M. Schroder, jun., tells me that on the mountains snow during the last fortnight was very rare; that the snow line was 500 or 600 metres (1600 to 2000 feet) above its usual level, in the neighbourhood of the Cauterets, and that it has already almost entirely disappeared from the summits of Marboré. Similar drought is not altogether without precedent at Bordeaux. During the 160 years which have elapsed since rainfall observations were commenced in 1714, it has occurred six times, viz., in 1750, 1768, 1779, 1781, and in 1864 and 1874.

It is superfluous for us, writes Mr. Symons, to express our agreement with the views and remarks in the foregoing papers; we therefore proceed at once to compare the deficiency in France with that elsewhere:—

November, 1873.—Rainfall small in Belgium, Holland, and across the middle of England and Ireland; near the average in central France, and above it in the south of France, the south-west of England, and in Scotland.

December, 1873.—Extremely dry throughout France and England, not a quarter of the average. In Holland and Belgium it was about one-third; in Ireland, half; and in Scotland nearly the average.

January, 1874.—Another extremely dry month in France, especially in the south (except Ardèche), rather more rain in the east and north of that country, and nearly the average in other parts of western Europe.

February, 1874.—Ardèche again excepted, the fall in France may be taken as half the average. In Belgium, Holland, and the outer portion of the British Isles the fall was about three-quarters the average; but in Cornwall, Worcester, and Dublin it

was nearly double the average—193, 196, and 190 respectively.

March, 1874.—There were scarcely any French stations where the fall exceeded one-third of the average, and in London there was not one-fifth. In Scotland the fall was about the average, and in Holland and Belgium it was nearly 40 per cent. in excess.

April, 1874.—This month was almost the opposite of March: it was very dry in Belgium, Holland, and the east of France; and above the average in most other districts, except the east of England.

May, 1874.—Rainfall above the average in Belgium and Holland, below it elsewhere, especially in the south of England and north of France.

June, 1874.—Rather dry generally, especially in England; above the average at Bordeaux and in Orkney.

Taking now each country separately we find the following:—

France.—The dry period may be considered to have extended from the beginning of December to the end of May, and the average ratios are—

Station.	Dec.-May.	Nov.-April.
Carcassonne	47	74
Marceaux	50	57
Vais	72	84
Bordeaux	51	71
Les Settons	52	55
St. Martin	41	45
Paris	48	58

The first column shows the six months of greatest deficiency, the second gives the values for the period chiefly affecting the yield of springs. The small differences between these last values and those in M. Belgrand's paper arise from his values being worked from the totals for the period, ours from the sums of the ratios. It is clear, however, by either method, and in whatever way the subject is treated, that one of the driest parts of France, that near Paris and Fontainebleau, has had for six successive months less than half its usual rainfall.

Belgium and Holland may be taken together, the rainfall being very similar, and at all stations the drought began with November, but was much less severe than in France; in fact, January had an average rainfall, and March considerably above it. The following are the mean ratios, worked out in the same manner as those for France:—

Station.	Dec.-May.	Nov.-April.
Ostend	80	67
Utrecht	92	71
Helder	86	78
Groningen	74	65
Brussels	75	74

The British Isles.—In some parts of these islands there has been no drought whatever, in others it has been almost as severe as in any part of the area under consideration. The mean ratios are—

Station.	Dec.-May.	Nov.-April.
London	63	58
Bodmin	111	97
Orleton	87	88
N. Shields	49	56
Braemar	126	108
Sandwick	105	95
Killaloe	91	89
Dublin	75	76

From which it will be seen that in the south-west of England, and in Scotland (in fact in wet places) the rainfall has been equal to, or greater than, the average; but at dry stations, like London and North Shields (just as at Paris and St. Martin), the fall has been little more than half the average.

There is, therefore, reason to believe that in the eastern part of England the supply of water in wells, ponds and streams will be very deficient, although not quite to the same extent as in north-eastern France.

THE PHYLLOXERA.

(*Concluded from p.* 112.)

M. Henri de Parville having indicated to individual proprietors of infected or threatened vineyards the best remedial measures at present known, proceeds to state those which are absolutely needful to be adopted by the governing powers of the nation. At the outset he calls attention to the fact that, when a dangerous contagion begins to spread amongst our domestic animals, the authorities only can check its ravages, because they are able to unite everybody's efforts in one direction, and, by combining the measures adopted, oppose a barrier to the progress of the scourge. In 1866, a law voted by the Corps-Legislatif allowed the Administration to insist on the slaughter of diseased and contaminated cattle after the preliminary fixing of an indemnity. Thanks to this law, it was possible in 1871 to stifle the cattle plague at its birth. M. Dumas thinks, with reason, that what has been so successfully done for cattle may be effected by the same means for the Vine. As long as the public authorities are unable to enforce the summary proceedings which succeeded with the cattle plague, we must fear the contagion, the propagation of the devastating insect. Thus, the Phylloxera has just made its appearance in Corsica, where it only occupies as yet a superficies of one hectare (not quite 2½ acres) in extent. The Prefect of the Department wished to stifle the evil on the spot by destroying the infected Vines, but he met with obstinate resistance on the part of the owner of the Vines, who absolutely refused to permit their destruction, in spite of the just and previous indemnity which was assured to him. Nothing less than a law is necessary to conquer the opposition which, at the beginning, is sure to be made to the application of measures of public utility. It is urgent that such a law should be promulgated as soon as possible.

M. Bouley, in the name of the Phylloxera Commission, has submitted to the consideration of the Académie des Sciences different resolutions, which were voted one after the other. This report, which is extremely clear, has been forwarded to the Minister of Agriculture. At first sight, it seems that the Phylloxera is much more formidable than the cattle plague, and more difficult to reach. What renders it especially dangerous is its power of propagation, which is the cause of its being so rapidly and widely diffused. Nevertheless, in that respect it is inferior to the cattle plague. The Phylloxera, now at Lyons, has taken not less than ten years to traverse the distance which separates that city from Roquemaure (something more than 100 English miles as the crow flies). In a few months the cattle plague, left to itself, would cover the whole surface of France, and encroach on the neighbouring territories; in spite of which it has been mastered by crushing it in its centres and by isolating them. Let the same sanitary measures be applied to the Phylloxera; let the centres of infection be unflinchingly destroyed; let an empty zone be made around the affected Vines, and the progress of the invasion which threatens ruin to the vineyards of France will be arrested.

The report of the Phylloxera Commission proposes the following measures to the administrative authorities:—

Every vineyard proprietor shall be henceforth required to inform the mayor of his commune immediately the Phylloxera appears on his Vines. The prefectorial authorities shall name experts to ascertain the existence of the evil, and to estimate the ravages it may have caused.

Destruction, by ministerial order, of the infested Vines, when their destruction shall have been judged necessary to prevent the propagation of the plague.

The Vines ought to be destroyed under two principal circumstances. The Phylloxera in its winged form is transported by the winds, and so forms colonies, isolated settlements, sometimes at considerable distances from the Vines already infected by the pest. These isolated points demand careful attention, they serves as vehicles for its further propagation, and multiply the centres of infection. But besides this, it is very clear that from the principal centre of infection, from the vineyards ravaged and already destroyed in part, there may escape fresh insects which will ceaselessly carry the contamination to the environs in spite of the successive destruction of the outlying points attacked. It is important, therefore, to separate by a wide barrier the source of the evil from the neighbouring vineyards. An empty space ought resolutely to be made around Vines seriously attacked, and especially in the direction to which the invasion of the Phylloxera seems to give the preference. After their destruction comes the valuation by experts of the revenue produced by the Vines, and the adjudication to the proprietor by way of indemnity of the amount at which that revenue has been estimated for the current year.

Disinfection of the soil by special chemical proceedings before beginning to grub up the Vines; destruction by fire of the stems, branches, leaves, and roots, in the very centre of the spot where the stubbing up has taken place; prohibition to replant Vines on the ground that has been cleared, until a fresh crop in neighbouring healthy vineyards shall have demonstrated the certainty that no further infection is to be apprehended; finally, the most absolute refusal to allow the exportation out of infected localities of anything which could possibly serve as a vehicle of the contaminating agent, such as Vine-stools, roots, manure, Vine-stakes, &c.

Such are the preventive measures which it seems necessary to prescribe by a special law, in order to afford the administrative authorities the possibility of arresting the Phylloxera's ravages. In M. de Parville's opinion they are indispensable, and it is difficult to conceive how the Legislature could keep quiet from 1865 to 1874 without taking some more energetic resolution. Ever since 1866 the Phylloxera has been seen to push its legions forward, slowly, indeed, but making manifest progress. It gains ground every year, and in the face of this unceasing encroachment, people have deceived them so far as to fancy that they could drive it away, as they get rid of certain insects, by the aid of powders or chemical preparations. The danger is much more grave than that. Even if we could destroy by means of water and poison, enormous numbers of the insects, future safety would be far from assured, since one single Phylloxera left surviving is capable of engendering legions of Phylloxeras. More certain methods are required. It is necessary to burn the Phylloxera, to make a clean sweep of all that can harbour it, to remove its sustenance, and disinfect the soil. On these conditions the pest may be extinguished. But a plough which had passed over an affected vineyard has sufficed to carry the evil to healthy Vines. The contaminating power of the pest cannot be too strongly insisted on. The contagion must be held in terror and repulsed by every possible means.

As to the proprietors who are made to suffer the application of the law, they do not seem to have any very justifiable ground of complaint. If their Vines are affected, they may consider them as absolutely lost. If the loss do not occur the very year of the attack, it will the year following; and the ruin will spread from field to field. They can only, therefore, reckon on one single crop. But the State assures them a corresponding indemnity. Their opposition, deplorable in the public interest, can only be prejudicial to their private interest, by facilitating the spread of the evil in neighbouring vineyards that still remain healthy.

In one word, time presses, the disease gains ground. This year the Phylloxera is at Lyons. It has only a few stages to travel to enter Burgundy. It is greatly to be desired that the National Assembly would discuss the Bill proposed by the Commission, and pass it at once, as was done at the time for the cattle plague. Exceptional evils must be met by exceptional measures.

As a supplement to the preceding lucid statement, we may add that the *Bon Jardinier* mentions phenic acid, polysulphuret of calcium, and especially soot, as having given encouraging results. Meanwhile, sundry viticulturists, observing that the Phylloxera commits all its ravages underground, and that, on the other hand, it attacks but slightly or not at all, Vines that are natives of America, such as Vitis Labrusca, V. æstivalis, and others, propose the grafting of European varieties on America stocks. But the experiment has still to be made, and its results ascertained. It might answer for small growers of dessert Grapes, but would be difficult to carry out on the larger scale of vineyards.

Since the above was written the *Journal Officiel* has registered the promulgation of the law creating a prize of 300,000 fr. (£12,000) to be given to the inventor of an efficacious mode of destroying the Phylloxera. This law consists of two articles:—

Art. I.—A prize of 300,000 fr., which may be increased by the voluntary subscriptions of departments, communes, companies, and private invividuals, shall be granted by the State to the inventor of an efficacious mode, economically applicable in the generality of soils, of destroying the Phylloxera or preventing its ravages.

Art. II.—A commission named by the Minister of Agriculture and Commerce shall be deputed: 1. To determine the conditions to be fulfilled in order to compete for the prize. 2. To decide if there be reason to award the prize, and to whom it ought to be awarded.

ACORUS CALAMUS, THE SWEET FLAG.

Dr. Goeppert has recently taken up this plant again (*Gartenflora*, May, 1874), in reference to its native country. Some years ago Professor Dierbach (*Flora*, 1828), combatted the view that it is a native of Western Europe. It will doubtless be a matter of surprise to many of our readers that its title to a place in the indigenous flora of Britain should even be questioned, especially as it is given in our *Floras* as such, and supported by our principal authority in these matters, Mr. H. C. Watson, who says in his book, the *Cybele Britannica*, "apparently a true native of Britain, though probably introduced into some of the Scotch localities." This view is held, too, by other botanists, amongst whom we may mention Mr. Baker, who has seen it growing in places in Yorkshire, where, after taking all the possible means of its being introduced into consideration, it appeared to be as truly native as the vegetation with which it was associated. Nevertheless, there are good grounds for supposing that it was originally introduced into Britain, whether sufficient it would now be difficult to say. But one of the facts upon which this view is based may be used in support of either side of the question, and that is, the circumstance that ripe seed has never been found in this country, which also applies to Germany. Unless actually planted, then, in such a locality as that described by Mr. Baker, namely, in a mountain pond (far from any habitation) formed many years ago through a landslip, it would not be easy to account for its presence there; but on the other hand, it may be asked did it exist there before the formation of the pond, &c.? Leaving the Con-

tinent out of the question at present, we may briefly enter into its history in this country, so far as it is known to us. In the first place, disregarding the circumstance of its not ripening seeds in Britain, there is nothing in its admitted range of distribution in a wild state to be urged against its being indigenous, its extra-European distribution being the mountains of Northern India through to China and Japan, and North America. Its geographical position in the latter country speaks in favour of its being wild in similar latitudes, or rather under similar climatal conditions, in the Old World. Chapman (*Flora of the Southern States*) considers it introduced there (the Southern States), and A. Gray (*Manual of the Botany of the Northern States*), says, "probably truly indigenous northward." In the royal herbarium at Kew there is a specimen from as far north as Saskachewan, collected by Drummond, who, in a note on the accompanying label, says it is common onwards to Canada. This seems indisputable evidence of its being indigenons. There are several other specimens from North America, notably one collected by Pursh, in 1808, in New Jersey. In his *Flora of North America* (1814), Pursh states that it is frequent in "overflowed places and old ditches, from Canada to Carolina."

And now for the other side of the question. Turner, in his *Herbal* (the complete work), published in 1568, does not mention it—at least, if he does we have overlooked it. Gerard (1597) and Parkinson (1640) speak of it as an article imported from the Levant, and of the living plant as growing in gardens for several years without producing flowers—possibly on account of its not being in a sufficiently moist place. The figure of the plant in flower is exactly the same in both works, and was borrowed from the Continental works mentioned below. Ray, however, in his *Historia Plantarum*, 1688, treats of it as a native plant, though his record of habitats may be looked upon as of a negative character. He says:—"In fluvio Hiera sive Yare Nordovicum urbem alluente, non longe ab ipsa urbe, a clariss vivo D. T. Brown observatus; nobisque ante viginti annos ostensus est. Alibi etiam in Anglia sponte oritur; nimirum circa Hedly, vicum in Surreia, a Dr. Brown inventus. Quin ad Dr. Needham, M.D., in agro Cestriensi eum copiose provenire nobis retulit." So far, we have no very conclusive evidence, but it appears to preponderate against the view that the Acorus is a native plant. And when we bear in mind the many uses to which it was applied—as a perfume, flavouring condiment, and medicine—and the custom in former times to cultivate such plants in almost every garden, we must admit that men would be likely to plant it far and near in places where it would flourish. Its cultivation appears to have been tentative at first, but when it was discovered to possess equally good qualities with the imported, it would be extended. Norfolk and Suffolk, we are told, formerly supplied the London markets, and it is only in this part of England where it is found in abundance. All the habitats we know for it in the southern counties are open to doubt, and most botanists agree in not accepting them as wild stations. The foregoing agrees so well with the view taken by Dierbach and Goeppert that we will append a summary of the paper above mentioned respecting its occurrence in Germany. Goeppert first of all gives the substance of Dierbach's paper, in which he affirms the Acorus to be a native of Asia and the eastern part of Europe, from whence it was first introduced into the gardens of Germany and other countries, in the sixteenth century, gradually extending further and further, and escaping in certain localities beyond actual cultivation. He seeks to sustain this view by the testimony of the most trustworthy writers of that period, who considered the Acorus as an exotic plant, and who, like Mathiolus, R. Dodonæus, Clusius, Lobelius, and others, expressed themselves very clearly as to its origin. Of these writers, Mathiolus was the first to publish a plate (1565) of the root and leaves of this plant, which he received through the Austrian Ambassador to the Turkish Court, Angier de Busbeque, who was born at Commines, in Flanders, and died at Maillot, near Rouen, in 1572. Busbeque and his physician, Anacelberus, had a number of specimens of it dug up from the shore of a large lake near the town of Nicodemia in Bithynia, where, according to their statement, it grew in great abundance. Dodonæus not only figures the root and leaves, but likewise the inflorescence, and relates that it was sent by the above-named ambassador to Vienna, from whence it was conveyed to some Belgian gardens, where it flourished very well, and bore the winter uninjured, but ripened no fruit. Clusius mentions, in addition to similar information, that this plant had already become so common and generally dispersed that many apothecaries preserved as much as a hundredweight of its root with sugar, and drew considerable gains from its sale. In reference to its habitat, he adds that Bernardus Paludanus, Medicus Enchusanus, on a journey which he made from Poland to Italy in 1577, frequently observed the plant growing in marshes in the vicinity of Wilna. Here the inhabitants called the plant Tartarsky, because they had learnt the use and applications of it from the Tartars.

After adducing more testimony of the like nature he alludes to the importance of confirmatory evidence from the border provinces of Germany, such as Silesia, which is in the extreme east, which he gives as follows:—

"C. Schwenkfeld, to whom we are indebted for the first *Flora* of Silesia (whose *Stirpium et Fossilium Silesia Catalogus* was published at Leipsig in 1601), furnishes important evidence on this point. He describes the plants of our province in two divisions; in the first, those growing wild; and in the second, the cultivated ones. Amongst the latter he includes the Acorus (Acorus verus et legitimus, Dioscor., Calamus aromaticus officin.), and expressly remarks that it was originally indigenous on the borders of Podolia, Lithuania, and Wallachia, but that at that time it had already become so plentiful in the gardens of Silesia as to have become an article of export. Twelve years later, Henelius mentions in his *Silesiographie*, p. 29, that the Acorus had been diligently cultivated for some years, and that its sale in foreign countries brought great gains to the growers. In the second edition of this work, which appeared nearly 100 years later, the Editor, M. Fiebig, expressly repeats that it was grown, especially at the village of Mahlen, about 10 miles eastward from Breslau, and that it was an important article of commerce. Later Silesian writers, equally with other German horticulturists, have not troubled themselves to investigate the introduction of this valuable plant, looking upon it, indeed, as indigenous. The wary and observant Schkuhr mentions, without further remark, however, that he had never been able to procure ripe fruit, which, so far as I am aware, has not been seen here by anybody else. Biaberstein, Ledebour, and Besser, quote it as a native plant without further remark. Endlicher speaks decidedly of it as an Indian plant. Neilreich (*Aufzählung der in Ungarn und Slavonien bisher beobachteten Gesfässflanzen*; Wien, 1866) enumerates several localities, but declares it to be of foreign origin, though long since naturalised."

The opinion of travellers in the East, and many other circumstances, seem to strengthen the view first put forward by Dierbach, and supported by Goeppert; but further investigation is necessary to ascertain how far westward it is truly indigenous, or whether it came originally from India. *W. B. H.*

CHURCHYARD FLOWERS.

In the present day, when ecclesiastical æstheticism is reviving to an extent which delights some, amuses others, and shocks many, there are few practices to which less exception can fairly be taken than that of planting graves with flowers. There is on the very face of it such an evident fitness and appropriateness in the custom, that he must indeed be a Puritan of the grimmest type who would object to its adoption. The American poet of modern times does but echo the words of the Apostle when he sees in flowers "emblems of our own great resurrection;" and, putting all symbolism aside, the tidily kept and neatly planted graves which are yearly becoming more general, are more sightly objects than the rank growth of Nettles and other herbage which was formerly their only covering.

The custom of strewing corpses and graves with flowers was one of the many customs which the early Christian Church adopted from heathen times. Gough, speaking of the Feralia, says:—

"The tombs were decked with flowers, particularly Roses and Lilies. The Greeks used the Amaranth and Polyanthus (one species of which resembles the Hyacinth), Parsley, and Myrtle. The Romans added fillets or bandeaux of wool. The primitive Christians reprobated these as impertinent practices; but in Prudentius' time they had adopted them, and they obtain, in a degree, in some parts of our own country—as the garland hung up in some village churches in Cambridgeshire and other counties after the funeral of a young woman, and the enclosure of Roses round graves in the Welsh churchyards testify."

The subject of garlands in churches is beside the present notice; but it is interesting to note that Roses were prominent among the funeral flowers of the Greeks, for, as we shall see, they have always been regarded in more recent times as especially suitable for graves. Brand quotes passages from St. Ambrose and St. Jerome which show that the sprinkling of graves with flowers was general in their times, and, to come to more modern days, Walton, in his *Lives of the Anglers*, refers to the custom as having been observed at the funeral of Dr. John Donne, who was buried in 1631. "To the place of his burial," he says, "some mournful friends repaired, and, as Alexander the Great did to the grave of the famous Achilles, so they strewed his with an abundance of curious and costly flowers."

As it is rather with growing flowers that we are now concerned, we need not do more than refer to the use of *immortelles* for grave decoration—a use which is comparatively recent in England, having been introduced to us from France, where it is very general. The species which yield the common yellow "everlastings" which are chiefly employed for this purpose are Helichrysum orientale and H. arenarium, the former of which is extensively cultivated in the South of France, especially in Lower Provence; and an extensive trade in them is carried on in Paris and elsewhere.

Of all growing flowers the Rose is that which has been longest associated with the dead, and the planting of it on graves is both an ancient and a widespread custom. Anacreon refers to its supposed power of protecting the dead, although some have maintained that the Pomegranate is the plant he intended; and Gibson, in his edition of *Camden*, says that it appears from an old (1722) inscription at Ravenna, and another at Milan, that the Greeks and Romans often annexed as a codicil to their wills that Roses should annually be strewn and planted on their graves. That this custom obtained among ourselves in comparatively recent times is shown by Gibson's remark that at Ockham, in Surrey, there is "a certain custom, observed time out of mind, of planting Rose trees upon graves, especially by the young men and maids who have lost their lovers; so that the churchyard is now full of them." We are also told that in 1653, a "citizen of London," named Edward Rose, left the sum of £20 to be laid out in the purchase of an acre of land for the benefit of the poor of the village of Barnes, in the same county, as long as they should keep Rose trees growing upon his grave. It would be interesting to know whether the custom is still retained in either of these places. Miss Landon's beautiful lines on "The Legacy of the Roses" are said to have been suggested by the latter bequest; and Mr. Ingram, in his *Flora Symbolica*, tells us that a specimen of the Michigan Rose was forwarded from the banks of the Ohio to this unfortunate and gifted poetess, with a request that she would plant it on the grave of Mrs. Hemans. "The white Rose," says Washington Irving, "was planted at the grave of a maiden." The Rose is one of the favourite flowers for planting in churchyards in Wales, where, as we shall see, the practice of grave-decking is very prevalent; and it is also strewn upon the graves.

It is curious, in connection with this part of the subject, to find that in the German portions of Switzerland both old and new churchyards have the name of "Rose gardens," and the same name is given to many ancient heathen burying-places lying in the depths of the forests. It is also the custom to plant red Roses on the graves of Catholics, and white ones on those of Protestants; but this is said to be of more recent origin than the name. A good deal of mystery has always been locally attached to the Rose trees growing in Towton Field, in Yorkshire, the scene of the Yorkist and Lancastrian battle in 1461. It is said that these were planted on the grave-mounds of those who fell in the battle by their surviving comrades:—

"There still wild Roses growing—
Frail tokens of the fray;
And the hedgerow green bears witness
Of Towton Field that day:"

and it is firmly believed by the country people that it is impossible to keep a Rose tree alive which has been transplanted from the "Bloody Meadow," as it is called in the neighbourhood.

Roses are also among the flowers planted on graves by the Chinese, among whom the practice appears to be very general. Mr. Fortune says:—

"The flowers which the Chinese plant on or among the tombs are simple and beautiful in their kind. No expensive Camellias, Moutans, or other of the finer ornaments of the garden, are chosen for this purpose. Sometimes the conical mound of earth—when the grave is of this kind—is crowned with a large plant of fine, tall, waving grass. At Ningpo wild Roses are planted, which soon spread themselves over the grave, and, when their flowers expand in spring, cover it with a sheet of pure white. At Shanghai a pretty bulbous plant, a species of Lycoris, covers the graves in autumn with masses of brilliant purple. When I first discovered the Anemone japonica, it was in full flower amongst the graves of the natives, which are round the ramparts of Shanghai; it blooms in November, when other flowers have gone by, and is a most appropriate ornament to the last resting-place of the dead."

The most favourite flower in German churchyards, especially in Upper Germany, is a scentless Pink (Dianthus carthusianorum), which, in accordance with old-established custom, is allowed to cover the graves with its thickly-matted tufts. The child who plucks a sprig of this from a grave is guilty of robbing the dead; and the spirits of the departed will haunt him during the night if he does not repeat a *Pater noster* on the spot. Another superstition is, that he who smells the flowers that grow on a grave will lose his sense of smell. In France, where the custom of planting graves is very frequent, penalties of a less imaginary nature are inflicted upon those who remove flowers from the graves. The "*bois béni*," or Box, which is distributed

in the churches on Palm Sunday, is a favourite adornment of a French churchyard; and the effect of the withered branches stuck over the graves is more curious than pleasing.

The Periwinkle (Vinca minor) is another favourite flower for graveyard decoration. In Switzerland and Tuscany it is planted on the graves of young girls, while in Italy it is wreathed round the bodies of deceased infants, and planted in their tombs, whence it is called the "Flower of Death" (*Fin di Morto*).

The custom of decking graves appears to have been especially common in some parts of Wales, where Bingley says that it is usual for the nearest female relation to the deceased to pay some poor person to ornament the grave with slips of Yew, Box, and other evergreens for some weeks after interment, and in some instances for weeding and adorning it on the eve of Easter, Whit Sunday, and other great festivals for a year or two afterwards. The same ceremony was also performed by the friends of the deceased for several Sundays subsequent to the interment. A much more detailed account is that quoted by Brand from Malkins' *Scenery, Antiquities and Biography of South Wales*, from which a few extracts relating to Glamorganshire may be interesting:—

"It is a very general practice in Glamorgan to plant flowers on the graves, so that many churchyards have something like the splendour of a rich and various *parterre*. Besides this it is usual to strew the graves with flowers and evergreens, within the church as well as out of it, thrice at least every year, on the same principle of delicate respect as the stones are whitened. No flowers or evergreens are permitted to be planted on graves but such as are sweet-scented—the Pink and Polyanthus, Sweet Williams, Gilliflowers and Carnations, Mignonette, Thyme, Hyssop, Camomile, and Rosemary make up the pious decoration of this consecrated garden. Turnsoles, Pionies, the African Marigold, the Anenome, and many others I could mention, though beautiful, are never planted on graves, because they are not sweet-scented. It is to be observed, however, that this tender custom is sometimes converted into an instrument of satire, so that when persons have been distinguished for their pride, vanity, or any other unpopular quality the neighbours whom they may have offended plant these also by stealth on their graves. The white Rose is always planted on a virgin's tomb; the red Rose is appropriated to the grave of any person distinguished for goodness, and especially benevolence of character. In the Easter week most generally the graves are newly dressed, and manured with fresh earth, when such flowers or evergreens as may be wanted or wished for are planted. In the Whitsuntide holidays, or rather the preceding week, the graves are again looked after, weeded, and otherwise dressed, and necessary, planted again. It is a very common saying of such persons as employ themselves in thus planting and dressing the graves of their friends, that they are cultivating their own freeholds. This work the nearest relations of the deceased always do with their own hands, and never by servants or hired persons. Should a neighbour assist, he or she never takes, never expects, and indeed is never insulted by the offer of any reward by those who are acquainted with the ancient custom. The vulgar and illiberal prejudice against old maids and old bachelors subsists among the Welsh in a very disgraceful degree, so that their graves have not unfrequently been planted by some satirical neighbours, not only with Rue, but with Thistles, Nettles, Henbane, and other noxious weeds. . . . When a young unmarried person dies, his or her way to the grave is strewed with sweet-scented flowers and evergreens. . . . None ever molest the flowers that grow on graves; for it is deemed a kind of sacrilege to do so."

The same writer adds:—"It is nearly as general a custom in Brecknockshire to decorate the graves of the deceased with slips either of Bay or Yew, stuck in the green turf, for an emblem of pious remembrance." The planting of Yew trees in churchyards may have some connection with this honouring of the dead; but the speculations associated with this subject are too varied to enter upon here. *B. M.*

ALPHONSE KARR.

Our gallery of portraits of horticultural worthies would not be complete if it did not include the subject of our present notice. Those who are acquainted with the author's *Voyage autour de mon Jardin* will hardly be inclined to dispute the excellence of the portrait which we give, the physiognomy of which is so thoroughly in accord with the genial tone of the work in question. It will be remembered that the writer of the *Voyage* sets out by lamenting in somewhat envious tones the good fortune of one of his friends about starting for a lengthened trip in foreign lands with a view of studying their features, their people, their products, their mode of government, and the like. Scarcely, however, has the author set foot in his own garden than his despondency and envy vanish. His garden to him a kingdom is, and he goes on in gossiping strain to describe its inhabitants and their manners and customs, and finally makes out a very good case for himself as against his travel-seeking friend. In the most pleasant and agreeable of strains he discourses about plants, and specially about insects, and shows how one need not set foot beyond the limits of one's own domains to realise as much pleasure as can be obtained from foreign travel. Much of the work in question is written in the style of Darwin's *Loves of the Plants*, and is, for the time in which it was written, correct, though—thanks in great measure to the celebrated descendant of Erasmus Darwin—many of M. Karr's statements and inferences would now need revision and recasting.

The good-natured fun directed against the *savans* and their pedantic terminology, and against the florists with their narrow views of what constitutes beauty, must be read to be appreciated. No extract would suffice to convey an idea of their good-humoured banter. But M. Karr is no more able than other scoffers to propose a better system, and the *savans* may well retort that while their language and descriptions are intelligible enough to those who will take the pains to learn, his own are of no value save to the "light" reader, and are of no service even to the *dilletante*

ALPHONSE KARR.

who wishes to know what he is reading about, and to compare it with what he sees around him. All of us who read Molière can laugh with him at the doctors, and appreciate his raillery at their expense, but we are glad enough, nevertheless, to avail ourselves of their services in case of need. So likewise the *savans* and the florists can hardly fail to enjoy the laugh with M. Karr, and, more than that, they would be ready to mend their ways and adopt any suggestion which would be likely to improve matters, but on these points M. Karr is silent.

We add some particulars of M. Karr's career from *Men of the Time*, and trust it will not be long ere he gives us a new edition "brought up to time," as there is certainly less necessity than ever to stir beyond one's garden in search of interest and novelty.

"Jean Baptiste Alphonse Karr was born at Paris, November 24, 1808, received his first instructions from his father, and afterwards entered the Collége Bourbon, in which he became a teacher. A copy of verses which he sent to the satirical journal *Figaro* introduced him to literary life. Having been disappointed in love, he, in 1832, published a novel written in his youth, *Sous les Tilleuls*, a *mèlange* of irony and sentiment, of good sense and trifling, which at once made him popular. *Une Heure trop Tard* appeared in 1833; *Vendredi Soir*, in 1835; *Le Chemin le plus Court*, in 1836; *Einerley* and *Geneviève*, in 1838; and *Voyage autour de mon Jardin*, in 1845, followed by numerous other works. In 1839 he became editor-in-chief of *Figaro;* the same year he founded *Les Guêpes*, a monthly satirical journal, which had a remarkable success. After the Revolution of 1848, M. Karr, disgusted with political life, retired to Nice, and still writes occasionally in the *Revue des Deux Mondes* and other periodicals. His chief occupation, however, is horticulture on a large scale. The publication of a complete edition of this author's works commenced at Paris in 1860. He was made Chevalier of the Legion of Honour April 25, 1845. His daughter, Mademoiselle Thérèse Karr, has written *Les Soirées Germaniques offertes à la Jeunesse*, published in 1860; *Les Huit Grandes Epoques de l'Histoire de France*, in 1861; *Contre un Proverbe* and *Dieu et ses Dons*, in 1864, and other works."

GREENHOUSE PLANTS.—XIII.

THEIR CULTURE AND MANAGEMENT.

Gompholobiums.—These most elegant Pea-blossomed plants are natives of New Holland. Viewed from a short distance, their thread-like branches and inconspicuous leaves are scarcely perceptible, giving the flowers the appearance of being suspended in the air. G. polymorphum splendens, the best of the genus, has dark crimson flowers, with a lighter coloured eye, about three-fourths of an inch in diameter. In a well-grown healthy plant they are produced in quantities for from four to six weeks during the spring. The plant has, when either in or out of flower, a very distinct appearance. They are naturally climbers in their native country, clinging to other more robust growing plants, consequently, in a cultivated state, they require support. They are sometimes grown on wire trellises, of a balloon or circular shape; but these are objectionable, because their thread-like stems get so entwined round the wires that they cannot be removed without seriously injuring the plants, even when they get too large for the trellis they are first put on—and if placed on a large one to begin with, it has for some time a bare, unfurnished appearance. There is nothing equal to thin, painted sticks over which to train the shoots, taking care never to allow them to become too much entangled.

In selecting young plants, it is necessary to see that they are quite clear from any of the worst kinds of insects that plants are subject to, such as white and brown scale. The Gompholobiums are comparatively tender plants, and are not able to bear any application of insecticide strong enough to kill the insects. Plants the usual trade size, in 6-inch pots, with plenty of healthy roots, are the most desirable—these, if procured any time during the autumn, and wintered in a light situation in a good house, where the temperature is kept in the night at from 40° to 45°, will suit them; they are plants that cannot bear keeping in so low a temperature as some other natives of the same country, as they are liable to become a prey to mildew, which destroys the leaves before it is scarcely perceptible upon them. In such a situation as above, they will keep growing slowly through the winter. They are subjects that always require more than ordinary care in watering, being very fine-rooted plants, but as their feeding fibres are never apparently quite at rest, they must perforce never be allowed to get too dry. It must not, however, be understood that they will bear water-giving before the soil is in the state approaching dryness, such as might be done with impunity to strong, coarse-rooted subjects. By the end of March the plants will be in a condition to remove into larger pots. Being of moderate growth they do not require nearly so much root room as plants of larger, more vigorous habit; pots 2 inches larger will be sufficient unless in the case of any plant that may be more than ordinarily full of roots. Use good fibrous peat at this first potting, about the size of common Acorns, not larger. This is of importance with a rather weak-growing subject, for if used in a larger state the lumps, having in them no more sand than the peat naturally contains, are unsuitable for the roots of a plant of this nature. Add one-sixth of clean sand, as gritty and free from dust as it can be obtained. Pot firm, using the potting-stick to make the new soil sufficiently close; place the plants where they can be kept a little closer for two or three weeks, shading slightly. Each plant should at this time have about a dozen nice thin sticks placed to it, over which the shoots should be evenly dispersed, training all over the surface and keeping the plants furnished down to the base. This must be attended to with these plants from the first, or there will be some difficulty in remedying the defect afterwards. Use thin bast to tie the shoots with, not allowing them to twine round the sticks so as to get too fast hold. Do not allow them to intertwine with each other so as to become twisted cord-like, or they will be injured in undoing them.

By the end of April the plants should, if all goes well with them, be growing apace. They will at this stage of development be benefited by a dash with the syringe every afternoon, getting well under the leaves and occasionally turning the plants round, so that all sides may get the benefit of the water which they require, as they are subject to red-spider. In the summer season stand them on a bed of ashes, or ashes with a little sand mixed. Keep this regularly damped morning and evening, which will materially assist them. As soon as the flower-buds, which they will push freely, get large enough to handle, they should be picked off before they expand, or the plants' natural disposition to free flowering, even in a small state, will materially interfere with the growth they ought to make. By the end of June or beginning of July they should require a second shift to pots again 2 inches larger, using soil similar in every way to that used for the spring potting. At this warm season they will need keeping closer and more shading for some days, and will also require an abundant supply of water thrown about the paths and under the stages, as well as on the bed on which they stand. They will also now require a few more sticks to support the extending shoots. In a fortnight or three weeks they will get hold of the new soil, and will bear more air and do with only such shade as will break the sun's rays in the middle of the day. Through the autumn gradually inure them to plenty of air and all the sunlight possible, so as to get them well ripened before winter comes, when they must receive less water at the roots, and be treated in other respects as advised for the first winter. Pot again in April, as in the preceding season, using the soil now in a little rougher

state. They should now bear a 3-inch shift, and as soon as potted should be taken off the sticks, and new ones put in of a sufficient length to support the plants for the season, dispersing the shoots as before evenly over them.

After potting treat them as before, so far as the necessary shade, air, and moisture in the atmosphere are concerned. If the plants do well they will this season show a profusion of flowers, which may be allowed to open, as they will make beautiful objects for decoration, and can be used for this purpose in the conservatory or elsewhere; but whilst in such situations they must have a good position, where they will receive plenty of light, and not be crowded too closely amongst other plants. As soon as they have flowered remove them to the hard-wooded house, and treat as advised for the preceding season, except that this summer they will not require a second potting, unless in the case of any individual plant that appears unusually strong, and gives evidence of more than ordinary root-power. Such may receive at the end of June a 3-inch shift, but with these exceptions the spring potting will be enough. Attend well to the plants through the summer, more especially in the matter of water, which should never be given to them by inexperienced hands, or all the previous care will very likely be thrown away. Gradually inure them to all the air possible through the autumn, without placing them in a cold draught too near the spots where air is admitted. They must never be submitted to exposure in the open air, as in the case of such as are stronger in constitution, or require it to induce a flowering disposition. These plants are naturally such free-bloomers, that if in health they are certain to bloom profusely. Continue to give the necessary attention to training before the shoots get too much entangled, and in the winter replace all the sticks, using in their place such as will meet the requirements of the increased growth. Through the winter, as advised the first season, keep them where the temperature will be a little over that required for the greater number of greenhouse hard-wooded subjects. In the succeeding May and June they should make good blooming plants, fit for exhibition if so required. They should not be placed where they will be subjected to a low temperature, such as many plants can bear early in the spring in a north retarding-house, or the chances are that there will be serious loss of leaf through mildew; but, as their flowers begin to open in May, they may with advantage be removed to such a situation, it will otherwise be necessary to shade them whilst in flower, as the sun destroys the beautiful bright colour of the flowers.

After flowering this season lay the plants on their sides, and give a good washing with clean water applied by the syringe. This will remove any dirt that may have accumulated on the leaves whilst in flower, and keep down insects. As soon as they have pushed freely into growth give such as seem to require it a 3-inch shift; this will be as much as even the strongest plants of Gompholobium will ever need. They naturally flower in a younger state than many plants, and consequently do not often last so long as such that are longer before they come into a free blooming condition. Such as retain health and keep on growing until the soil gets at all exhausted, may be assisted with weak manure-water in the season of active growth. As these plants are not so long-lived as some others it is well to keep up the stock, by each year starting two or three young ones to take the place of any that may go off. The yellow G. barbigerum is a fitting companion to the above plant; it is one of the purest yellows in existence, and is a general favourite. It succeeds well grown in the same description of soil and under similar general treatment as G. polymorphum splendens. I have already alluded to these plants being subject to red-spider, and pointed to the necessity for a vigilant look-out for this insect; this is the more necessary as they are sparse-leaved plants, and if once their leaves are seriously injured the roots will suffer in proportion, and the plants will never afterwards look so well. They are sometimes attacked by aphides upon the points of the young shoots, but these can easily be kept down by fumigation. *T. Baines.*

PLEA FOR WILD FLOWERS—III.

With a knowledge of the common plants growing there, one can go over a Dumfriesshire bog or marsh without getting "deep into the mire," or even dirty, nevertheless this long drought made a hunt after bog plants an unusually cleanly matter; not that mud or a wetting would for a moment prevent me getting a specimen required, but it is not unpleasant to find pools so shrunken that one can reach Menyanthes trifoliata (Marsh Trefoil or Bog-bean), with a long arm, and a firm grip of a tuft of Rushes. So distinct a plant does not require its beautifully fringed flowers to identify it, but as a stalk of pink buds was within reach, I felt I must have it to put beside its three lobed leaf.

Saxifraga stellaris (Starry Saxifrage) I was very glad to find in flower, as otherwise I should certainly have missed it among the stones by the river bank. The last time I gathered this distinct Saxifrage was on the top of Queensberry Hill, some 6 miles off, and about 1500 feet higher (2259 feet is its elevation). There was no fear of passing over the light green tufts of Pinguicula vulgaris (Butterwort), although its lovely violet flowers were tight tucked up, and like the Bog-bean, its fringed or rather hairy mouth was not to be seen. In a still portion of the river, Equisetum limosum (the smooth Horse-tail) like miniature Bamboos, stood erect with their black oval spikes, and by a dry ditch the graceful E. sylvaticum (Wood Horse-tail) was in great beauty, although its elegant drooping tiers of green leaves were not at their full extent, as those of E. arvense (common Horse-tail), growing in a clayey field, were—this last being the commonest and least interesting of the three. Now that Mr. Ware, of Tottenham, has introduced E. sylvaticum, grown and exhibited in a pot, these peculiar plants will come into fashion, and be known by those who cannot see such flowerless vegetation as they walk along.

Passing through a bog meadow (a very different thing from an English one)—and which may possibly be safely in rick by September!—Orchis maculata was in finely spotted leaf, and the queer Listera ovata (Great Twayblade); its large single pair of Plantain-like leaves will attract when its insignificant flower-spike might be passed by. I longed for the sweet-smelling Butterfly (Orchis bifolia) to have been in flower, but only got its pair of smooth unspotted green leaves. The whole meadow was bristling with the erect-growing Rhinanthus Crista-galli (Yellow Rattle), with serrated leaves, and a labiate flower (set on one side of the stalk). Carduus palustris (Marsh Thistle), at this stage of its growth about 8 inches high, was a beautiful object, and was the most picturesque plant on the ground, dotted singly here and there, and beautifully set off with dark spines everywhere. Later this Thistle loses its fine proportions, and being almost unbranched looks a drawn-up plant, with crowded small purple cluster of flowers at top, very inferior then in effect to that commonest Thistle, Carduus lanceolatus (Spear Thistle). Aguga reptans (Bugle), creeping and rooting at every joint, but carrying its blue flower-spike well up, was abundant. Another Labiate, Prunella vulgaris, (Selfheal), was not so far advanced, its purple whorls of flower growing in the same way, 5 inches high, in the wet meadow, but close to the ground in the barren pastures hard by.

The pretty purple-lilac Geranium pratense was just bursting into flower, and the eye was at once caught by the flat lemon Globe flower (Trollius europæus)—Lucken-Gowans, as they are called in Scotland.

Comarum palustre (Purple Marsh Cinquefoil) was growing by the side of a ditch, with trailing woody polished stems, and distinct pinnated leaves, the leaflets five or seven in number in graduated pairs, the odd one at the end being the largest. Its dark brown flowers, or calyx rather (for in this plant that portion of the flower is the largest), were not formed. I must own it is a comfort when one plant forms a whole genus, as this Potentilla-like plant, or the Trollius (Buckbean) or Oxalis; and it is wise for the young student not to fix at once what genus a plant belongs to before examination, and go on hammering with a prejudged idea. Why the Comarum is not a Potentilla, and Vaillantia not a Galium, and Lavatera not a Malva, and why Orchis and Ophrys are different, it is well to distinctly learn at once. Valeriana dioica was in plenty, and bearing several heads of flower, both male and female, the latter being much the smallest. When in seed, this plant is very beautiful to examine closely. Caltha palustris (Butter-burs or Cups) will soon make a fine show; King-cups I have heard them called in Yorkshire (East Riding), but misdoubt Cowper's Huntingdonshire "villager" being tempted into any such wet "yellow mead" to "gather King-cups"—far too muddy a task for her to clean up "her sportive train" after. Pedicularis palustris (Marsh Lousewort), at any stage, is easily known, with its fine frills round every portion—stalk, leaf, calyx, setting off the bright pink flowers. The tall thin Lychnis Flos Cuculi was in profusion, but not one pink Ragged Robin was in bud. Senecio aquaticus (Water Ragwort), at this season of a fine purple hue, was very attractive; but a month hence, when its handsome loose head of yellow flowers expand, and it is at its full height, the dark hue will have dispersed to a great extent.

I left the meadow with regret, for it was in an unusually pleasant state to traverse. Winding my way to a peat-bog through a natural wood of Birch and Alder—the shoots of this last from cut-down stools, quite young, and of a rich chocolate colour—I came on sundry blue mists of Hyacinthus non scriptus on two occasions, with a white one among them. It must be owing to the soil, for the blue is of a much deeper shade in this district than usual in these Hyacinths. Bunium Bulbocastanum, now in full flower, dotted through the mosses, was a very light addition. The charming, well-known Oxalis Acetosella (Wood Sorrel) was in abundance, the leaf easier seen and better known than its delicate lilac-striped white flower, with a yellow spot at the base of each petal; and that earliest grass to flower, Anthoxanthum odoratum (Vernal-grass) was already pleasant to smell.

The peat-moss was white with bunches of Eriophorum polystachyon (Cotton-grass), and E. vaginatum (Hare's-tail Rush); its single broad tuft is the softest of the two, and makes a very nice cool pillow.

The faded Sphagnum was red with the interesting little Drosera rotundifolia (Sundew), which one had to look very close to see, as its fan-like leaves set round with red hairs were just beginning to grow, no foot-stalk or spiral flower-stalk being yet visible. Kneeling to examine the Sundew, my eye caught a flower of Vaccinium Oxycoccos—Cranberry—like a microscopic pink Turncap Lily; the crawling little wiry stems, with small dark leaves, require the flower or the fruit to assist the finding of this lovely trailer. The waxy pink flower-buds tipped with green of Bilberries (Vaccinium Myrtillus) were just ready to open. The largest Bell Heather (Erica Tetralix) had downy grey round flower-heads, but there was not a vestige of buds on the other common Heathers, E. cinerea and vulgaris. Narthecium ossifragum (Bog-Asphodel), in foliage and growth like the dwarfest Iris, was in plenty—the flower-stalk not yet up. In the drains was floating the broad-leaved Potamogeton natans, with no green flower-spike to be seen, but with leaves very shining and glossy, and masses of Duck-weed (Lemna minor), with pin-points of gold inflorescence seen when the sun shone on them, otherwise almost too minute for the naked eye. Through the green mat spikes of Epilobium tetragonum (narrow-leaved Willow-herb) grew up, not in flower; an awkward-growing Ranunculus Flammula (lesser Spearwort), with long spaces between each thick narrow leaf, and no flower; and only one or two white stars on the very pretty Ivy-leaved Ranunculus hederaceus, which covered the bottom of the drain. Growing up the sides was Galium palustre (White Ladies' Bedstraw), not as yet in bloom.

Stepping up 3 or 4 feet on to a patch of reclaimed ground I came on another set of plants—weeds of cultivation, Galeopsis Tetrahit (Hemp-leaved Dead Nettle), not a quarter its full height, with a beautiful sulphur flower with purple lower lip not yet even in bud. Nor were there yet in bloom the Polygonums—P. Persicaria, with black blotched leaf, P. aviculare, with varied-shaped leaves, and P. amphibium. The Nodding Spurrey (Spergula arvensis) was coming on, and common Plantains, the whole lot making better progress than the miserable little patch of Potatos. Following the course of a little burn to the low land, Veronica Beccabunga, the darkest blue of all the wild ones, was in good flower; Myosotis palustris was just in bud, and Mimulus luteus a mass of yellow. The rising generation of botanists will hardly believe this is an outcast from some garden, so rapidly has it run in the last twenty years, to my knowledge, from burn to burn in this (Kirkpatrick-juxta) and the neighbouring parishes.

On the wooded banks at Raehills, down to the Kinnel River, were large masses of these favourite Ferns—Polypodium Dryopteris and P. Phegopteris, the first in most delicate fragile beauty, and the second with its distinct drooping lowest pair of pinnæ—no fronds of either Fern at their full growth. Luzula sylvestris, that excellent winter-garden plant, was in abundance, and still in flower, although over with us near Edinburgh. Hardly distinguishable from the fine grasses was the light-branching Melampyrum sylvaticum (Yellow Cow-wheat), its pretty blossoms all growing on one side of the stalk; this was merely in bud. Sanicle, with its shining dark green leaves, glossy below, is so like a Geranium that it is well to find it this month (June) and in flower, its round little balls of pinkish-white bloom settling the question at once.

The lovely little Orobus tuberosus (Wood Pea) was scattered here and there, budding and fading too rapidly; also another Pea much less attractive, Vicia sepium (Bush Vetch), and Woodroffe (Asperula odorata); Dog's Mercury, so prized in February, was in seed, bearing a pair of hard little balls on each slender stalk; and on the rocks in the bed of the river was Hieracium murorum (Wall Hawk-weed), one or two yellow flowers of which were expanded on the loose panicle, and a pair of most untaking plants grew suitably close together. Had they been in bloom it would not have made them more pleasant; although the dark puce flower of Stachys sylvatica (Hedge Nettle) is beautifully marked and barred with white in the lower lip, and that of Scrophularia nodosa (Figwort) is well protected with its little helmet-shaped blossom of no particular colour. Geranium Robertianum is now also very offensive. Digitalis purpurea (Foxglove) clumps are growing tall, and a purple hue about all the stalks shows there are no white ones among them. Seed of light varieties scattered about greatly improve the look of the common purple, as in three or four years there is a great variety of shades produced.

The vegetation of the grassy hills about Moffat is very backward this season: Tormentilla, Polygala of all three colours, Pansies purple and yellow, were scattered about. At the edges of the sheep drains was the pretty yellow Pimpernel (Lysimachia vulgaris). The flat-topped Chrysosplenium oppositifolium (common Golden Saxifrage) was still in flower, and not suffering from the dry season, which surprised me. Alchemilla vulgaris (Lady's Mantle), small and stunted, had a dewdrop actually on one or two leaves, and in a choice spot Pinguicula had several open flowers. Unable to resist, I scooped up two or three tufts for a friend's Fern dish, which I knew was ready full of Sphagnum awaiting treasures, and attached to these plants were a few tiniest specimens of Drosera not so far on as those in the peat-moss, but visible against the light green Pinguicula. How they both thrive and feed I shall hear in time, for a larder was also in readiness, and experiments to commence at once.

Pteris aquilina was found only in tight loops through the grass, so firm that they broke when one tried to unbend them and see which end was the root. In many places where the Brackens were farther on, they were, I observed, browned with the frosts. Saxifraga hypnoides was in flower near the summit, but very dry, and more like those in our spring border than when growing in its native spot. A quantity of Parsley Fern (Allosorus crispus), on the contrary, was in the freshest beauty, the whole face of the hill consisting of loose stones, and the Ferns luxuriating among them, the only green patch on the dry hill. It is one thing to see these three small Ferns I have named in their native localities and another to see them when stuck into red flower-pots. Determined to carry off a good clump for my friend, without using spud or knife, I removed stone after stone, until the mat of roots (not merely those of the Fern) came away of itself in a mass, leaving behind a burrow large enough for a hill fox or coney at least.

Down again by the river (Annan), where there are some nice still pools running up from its banks, the very pretty and interesting Ranunculus aquatilis, (various-leaved Water Crowfoot) was on the surface, and preparing to bud; but as it did not yet require the peltate leaves to support the flower while ripening its seed, the hairy water leaves were only at this time seen: next month the whole pool will be white with the blossoms, a large spot of yellow lying at the base of each petal. The common Chara was lying lazily at the bottom; it is far prettier in gently running water, which keeps it free from mud, and as it were combs it all the same way, swaying gracefully with the ripple, and one can see the fairy-like plant with ease. Arundo Phragmites with broad blue-green leaves, Juncus and Carex of sorts, were also here to be found, but none of these were in flower. On the dry light land by the river was the soft downy Anthyllis Vulneraria (Kidney Vetch), just bursting, and Thyme with round grey flower head—none open.

We are much warned now-a-days against violent contrasts in shape or colour in the garden. All is to be gradual and toned down, but here are groups noted on the spot that must satisfy the eye (for Nature always does that), and yet they go completely against some of man's stereotyped rules:—

Foliage alone.—Clump of sword-leaved Iris, round-leaved Caltha *, Fern-like Meadow Sweet, Bracken and Foxglove, Comarum and Carex; Tussilago Petasites (largest native leaf), Tansy, and Avena sterilis.

Colour in Masses.—Pink Lychnis, yellow Rhinanthus; pink Lychnis, Buttercups; purple Geranium, yellow Trollius; purple Vetch, yellow Lathyrus; pink Lychnis, white Stellaria; white Cotton-grass, red Sorrel; Thyme, Crowfoot, and Cistus; Foxgloves, Meadow Sweet; Hyacinths, white Umbellifer; Forget-me-not, green Pondweed; purple Selfheal, Buttercups; blue Scabious, orange Hieracium; yellow Galium, blue Campanula; yellow Mustard, red Poppies; yellow Tormentilla, white Galium, purple Thyme, blue, white, and lilac Polygala—a charming mosaic; pink Lousewort, golden Caltha. I had better end with Daisies and Buttercups.

F. J. Hope, Wardie Lodge, July.

THE FARM.

Harvest Prospects: Wheat.—Careful observations have been made from time to time of the growing corn, and, as this has progressed, we have had to report a somewhat goodly promise. It is true that the unusually dry summer has resulted in a sobering down of opinion as regards the probable yield on some of the heavier and best wheat lands. The truth is that the stiffer soils crack up under the influence of a scorching sun and drying winds, by which means the roots of the Wheat plant are broken off, and, as we have this year seen how, the flowering culms have turned white, and the ear, devoid of any swollen grain, has assumed the appearance of a premature and sickly ripeness.

When this is the case, not only has a large deduction to be made for starved and scrawled Wheat plants, but a still larger one for small ears and half-starved grains over the greater part of fields so situate. So much, indeed, has the soil been found to crack during the summer of this year that we have heard of a farmer hiding his walking-stick by placing it down upright in a fissure made in a wheat-field on the Oxford clay; and everywhere we hear of young partridges having perished by falling into *crevasses* of this kind. Hence, then, the yield of the stiffer soils will not be more than an average, but, on the contrary, the lighter sandy loams have a promise much beyond that which they usually present; so that, on the whole, judging from the appearance of the ripening plant, we were able to predict an average yield of Wheat. This yield, too, gave all along a promise of not being seriously interfered with by insects. Never do we recollect a season in which insects have been so scarce as a rule; the Wheat ears have scarcely been visited by either Hessian fly, aphis, or larvæ of moth. Whether this paucity of insect life is the cause of the great scarcity of the Hirundines, or the swallow tribe of birds, this season, we cannot say, but we have seen our native insectivorous birds dying in all directions from the combined want of both food and water.

Well, harvest is in full progress, and the hook and reaping-machine have certainly so far prepared a goodly array of Wheat stooks, and as we look carefully into them we are made aware of the fact that the ears are mostly long, especially where early and thin sowing has been the rule, and they are what the farmer calls full-chested, that is, the locustæ or bunches on the rachis-ear are spread abroad by reason of containing from three to four plump grains, and as all the grains are plump, we may look for each ear to yield well.

The full fecundity of the whole ear is again a point of great importance, for in the generality of seasons it will be found that there will be half a dozen totally barren locustæ at the base of each ear, but this year two, or at most three, of these will represent the deduction to be made under this head.

In late thickly-sown Wheat the ears are but small, and there will be much of what is called bee Wheat, but the thin-sower, even though late, if he has not so many straws or horizontal increase, will more than make up with a vertical elongation and a larger grain. We have this year an early piece of white Essex Wheat drilled in 10 inch rows, which certainly beats that drilled 7 inches apart; and a plot of Golden Drop drilled at wide intervals will well compare with the same kind in the same field sown quite early, but with 7 inches only between the drills.

So far, then, as progress towards the in-gathering of Wheat has enabled us to judge, we predicate a good harvest. It still remains for the final and crucial test of the bushel to determine this important matter, and as we see that in former years a large over-estimate has been made of the probable yield, so now we feel convinced that, from the general absence of diseases and blights, both the yield and quality of the present season will justify our expectations.

Notices of Books.

Science Primers: Physiology. By M. Foster, M.D., F.R.S. (Macmillan).

This is one of the series of elementary manuals on scientific subjects published by Messrs. Macmillan, and compiled by men of the first eminence in their respective departments. The present volume is a worthy companion to the others, and in saying this much we are paying it and them a well-merited compliment. Dr. Foster's little volume comprises an introductory chapter showing the reason why animals are warm and move about—the physical reasons, in fact, which supply the answer to the inquiry how and why they live. Then follow chapters descriptive of the parts of which the body is made up, what takes place when we move, the nature of the blood, and how it moves and is changed by the act of breathing, and of digestion, and how it gets rid of waste matters. A final section is devoted to the inquiry, "How we feel and will."

As the information conveyed in this book is of the utmost importance to every one of us, and as it is conveyed in the simplest, clearest manner possible, we cannot too urgently recommend all school teachers at once to make themselves masters of its contents, and instruct their pupils accordingly. The interest that all children feel in animals, their too prevalent tendency towards cruelty to them—nay, even their sense of enjoyment in their own life, are all so many indications that a knowledge of the structure and mode of action of their own bodies and those of animals might very readily and pleasantly be taught them. The value of such knowledge no thoughtful person will for a moment doubt. One reason why even well-educated persons know so little about what is of supreme importance to themselves may be found in the fact that hitherto works on physiology worthy the name have been addressed almost exclusively to professional and medical students. This defect is remedied by the publication, among others, of such works as Huxley's *Lessons in Elementary Physiology*, to whichthe present treatise may be regarded as introductory. We cannot too strongly urge all teachers and all parents to avail themselves of the means now placed within their reach of acquiring a knowledge so essential to the preservation of a sound mind in a healthy frame.

Compendio della Flora Italiana; compilato per cura dei Professori V. Cesati, G. Passerini, e G. Gibelli, con un atlante di circa 80 tavole, &c. Milan: Francesco Vallardi, Via del Fieno 3. (Compendium of the Italian Flora, &c.)

This constitutes a portion of a magnificent work now in progress, and devoted to the history of Italy in its historical, political, literary, artistic, and scientific aspects. The *Compendium of the Italian Flora* contains brief descriptions in Italian of the genera and species of Italian plants arranged according to the natural method, the species being arranged according to the analytic method, wherein the name of a species is attained by a gradual process of elimination or exhaustion. The plates are engraved on metal, and contain analyses of the several genera. Fourteen fascicles have already been published, containing 320 pages of letterpress and thirty quarto plates, bringing the plants mentioned, from Equisetaceæ (with which the work commences) to Labiatæ. The work is of a very important character, and forms a valuable adjunct to Professor Parlatore's classical *Flora Italiana*. The analyses of the genera are the work of Professor Gibelli, and are of great utility.

—— A seventh edition of the *London Catalogue of British Plants* has been issued, under the editorship of Mr. H. C. Watson (Hardwicke). The convenience and utility of this catalogue have long since been proved to be incontestable. We can only heartily regret that it has been found necessary to alter the original series of numbers. Two lists are given at the end, one including "Aliens, casuals, waifs of cultivation," &c.; the other "Ambiguities, errors, impositions, and extinctions." It is rather hard to include "impositions," in the list without specifying what are to be so considered and why. Under which category, for instance, is Lycopodium complanatum to be included?

—— The current number of the *Popular Science Review* contains *inter alia* an interesting summary of the Lichen controversy, now agitating the members of the botanical world. The writer (Rev. J. M. Crombie), himself an accomplished lichenologist, is evidently opposed to the "unnatural union between a captive Algal damsel (the gonidium) and a tyrant Fungal master (the hyphæ)," and cites Caspary's three objections—"1. That if the theory were true, the fungus-parasite would, in size and number of cells, exceed many hundred times the nourishing plants, though nothing similar elsewhere occurs in Nature. 2. The theory is impossible, for the algæ in which the fungus is parasitic would display the greatest health and vigour, and at the same time would be multiplied, which is absurd. 3. That the theory is impossible, because the nourishing alga, being entirely enclosed in the fungus evidently can supply to it no nourishment." We do not quite see with Mr. Crombie how these objections are unanswerable, but we must remember that both Mr. Berkeley and Mr. Thwaites have expressed themselves as opposed to this view. On the other hand the recent observations of Mr. Bornet and the inspection of his preparations, have converted some very competent observers to the view originally proposed by Schwendener. To those who are not specialists in this department the best attitude at present seems to be one of judicious scepticism.

—— Among recently published works we may mention—*The Sewage Question*, showing how a disinfecting and precipitating material may be manufactured as a waste product in the soda process, by S. W. Rich, 20, Exeter Street, Strand—*Visite à l'Exposition de Vienne*, par M. Bernardin (Ghent, Annoot-Braeckman)—*Del Brusone o Carolo de' Riso, nota del Prof. Santo Garovaglio* (Milan, Bernardoni)—*Sui Microfiti della Ruggine del Grano*, by the same author—*Relazione della visita eseguita nel giorno 20 Giugno, 1873, al laboratorio di Botanica Crittogamica presso la Università di Pavia, &c.* (Pavia).

* The double variety is most useful for the spring border, and well worth the good soaking it and Trollius of sorts require during this dry season.

Wood Engraving.

MR. W. G. SMITH, Artist and Engraver on Wood, 15, Mildmay Grove, London, N.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., Importers and Manufacturers. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

MARENDAZ AND FISHER, Russia Mat Merchants, 9, James Street, Covent Garden, W.C., Importer of RAFFIA FIBRE, TANNED GARDEN NETTING, &c.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s.*

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

HENRY ORMSON,
Horticultural Builder and Hot-Water Apparatus Engineer,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

THE THAMES BANK IRON COMPANY
(Successors to Lynch White),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

GLASS for HORTICULTURAL PURPOSES is forwarded by Messrs. LOVELL AND CO. to any part of England at considerable reduced prices.

Estimates sent by return of post upon receipt of sizes and thickness. Dealers in all descriptions of Glass, White Lead, Oil Colours, and Varnish.

LOVELL AND CO., 53, Red Lion Street, Holborn, London.
Established over one hundred and fifty years.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of
CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

COCOA-NUT FIBRE REFUSE, sifted and carefully prepared solely for Gardening purposes by JAMES STEVENS. Invaluable for Forcing and Plunging Plants in. Especially nutritious for Gardens in Summer, retaining its moisture under great heat, and imparting an agreeable colour. Price 9*d.* per bushel; 20 bushels at 5*d.* per bushel; 100 bushels at 4½*d.* per bushel.

JAMES STEVENS, Fibre Works, York Terrace, High Street, Battersea, London, S.W.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c. TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.* NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 1*s.* per yard; ¾-inch mesh, 4 yards wide, 1*s.* 6*d.* per yard. TIFFANY, 6*s.* 6*d.* and 7*s.* 6*d.* per piece of 20 yards.

EATON & DELLER, 6 & 7, Crooked Lane, London Bridge

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	.. ..	3*s.* 4½*d.*
3-inch Pipe, per yard	.. ..	2*s.* 8½*d.*
2-inch Pipe, per yard	.. ..	1*s.* 8*d.*

Connections at proportionate prices.
Illustrated Price List free on application to
T. G. MESSENGER, Hot-water Engineer, Loughborough.

THE LONDON MANURE COMPANY
(Established 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY Limited).

MILDEW.

The best and most easily applied composition for the Prevention and Destruction of Mildew is

EWING'S INFALLIBLE COMPOSITION. Can be had retail through all Seedsmen and Florists, in bottles holding about ¾ pint, sufficient to produce 8 gallons of fluid fit for use, at 1*s.* 6*d.* per bottle; or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, carriage paid to any Railway Station in the United Kingdom for 24 penny postage stamps.

MR. JAMES FRASER, Horticultural and Agricultural Valuer and Auctioneer, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

PROTHEROE AND MORRIS, Horticultural and Market Garden Auctioneers and Valuers, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

Leighton Buzzard, Beds.

TO BE SOLD, the unexpired term in a LEASE (upwards of 40 years to run, at a moderate ground rent) of FOUR substantially-built and well-arranged RESIDENCES, with good gardens, in a healthy locality, standing on an eminence, commanding extensive views, and in the centre of a hunting district, within an easy distance of London, and 15 minutes' walk from the London and North-Western Railway. Full particulars to be had on application to

Mr. J. DOUGLAS DICK, Secretary's Office, Royal Horticultural Society, South Kensington, S.W.

Important to Fruiterers, Greengrocers, Seedsmen, and FLORISTS (fol. 1926).

TO BE DISPOSED OF, a first-class and very extensive BUSINESS in the above line, situate in one of the most flourishing Watering-places on the South Coast, and in the principal thoroughfare. It has been most successfully carried on for upwards of forty years, and is the oldest establishment in the Town. The returns exceed £10,000 per annum.

Further particulars, and Cards to view, may be obtained of PROTHEROE AND MORRIS, Auctioneers and Estate Agents, 98, Gracechurch Street, City, E.C.; and at Leytonstone, E.

Midland Counties (1927).

Occupying a capital position in a large and flourishing Town.

A LUCRATIVE SEED BUSINESS, with a Good Connection. The Stock in Trade (which is limited) and the Shop-fittings by valuation.

For particulars, apply to Messrs. PROTHEROE AND MORRIS, Horticultural Agents, 98, Gracechurch Street, E.C.

SALES BY AUCTION.

Third Great Sale of the Meadowbank Orchids.

MR. J. C. STEVENS has been instructed by the Executors of the late Mr. Thomas Dawson to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, THURSDAY, and FRIDAY, August 5, 6, and 7, at half-past 12 o'Clock precisely each day, the third portion of the great Collection of ORCHIDS grown at Meadowbank. Among these will be offered some of the largest specimens of the collection, and some species and varieties of rare and beautiful character. The finest specimen and the finest variety of VANDA BATEMANNI GIGANTEA in Europe, the plant being over 10 feet high, in perfect order, with four strong beaks, each a good plant of itself, and the variety, as to size and colour of flower and length of raceme, quite unrivalled. Along with the above will be offered some magnificent plants of ANTHURIUM SCHERZERIANUM, with numerous brilliant spathes, quite in first-rate ornamental order, one of the varieties being a totally new and distinct one, of marked dwarf habit, and of unusual length and brilliancy of spathe. Most of the lots to be offered are in superb health; many of the plants (both as regards health of plant and quality of flower) are quite unique. There are 900 lots included in this sale, and are all to be sold without the least reserve.

Full particulars and detailed Catalogues to be had on and after July 20, of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, London, W.C.

Cattleya Mendelii, Phalænopsis intermedia, P. SCHILLERIANA, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, August 10, at half-past 12 o'Clock precisely, imported plants, in quantity, of CATTLEYA MENDELII; amongst them are the finest masses hitherto offered, containing twenty, thirty, and forty bulbs each, with numerous young growths, and, altogether, in the finest possible condition. Also an importation, just to hand by Royal Mail Steamship Tasmania, consisting of fine plants of LÆLIA SUPERBIENS, PESCATOREA CERINA, CATTLEYA SKINNERI, TRICHOPILIAS, SOBRALIAS; also strong growing plants of PHALÆNOPSIS INTERMEDIA, P. SCHILLERIANA, and P. LUDDEMANNIANA.

On view the morning of Sale, and Catalogues had.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,
MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.
JOHN BESTER, Manager.

NEW PLANT CATALOGUE 1874,
Gratis and Post Free.

B. S. WILLIAMS'
NEW PLANT AND GENERAL
CATALOGUE OF NURSERY STOCK
Is now ready, and will be forwarded to all applicants.

It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

GLAMORGANSHIRE HORTICULTURAL SOCIETY.—The TWELFTH ANNUAL SHOW of PLANTS, FLOWERS, FRUITS, &c., will be held at Cardiff, on WEDNESDAY, August 19. About £300 will be given in prizes. Twelve Stove and Greenhouse Plants, in pots, £15, £10, £5; Roses, blooms, eighteen varieties, £3, £2, £1; Dahlias, blooms, twenty-four distinct kinds, £3, £2, £1; Gladiolas, two spikes, twelve distinct varieties, £2 10*s.*, £1 10*s.*, 15*s.*; Roses, Tea-scented, £2, £1, 15*s.*; Hollyhocks, £2, £1 10*s.*, £1. Schedules, &c., upon application to

Cardiff, July 1. HENRY BOWEN, Hon. Sec.

WORCESTERSHIRE AGRICULTURAL SOCIETY.

MEETING at DUDLEY, on AUGUST 25, 26, and 27.

President—The Right Hon. the Earl of Dudley.

A GRAND HORTICULTURAL EXHIBITION, in connection with the above, will be held in the SHOW GROUND, at Dudley, when Prizes to the amount of nearly £200 will be offered.

Prizes are also offered for competition to all Cottagers residing in Worcestershire and within 12 miles of Dudley. Entries close August 18.

For Schedule of Prizes and Rules, &c., apply to ALBERT BUCK, Secretary, Worcester; or to J. S. HAYWOOD, Nurseryman and Seed Merchant, 26, Broad Street, Worcester, Hon. Sec. to Horticultural Show.

The Best Hardy Bedding Plant.

CLEMATIS JACKMANNI.—Flowers rich purple, 4 inches across, and so profuse as to completely cover the bed. Begins to bloom in June, and continues until severe frost. It is perfectly hardy, and the stools improve annually. The only secret of success is a rich soil, to keep up free growth. 12*s.* per dozen. Other sorts of Clematis and Climbers in great variety. Descriptive LIST on application.

RICHARD SMITH, Nurseryman, Worcester.

To the Trade only.

A. M. C. JONGKINDT CONINCK'S WHOLESALE LIST, including a fine stock of Maiden Apples, Pears and Plums, Moss Roses, Dwarf, Half-standard and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants, is now ready, and will be sent, post free, on application.

Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

Early Flowering Iris.

E. H. KRELAGE AND SON, Nurserymen, Seedsmen, and Florists, Haarlem, the Netherlands, are now ready to send out the following extra ornamental and rare IRIS, flowering in the early spring, viz.:—

IRIS RETICULATA (Bieb.).—The true dark-blue, sweet-scented sort, as figured in "Regel's Gartenflora," December, 1873. Good bulbs, 1*s.* each, 10*s.* 6*d.* per dozen, 72*s.* per 100, 700*s.* per 1000.

IRIS KRELAGEI (Regel).—With purple flowers, only a few days later in bloom than I. reticulata. Figured in "Regel's Gartenflora," December, 1873. Good bulbs, 7*s.* 6*d.* each.

IRIS HISTRIO (Reichenb. fil).—With light blue flowers, of a delicate odour; opening in the middle of January in the open ground. Figured in the "Botanical Magazine," tab. 6033, May, 1873, as Xiphion Histrio (T. D. Hooker). Offered now for the first time to the trade. Good bulbs, 21*s.* each, 190*s.* per dozen.

Discount to the Trade. Please send Orders immediately to E. H. KRELAGE AND SON, Haarlem, the Netherlands.

Choice Seeds of Prize Flowers (Post free).
SOW NOW.

MR. WILLIAM BULL recommends the following:—

	Per packet. s. d.
PRIZE PRIMULA SINENSIS, Red and White.. each	2 6
PRIZE PRIMULA SINENSIS, Fern-leaved, Red and White .. .. each	2 6
PRIZE PELARGONIUM, Gold and Bronze	2 6
PRIZE CINERARIA	2 6
PRIZE CALCEOLARIA	2 6
PRIZE GLOXINIA..	2 6
PRIZE BEGONIA, handsome-flowered..	3 6
PRIZE AURICULA, Alpine	2 6
PRIZE CARNATION	2 6
PRIZE COLEUS	2 6
PRIZE FUCHSIA	2 6
PRIZE PETUNIA	2 6

Establishment for Choice Seeds and New and Rare Plants, King's Road, Chelsea, London, S.W.

To the Trade Only.

E. H. KRELAGE AND SON, Nurserymen, Seedsmen, and Florists, Haarlem, the Netherlands, are publishing a New Series of the Wholesale CATALOGUE of their Horticultural Establishment; it will be published in different parts, which together every year will form a volume. The first volume, for 1874—75, is the sixty-fourth year of the establishment of the firm. The first part, containing Dutch Flower-roots, Hyacinths, Tulips, Crocuses, Narcissi, Fritillarias, &c., has been generally distributed, and will be sent post free on application.

An American Edition of the said Catalogue will be sent to the Trade of the United States of North America, post free, on application.

DOUBLE FLOWERED CINERARIA.—This Novel Strain has received *a Silver Medal at the International Horticultural Exhibition at Florence*; First-class Certificate from the Royal Horticultural Society, Kensington. Packets of Seed, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Also

PRIZE STRAINS

of Primula, Calceolaria, Pelargonium, Cyclamen, Gloxinia, Begonia, Cineraria, Fuchsia, Coleus, Auricula, Carnation, and Petunia; each 2*s.* 6*d.* per packet.

MR. WILLIAM BULL'S
Establishment for Choice Seeds and New and Rare Plants, King's Road, Chelsea, London, S.W.

Just Arrived.

FRESH SEED of the SPLENDID and VALUABLE NEW GREENHOUSE PALM, from Lord Howe's Island, PTYCHOSPERMA ALEXANDRÆ. 10*s.* per 100, £4 per 1000.

Also fresh Seed of SEAFORTHIA (PTYCHOSPERMA ELEGANS. 5*s.* per 100, £2 per 1000.

The delicious Tropical Fruit, GARCINIA LIVINGSTONI. Fresh seeds, £1 per dozen.

NELUMBIUM SPECIOSUM, fresh seeds, 6*s.* per dozen.

NELUMBIUM LEICHHARDTII, fresh seed, 12*s.* per doz.

Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Noteworthy Horticulturists and Botanists.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6*d.* each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.	JAMES BATEMAN, F.R.S.
W. WILSON SAUNDERS, F.R.S.	BERTHOLD SEEMANN, Ph.D.
Rev. M. J. BERKELEY, F.L.S.	ARCHIBALD F. BARRON.
M. DECAISNE.	Hon. MARSHALL P. WILDER.
G. F. WILSON, F.R.S.	JOHN GIBSON.
Dr. MOORE, of Glasnevin.	Professor ASA GRAY.
Professor REICHENBACH.	I. ANDERSON-HENRY.
Rev. S. R. HOLE, M.A.	Professor KARL KOCH.
E. J. LOWE, F.R.S.	Baron VON MUELLER.
JAMES MCNAB.	JOHN SMITH (Kew).
ROBERT HOGG, LL.D.	Professor WESTWOOD.
Dr. REGEL.	Dr. THWAITES.
	Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W.C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5*s.* 11½*d.* | Six Months .. 11*s.* 11*d.*
Twelve Months .. £1 3*s.* 10*d.*

FOREIGN SUBSCRIPTION.

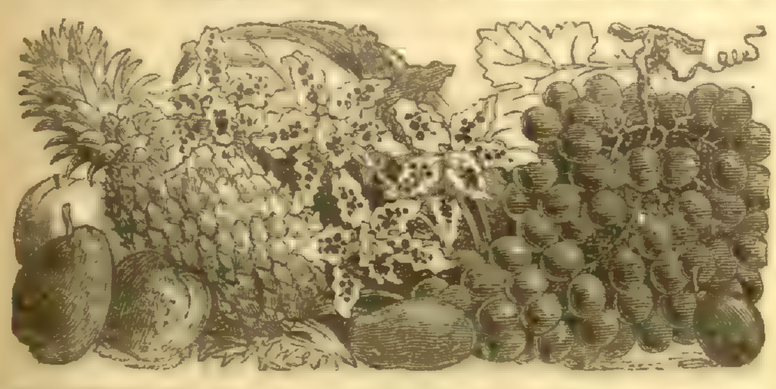
£1 6*s.* *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10*s.* 4*d.* *for* 12 *months, including postage to*—
AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14*s.* 8*d.* *for* 12 *months, including postage to*—
RUSSIA, ITALY, DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.



THE

Gardeners' Chronicle.

SATURDAY, AUGUST 1, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Aug. 3	Southampton Horticultural Society's Show. Woburn Horticultural Society's Show. Heywood Horticultural Society's Show.
TUESDAY,	Aug. 4	Whitwick Horticultural Society's Show. Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Aug. 5	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M. Ilkeston and Shipley Horticultural Society's (two days) Show. Sale of the Third Portion of Mr. Dawson's Collection of Orchids, by Mr. Stevens (three days' Sale).
THURSDAY,	Aug. 6	Felton Horticultural Society's Show.
FRIDAY,	Aug. 7	East Neuk of Fife Horticultural Society's Show. Aldborough and Boroughbridge Horticultural Society's Show.
SATURDAY,	Aug. 8	Horninglow Horticultural Society's Show.

THE recent exhibition of WINDOW GARDEN PLANTS grown within the limits of the City of London (p. 148), and held in the garden of the Drapers' Company in Throgmorton Street, is of interest on many accounts. We shall say nothing here of the moral and physical benefits of such exhibitions under such circumstances, as they are generally admitted, and we trust they will speedily flourish by virtue of their own merits, and be able to dispense with the now indispensable patronage of those rich in social station and in this world's goods. They are rendering, and have rendered, great services to the movement, but if it is to be a genuine healthy undertaking, endowed with permanence, it must learn to depend on its own resources, else it will ultimately degenerate into a sham which will benefit no one. At present, however, such exhibitions must necessarily be mainly dependent on the good feeling and generous aid of the upper and middle classes, and we are sure they will be forthcoming as long as there may be necessity for it. Our only fear is they may be prolonged beyond what is essential for healthy independent existence.

There is one point, however, in which aid will always be welcome, and that is in the furnishing a suitable site for such displays, and this leads us to notice the rumour, which we sincerely hope is not true, that the Drapers' Company propose to sell this secluded garden for building purposes. Of course it would be absurd to suppose that the holding these shows should be adduced *per se* as a reason for maintaining these gardens. There are, however, other considerations of public welfare to which the Company should not be indifferent. It is impossible to over-estimate the present and prospective advantages to the public of open spaces and recreation grounds in our large towns. It is not a question of what is pleasant and agreeable, it is a question of public morals. If these be neglected we all know what follows. The result may not be seen immediately or directly, but sooner or later the whole population, more or less, suffers from the neglect, and not those only who are immediately answerable for the neglect.

It is difficult to suppose a more favourable opportunity for doing a great public good than that which it is now within the power of the Drapers' Company to effect by improving and throwing open to the public this acre or two of open ground. Even as it stands, the quaint contrast it affords to the busy world all around is grateful and striking. What casual visitor would dream that within a stone's-throw of the Bank and the Exchange such a garden existed with its green turf, its Plane trees and Mulberries, and specially its really fine display of Water-Lilies? We are accustomed to think of such things in connection with Oxford Colleges, and the London public is also familiar with the Temple Gardens, but not one in a hundred knows of this quiet sequestered nook off Throgmorton Street.

Some of the City Companies, finding their occupation gone, and being still in possession of large incomes, are casting about to see what good they can do beyond the promotion of good fellowship, and the welfare of cooks and purveyors. The Turners' Company has of late specially distinguished itself by making public recognition of the services of eminent men of science, and the Drapers' Company might well do an acceptable service by renovating and making over for the public good their little oasis known as "Drapers' Gardens." If it be true, as is generally reported, that the Company is very wealthy, there can be no financial or personal reasons for destroying this garden. By doing so, they will lay themselves open to universal reprobation, by adopting the opposite course they will maintain unimpaired those traditions of enlightened liberality on which City Companies as a rule may fairly pride themselves.

WE are delighted to find that our remarks on the desirability of a more tasteful ARRANGEMENT of our FLOWER SHOWS, and of ROSE SHOWS and FRUIT SHOWS in particular, have elicited further remarks from one well qualified to express an opinion on the subject. We will add no further remarks of our own at present, but simply insert the letter we have received from Mr. GEORGE PAUL, of Cheshunt :—

"You will well understand that your remarks on the more picturesque arrangements of the flowers at Rose shows are to none more welcome than to the leading exhibitors of Roses. Anything that can render the Rose shows even more popular than at present, and which would relieve the, to all of us, somewhat painful monotony of existing arrangements, will receive our heartiest support.

"But your remarks seem to me to cast a slur on those of us who have for years taken the principal places at the competitive exhibitions, for not having made an effort to carry out such improvements as you urge.

"This is hardly correct, as it has been from no fault of suggestions on the exhibitors' parts that advance has not been made.

"A few years since I personally suggested to Mr. WILKINSON, of the Crystal Palace, the introduction of baskets of 100 blooms of one variety, to produce masses of colour either artistically arranged or for the effect such masses of colour do produce.

"From the remarks of more than one exhibitor whom I have met this year, these masses were, I learn, considered effective, and more than one person recalled a basket of 100 flowers of Marie Baumann, shown by my firm, as still lingering in his memory. The competition, however, was not, I believe, sufficient to lead the managers to continue to offer the liberal prizes they gave.

"The reason of this want of competition is clear, and will be apparent more or less at every competitive show. You remark that the exhibitor whose display led to your criticisms 'was for the occasion an autocrat,' and you might have added, 'had no schedule to hamper him, no policeman to turn him out at 10 o'clock, and no need for any special selection of fine flowers to beat his competitors.'

"In proof of there being no necessity for the selection of fine blooms in such an exhibition, I have only to turn to the list of Roses given by you, and to say that blooms of kinds such as Madame Plantier and Mrs. Bosanquet have not for years found place at a Rose show, presumably from their want of quality, and their consequent inability to teach any lesson as to form and quality.

"The fact of having to compete with other exhibitors would have excluded such Roses from the exhibition; the finer sorts of whites, as Madame Lacharme, Mrs. B. Kerr, Mademoiselle Bonnaire, which in all good nurseries are now much more extensively grown than Madame Plantier, &c., would have been used.

"Of course, if the authorities would so alter the schedules, and make the highest prizes to be those for the best-arranged groups of cut Roses in a given space, we exhibitors shall all willingly try our best to gain the same high positions we have severally occupied for the 'seventy-two's' and 'forty-eights' in the present square boxes; but while the leading prizes remain the same, and to win the 1st prize for seventy-two's is the blue riband of the Rose grower, all his personal energy and attention will be given to those classes.

"Whether the exhibition of masses would serve the high educational purposes which the production of the perfect blooms we have aimed at has done, is another matter; a comparison of the amateurs' stands of past times, and of the last two or three years, not only at the metropolitan but at local Rose clubs and shows, prove that those of us who have troubled ourselves to carry here and there fine examples have not taught in vain.

"I have only to add, that such an exhibition as you recommend would require to be held at a later date than that of the present shows. For the exhibitions of the end of June no sufficient quantities of first quality blooms could be cut, while for the past week my firm would have had no difficulty in making a show containing at least 20,000 fine blooms, and I have no doubt my colleagues, Messrs. CRANSTON, CANT, or TURNER could do likewise.

"As before stated, any practical suggestion would be welcomed, but as a proof that such an exhibition as you described would exceed the powers and opportunities of many managers, I may state that, accidentally hearing in Paris that a general Rose decoration of the tent at the Botanic was proposed, my firm applied for space and was refused—all idea of competition under such circumstances being evidently impossible.

"The number of Rose exhibitions is large and space is generally limited, and, to instance one Rose exhibition, the South Kensington arcade is not particularly suited for such displays.

"Should you care for it I should be happy next week to forward you the result of a conversation and novel suggestion for a Rose, show which took place in a pleasant Exeter drawing-room during the past season. [Please do.] GEORGE PAUL.

"P.S.—One of my last walks with the late Mr. CHARLES PERRY was in York Minster, awaiting the decision of the judges at the York Show. It struck us naturally what a fine place for a Rose show the nave would be [!]. I think that Roses were to be grouped on semicircular tables at the foot of the great nave pillars. The introduction of the flowers seemed at the moment to rob the thought of all incongruity and irreverence."

We are glad also to have this opportunity of rectifying an omission in our previous remarks, in which we inadvertently failed to do justice to the praiseworthy efforts of Mr. WILLS. On this point we can endorse what is said in another column.

—— LITTLE has hitherto been known of the RESOURCES OF THE BALEARIC ISLANDS, but from a collection of their products exhibited at the late Vienna Exhibition we learn that the soil of those islands is not only fertile, but that the people are acquainted with the demands of European commerce, for, besides the purely natural products, as Peas, Beans, Millet, Saffron, Carob beans, Almonds, dried Figs, Capers, &c., there appeared preserved milk, and milk preserved with coffee. The effect of the use of sulphur in checking the oïdium disease of the Vines has been to deteriorate the quality of the wines, but a considerable improvement has recently taken place both in quality and flavour. An important trade has also grown up in the district of Soller, in the preservation of Figs, in which commerce the vessels formerly engaged in carrying Oranges to France are now occupied. The Orange crops are beginning to show signs of improvement, and it is

hoped that the worst of the disease which destroyed the trees is over, but it will be some years before the exports in this fruit return to their former figure. The manufacture of canvas, rope, and cord in Majorca is being carried on on a large scale, new factories having been lately constructed for the purpose, and fibre is now imported from Manilla for the manufacture of Manilla rope, which bears a favourable comparison with that made in the United States. The Spanish navy was lately entirely supplied with rope made at Palma.

—— Since the introduction of the system of hermetically sealing perishable articles in tins for shipment on long voyages, the increase in the variety of CANNED GOODS has been immense; meat from Australia was the first article to excite special attention, and though a large and constant trade is now carried on with that distant colony, a still larger traffic is conducted with America, which supplies us with an almost endless variety of preserved articles. To take fruits and vegetables only, as being more immediately within our province, Strawberries, Peaches, Beans, Peas, Tomatos and Cranberries are largely gathered and packed in tins and sealed down. This busy season is said to commence about the middle of May, the Strawberry being the first fruit to ripen, after which others follow in rapid succession, until the season closes early in October. It is estimated that in Baltimore during the season of 1873 about 20,000,000 cans of fruit and vegetables were so preserved, about one-third of which were Peaches. This quantity, large as it may appear, seems to be only sufficient to supply the demand, which has increased very rapidly of late. The packing of fruits and vegetables affords employment for a number of women and children. A quick woman, it is said, can earn 1½ dollar per day, and the work is light.

—— A magnificent example of AGAVE AMERICANA is flowering at Kew. The panicle has grown through the roof of the succulent-house, and forms a very striking object as seen from the outside. The height from the base of the plant is 22 feet, and from the lowest branch 9 feet 4 inches. The greatest diameter is 4½ feet. Its stem first appeared about four months ago, when the plant measured 12 feet across. The leaves are shrunken and hang down, the sap being appropriated by the inflorescence. It is perhaps not the typical A. americana, the deviation, however, is slight. No exact estimate can be formed of its age, but it is surmised that it is from seventy to one hundred years old.

—— Although the VINTAGE IN MESSINA during the past year (1873) was almost an entire failure from the prevalence of the Vine disease, it is satisfactory to learn that the disease has now nearly disappeared; the Vines, however, are still subjected to sulphurisation, so there is every chance of the pest being effectually stamped out. With regard to Lemon trees we are told that "the disease among the Lemon trees would have continued its ravages, but there are scarcely any more Lemon trees to destroy"—a sufficient reason certainly for its diminution. On the other hand we learn that "the new Lemon trees are now coming forward, and the disease has no effect upon them."

—— Messrs. BUNYARD, of Maidstone, report to us very favourably of RIVERS' EARLY PROLIFIC PLUM, and send samples taken from a standard tree to show how well-merited is the epithet "early. Some fruits have been ripe for a week, while Early Orleans is still green. The tree, which was planted in 1850, has never failed to bear, though this year, owing to the abundant crop, the individual fruits are small.

—— A large specimen of the beautiful FREMONTIA CALIFORNICA, which flowered profusely this spring at Kew, is now bearing ripe fruit. As it is still very little known, we may repeat here that it is a deciduous shrub with small lobed leaves and handsome pure yellow flowers, about 2 inches in diameter. The petals are absent, and the coloured portion is the calyx, which is furnished at its base with three bracts having much the appearance of a true calyx. The plant in question is growing against a wall, but we should think from its native habitat—the northern part of the Sierra Nevada of California—that it would succeed without such protection, though this has probably been tried.

—— Mr. R. BULLEN, of the Royal Botanic Garden, Glasgow, informs us that he has recently had a plant of LILIUM AURATUM bearing twelve perfect flowers, and one with ten petals, forming a double row, the inner five being much broader than the outer ones; this flower had also ten stamens. Other instances of double and semi-double flowers in this species have from time to time been recorded.

—— Mr. G. H. WOLLASTON writes as follows:—"I noticed the other day a remarkable variety of the PELORIA OF LINARIA (fig. 29). The flower in which it occurred was, as usual, one of the lower flowers of the spike, and I could not find any other pelorias on the plant. Instead of having five spurs this flower had six, and also six sepals. From among the sepals arose a short stalk bearing a calyx of five sepals and a pistil, and from between the two anterior spurs there arose a small purple stalk bearing a short purple limb. Below (above) the spurs were six upper lips united by their edges, and bearing between them seven fertile stamens. There was not any pistil, but the axis was prolonged into a stalk bearing many small buds on it. The lowest of these buds had expanded into a small purple limb, very like the one between the spurs, but the others seemed

FIG. 29.—PELORIA, ETC., IN LINARIA.

to be in all respects perfect flowers. The figures are about twice and a half the size of the original." This curious case is apparently due to the production of axillary and median prolification in addition to irregular peloria.

—— Mr. BANTING, of Bonchurch, has forwarded us a branch of PRIVET, whose peculiarity appears

FIG. 30.—SPINY BRANCHES OF PRIVET.

to consist in the arrested growth of the branches and their development in the shape of stout spines, as shown in our figure (fig. 30).

—— The following particulars, gleaned from the daily papers, and relating to a NEW TOWN FOR WORKMEN, will be read with interest. The estate, which bears the name of Shaftesbury Park, in honour of the persistent efforts to improve the condition of the working classes made by Lord SHAFTESBURY, comprises 40 acres of freehold land, in the parish of St. Mary, Battersea, situate at Lavender Hill, near Clapham Junction station. A large portion of the estate is laid out for building purposes; some of the principal roads being completed, and others are being formed. It is the intention of the directors to erect 1200 houses on this estate, together with schools, lecture-hall, baths, &c., and 3 acres of land in the centre will be appropriated to recreation and pleasure grounds, including a site for co-operative stores. They also propose eventually to build a railway station on the property. The houses are built in four classes, containing five, six, seven, and eight rooms respectively (the latter including a bath-room), at the weekly rental of 5*s.* 9*d.*, 6*s.* 9*d.*, and 8*s.*, and the best class, £26 per annum—which sums, except in the best class, include rates and taxes; but if the tenant buys the house, the rates and taxes and ground-rent have to be paid by him in addition to the purchase-money. The purchase price of the houses ranges from £150 to £310, on a lease of 99 years, subject to an annual ground-rent of £2 12*s.*, £3 3*s.*, £3 12*s.*, and £4 4*s.*, according to the class of house. We believe the sanitary arrangements have been well attended to, and there is every reason to believe not only that the scheme will answer the purpose for which it was intended, viz., that of supplying healthy decent homes for artisans, but that it will also pay commercially.

—— At the recent SALE by Mr. STEVENS of the fine collection of STOVE and GREENHOUSE PLANTS, ORCHIDS, &c., belonging to JAMES BRAND, Esq., of Balham, the following prices were realised among others:—Phalænopsis Schilleriana, fine variety, £10 10*s.*; Odontoglossum pulchellum majus, £10 10*s.*; Angræcum sesquipedale, £18 8*s.*; Anthurium Scherzerianum, £15 15*s.*; Camellia Valteverado, 10 feet high, £13 13*s.*; pair of Seaforthia elegans, 10 feet high, £17 6*s.* Three splendid plants of Eucharis amazonica, well known to visitors to horticultural shows, fetched £16 16*s.*, £12, and £11 respectively, &c.

CARDOONS

PERHAPS we should not be far wrong in describing the Cardoon as an aristocrat amongst vegetables, so seldom is it grown, comparatively speaking, and then only in large gardens. Nor is this greatly to be wondered at when we consider what an expensive crop it is to grow. It requires an endless amount of supervision and labour from the time the seed is sown until it is finally fit for use. Too much labour or expense in the procuration of good soils cannot be expended on the Cardoon, if thorough success is to be acquired in its culture. First, it would be of material advantage to turn the site selected to grow them upon well over during the early part of the winter, so that frost may exert its beneficial pulverising influence upon it; secondly, when the trenches are taken out, it is highly advisable to add a quantity of fresh and good turfy loam, thoroughly decayed and rich spit manure, and road sand or grit. A soil possessing a somewhat larger share than usual of latent moisture should also be selected in preference to such as is liable to become unduly dry during the more arid portions of the summer.

When the site is chosen, mark out trenches for the reception of the seeds in precisely the same way as for Celery, but with this difference, that they should be as much wider apart as is possible up to, say, 3 feet, which will afford more space and soil for the final earthing-up process. The trenches should be made at least 6 or 7 inches wide, and as deep as is convenient. Though it is possible to sow the seeds upon seed-beds, and transplant them carefully from thence subsequently into permanent trenches, I do not advise that this practice should be followed. Rather is it desirable to sow the seeds in the trenches already formed; and the better way to proceed in doing this is to place about three seeds, an inch or two in depth, at intervals of about 20 inches apart. So soon as the seedling plants are well through the ground, and assume a moderate consistency in regard to strength and probable durability, it will be necessary to thin the plants, which may have been produced in bunches, according to the thickness of the seeds sown out, so that the strongest plants alone be retained singly at the necessary intervals of about 20 inches apart, as already suggested. From this period care must be constantly applied in regard to frequent waterings and maintaining the plants free from weeds, and the soil should be frequently moved around them. This until the plants begin to assume some size and vigour, when thorough good soakings may be advantageously applied about twice a week of good strong manure-water, alternating at about like intervals with heavy clear-water waterings. This kind of treatment must be continued, and especially throughout the dry summer months, and that without any neglect, otherwise the risk is incurred of causing the plants "to bolt" or start into flower, which destroys them irretrievably. I should add that the seeds may be sown during the third or last weeks of April, or, where one permanent sowing alone is made, early in May, and, where a successional sowing is contemplated, at the former time, and again during the first week in June.

During the first week in November, or perhaps the last two weeks of October, the plants will have attained to their full size, and the earthing-up process must then be commenced. First of all go over the rows, for the purpose of tying each plant up separately. Bring all the leaves closely together, straight and upright, and tie them up severally, as neatly and completely as possible. If the crop is needed for very early use it will not be necessary to place any earth

around them in process of earthing them up. In that case procure hay-bands of moderate thickness and length, and, commencing down around the base of each plant, twist the hay-bands firmly around each as closely as possible, and so as not to admit more air than can be helped. I do not suggest that the bands be tightened around the plants as "closely" as possible; this would be too tight, but only that the several windings be kept up together closely, to the exclusion of light and air to the utmost degree possible. Twist the hay-bands around them up as far as the midribs of the leaves go, then proceed a little higher, drawing the more leafy points together to within a few inches of their apex more loosely. When the early rows are thus done satisfactorily, I recommend that dry leaves be placed around the hay-bands to their full height—a simple aid, which will hasten the blanching process materially. In earthing-up the main or more permanent winter crop, hay-bands should be placed in like manner with the above, though they may be less particularly fitted together in view to exclude air, though the soil must be kept from falling through into and amongst the tender crowns. The earthing-up process must be performed in accordance with the time the crop is to last. If it is intended they should stand the winter through, then a good thick bank of earth must be placed around them, such as is sure to protect them against any frosts that may visit them; whilst the soil must be placed rather firmly around their tops. Be careful, however, not to unduly compress these latter to the detriment of the hearts below. *William Earley.*

Natural History.

Tephritis Onopordinis (Parsnip Miner).—The Tephritis Onopordinis, or Parsnip and Celery Miner, is a dipterous fly, more commonly noticed horticulturally in connection with its injury to the Celery than to the Parsnip crop, which last it is stated by Curtis, in his *Farm Insects*, not to have been detected as affecting "materially," but which occasionally, from some circumstances of weather or locality, undergoes an especial attack.

The insect is said to be prevalent to some extent (or, as phrased, in good numbers) in dry seasons in the neighbourhood of Torquay, and a small quantity of Parsnips sown there amongst other vegetables, chiefly for the sake of experiments, have been infested by it during the late drought to what, in a large crop, would be a serious extent.

The injury is caused, as is well-known, by the feeding of the larva between the coats of the leaf, its presence being first noticeable from the dull discoloration and spongy appearance of the separated cuticle—the two coats, as the injury proceeds, separating and forming a large blister; whilst the gradual change in the appearance of the leaf, from the dried brown coats where the injury was begun, to the spongy, blackish green of the recently separated parts, points out the progressive course and the then probable locality of the maggot.

The damage is variable in extent, sometimes consisting only of one or more patches of small size, sometimes extending over the greater part, or even the whole of a leaflet; and the blister may be tenanted by one or two larvæ, but I have never noticed more than three feeding together.

The larvæ are about three-sixteenths of an inch in length, shiny, and described as of a pale green, but in the specimens I have seen they are more commonly of a very pale yellowish colour, sharply pointed at the head and blunt at the tail, and very transparent, so that the internal structure is clearly visible, as also the movement of the contents of the alimentary canal for about two-thirds of its length. The head is armed with a black horny cutting instrument, capable of rapid protrusion and retraction at pleasure, and in shape as in the accompanying cut (fig. 31), somewhat resembling the letter *h* laid with the loop uppermost. The lower part is slightly curved and much enlarged at the extremity, A, bearing some minute teeth on the cutting edge; at the other extremity, B, it gradually passes into the internal tissues, the apparatus being strengthened by a curved process proceeding upwards from it about the centre, and after bending a little forwards at C curling back again into the head, and thus giving a second point of attachment, and consequent additional strength to the instrument. The power of the minute teeth for holding or tearing away what is opposed to them is very observable in dissection, as once entangled in the surrounding substances it is almost impossible to free their hold. The action of the cutter may be easily observed by holding a larva recently taken from a leaf, lightly pressed lengthwise between the finger and thumb, when it will work the instrument incessantly to and fro, and even the peculiar jerk applicable to removing the leaf tissues may be seen exercised on whatever can be reached by the cutter.

Fig. 31.

The maggot moves with some rapidity when taken from the leaf blisters, and as it adheres perfectly well in an inverted position its mode of progression may be well watched beneath a microscope slide. The tail, with its various tubercular and other appendages, is curled downwards, and from that point the movement is sent forward through the body of the larva, and then again with another curl downwards of the tail the next advance is started as before.

The maggot appears usually to quit the leaf when its larval growth is complete, to undergo the pupal change by preference, but not of necessity, in the earth.

The male of the T. Onopordinis is about two lines long, tawny or ochreous in colour, with ochreous legs and poisers, the body brown, the wings iridescent and transparent, variously marked with brown, so as to leave two transparent white spots on the front of the wing, and some irregular markings on the hinder edge. The lower part of the face is yellowish, and the eyes deep green.

The female is somewhat larger, with retractile ovipositor, and is usually darker coloured than the male. A very full specific description of the male T. Onopordinis is given by Curtis in his *Farm Insects*, from which the above short description is partly taken.

The cure that has been suggested of setting children to nip the Parsnip-leaf blisters between the finger and thumb so as to squeeze the contained maggot to death, seems easy of application and likely to be effectual, for the blisters and discoloured spots are easily noticeable, and the leaf being already destroyed as far as the area affected by the injury extends, no further harm is done by the pinch needed to destroy the tenant.

Soot, gas-lime, and such other top-dressings to the soil as may kill the larvæ when they fall from the leaves to bury themselves, previously to pupation, have also been suggested; but, looking at the apparent effect of a few days' rain, it seems probable that the best cure is to be found in a course of wet weather.

The plants under observation in Torquay were so placed as to feel the fullest influence of the late drought, and suffered much from the fly, but as soon as the rain came no more new blisters were noticeable, and a kind of diarrhœa, so to call it, appeared in the maggot, consisting of a quantity of fluid black matter, plainly visible from the transparency of the larval structure whilst still in the maggot, and ejected at short intervals—in this respect, and in the colour, differing from the ordinary larval conditions.

Conjecturally, the disease might be caused by the moisture from the rain decaying the already killed tissues, and washing the decayed matter and dirt contained in the leaf blister in a liquid state into the food of the maggot, and thus affecting its health materially. This, however, is only matter of conjecture, but should it be the case, something might be done as far as the limited extent of garden crops is concerned, by thorough watering over the Parsnip leaves for several days in succession, which, acting in some degree like the natural showers, might drive away the flies, and destroy or undermine the health of the larvæ.

Since writing the above the return of dry weather shows a marked effect in the increase of the Parsnip-fly. Previously, with some continued rain after a long drought, the affected part of the leaves decayed, and the attack on the garden crop under observation passed away—hardly any new injuries, if any at all, being observable on careful inspection. With the return of the drought small spots gradually appeared at the edges of the Parsnip leaves, and now, with the continued dry weather, they are spreading fast and characteristically, with the contained maggot apparently in full health. *O.*

NEGLECTED PLANTS.

Finocchio.—The Eternal City—so called by courtesy—is justly proud of its religious ceremonies as they used to be, of its churches, pictures, statues, galleries, and ruins, and its Finocchio. The former enjoy a world-wide repute, the last is scarcely known to foreigners who have not crossed over to the south side of the Alps. There are travellers who complain that Rome is much changed, and in one point of their view not improved. It is losing the charm of antiquity; that is, of its dingy tumble-down houses and its dirty crooked streets, in which it is a blessing to have a dull-nerved nose, and in which not to lose your way requires a fully-developed organ of locality. The Colosseum and the other old heaps of stones remain, of course, the same; but near them, about them, and staring them out of countenance with their large plate-glass windows are brand-new buildings and modern hotels, erected by companies giving the newest improvements and the most English of comforts (limited). The picturesque suffers, but the tourist gains—and so does Finocchio, by the immigration of French cooks, who exercise their art in multiplying the ways of dressing and serving it.

Finocchio is no novelty. Few things are new in Italy. It never lost ground there as a salad plant, or rather a *hors d'œuvre*, like Radishes, to be eaten raw. In that state it is very pleasant munching—for those who like its peculiar flavour; but you must be careful not to indulge in it too freely at first, or it may bring on an inconvenience which sometimes occurs when Plums are freely partaken of. One wonders that France, the land of *hors d'œuvres*, does not grow it more largely for that purpose. But aliments, especially those which approach the nature of condiments, are as national, as local almost, as costumes and faces; witness Seakale and Rhubarb, which, in a culinary sense, can hardly be said to have crossed the English Channel. We use Fennel in sauce with mackerel and as garnishing for salmon, but we completely ignore Finocchio, which is Italian, and, without a metaphor, seems to be taking still firmer root there, as it is now even more largely cultivated for cooking as well as for eating uncooked.

Loudon (*Encyclopædia of Gardening*) says of the Dwarf Fennel, or Finocchio—"This variety is characterised by a tendency in the stalk to swell to a considerable thickness. This thickened part is blanched by earthing up, and is then very tender. It is a good deal cultivated in Italy." And elsewhere, in the same work, he has "Gobbo (hunchback) is the appellation which the Italians, in their well-known love of nicknames, have given to the gibbous footstalks of the first set of leaves, just as they branch from the ground, of a variety of Artichoke; which are blanched by hoeing up the earth against them, and of which a far larger quantity is consumed than of the heads of the plants. Fennel is cultivated to a great extent for precisely the same part of the plant, namely, the blanched footstalks and roots of the first set of leaves, and both it and gobbo, when stewed in the Italian method, form excellent dishes. These Fennel roots and footstalks are eaten also raw, as a salad, with oil and vinegar." The *Bon Jardinier* doubts whether the fleshy-rooted Fennel may not claim the dignity of a species.

Finocchio is sown broadcast in seed-beds, in February or March, and continuously for successive crops. It prefers light sandy, chalky soils that have been previously well manured. When big enough, it is pricked out in rows, 7 or 8 inches from plant to plant. Careful hoeing and weeding, with waterings in dry weather, are matters of course, the object being to cause the stalk, which is the edible part, to swell as rapidly as possible. The quantity consumed in Italy raw, as we eat Celery, is very great. About Naples, in what were once the Papal States, and further north in Venetia, it is so largely used that you cannot set a step in the towns or traverse a village without seeing it. From January to June it is served on every table. At Rome, Finocchio is sown all the year round. The plants sown in August (a common practice) are planted out in October, and become fit for use in December and January, by being gradually earthed up as their growth progresses. The petioles spring from the root like those of Celery, only they form a more rounded mass; that is to say, the blanched portion is shorter. A horizontal section across its thickest part is an oval from 4 to 5 inches long by from 2 to 3 inches broad. This blanched portion is tender, sapid, sweeter than Celery, and so different from Celery as to constitute, when stewed, quite a new dish of vegetable for those who have not previously tasted it.

Cooked Finocchio is excellent to garnish *ragouts* either of poultry or butchers' meat, with white sauce (English melted butter), with gravy, or *au gratin* with maccaroni. For these modes of serving it is previously boiled in water slightly salted. For maccaroni you put butter at the bottom of a stewpan, then a layer of Finocchio boiled and drained and cut in quarters; then a layer of soaked and half-cooked maccaroni broken into short lengths. Season moderately with pepper and salt, sprinkle with grated Parmesan cheese and little bits of butter, and so on till the stewpan is full. Cook over a gentle fire, putting live charcoal on the lid. When done, serve by turning out the contents on a hot dish, as whole as may be. *E. S. D.*

Forestry.

Forests the Results and not the Cause of Climate.*—During the few past years agricultural and other papers have teemed with articles on tree culture, and it must be confessed that no subject is worthy of more attentive consideration. A people without timber would be in a bad plight. The telegraph must have its supporting pole, the railroad track its cross-ties, even the coal must be kindled before the rail is wrought or the iron drawn. Without wood we could not exist as we are to-day. Let people plant trees—let forest preservation be encouraged—but, above all, let truth prevail.

These thoughts occurred to me as I read the report of Dr. Franklin Hough's paper before the American

* Review of Dr. Franklin Hough's Paper before the American Association, by Thomas Meehan.

Association, as published in the *Tribune* "extra." Every reader wishes well to the cause, but a good cause is never aided by bad arguments. I would have trees extensively planted, and zealously cared for. It it is a pleasure to note that timber-planting is getting popular, but if there were no better reason than Dr. Hough gives, there would be a reaction, and the good cause of timber encouragement would receive a staggering blow.

I have never been able to see any connection between trees and the annual rainfall. There have been suggestions enough like these of Dr. Hough. The farmer who cut his leg with his scythe remembered that on that day he ate blue fish for dinner, and the arguments connecting rainfall with trees are of the same stamp. Dr. H. commences by reminding us that there are "stately ruins in solitary deserts," and this fact alone he says is a "conclusive proof that great climatic changes have taken place within the period of human history in many Eastern countries, once highly cultivated and densely peopled, but now an arid waste." It is hard to understand what "conclusive proof" is here. Twenty-five years ago the basin of the Salt Lake was an "arid waste." It is now "densely peopled" by 100,000 human beings, and one city of 20,000 people—Salt Lake City—"blossoms like the rose." Trees abound, and the birds of the air have found a home within their branches. Should the Mormons find a second Nauvoo, and be driven from their hearths and homes, we should most likely find "stately ruins" in "a solitary desert," but would it be conclusive proof of any climatic change? He says, "We cannot account for the changes which have occurred in these sunburnt and sterile plains, where these traces of man's first civilisation are found, once clothed with a luxurious vegetation, except by ascribing their present condition to the improvident acts of man in destroying the trees and plants which once clothed the surface and sheltered it from the sun's rays." This argument reminds me of some of those in vogue during the past centuries. In a little book by Wm. Wood, published in London in 1639, entitled *New England's Prospect*, the writer is trying to show the advantages and disadvantages of a settler near Boston. He tells of the wild beasts, and says, "Concerning Lyons, I will not say that I ever saw any myselfe, but some affirme that they have seen a Lyon at Cape Anne, which is about 6 leagues from Boston. Some likewise being lost in Woodes have heard such terrible roaring as have made them much aghast, which must either be from Lyons or the devil, there being no other creatures which used to roare, except Beares, which never hath such a terrible roare as this." So Dr. H. would have us believe that it must be as he says, or nothing. No other suggestion is at all necessary.

There is no proof given that any more trees and plants existed in these regions than the Mormons found in Salt Lake. On the other hand, it is well known that these ancient people knew as much of irrigation as the Mormons do. "As the shelter was removed the desert approached." But it is a fact which any one can see for himself at this time—and the same fact has no doubt followed civilisation through all time—that the surface of the earth is as much "protected from the sun's rays" by the farmer after the forests are cleared away as before. Around all our large cities trees are extensively planted for ornament, and grass and vegetation of various kinds shade the ground. Fruit orchards take the place of forests to some extent, and grain and grass cover the remainder. The "shelter from the sun's rays" is just as great with the progress of agriculture as while the original forests found man in a state of barbarism. He tells us of springs and wells failing, and brooks drying up in portions of the Eastern and Northern States which were "once wooded," leading to the inference that this was the cause of the failing springs, yet most people know by this time that the sources of springs are often long, long distances away from the mouth, and that the forests over and above can have no possible influence on the quantity of water in the well beneath. But we have to do with the rainfall, and not with the springs, and the figures show no decrease in the North or East. Taking up the *Reductions of Meteorological Observations*, published by the Smithsonian Institution, from the earliest period given—1854 to 1859—we find no average decrease. Let us take the first date and the last date for comparison :—

	Inches	
	1854.	1859.
St. Martin's, Canada	49.985	60.212
Amherst, Mass.	47.345	51.279
Nantucket, Mass.	47.430	48.281
New Bedford, Mass.	47.480	45.710
Worcester, Mass.	59.170	48.892
Providence, R.I.	37.100	45.160
Pomfret, Conn.	57.140	53.730
New York City	42.435	55.600
Penn Yan, N.Y.	19.660	29.150
Lambertville, N.J.	43.135	47.634

I have taken only the first page and followed it in order wherever a comparison of the two seasons was given. The forests around these places are cut away much more rapidly as the years roll on, but we see in some of these figures increase of rain in some places instead of diminution. It may be said that five years is a short period. It is; but even in a period, however short, a cutting away of forests ought not to show an increase of rain. No change might be an argument; but an increase in any one case, to say nothing of most cases, as here, is fatal to the argument. There are records of many years which show similar figures to these five years. Indeed, his own *Meteorology of New York* will furnish them. The Government officers kept a table from the first settlement in Marietta, when it was all wood in Ohio, to a few years back, when at least one-half the timber of the State has been cut away, and no difference in the rainfall has resulted, I have not, however, these tables to hand as I write. Dr. Hough seems himself to have some suspicion of this result. Though he has "collected 2000 years of records in the State of New York," they "do not justify him in supposing that, in the general average of periods, the amount is sensibly increasing or diminishing, although they do show in some cases greater tendency to drought for a series of years together, and often a more equal distribution of rain throughout the years." To what purpose are these facts? As we read that there is more drought, although the same amount on the whole, we say, "Well, clearing the forests has done this;" but as we read on that in some cases there was a more equal distribution of rain, we also mentally ask, "Did the clearing of the forests do this opposite thing also?"

Still he insists "the growing tendency to floods and drought may be directly ascribed to the clearing up of woodlands, by which the rains quickly find their way to the streams, instead of sinking into the earth to reappear in springs." It is very plain that Dr. Hough has never been engaged practically in making earth observations, so as to know of his own knowledge of the facts about which he writes. I have had this advantage, and I can say there is no piece of ground so dry in its subsoil as that which sustains a forest on the surface. Under sod, or beneath a field of grain, say at 2 feet deep, at any time in the year, clay, if there, will be found soft and ordinary loamy earth damp; while at 2 or 3 feet below a forest of trees, the similar soil is never wet, and after the growing season, say from August to spring, "it is as hard as a brick" or as "dry as a bone." I would almost venture to say that no water of any account, unless in very steep land, passes into springs from any ordinary Eastern forests. Most of what falls is taken up by the roots and given off again to the atmosphere, and the great water sources of springs get no benefit thereby. If Dr. H. will take up any good work on physiological botany, he will be surprised to learn how much moisture is given off in each day from the surface of a leaf. It would be no exaggeration to say that tons of water are given off from every square yard of forest land against pounds, or even ounces, from land under farm culture. Each green leaf is a never-failing spring of water, and the gross aggregate from these hundreds of millions of outlets in each wood is not a mere spring, but a creek or river; and all this is true notwithstanding Dr. Hough's argument that "furniture in houses too much shaded will mould." The earth under the trees would be dry enough, though the furniture were damp. Dr. H. tells us that "several rainy days have been added to July and August by forest culture in Algeria." Dr. H. does not tell us that these figures depend for their accuracy on mere newspaper rumour, and are to be traced to no responsible source.

It is remarkable that such "data" should be used for a scientific paper before a scientific institution. The statement is continually brought up by agricultural writers and by speakers at farmers' clubs, where it is fashionable to argue as Dr. Hough does. A distant fact is less easily examined, and in my public discussions of this question I have generally found that whenever I have shown the futility of other reasoning I am sure as a climax to be asked "What can you say against the Egyptian experiments?" We have been told over and over again that "a few years ago the whole region through which M. de Lesseps' famous canal now passes was a sterile desert. There were to be seen no trees far or near. He planted trees, irrigating them from the waters of the canal, and now the astonished eyes of the traveller beholds blooming prairies and stately forests where once was waste and wild desert. But a greater change has come over the climate. Rain now falls frequently and abundantly. The soil produces richly. Thus is created a fertile land, capable of sustaining thousands of industrious and happy citizens." This was originally published in some newspaper correspondence. It is quite as poetical as some of Mr. Russell's London *Times* correspondence from Bull Run. But, like some of that famous correspondence, it bears on its face a suspicion of exaggeration; yet it has been copied and recopied in essays on American tree-planting, till it has been thought worthy of being referred to it in a paper on original science in a leading association. Being so far away, I have not had the opportunity of denying it before; but now I can say, on the authority of the author of *Parks and Gardens of Paris*, that the whole story was cooked up by a lively writer. Mr. Robinson says that he has it from a friend who has resided three years in Egypt, that the statement above quoted "must be taken with much reservation." The trees along the canal "are in proximity to the banks." He seems to know nothing of the "forests or blooming prairies;" and further says that "during his three years sojourn there the number of rainy days was limited to three or four!" So this "fact" goes the way of all the rest.

In the Western States the impression prevails that there is some change of climate going on. In my several journeys through those dry regions, I have endeavoured to study the facts which might have originated such an impression, but there are no facts worthy of the name. We know in our old settled regions that the rainfall varies every year, and that sometimes there will be a succession of dry seasons, and at some other times a series of comparatively wet ones. There is nothing to show that it is not the same in the Western deserts; on the contrary, there is strong evidence on the other side, and the forests themselves furnish it. In the dry regions of Colorado the Pine forests are of different ages. Here, for instance, may be one of 150 or 200 years, another, if a tree be cut and the rings counted, may show 75 or 100. And so of young growths. There are some of ten years, twenty-eight, and so on, showing that it is only at rare intervals that there are conditions—of which rain must be one—to enable seed to germinate. But it is not only on the hills of the Rockys, the Uintas, and the Wahsatch that this "change" is supposed to have taken place; where timber grows, and where, by the way, there has been more timber cut away than has been succeeded by new trees, the change is thought to be proceeding. So also on the plains, where the trees planted have not had time to grow up much higher than the tall herbage already existing, and certainly does not make a full substitution for the timber cut away along the streams. Granting, therefore, there has been any climatic change, trees can have had nothing whatever to do with it. They are a result of climate, not its cause.

I am sorry, while finding no "science" in Dr. Hough's paper, that I must differ from him also in the political aspects of the question, as well as from some of the practical suggestions he makes for tree-planting encouragement. Foreign Governments manage the timber plantations. France has a Director-General, and two sub-divisions—one regarding the production and sale, the other the police regulations of the forests. In each sub-division there are thirty-two minor divisions, and these numerous guards and foresters overlook. It makes quite a nice little army of office-holders. In foreign countries, where a man has little if any voice in placing his own self into office, there may be no great objection to the plan. Here, where one man is as good as another, and often "better, too," it is altogether another thing. We are having a little taste of what this thing is coming to in most of our large cities. In Philadelphia we have some 1200 policemen who vote for the man who will give them a place, and then vote to keep themselves in the place. Each man can command at least six who will vote for him as a "personal favour," making a vote of nearly 10,000 who are directly interested in voting themselves "whatever they please." When we add to this other officials, we have nearly one-fourth of the whole number of voters—enough to make any balance—who vote themselves and friends into office and do just whatever they like. By the time the Government takes hold of the railroads, the telegraphs, and the forests, we shall have a nice swarm. These men know no principle but their bread and butter, and with so large a portion of the voting population of this class, we place ourselves under a despotism worse than any that ever cursed the Old World, because wholly irresponsible and unreachable. It would be wiser to trust to Providence on the timber question than ask new power for the tyranny which now oppresses us. If Governments can encourage individual effort, all right. Government profits by timber, and Government should protect it.

The question will then come down to this, What inducement is there for individual tree-planters, and how can individuals be encouraged to plant? Dr. Hough says roadside timber adds to the value of a farm; but few who have had experience with them will agree with him. I held to this view myself once. The Oaks and Hickories were pointed to with pride. But timber became dear, and live fences had to be looked to; they would not grow under the shade of trees, and therefore 30 or 40 feet from the trees the ground was impoverished. It was a matter demonstrated by figures that farm crops paid better on this land than any increase in the value of the timber was ever likely to do, and very reluctantly the axe was ordered and the trees came down.

There will always be one great obstacle to extensive

tree planting in this country, which most of the foreign Governments have not to contend with, namely, the liability to fires in our dry climate. These fires are in the main brought about by railroad locomotives, and yet Dr. H. proposes that railroads should be compelled to plant along their lines. The Doctor has not turned out as often as I have to whip out fires in woods among the dry autumn leaves, started by sparks from the engines. I have known companies to cut away trees wherever they had the power, in order to save their property from this risk. It would be a hardship to compel them to re-plant and preserve.

Dr. Hough also would have the elements of forestry taught in the public schools. I often wonder now, as I see my children trudging a couple of miles to school every day, from seven years old to seventeen, and then look at them at twenty-one, and see how little they have retained of all that ten long years of travel and study, whether their young lives have not been spent in vain; and when I hear almost daily some new proposition, which is to crowd in on them agriculture, horticulture, forestry, various arts and sciences, and goodness knows what, I wonder whether it would not be best to ask Providence to add another ten years to their little lives. The fact is, agricultural papers and actual experience will do more for forestry than any public school will do.

I am in favour of tree planting. But I would not have any one plant trees under hopes which I know will never be realised, much less when those hopes are excited under a misapprehension of "science." There are many locations in this country where it will pay to grow timber. These locations increase as natural forests become scarce. Where these are, and how to make a profit from them, are being continually shown in our best agricultural papers. *N. Y. Tribune.*

AMERICAN ARBOR-VITÆ.

The American Arbor-vitæ at Southgate House, Southgate, Middlesex, 50 feet through and 36 feet in height (fig. 32), is an example of the influences that accident may have in completely changing the natural habit of growth peculiar to any particular tree. It is supposed that these outside branches were bent down by the pressure of snow, and that afterwards their points assumed their natural upright position. One or two of them have evidently taken root at the point where they have so turned up. The main leader is clothed with a strong plant of Ivy. The soil is naturally a heavy flinty loam, in which most trees and shrubs do well—amongst deciduous trees, more especially Oak and Elm, in evergreens, Hollies, Aucubas, and Evergreen Oaks.

Fig. 32.—American Arbor-vitæ at Southgate House.

JAPANESE PAPER.

The Japanese paper, which is at once so beautiful, so silky, so delicate, and so strong, formed an important part of the Japanese display at the late Vienna Exhibition.

The principal raw material used is the bark of two species or varieties of the paper Mulberry, viz., 1, Broussonetia papyrifera var. Kæmpferi, and 2, B. papyrifera var. Cazinoki, which also gives a very good paper, less expensive, and more abundant, but less productive. The bark of Passerina Ganpi yields a paper scarcely inferior, does not require so much attention, and is easily propagated; hence the Japanese have cultivated this plant for some time. The bark of Edgeworthia papyrifera (Sieb. and Zucc.) is almost entirely confined to the manufacture of paper money.

To make paper with the paper Mulberry the stalks are cut to the length of 0.80 m. to a metre, and placed in a stove, so as to facilitate the separation of the bark, which operation is done by hand. The external rind is then dried and washed in running water, and the blackish epidermis removed with a knife. This epidermis is employed in the manufacture of a paper called Cheri-gami and Kizo-niki. The internal fibre of the bark is again washed, boiled, and washed again, till it is ready for manufacture. The size is prepared from the root of a plant called Tororo. The Tororo, according to Mr. F. Lawder, the English Consul at Kanagawa, is a shrub like the Cotton plant (probably the Hibiscus Manihot), the root of which was shown at Vienna among the materials employed in the manufacture. The English Consul adds that there is yet another wild sort of Tororo used in the sizing of common paper; this Tororo seems to be the Hydrangea paniculata, also shown at Vienna, under the designation "for size." The root of Tororo is boiled, after having been beaten with square sticks, and the pulp passed through a horse-hair sieve; this size is put with the pulp into the vat, and the paper is dried in frames, the bottoms of which are made of laths of Bamboo, and hung up on an inclined plane. The paper which is made in winter is only sized with the Tororo; it is better than that made in spring, for which a size made from Rice is used, and which is subject to the attacks of "worms." To size the paper of Passerina Ganpi the mucilage of the bark of Papaver somniferum is used. The old paper is worked up afresh by the addition of size obtained by the decoction of the Kadsura japonica, L. To make a paper stuff which can be washed they take the quality called "Kosko," or, still better, the "Senka," which is permeated by the mucilage derived from the roots of a plant called Kon-niaku-no-dama.

For oiled paper intended for waterproof coats they take the quality called "Senka," or "Tora Senka," and the size employed is composed of the young shoots of Ferns ground and reduced by mashing into a paste, rendered more or less thick by the addition of the astringent juice of Diospyros Kaki. The colouring matter is boiled with the paste of Beans, then the paper is smeared with oil, named Yé-no-abura (=abura oil), furnished by Celtis Wildenowiana.

The paper in imitation of leather is also made by mixing oil with the pulp; the graining is done by means of tablets, which bear the required designs. The imitation of crape is done in the same way; the silvered designs on the papers used for hangings, &c., are produced by means of talc.

The Japanese make parasols, coats, shoes, &c., with this oiled paper. They also say that the size is furnished by Acacia Nemu. We know the numerous uses to which paper has, for a number of years, been applied in Japan. Not only are different qualities specially made for schools, for the use of the Government, for merchants, &c., but clothes, door-panels, vases, handkerchiefs, lanterns, cords, &c., are made of it. The intelligent Japanese will shortly compete with Europeans in the markets of China and America.

Would it not be desirable to cultivate on a large

scale the Broussonetia in the centre of Europe? Its culture is the same as that of Mulberries; the vegetable size used in Japan also deserves attention, as has been stated. It is always composed of a mucilaginous substance, such as the root of Hibiscus, and which is thickened more or less by the addition of an astringent material—the sap of Diospyros, &c. *From M. Bernardin's Report of the Vienna Exhibition.*

Home Correspondence.

A Horticultural Heresy: Size of Fruits.—During this season of drought many, like myself, must have been compelled to economise their water supply, and supplement it by extraneous means. And thus it happened that, partly through necessity and partly to test the popular idea that only very diluted manure-water should be given to trees, I permitted a reckless servant to supply extremely concentrated manure-water to the Peach trees in the orchard-houses. As I noticed increased vigour in the foliage, this practice became recognised here as habitual, and for many weeks the trees have been thus treated, to their great advantage. Fortunately, too, for not having, as usual these many years, thinned the trees myself, of course a very heavy crop was left, and I cannot remember when we have gathered so many fine Peaches and Nectarines as this year. Very little red-spider appeared, and only aphides on the points of the shoots, which could be spared easily, and were cut away as they appeared, a pair of scissors going rapidly over everything. This being our usual time for summer regulation, I find clean healthy leaves everywhere, and large well-coloured fruit also. This must be mainly due to the strong liquid given. I do not assert that it is to be done unadvisedly, or everywhere—for example, where young trees are making strong wood and little fruit—but I believe that liquid manure can be given with advantage in a much stronger form than is supposed; and considering the general overcropping of trees in orchard-houses (which is one great cause of fruit dropping) it would be well to use more liquid-manure, and less solid than at present is customary. I notice several remarks on the size of Peaches. Those given appear to me to indicate fine fruit. As a rule, 7 inches is not unusual for a Nectarine; indeed, I have seen prizes given for such, well coloured, it is true, but this is a small size; 8 inches constitutes a fine Nectarine; beyond this they are extra fine. Eight inches represents a small Peach, smaller than this is not worth growing. Nine inches is a fair Peach size, and 10 and 11 inches very good indeed, provided the other points are equally good; still, size in these fruits is the chief point to be considered, for, as a rule, the flavour does not deteriorate in proportion to their dimensions, nor is there any valid reason why they should not colour equally well. Of course varieties vary, but this does not prevent our having general rules. *Thomas Bréhaut, Richmond House, Guernsey.*

Variation in Peas.—Last April I saved some Peas of the sort commonly known in our county (Hampshire) as "Gad's Warder." The pods appeared in due course; but while some were of the ordinary colour, others astonished me by their very dark purple colour. Could you possibly, in the forthcoming number, inform me as to the cause of this curious phenomenon? *A Puzzled Pod.* [Can you furnish a specimen? Could they have been crossed in any way; if so, with what? Eds.]

Carter's Crystal Palace French Bean.—I have this growing on a light soil in a very dry situation, where everything has been almost roasted up, and I have been gathering fine young long pods, whilst Osborn's and some other kinds were old and stringy before attaining any size, Osborn's especially. I look upon this variety with great favour, and shall grow it extensively another year. The pods are long, narrow, and very fleshy and tender, and it is a good cropper. *D.*

Samphire.—Foreign botanists, speaking of the true Samphire, Crithmum, make no mention of the qualities attributed to Salicornia (Glasswort), by popular belief, in districts where Crithmum is not found. On the other hand, they assign to it virtues of a different kind, but equally valuable. Its common names in France are Bacille, Crist-marine, Fenouil de mer (Sea Fennel), Perce-pierre, or Casse-pierre, the last two names from its growing on rocks into which it thrusts its roots. It is indicated by M. Decaisne as "Vermifuge et condimentaire." Endlicher in his *Enchiridion* says, "Crithmum maritimum (κριθμον, fœniculum marinum seu herba Sancti Petri) succum expressum anthelminthicum, folia amaro-salsa, condiendis cibis admiscentur." It does not appear why Samphire is called St. Peter's Herb, nor in what country or district that name is given to it. The plant (or rather those who wish to know about it) is a victim to confused nomenclature. Loudon (*Encyclopædia of Gardening*) says the name Samphire is a corruption of Sampier, and this again a corruption of the French name, Saint Pierre. He very properly calls Salicornia herbacea, Marsh Samphire. He also mentions Golden Samphire, Inula crithmifolia, a perennial plant found on sea-shores, generally within salt-water mark, which is occasionally gathered and brought to Covent Garden market, but had not, he believed, been introduced into the garden. *E. S. D.*

New Melon.—When at Heckfield a few days since I tasted a seedling Melon which has been raised by Mr. Wildsmith, and of which too much cannot be said. It is delicious in flavour, melting, and with a thin rind. It was not named then, but I believe the stock will or has passed into Messrs. Sutton & Sons' hands. *W. D.*

Size of Peaches and other Fruits.—I did not misunderstand Mr. Paul's letter with regard to the size of Peaches. What I mentioned was, that the size obtained by Peaches over the other fruits mentioned by Mr. Paul was not at all wonderful, as with no more attention and with no fire-heat they may be made to equal, if not surpass the Peach. By say the time Mr. Paul refers to—the middle of June—they were beaten in the race to ripeness in the Orchard-house by Apples, Pears, Plums, Cherries, and Strawberries, although they had just the same treatment and house to grow in. They will not be ripe for another month or six weeks. My early house was ripe by the middle of May; it is planted entirely with Royal George and Noblesse, which were all sold off by the middle of June. As we grow all for sale here, we do not thin out much; I find these two Peaches set the best, and are the most serviceable for market purposes. Bellegarde is another good market Peach, as it always swells off and colours well with winter in our late house. I am fully aware that it is a good size for a Peach, but it is not, as Mr. Paul says, seldom seen, for it is frequently met with in both Royal George and Noblesse, as I have grown these both early and late to that size here—a fact which can be well attested for the last two seasons. I admit that they are young trees and very vigorous, but they have to carry a good many dozen each. We, like Mr. Paul, cannot grow them outside, as they will not grow much more fruit, nor will Apricots, and Plums are very unsatisfactory. We have not had a crop outside for the last four seasons; there are a few this year of Pears. We have an enormous crop on espaliers. *Joseph Murdoch, The Gardens, Crank Hall.*

—— From the account Mr. Paul gave you of the size of Peaches I am induced to give you the sizes of a dish of Walburton's Admirable I gathered to-day. One fruit measured 11¼ inches, another 11 inches, and the remaining four ranged from 10 to 10¾ inches. They were all gathered off one tree—a small standard from the second Peach-house, which was started the last week in February. *G. J. Warren, Balcombe Place, Sussex.*

The Last Winter.—As a proof of the mildness of last winter, we may state that we have at present a fine bed of Balsams come up sporadically from the seed of some plants bedded out in the early summer of 1873. *J. B., Bradford Abbas, July 27.*

Myosotis dissitiflora.—I have long been greatly dissatisfied with the much-praised Myosotis dissitiflora. With me here it has positively refused to do at all. I have had cuttings struck at all imaginable seasons; I have put small-sized plants, medium-sized, and large ones, into beds in the late autumn, and even lifted a strong lot and had them planted around the outer edge of a bed, near the kerb-stone of a conservatory here, the main fault of which is too much light in summer; and in all these instances, during the last two years, I have been unable to secure two plants worth looking at, so far as bloom is concerned, for those out of bloom, whilst making growth, have been very fine. A small patch, which has not been disturbed, looks as well as any I have seen, as if to mock my best efforts. Has London smoke anything to answer for in this matter? or why or wherefore these futile attempts to succeed with this plant, which others profess to do, and so well? What says our friend Mr. Fish? *William Earley.*

Fir.—I fully intended replying to A. Forsyth at p. 74, last week, but was prevented from doing so. In regard to the "planks of Fir" mentioned in 1 Kings vi. 15, the passage in the Vulgate runs thus:—"*Et texit pavimentum domus tabulis abiegnis.*" *Abiegnis* is an adjective signifying made of Fir-wood, and the above sentence is in the ablative case, plural, in agreement with *tabulis*. *Arceuthinus* (also an adjective) = ἀρκευθινος, signifies "of the Juniper tree," and occurs in 2 Chroncles ii. 8 (Paralip ii., 2, 8), "*Sed et ligna cedrina mitte mihi et arceuthina,*" and here agrees with the neuter noun (plural) *ligna*. As to the Tares (Τὰ ζιζάνια) in Matthew xiii. 25, the Bishop of Lincoln, who is not only a good theologian, but also a profound scholar, says in a note in his Greek Testament to verse 25—"ζιζάνια, '*Talmudici nominant Zonim,*' a degenerate Wheat, and which may be reclaimed." "*Genus seminis quod tritice non erat abunde, verum degenerabat.*" On verse 30, "σίναπι, the Rabbis speak of it as a tree, Sinapis nigra; see *Linnæan Transactions*, xxii., p. 450; Billerbeck, *Flora Classica*, p. 172." The Maize cannot be the corn of Scripture, since (being an American plant) it was unknown to the Greek and Roman writers, and is not mentioned by early travellers who visited China and India, and other parts of Asia and Africa, and who were very minute in describing the productions of the countries they visited. *Bruce Mackay, Bicester, Oxon.*

The Rose Display at the Regent's Park.—I note your article on Mr. Paul's Rose Show at the Regent's Park. Admitting that every credit was due to Mr. Paul for his charming arrangement of these flowers, what would the effect have been without the thousands of plants supplied by Mr. Wills, which acted as a sort of frame to the picture of Roses? You speak of the arrangement on grass, but why omit the plants? How would the tent have looked without them? I think that Mr. Wills' name should have been associated with that of Mr. Paul's in some way, as having produced jointly one of the most charming of floral displays of the season. It may be added that Mr. Wills supplied the whole of the plants to fill the large tent on the occasion referred to. *Visitor.*

—— I notice in your report of Mr. Paul's display of cut Roses at Regent's Park you have extolled his efforts highly—and I must say he richly deserves all you have said about him. The number of Roses he displayed was great, and the blooms were most brilliant and beautiful; the arrangement, so far as juxtaposition of colour, was perfect; but there were too many hard, crude lines seen in the arrangement—not, perhaps, from any fault on Mr. Paul's part, but because the beds or banks on which the flowers were arranged were very uneven, and the jars in which the blooms were placed could not be kept upright. And then there were all the ugly jars to be seen, with no relief but the burnt turf, on which they were placed, slightly sprinkled over with short grass. To have given that artistic effect which such a grand display of Roses required, every pot in which they were placed should have been hidden, and the blooms with their foliage only seen resting on, and surrounded by, some green setting, such as Selaginella. Then, again, what would have been the effect of Mr. Paul's Roses without the large display of handsome foliage plants which surrounded them on all sides? Why, it would have been just like placing his Roses on Salisbury Plain. I would therefore suggest that, if the system practised by Mr. W. Paul, and so strongly advocated by you, is to be adopted at public Rose shows in future, the spaces on which the Roses are to be exhibited, no matter what form they may assume, should be sunk, say 3 inches, below the general level of the ground. The pots or jars in which the blooms are placed would then be hidden from view, and if some pots of Selaginella denticulata were placed amongst the jars, the effect would then be all that could be desired, always providing there is a judicious surrounding or backing by graceful foliaged plants to relieve the flatness of the Rose beds. It is well known that I use very large quantities of cut Roses and other flowers in many of the large floral decorations entrusted to me, but these are always arranged on undulating beds of Selaginella. At the Mansion House upwards of 3000 blooms of Maréchal Niel Rose were arranged in this way, and on the 13th of this month, on the occasion of a grand ball given by Lady Cornelia Guest, at Hamilton House, upwards of 9000 grand Rose blooms were displayed on banks of Lycopodium, for which purpose 200 dozen (turned out) 5-inch pots of Selaginella were used. If then the effect of Mr. W. Paul's 6000 Roses, arranged as they were on hard dry mounds, was beautiful, what must have been the effect of 9000, artistically arranged as above described and relieved by graceful Palms and other handsome foliage plants? Mr. Charles Turner supplied me with over 6000 Rose blooms on the occasion above alluded to. *J. Wills, Royal Exotic Nursery, Onslow Crescent.*

Early Beatrice and Early York Peaches.—On the 20th and 27th inst. I picked some nice fruits, in the order above named, from young trees out-of-doors. They form a nice succession to a second early Louise. I have never gathered any so early out-of-doors before. Have any of your correspondents done so? *H. W. Ward, Longford Castle, Salisbury, July.*

Cucumbers: Daniel's Duke of Edinburgh and the Marquis of Lorne.—On reading the reports of the Fruit and Floral Committee of the Royal Horticultural Society, knowing how very careful they are in examining specimens sent to them, I was surprised to find that Daniel's Duke of Edinburgh Cucumber was thought the same as Marquis of Lorne. Surely

the two varieties could not have been shown true, or, as Mr. D. T. Fish remarks, there would not be any trouble in distinguishing one from the other. I should fancy that both the specimens shown were of one and the same variety. I am now growing Daniel's Duke of Edinburgh, Marquis of Lorne, Wonder of the North, Blue Gown, Telegraph, &c., all in one house, and the two varieties now under discussion are as different from each other as any two sorts grown. Both are about of the same length, but different in shape, colour, &c. The Duke will bring more fruit to maturity in a given space of room than will the Marquis. I have some nice specimens of the Duke of Edinburgh in pits for seed, and I find as they get old they turn lighter before ripening, as also does the Marquis of Lorne; but even then the two varieties can easily be distinguished. The Marquis of Lorne is round at the point when the blossom drops, the Duke of Edinburgh is pointed. I shall give preference to the Duke of Edinburgh for my own use, and class it as a useful and good exhibition variety. I have not grown Monro's Duke of Edinburgh, but saw it exhibited at South Kensington last year. No doubt it will be a useful Cucumber of the Telegraph type. *C. Osman, Sutton.*

The Cuckoo.—Allow me to inform "R.," who wrote the interesting notes on the cuckoo, p. 104, that the fact of the young cuckoo being fed by other birds than its foster-parents has been often noted, according to naturalists. He can find a reference to the matter in the *Field* some few months back, as being an often observed fact. A friend of mine here, who gives much attention to such matters, says the young bird has many benefactors, and that on one occasion he noticed a young cuckoo near his house being fed by about a dozen birds of different species. It had left the nest, and was sitting upon a wall, and the birds seemed to be attracted simply by its peculiarly pitiful chirrup, and each gave it something just in a casual way in passing. *J. Simpson.*

Florists' Flowers.

Any one interested in that valuable class of decorative plants, the handsome-flowered Hybrid Begonias, would do well to pay a visit to Mr. Bull's nursery in the King's Road, Chelsea, in order to see what great variety of these charming summer flowering plants has been produced of late. Not that the race is in the exclusive possession of Mr. Bull or any one person, for several of our leading nurserymen have turned their attention to the work of cross-breeding, and all with beneficial results. Mr. Bull has, during the past two or three years, raised and bloomed large quantities of seedlings, and a batch of these now in flower is full of interest at the present moment.

We are indebted to Messrs. Veitch & Sons for the enterprise which resulted in the introduction to England of Begonia boliviensis, B. Pearcei and B. Veitchii, and their advent was hailed with the liveliest satisfaction as promising quite a new race of Begonias, and this satisfaction was much enhanced when it was stated that B. Veitchii was hardy in many parts of the country. It is said to have withstood some degrees of frost at the Chelsea nurseries without injury. It may be assumed that the three foregoing introductions were sufficiently distinct in character to be pronounced species. B. boliviensis has bright, glossy, red flowers, very freely produced, generally in pairs, but sometimes in whorls of three. B. Pearcei is very distinct: the green leaves are handsomely marked with dark, and it produces yellow flowers of a pleasing shade of colour, borne on slender stems well above the foliage. B. Veitchii has flowers of a vivid vermilion hue, extremely handsome and showy. The first attempts at cross-breeding were made by Messrs. Veitch & Sons, and resulted in × B. Chelsoni, × B. Sedeni, and others; and as soon as these were distributed, and were found to produce seed, others took up the work, until it appears to be probable that batches of new hybrid Begonias, as they are termed, will soon become as plentiful as batches of new bedding Pelargoniums; and when we tire, as some are already tiring, of the inevitable monotony in hue and character of these popular flowers—for one has only to grow a few of successive years productions to perceive that assumed improvements are but copies of what has preceded them—then the Begonia may be taken in hand, for it will be found that they are on the whole easily managed, and the flowering season being prolonged, they richly feed the interest that induced the attempt at their culture, and become more prized, as their valuable decorative character is appreciated.

Any one desirous of starting with a select collection should commence with B. boliviensis, × Chelsoni, × Sedeni, Pearcei, Veitchii, and × Intermedia, and if it were wished to make it a little larger some of the fine new seedlings from the foregoing might be added. They might be obtained now in nice young plants that would flower during the end of August and September. As all these Begonias are deciduous, they would gradually ripen their growth, and the foliage would die away after the blooming season. When at rest the soil can be shaken away from the tuberous roots, and the latter put away in a dry place, secure from frost for the winter, as one would Dahlias; or they may be wintered in the pots in which they have flowered, but they should be kept perfectly dry. As these Begonias seed some seedlings can also be raised by sowing the seed in March in a gentle heat, or placing it on the upper shelf of a greenhouse covered with a piece of glass, which should be shaded from the effects of the sun. As soon as large enough to handle they may be pricked off into pans and grown on as fast as possible consistent with robustness and vigour. Plants raised in this way should flower towards the end of the summer.

Of the new hybrids the following are extremely fine:—Stella, bright scarlet-carmine; Vesuvius, blood-red, very fine; Dr. Masters, rich carmine-crimson; Brilliant, very rich bright orange; Corsair, rosy salmon; Gem, bright cream, very distinct; Glitter, vivid orange-scarlet; Magnet, clear light rosy pink; Lothair, deep rose; Mazeppa, light cream, the reverse of the petals tinted with orange-pink; Phyllis, sulphur, tinted with pink; Meteor, intense scarlet-vermilion; Surprise, pleasing bright pink; and Trojan, bright rosy pink. *R. D.*

Apiary.

How to Make Straw Bee-Hives.—These hives, perhaps more commonly known by the name of "skeps," are not, as many of our readers have often thought, difficult to make; on the contrary, they are very simple, and easily constructed. I merely bring them before the public, to save them both trouble and expense. In many villages at some distance from a market town it is often impossible to procure them just at the time (swarming season) when they are frequently required without a moment's warning. Gardeners and labourers in gardens who may look over our pages, who love their bees, have not much money to throw away on hives (straw skeps are now much higher in price than formerly; a few years ago they might have been purchased for a shilling, now they are double this price), and would gladly, in the long winter evenings, prepare a few for the coming season, if they knew how to do so. The engraving (fig. 33) will at a glance explain how to make them; only two articles are necessary—straw, and either a few long Bramble stems, or, what is much to be preferred, a few good canes, which may be secured from any ironmonger or stationer.

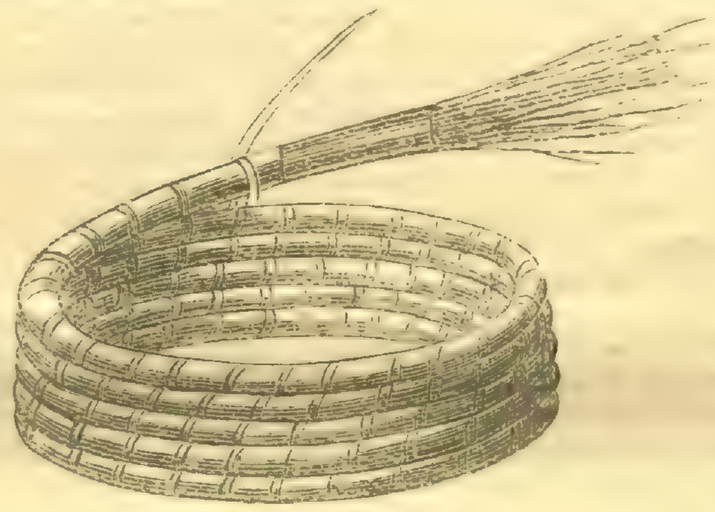


Fig. 33.—Skep-making.

First, as far as regards straw, it should be wheat-straw, and as long as possible. I have always found hand-threshed straw superior for this purpose to machine-threshed, because the latter is bruised and broken, so as frequently to be worthless. Then the canes should be split up into thin piece. Many makers use a cow's horn to work the straw through in plaiting the hive; but a circular bit of tin soldered so as to keep the straw of an even thickness in the plaits, is more convenient and useful; the tin should be a little wider at one end than the other. When commencing for the first time, all that is needful is to take care, in preparing the first round or plait, to make it very firm and strong, because on this depends, to a great degree, the quality of the hive, and all the weight rests upon this. Having performed this satisfactorily, the greatest difficulty is overcome, and the remainder is comparatively easy work. *R.*

How to Destroy a Swarm of Bees.—At p. 119 "W. J." inquires how to destroy a swarm of bees which have taken possession of a hole in a house wall. If the suggestion made in reply should not be fully successful, it is possible that a method of getting rid of a colony of wasps which had placed them in a very similar situation may be of service to him.

The wasps had effected a lodgment in a stone wall forming the outside of a preserve closet, and as I chanced to pass by as an ineffectual attempt was being made to destroy them, it occurred to me that a good lump of coarse cotton wool soaked in carbolic acid and fixed in the entrance hole would stop all passage. The hole was high, but there was no lack of assistance, and the lump of wool having been gently applied to the opening on one prong of a hay-fork, was slid off it and well pressed into the hole by a long stick, and save from a few stray wasps which remained about the spot for three or four days there was no more trouble.

The same remedy might now be useful, for if, as "W. J." fears, there are other methods of access to the bees' nest, these might successively be stopped up without danger by morsels of wadding, soaked, like the first, in carbolic acid.

Should he trust the application to unskilled hands, it may be well to have a little sweet oil at command, to allay any annoyance from a chance drop let fall on the skin. *O.*

Foreign Correspondence.

Nice.—The new tax placed on vegetable oils, which has been some time under discussion, has had the effect of decreasing the export of Olive oil, which has caused considerable excitement in this district. The Chamber of Commerce, the Society of Agriculture, and the Municipal Council made vigorous efforts in opposition to this tax, affecting as it does so seriously the chief product of the department. Consul Elmore states that this tax will create much disturbance not only in the commerce of oil as a local product, but also in one of the principal commercial enterprises of Nice and its neighbourhood. The Olive tree is almost the only product of a large portion of this mountainous district, and produces (where there is no possibility of other produce requiring tillage and husbandry) a small return for the labour bestowed on the trees and the manufacture of the oil. Each small proprietor takes his Olives, as he gathers them, to a mill in small quantities, using it in common with his neighbours, and paying for its use a percentage of his oil and the refuse of his Olives; and the oil is taken to market for sale in small quantities, according to the daily produce. Such being the condition of production for the most part, the collection of the tax will be both expensive and difficult in the highest degree, to say nothing of the hindrance and interference it will cause to the producer, so that the tax will be most unpopular, and not only so for that reason, but also because oil is one of the principal alimentary substances used by the peasantry. They live chiefly on vegetables, fish, and farinaceous food, almost invariably cooked or seasoned with Olive oil, in place of the grease or fat bacon used in the North, and on which there is no tax; so that the tax will press more heavily on the working-class than in other districts of France, where also other resources are at command, such as milk, butter, cheese, which are but little used by the peasants of this department. So severely is this tax felt that many of the dealers purpose quitting Nice, and establishing themselves on the other side of the frontier. The soap manufacturers are said to purpose doing the same, and intend to remove their works to Italy, probably to the neighbourhood of Savona, which has so long been noted for this manufacture.

Queensland.—The following extracts are taken from the report of Mr. Walter Hill, the Government Botanist, and kindly transmitted by him. The expedition of which Mr. Hill was a member was designed to explore the north-east coast of Queensland, to explore all the rivers, inlets, &c., between Cardwell and the Endeavour Rivers, with a view to study their suitability for agricultural purposes, their resources, natural history, productions, &c.

Dunk Island was the first place we visited, and we called at it a second time on our return. It is 8 or 9 miles in circumference, the centre being elevated, with a peak at either end. The island was carefully examined, and was found to contain about a thousand acres of first-class agricultural land, situated on the western and south-eastern side.

The great proportion of the soil is a very rich yellow loam, adapted for the cultivation of sugar, coffee, &c. I may describe this land as consisting of scrub with belts of forest. The vegetation is composed of the genera Hellenia, Musa, Calamus, Myristica, Wormia, Alstonia, Eucalyptus, Acacia, &c. It is well watered with small creeks of fresh water running through it here and there. There is abundance of timber for building purposes, and clay suitable for making bricks is also found. On the eastern side and north-east end of the island the land is for the most part covered with scrub, and is of too steep a nature to admit of cultivation being carried on.

I may remark that the largest and finest shade trees I have seen are growing on the border of the beach on the eastern side. They consist of Calophyllum Inophyllum, L.; Terminalia melanocarpa, F.M.; Hernandia ovigera, L.; Eugenia grandis, F.M., &c.; and form a fine avenue for the natural promenade of

the beach. I trust that, should the Government part with the land on this island, a stipulation will be made that the trees will be saved.

After leaving Dunk Island, we proceeded to Mourilyan Harbour. On the south side of this opening the coast forms a steep range for a distance of about 3 miles. A similar range extends from the north entrance of the harbour for some miles. The land situated on the western slope of the southern range consists of a strong yellowish loam, well suited for the growth of tropical and semi-tropical products, but particularly for coffee and the different spice plants, cinnamon, nutmeg, clove, allspice, &c. The soil is equally well adapted for the Sugar-cane, but the country being hilly, it will scarcely be used for that purpose whilst more level land is available. The ground is clothed with a dense mass of vegetation, consisting of the genera Aleurites, Fitzgeraldia, Brucea, Aglaia, Carapa, Buchanania, Semecarpus, Erioglossum, Cinnamomum, Myristica, Cardwellia, Archidendron, &c. The presence of these alone in the locality may be considered as an indication of first-class land.

The soil in the vicinity of the river Moresby is of fine quality, and adapted for sugar cultivation. The natural vegetation is composed of Calamus, Livistona, Cardwellia, &c. From the head of navigation of the Moresby, as far as Moralba Hill, the right bank of the river and the same side of the harbour are lined with Mangroves, which extend as far as could be seen inland from the bank.

We next proceeded to the Johnstone River, and anchored at Coquette Point, about a mile inside of the bar. On inspection of the country south of the mouth of the river, a fine sandy beach was found, and extending back from it, for about a mile in length and from 100 to 300 yards in breadth, a tract of land between the sea and the Moresby Range.

The soil is here, for the most part, of a sandy description, and scantily covered with Melaleuca, Eucalyptus, &c., the remainder of the area being Mangrove swamp. The range is well studded with Myristica, Cardwellia, Cupania, &c., and from a mile south of the Johnstone forms the coast line. It is there covered with scrub vegetation, but it is too steep to admit of profitable cultivation at present. On the western side of the range the soil and vegetation, and, of course, the productive capabilities, are identical with what has already been described of this tract of elevated land on either side of Mourilyan Harbour.

From Coquette Point up to Nind's Creek both sides of the river are covered with Mangroves, which extend back as far as could be seen. From Nind's Creek up to the head of boat navigation, a distance of 12 or 14 miles, the soil on both banks of the river, and for a mile inland, I ascertained to be of the very best description, and it may be described as consisting of very rich yellow and brown loams, adapted for the cultivation of Sugar-cane. The extreme richness of the soil, and the evenness of the surface, render it not so suitable for the growth of the Coffee plant, spices, &c.; indeed the natural vegetation would appear to indicate this. The genera are chiefly Musa, Colocasia, Costus, Hellenia, Arundo, Bambusa, Calamus, Ficus, &c., which are very abundant, and their presence alone may be considered as conclusive evidence of the exceeding fertility of the soil. The trees and shrubs lining the banks show marks in only a few places of the lower ground being overflowed in times of heavy floods. Five miles above Coquette Point the water is fresh, and can be used for any purpose. I have described only the land within a mile from the river, as that was all that I had an opportunity of inspecting. I am convinced in my own mind, however, that the same description of soil will be found for a long way back, probably as far as the ranges, which appear to be some miles distant at the lower part of the river, but close in nearer towards its head.

From the mouth of the south branch to the head of navigation by boats is a distance of about 10 miles. Its banks are lined with Hibiscus, Arundo, Colocasia, &c., and only in one or two places were there indications of a portion of the land being covered in times of heavy floods. The soil for a mile inland, which was as far as I could go, consists of strong yellow and brown loams, and densely covered with vegetation. The plants of the arboreal class belong to the genera Alstonia, Cedrela, Owenia, Sterculia, Castanospermum, Nephelium, Cupania, Cardwellia, Eugenia, Archidendron, Fitzgeraldia, &c. The undergrowth consists of Musa, Hellenia, Tradescantia, &c. The presence of these trees, &c., is a sufficient indication of the richness of the soil. The ground is also nearly all even in surface, and the fresh water supplied by this branch of the river is fit for any purpose.

At the head of navigation we extended our examination inland for a distance of about 2½ miles, to the top of Basilisk Range, which is the only elevation in the neighbourhood that is not closely timbered. There are about 50 acres of open forest land along the top of the ridge, the trees consisting of Casuarina, Eucalyptus, Acacia, &c., which are of stunted growth, on account of the poor character of the soil, which is of a sandy nature. From the summit we had a splendid view of the surrounding country, which appeared to be, except in one or two places, a mass of dense vegetation.

At Nind's Camp timber for building is found in large quantities and of good quality, the principal trees being Cedrela Toona, Roxb.; Aglaia elæagnoides, Benth.; Owenia vernicosa, F.M.; Flindersia Brayleana, F.M.; Buchanania angustifolia, Roxb.; Alphitonia excelsa, Reiss; Harpulia Leichhardtii, F.M.; Sarcocephalus cordatus, Miq.; Cardwellia sublimis, F.M., &c.

The reserve of 400 acres which I have suggested to be withheld from sale or selection would be a very suitable place for an experimental plantation for the benefit of cultivators of the Sugar-cane, or of other tropical plants best grown on low land, or which might be propagated there, such as Coffee and spice plants, &c., although they require higher ground for their subsequent successful cultivation. Reserves of 604 acres at the heads of navigation both of the main river and the south branch might with advantage be made, for the sites of future townships.

(*To be continued.*)

Reports of Societies.

City Flower Show: *July* 23.—In continuation of our remarks last week we may say that there was an unmistakable air of city growth about all the plants staged for competition on this occasion. Highly creditable as many of the examples of plant culture were, there was the stamp of pent-up city life, and the inevitable accumulation of dust on their leaves. Of Pelargoniums about twenty-six were shown, almost wholly of the Zonal class, with the exception of a scented variety, which, being out of flower, did not get an award. The best heads of flower carried weight, as perhaps they should do at a flower show. The 1st prize plant had been over four years in the possession of the exhibitor. One plant was a picture of health for city growth; it had been carefully tended, not a speck of dust was on the leaves, but it had not a single blossom to attract the eyes of the judges. Fuchsias were shown as standards, bushes, and tied out to fan-shaped trellises. The best was an old-fashioned variety, that seems to be well adapted for city growth, and had been five years in the exhibitor's keeping. But the Nettle plant (Coleus fruticosus) appears to be the city plant *par excellence*. They were generally of remarkable growth; the largest represented seven years' growth. One, grown from a slip put in in August, 1873, had finely developed foliage, but the length of time which a plant had been grown had much influence on the judges. Ought not locality to carry some weight also? If it could be considered, some plants must be grown under much less favourable circumstances than others. One Myrtle was a huge fellow growing in a tub, the branches as black as the plumage of a city sparrow, but it was a very praiseworthy example of city cultivation notwithstanding. This year neither the Musk plants nor the Creeping Jennies were up to the mark of two years ago, when the exhibition was held in the Bishopsgate Churchyard. They were yet fairly represented. One Canary Creeper competed, doing as well as could be reasonably expected; other climbers were represented by an Irish Ivy, growing in a window-box, and a debilitated Tradescantia. The former represented the growth of six years, the latter of six months. Begonias were represented by B. discolor and B. weltoniensis. One small plant was ticketed as having been in the possession of the exhibitor twenty-two years; the stages of progression appeared to be in a backward direction. B. weltoniensis was both small and unbloomed, and yet it is a capital city plant. Ferns were represented by Pteris serrulata, Adiantum cuneatum, looking maidenly miserable; Athyriums, Osmunda regalis (awarded the 1st prize), and Scolopendriums. The Osmunda had been in the possesion of the exhibitor four years. Onion plants (Ornithogalum longebracteatum) are a strong point in city culture, vigorous in growth, but with a kind of helpless look about them. It is necessary to tie the leaves up to trellises or ladders, and let them hang down behind and in front. The flower stems have to be twisted about in a curious kind of way to get them into anything like position. Some of the bulbs had quite a patriarchal apppearance, with a thriving progeny of offsets around them. Window boxes, homely in construction, were planted with Fuchsias, Pelargoniums, Lobelias, and Golden Feather Pyrethrum—the latter not quite so healthy looking as in Hyde Park: deposits of soot can hardly be expected to enhance its appearance. With true cockney instinct one exhibitor had laid a line of shells along the front of his box on the surface of the soil. A pretty little tin case filled with Selaginella denticulata, and said to have been eight years in cultivation in the City, might have been growing in one of Messrs. Veitch & Sons' houses at Chelsea, so thoroughly well was it doing. How much of loving care must have been laid out here, let the result tell. It well deserved the silver medal for the best plant in the exhibition placed at the disposal of the judges by the Royal Horticultural Society. There was a class for nosegays, and three or four competed: one contained flowers that looked as if they could not have been of city growth. Another bore a label stating that the flowers had that morning been gathered in the churchyard of St. Alphage. Fancy a nosegay gathered in a city churchyard! It enshrined more of real interest than the most costly bouquet made up in Covent Garden market on the morning of the same day. Stonecrops were represented by Sedum acre; Houseleeks by the common Sempervivium tectorum; and there was one solitary Campanula, C. pyramidalis. There were some very fair tufts of Mint growing in pots, the best was a variegated ovate-leaved variety. The best evergreen was one of the Aucubas distributed among the city gardeners by Mr. William Marshall, three years ago; a Rhododendron ponticum came 2d.

Among miscellaneous plants was a Date Palm growing in a small cask, sown fifteen years ago by F. W. Gliddon, of Leadenhall Market, and eight plants of Dahlias, grown in 24-inch pots for several years. To these, and also to the best Nettle plant, the bronze medals of the Royal Horticultural Society were awarded. Mr. J. T. Peacock sent a collection of succulents for distribution among the exhibitors, in order to give them some new types to cultivate.

Frome Amateur Rose Club: *July* 23.—The fifth annual exhibition of this energetic and thriving society was held in a field at Garston. A separate subscription, started by the committee, which enabled them to offer such valuable prizes in the "open" and "sweepstakes" classes, gave an importance to the society and its show which neither had previously attained. The specimens sent for competition were arranged in a tent 105 by 30 feet. The influence of the atmosphere upon several of the lots of cut flowers was most marked before the exhibition closed. Between forty and fifty entries were made in the twelve classes in which prizes were offered. In the class for twenty-four varieties, there were only three competitors, and all of them gained prizes; those belonging to Mr. Davis, Wilton, were really splendid blooms. In the class for twelves there were six competitors, but the specimens were scarcely equal to those referred to. In the next class, for six varieties, three blooms of each, there were only four lots shown, but the prize flowers were among the best in the tent. The class for six single specimens was perhaps the poorest shown, and Warminster cleared all the prizes. In the single specimen class there were only four competitors, and again Warminster amateurs carried off all the prizes—Maréchal Niel winning the 1st and 3d, and Triomphe de Rennes 2d place. The vases and bouquets were regarded as extra classes, but they were decidedly the most popular. In the former Miss Baily, Willowvale, the winner of last year, again bore away the palm, for an exceedingly tasteful arrangement, and another local competitor was awarded the 3d prize, viz., Mrs. Haley. In class H, for six Roses, new and distinct varieties, the only competitor was the Rev. J. Camm, who, of course, secured the prize, his specimens being Etienne Levet, Madame Jules Margottin, André Durand, Marie Van Houtte, Richard Wallace, and Comtesse de Nadaillac. For Mr. Pavitt's prize (class K), Mr. Camm was again sole competitor. The "open to all" class, for twenty-four distinct varieties, three blooms of each, induced five competitors to enter the lists, and the Roses shown were greatly admired. Mr. Keynes was unquestionably A 1, but Mr. Prince was a good 2d, and Mr. Cant's Roses were so meritorious that the judges recommended an extra prize of £1 to be awarded them. The other exhibitors in this class were Mr. John Cranston, of King's Acre Nurseries, near Hereford, and St. Peter Street, Hereford; and Mr. H. Bennet, of the Manor Farm Nursery, Stapleford, near Wilton, Wilts. The sweepstakes class drew together six competitors. Twelve Maréchal Niels won 1st place, and, had a 2d prize been awarded, Mr. Bennet would certainly have secured it for twelve very fine François Michelon. The judges were as follows: For the open and nurserymen's classes, Mr. J. Scott, Warminster; Mr. Pavitt, Bath; and Mr. Durbin, Englishcombe Nursery, Bath. For the society's classes, Mr. J. Keynes, Salisbury; and Mr. Bennet, Stapleford. The rules of the Crystal Palace Rose shows were observed. In the first five classes no member was allowed to take more than one prize, and this rule materially affected the destination of some of the prizes, but we have given the list according to the awards of the judges. All flowers exhibited were required to be the produce of plants which had been in the possession of the exhibitors for at least three months. *From a Correspondent.*

Grantham Horticultural: *July* 24-25.—The third annual show of the Grantham and South Lincolnshire Horticultural Society was held in connection with the agricultural exhibition. The nursery

classes were up to the average, Mr. Cooper, of Derby, being a new and successful exhibitor. In No. 63, class C, for Lord Brownlow's prizes, there were three entries, each display being really first-class. The exotic Ferns were good, and there were some fine-foliaged plants. There was a good show of Pelargoniums in bloom, and two very chaste illustrations of the ribbon border; this latter was a new feature, and universally admired. The Roses were not so good as in former years, but Mr. Paul and Mr. Merryweather had each a very fair selection. The cut flowers were good. In two or three particular cases some fine specimens of fruit were shown, Lord Yarborough being very successful. The dinner-table decorations were a great attraction. The 1st prize went to Miss Blair, of London. The centre-piece was a Palm, entwined with Clematis, with a base of Lilium auratum. There were two side Palms, with Water-Lilies and scarlet Pelargoniums, tastefully arranged with Maidenhair Fern. There were elegant specimen glasses on each side of the table. Miss M. White was awarded the 2d prize. The centre-pieces and bouquets were very tastefully executed. Mr. B. S. Williams, of London, gave his services as judge gratuitously, and exhibited a splendid collection of new and rare plants, including Pelargonium Captain Raikes, and a fine specimen of Erica Parmentieriana rosea. Messrs. J. Veitch & Sons, of Chelsea, had a very good collection, including Abutilon Sellowianum marmoratum, &c. Messrs. Brown, of Stamford, showed Coniferæ and excellent double Pelargoniums. *Grantham Journal.*

Massachusetts Horticultural. — The annual Rose show of the Massachusetts Horticultural Society of Boston, U.S., which was to have taken place on June 16 and 17, was postponed to the 24th and 25th, the season this year being fully two weeks backward. Even at this late date many contributors state that their Roses were not far enough advanced for exhibition. In quality the exhibition was up to the usual standard, the plants and Roses filling the larger hall, while the smaller hall was devoted to cut flowers, floral designs, &c. The prize blooms of Roses were shown in the customary boxes arranged upon a carpet of green moss, and the collections in bottles. Among amateurs Wm. Gray, jun., of Boston, was the largest contributor, carrying away the 1st prize for a collection of greenhouse plants, among which were many fine specimens, including Agave schidigera, a very fine specimen; Livistona olivæformis; L. altissima, a small but well finished plant; Phœnix reclinata; P. farinifera; Anemassa sativa variegata, remarkably high-coloured; Phormium Colensoi variegata, with leaves 4 feet long; Bonapartea glauca, and B. filamentosa. He was awarded 1st also for Tricolor Pelargoniums, showing Eva Fish, Miss Goring, Prince of Wales, Peter Grieve, Lass o' Gowrie, and Miss Grieve, very good plants, but lacking that colour which they show a month earlier, and which in the best varieties becomes faded out with us by the month of June. In Roses, Mr. Gray took 1st for the best six varieties, embracing La France, Jules Margottin, Madame Victor Verdier, Vicomte de Vezins, Alfred Colomb, and Felix Genero; 1st also for the best twenty-four varieties, among which the following were very fine, Edouard Morren, Caroline de Sansal, General Barrall, La Reine, Fisher Holmes, Mdlle. Marie Cirodde, Baron Prevost, M. Noman, Louis Van Houtte (very fine), Madame Clemence Joigneaux, General Washington, Comtesse Cecille de Chabrillant, and Souvenir de Comte de Cavour, all fine blooms, and worthy of the 1st prize. John G. Chaffin, Esq., another amateur, took the first prize for the best twelve specimens of one variety of Rose, showing twelve fine blooms of Charles Lefebvre. H. H. Hunnewell, Esq., showed a collection of Roses, not for competition, among which we noticed, as being very fine, Antoine Leach, Marguerite de St. Amand, Triomphe d'Alençon, Julius Cæsar, and Claude Million. Among florists Mr. F. Parkman showed a fine collection of Roses, among which were Abel Grand, a fine bloom; John Keynes, Comte Raimbaud, very fine; and Madame Baptiste Deshortes: his collection as a whole was very fine, all the blooms having very fine foliage. E. S. Rand, jun., an amateur, growing Orchids principally, exhibited seven fine Orchids, such as Oncidium altissimum, Aerides odoratum, Huntleya cerina, Vanda tricolor, a fine specimen with six spikes, Aerides Lobbii, Brassia verrucosa, &c. Much credit is due to Mr. Rand for making a speciality of this class of plants, their beauty being too little appreciated in this country. There were two collections of Gloxinias shown, no new kinds, but embracing such varieties as Frederico Mylius, Gouv. de Backer, Marquis de St. Innocent, &c., but evidently lacking the attention and care which they require and deserve. James Comley, superintendent of Mr. Merriam's conservatories, exhibited a neat collection of plants, including small plants of Aralia Veitchii, Dieffenbachia Bausei, Adiantum farleyense, Croton Weismanni, C. Veitchii, and C. aucubæfolia, showing, for a new place, good and careful management.

Then there was our usual show of cut flowers, floral baskets and designs, Sweet Williams, Paisley Pinks, &c., also a few early vegetables: the only thing we noticed among the latter were a few heads of Wheeler's Tom Thumb Lettuce, which looked very inviting. As a whole, the exhibition was very good, but we missed many of our usual large contributors, especially Messrs. Hovey & Co., of Cambridge, who generally carry off the largest number of prizes. *H.*

The Villa Garden.

Out-door Garden.—Now that the haulm of the early Peas is being cleared away, and the early Potatos also are being lifted, the time has come round for planting out such things as winter Greens, early autumn Cabbages, Broccoli, &c., and making sowings of winter Onions—either the White Lisbon or the Tripoli, or some of both, hardy Lettuce, prickly or winter Spinach, Turnips, Turnip Radishes, &c. Pea haulm, if dried in the sun, after it is pulled away from the ground, often comes in very useful indeed in cold weather as a temporary covering; therefore stack it away carefully in a corner of the compost yard, or any out-of-the-way place, it will be certain to be useful by-and-bye. The old Pea-stakes are likely to be of service again, stack them away also; but as only dwarf stakes are wanted for the dwarf Peas recommended for small gardens, they may as well be converted into fire-wood. The ground cleared, draw the hoe over it to cut up the weeds, if the weather be dry, and wait for rain before it is dug over for the winter crops. As soon as sufficient rain falls to moisten it sufficiently to allow of a spade or fork penetrating it, then dig it over, break it to pieces, and let it lie for two or three days before planting is done.

If *Celery* be not already planted out, let it be done without delay, placing a good layer of manure at the bottom of the trenches, and watering the plants abundantly to effect a rapid growth. If the Celery plants are allowed to get dry at the roots they become stunted, and fail to make growth until the late summer rain comes, very often too late to develope this favourite salad into anything like size; hence the necessity of watering freely, and keeping the plants growing. A good gardener will sow his Peas in his Celery trenches next spring—that is the way to grow Peas to perfection.

Sow *Cabbages* for spring about the third week in August, and include among them some red pickling Cabbage where room can be afforded, provided also it is esteemed for preserving. If Cabbage seeds be sown too early, the plants are apt to run to seed in early spring, instead of "hearting in," as the market-gardeners term it. We have heard experienced seedsmen say that the interval of a few days in sowing Cabbage seeds for spring eating will make all the difference in inducing a tendency to run. They should be sown in beds, on a spare border; and, if the fly attacks the seedlings, dust the plants over with a little fine lime, and here let them grow till they are wanted for planting out.

It should be borne in mind that the white *Lisbon Onion* is sown to yield young Onions for pulling in a green state in early spring. An immense quantity of seed of the white Lisbon Onion, all imported from the Continent, is annually sown round London in the autumn. The Lisbon Onion seed can be sown thinly broadcast in beds; but if some Onions are wanted for bulbing in the spring, one of the Tripoli varieties should be sown for this purpose. There are the Red Italian, the Globe, and the White Tripoli, all of which are quite hardy, and, if sown now in good soil, will make fine bulbs by May and June. The Tripoli Onions are much milder in flavour than the summer white Spanish Onion, and they are much liked by some for slicing up with Cucumbers.

Strawberries that have done fruiting may have the runners cleared away from them, except such as it may be desirable to keep for planting a new bed. In order to get strong plants by autumn only the most forward runners should be selected, and pots of good soil should be sunk into the ground immediately beneath these, and a runner be pegged down to each pot. They will soon strike root, and will make a most robust growth if kept well moistened at the roots, and when planted out in the beds will be established plants at once. We can recommend the following varieties to villa gardeners contemplating making a selection for autumn planting:—Dr. Hogg, President, Sir C. Napier, Sir Joseph Paxton, The Amateur, and Vicomtesse Hericart de Thury. Strawberries should now be well watched while the weather is dry, as this is the season of the year when they may be said to form their fruiting crowns for another season. They are also forming surface-roots, and on the free development of these depends much of the success or failure of the crop. When the runners are cleared away, top-dress the plants with a good coating of short manure, or, failing this, a layer of good soil.

Greenhouse.—A few weeks ago instructions were given for sowing seeds of Primulas and Cinerarias. The seed-pans of these should be full of nice little sturdy plants ready for potting-off. In cases where the greenhouse is small, it is often a question of space at this season of the year, but it is highly advisable to pot off some of the largest of the *Primulas* into 60-pots to grow them in for early flowering in winter. In order, however, to get Primulas into bloom early, some fire-heat is essential. Primulas require either artificial heat or solar light to assist them in getting into flower. If the house be a cold one, *i. e.*, without a warming apparatus, the best plan would be to keep the newly-potted Primulas and Cinerarias in it till the cold weather sets in, and then transfer them to a cold frame in a sheltered situation, and the plants placed on a bed of dry cinder ashes. In the case of a frame like this, it can be readily covered up on the advent of hard frosts, and some air can be given when a little sunshine varies the gloom of winter. The plants in such a position will need to be carefully looked after, as where they are kept close green-fly is sure to put in appearance, and it must be kept down by means of smoke from tobacco-paper. The Chinese Primrose is such a pleasant spring-flowering plant under glass, that a little extra care is well spent in endeavouring to grow on and preserve a few, so that these charming flowers may be had early in the month of February, or previous to that.

The large-flowered *Pelargoniums*, without which no conservatory may be said to be complete during summer, have gone out of bloom, and are showing signs of ripening their wood. They should be stood out-of-doors in a sunny position, but some water must be given them, gradually withholding it as the plants go to rest. Now is the time to take cuttings of such as it may be desirable to propagate. Cuttings are easily struck in this way, if some 48-pots are filled with a good light soil in which sand and decayed leaves are largely mixed. The wood should be fairly ripe before the cuttings are taken, and about six or eight should be placed in a pot and the pots placed on a shady shelf in the greenhouse, or under a hand-glass, or in a Cucumber or Melon frame that is exhausted. Not only are large-flowered Pelargoniums invaluable decorative plants, but they are of much use to cut from, and a handful of trusses, if placed in water, will last a considerable time, as nearly all the buds will expand.

Amateur cultivators are often found inquiring about manures that are suitable for application to plants in their greenhouses, such as Fuchsias, Zonal Pelargoniums, Balsams, and others that have filled the pots with roots, and require some stimulus to induce successional heads of bloom. Take Fuchsias, for instance. The first crop of flowers is generally profuse, and then the plants become exhausted, and require something to give them a fresh start. It is a good plan to cut back the long shoots that have borne their flowers some 6 or 8 inches, according to their length, then to remove a little of the surface soil, add some fresh, and then sprinkle over the surface a little manure of some kind. This is just what we have done with some Fuchsias, using a little of Fowler's garden manures, which can be purchased in small or large boxes, to suit the requirements of those who use it. A week ago we carried out this plan, laying a little of the manure on the surface of the soil, and then, by applying water, washing it down among the roots. The stimulus thus given soon manifests itself; it is being seen in the case of our own plants; they are starting into a fresh growth at almost every joint, and will again very shortly be covered with their charming flowers. We have tried several patent manures, as they are termed, but our experience leads us to believe that while Fowler's manures are effective in their action they can be administered to the plants with the least risk of danger. In applying it to Balsams, we stir about one ounce of the manure into two gallons of water, and administer it to the plants; and the strong, succulent growth that results attests to the beneficial action of the application. These manures are almost invaluable in cases where soil is scarce, and the cultivator has to fall back on top-dressings and applications of such a character. A top-dressing at the time a plant shows signs of exhaustion has a wonderfully renovating influence; and when it is followed by occasional applications of a reviving yet comparatively harmless manure like Fowler's, the effect is surprising. As a rule, more plants are spoiled by over-potting than under-potting.

It is not difficult to meet with instances where plants are suffering from their roots being in a large mass of wet soil of the most uncongenial character. Quick-growing plants especially, and all plants grown in pots, like to coil their roots round the insides of the pots; then it is, all other conditions being favourable, that plants really do well

when grown in this way. To all villa gardeners it may be said, with much force and appropriateness, avoid re-potting as you would any dreaded evil.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, July 29, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
July	In.	In.	°	°	°	°	°	°			In.
23	29.66	—0.12	79.4	56.0	23.4	64.8	+ 3.2	50.9	61	WSW	0.05
24	29.65	—0.12	75.4	50.1	25.3	58.2	— 3.5	52.9	83	WSW	0.15
25	29.74	—0.03	74.7	47.1	27.6	60.1	— 1.7	52.2	75	N : W : S.W.	0.00
26	29.54	—0.23	77.1	55.4	21.7	62.1	+ 0.2	56.4	82	S.W.	0.01
27	29.57	—0.19	73 3	55.3	18.0	60.3	— 1.7	55.4	84	S.W.	0.01
28	29.47	—0.29	67.3	51.0	16.3	57.6	— 4.6	54.7	90	S : SW	0.75
29	29.58	—0.18	72.7	48.7	24.0	59.1	— 3.2	56.2	91	variable	0.23

July 23.—Generally fine; amount of cloud varied continually. Occasional showers of rain fell in the afternoon, accompanied by distant thunder

— 24.—Generally fine in morning and partially cloudy; overcast in the afternoon and evening, with occasional showers of rain and distant thunder.

— 25.—Fine, with light clouds till evening; generally overcast afterwards. Lowest reading of thermometer on grass, 39°.

— 26.—Overcast in morning, and a little rain fell; cloudy, but generally fine afterwards.

— 27.—Overcast, with frequent showers till 1 P.M.; cloudy afterwards.

— 28.—Overcast, with frequent heavy rain in morning; fine during the afternoon and evening.

— 29.—Fine in early morning; cloudy with frequent heavy showers between 11 A.M. and 3 P.M.; fine afterwards; cloudless at night.

—— In the neighbourhood of the metropolis the reading of the barometer, at the level of the sea, decreased from 30.19 inches at the beginning of the week to 29.78 inches by the afternoon of the 21st; increased to 29.94 inches by the morning of the following day, decreased very slowly to 29.81 inches by 3 P.M. on the 23d, increased to 29.86 inches by the evening of the same day, decreased again to 29.81 inches by noon on the 24th, increased to 29.95 inches by 9 A.M. on the 25th, and was 29.88 inches at the end of the week. The mean reading for the week was 29.89 inches, being 0.26 inch lower than that of the preceding week, and from the 20th to the 25th the readings were below their averages to the mean amount of 0.09 inch.

The highest temperature of the air at 4 feet above the ground ranged from 91¾° on the 20th (the highest temperature that has been experienced since the year 1868, except on the 9th of the present month, when the maximum was 92°) to 74¾° on the 25th, with a mean for the period of 80¾°. The mean low night temperature for the week was 53°, the extremes being 56¼° on the 21st and 47° on the 25th.

The mean daily range of temperature was 27¾°, the values on the 19th and 20th being as large as 35¾° and 36½° respectively.

The mean daily temperatures of the air, with the differences from their respective averages, were as follows:—19th, 67°.7, +6°.1; 20th, 73°.2, +11°.8; 21st, 66°.5, +5°; 22d, 60°.1, −1°.4; 23d, 64°.8, +3°.2; 24th, 58°.2, −3°.5; 25th, 60°.1, −1°.7, showing that on the first three days (especially on the 20th) the weather was unusually warm, while towards the end of the week the temperatures were slightly below their averages.

The mean temperature of the air for the week was 64°.4, being 2°.8 above the average for the corresponding week in 50 years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the full rays of sun, were 157° and 158° on the 19th and 20th respectively. The lowest readings at night of a thermometer on grass, with its bulb fully exposed to the sky, ranged from 53¼° on the 23d to 39° on the 25th, with a mean for the period of 45¾°.

On the 22d the sky was overcast throughout, and on the other days large amounts of cloud were generally prevalent.

The general direction of the wind was W.S.W., and its strength was gentle. Occasional showers of rain fell on the 23d and 24th, accompanied at times by distant thunder. The total amount of rain collected was two-tenths of an inch.

In England the extreme high day temperatures of the air in the shade was 91°.8 at London, 89°.5 at Manchester, 89° at Wolverhampton, and between 82° and 89° at most other places, but at Sunderland it did not rise above 75°; the general average over the country was 85°. The extreme low night temperatures ranged from 44° at Hull to 50°.3 at Bradford, the general average being 48¼°. The range of temperature in the week was large, being on the average from all stations nearly 37°, but it was only 21° at Sunderland. The mean of the seven high day temperatures varied from 80¾° in the neighbourhood of London to 71¼° at Bradford, the general average being 74½°. The mean of the seven low night temperatures varied from 56°.5 at Sunderland to 50½° at Hull, the general average being 53°. The mean daily range of temperature from all the stations was 21½°. The mean temperature for the week from all the stations was 61¾°. About London it was 64¼° nearly, at Wolverhampton it was 64°, and at most places it was above 60°; but at Liverpool it was 59¼°, and at Newcastle-on-Tyne 59½° only. The fall of rain in the South was small, not exceeding two or three-tenths of an inch; at Norwich it was 1.38 inch; at Liverpool, at which place rain fell on every day, it was 1.68 inch, and at most places in the North of England the fall of rain exceeded three-fourths of an inch. The general average was 0.65 inch.

In Scotland the high day temperatures varied from 81° at Perth, to 70° at Aberdeen, the general average being 75½°. The low night temperature at Glasgow was 46°.1, at Paisley 47½°, at Aberdeen 49¼°, and at Dundee was 52°, the general average being 49½° nearly. The mean temperature of the air for the week varied from 60¼° at Aberdeen, to 62¾°, the general average being 61¼°. The fall of rain was as large as 2.13 inches at Leith, 1.80 inch at Glasgow, 1.50 inch at Dundee, while it only amounted to 0.64 inch at Aberdeen, and 0.65 inch at Paisley. The general average fall was 1¼ inch, being nearly double the average fall in England.

At Dublin the highest temperature of the air was 76°.9, the lowest 44°.4. The mean for the week was 60½°, and the fall of rain was 1.4 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

Plant Stove.—*Gardenias* that have flowered late should be cut back and thoroughly cleaned from scale and mealy-bug. These plants are more subject to this last insect than most occupants of the stove. Where bug exists, it is a difficult matter to keep Gardenias in anything like a presentable condition; when any of these have been much affected, the cutting-back, whereby all soft, tender growth is removed, affords a good opportunity for dipping or washing them in a stronger solution of whatever insecticide is used, than could be applied with safety to young tender growth. "Fowler's Insecticide," or "Stevenson's Abyssinian Mixture," may be used at 6 or 8 ounces to the gallon to these cut-back plants, dipping such as are not too large and syringing others; but, to be effectual, the work must be thoroughly done. It is owing to only partial cleansing that, with many growers, the impression exists that this insect cannot be extirpated from plants that are once affected; but such is by no means the case. The thick, mealy powder that the bugs are enveloped in resists the liquid for a time, leaving them unscathed, but complete immersion of the heads of the plant, or continued syringing reaches them, even when concealed in cracks and inequalities of the bark. The flowers of *Gardenia citriodora* are most useful in bouquets; mounted, as is usually done with Orange blossom, they make a useful substitute when the latter is not obtainable. *Stephanotis*, *Ixoras*, *Dipladenias*, and plants of similar nature should be similarly treated, after they have done flowering. It is a good plan to give to all such a second dressing of the solution, at an interval of a week or so before the young growth has pushed. Young stock of any of the above plants that it is desirable to increase in size may still be moved into larger pots and returned to the stove. They should be placed there altogether at the warmest end where they can be syringed every evening, and encouraged to make growth. *Euphorbia jacquiniæflora* is naturally of a straggling habit of growth, which in some measure may be counteracted by stopping the points of the shoots, but this must not be done too late in the season, or the growth will be weak and puny. In the beginning of August the last pinching should be given, after which time they should be encouraged to make all the strong growth possible, by keeping them near the glass where they will receive plenty of light in a growing temperature. Syringe them every evening to keep down red-spider; for although this plant belongs to a highly poisonous family, still this insect will live and thrive upon it. All winter-flowering plants, such as the useful *Plumbago rosea*, *Poinsettia pulcherrima*, *Eranthemum pulchellum*, *Sericographis Ghiesbreghtii*, *Aphelandra cristata*, *A. aurantiaca* and *A. Roezlii*, *Luculia gratissima*, and *Gesneras* of the *exoniensis* and *zebrina* type, should be similarly encouraged to make firm sturdy growth. Expose the plants to all the sun and light they will individually bear without scorching. To flower these plants freely in the dark dull days of winter, when they will be required, they need all the stored-up strength that good culture and careful attention at this season can give them. With the multifarious summer subjects that require attention, these winter plants are very apt to get insufficiently cared for, until it is too late to remedy the omission. Those most useful winter berry-bearing plants, the *Ardisias*, red and white, seldom receive the attention they deserve. They grow freely from seed sown when ripe, at which time it easily becomes detached from the plants. Sow in well-drained pots filled with sifted peat, to which one-fourth sand should be added. Cover the seed slightly over; place in the stove when large enough to handle; pot the young plants off into the smallest sized pots in soil similar to that in which the seeds were sown. It is necessary whilst the plants are small to use the soil with more sand in it than will be required at the next shift, for at first their rooting progress is slow, and the soil is liable to get sour unless it has a liberal admixture of sand. If the plants are grown on in the stove, and well attended to with the necessary potting, water, and slight shade in very bright weather, they will make good plants, the third season berrying nicely. They should not be stopped, as they look best grown on single stems. Care must always be taken that they are never allowed to suffer through insects, especially red-spider, or they will lose their bottom leaves, which gives these single-stemmed plants an unsightly appearance that cannot be remedied.

Anthurium Scherzerianum seeds should be, when ripe, washed out of the soft pulpy mass that surrounds them, and sown in 6 or 8-inch pots half filled with drainage, on which finely-chopped Sphagnum should be placed, adding one-fourth in bulk of silver-sand. Press the material firmly down, and give it a good watering before sowing, or the seed will be washed down too deep; sow on the surface, and do not cover them at all, or they are apt to rot instead of vegetating. Keep the material quite wet; in a few weeks the seeds will vegetate, and as soon as they are large enough to handle, prick them off in well-drained pans in similar soil to that which they were sown in. Always keep the soil damp: in no stage of the plant's existence should the material in which the roots are placed be allowed to get too dry. Keep them growing on in the stove, but not exposed to the sun without slight shade; sprinkle them overhead every afternoon with the syringe—being almost of the nature of swamp-plants they will enjoy this; it also materially lessens the danger of thrips getting established upon them, to which they are especially liable, more particularly the small yellow sort that affects *Allamandas*. If this attacks the plants it gets on the young leaves as soon as they make their appearance while they are yet unopened, and in this stage of their growth it generally kills the leaf down to the centre of the plant, which has the effect of inducing them to throw up several weak crowns, much retarding their progress. During the next two months is a good time to pot large plants of this *Anthurium* that have flowered early in the season, and are now in their least attractive condition. The plant, in a cultivated state, has a disposition through the summer to keep continually throwing up flowers more or less; but the least number make their appearance in the autumn season, consequently there is less sacrifice in repotting the plant at this time. Use light open stuff wherein to grow it—the best fibrous peat, in lumps as large as hens' eggs. Get all the earthy portion out by running it through an open sieve, adding good Sphagnum and charcoal, or crocks broken moderately small, with sand sufficient to keep the whole mass thoroughly sweet and open. The plant requires plenty of water whilst growing, and yet cannot bear the soil in a condition the least approaching an adhesive state, or the roots, both young and old, will rot. So long as the present hot weather lasts stove climbers will require copious waterings at the root, more especially where they are planted out, and the borders in which their roots are confined limited in size; where such is the case red-spider will run rampant over the plants, notwithstanding a free use of the syringe. Whilst the present tropical weather continues fire can be dispensed with, but it frequently happens that after heavy thunderstorms the nights are very chilly, consequently the stove should always be closed sufficiently early to shut in sun-heat, and if the temperature of the air becomes much reduced fires should be lit, as the sudden fluctuations from heat to cold have a tendency to check the season's growth.

Flowering Stove Plants, especially large valuable specimens, that were some time back advised to be placed in conservatories for decorative purposes, will do well there so long as the fine weather lasts, but the house should not remain with too much air on chilly nights, for it not only destroys the flowers much before their time, but is in danger of injuring the plants. *Achimenes* in baskets, now in full flower, will require a liberal use of manure-water to keep them flowering freely, until the weather gets naturally too cold for their blooming. All the attention possible should be given to these and other plants that flower through the late summer and autumn, so as to prolong their blooming until the time arrives that the later-flowering plants come in to succeed them. *Tuberoses* that are now coming in should be shaded from bright sun, as it destroys the colour of the flowers, giving them a dirty yellow appearance. They will also require liberal waterings at the root, as well as a free use of the syringe on the foliage, to keep down insects. Where these, most prized amongst sweet-scented flowers, are grown in quantities, their blooming season may be prolonged by placing a portion of the plants where they will not come on into flower so rapidly. *T. Baines, Southgate, N.*

Orchids.—As the end of summer approaches we may expect cooler nights, the heating apparatus should therefore be made ready to have fires lighted. If not already done, the water should be run out of the boiler and pipes, and the flues thoroughly cleaned and made sound. I hold it to be most essential to have clean water in the boilers once a year, and for years I have not allowed July to pass away without having the boilers thoroughly cleansed. The temperature of the East India-house may range from 75° to 85° by day and an average of 65° by night, the Cattleya-house about 5° less. The same general treatment for the occupants of the East India-house may be continued; the shading on the Cattleya house should be almost dispensed with. Shade only when the sun is very bright indeed, bearing in mind that no change of treatment of any kind should be effected suddenly. The early flowering plants will in many cases have completed their growth, and if convenient should be removed to a cooler house, where the heat and humidity are less, and where a greater supply of fresh air can be afforded. Such plants as Dendrobium nobile, D. lituiflorum, D. Cambridgeanum, and many other Dendrobes should be placed where they can receive all the light and sun to properly ripen their new growths. Calanthe Veitchii and C. vestita should not get any more shading, but should be watered liberally at the roots for some weeks to come. Cattleyas making their growths should receive all possible encouragement. It is a good plan to place a lump of peat underneath the growth as soon as they are sufficiently advanced to admit of it. It will induce an earlier production of roots, and also protect them from insects. The woodlouse is very destructive to the young roots; no pains should be spared to get rid of these pests. Thrips are often very troublesome at this season. Smoke frequently, and wash the foliage with soft soap; afterwards sponge them over with clean rain-water. *Geo. Baker, Clapham Common.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—Flower gardens ought now to be at their best, but, by reason of the drought, it is to be feared that many of them will be—as the adage goes—bad at the best; however, that can be no fault of the gardeners, for surely this season it will be lawful to blame the weather. It is always desirable to make the best of a bad job, and therefore we advise, where water is to be had, that it should be used abundantly; and in those unfortunate places where it is not to be had, it will be desirable to mulch the surface of the beds to retain what moisture is received from occasional showers. Very fortunately we have an abundant supply of water, and our beds are all but filled up, and already we are seriously thinking about propagating for another season, but have not the heart, after the excessive labour there has been to fill the beds, to begin at once to cut them about; we therefore intend to give both the beds and ourselves a fortnight's grace; after that time we shall begin to propagate *Pelargoniums*, *Verbenas*, &c. Where there is a reserve garden for the purpose of growing for stock, propagation should be commenced at once. Let "carpet beds" be regularly pinched and pegged twice a week. With us such beds require to be trimmed, and no beds pay so well for the labour given, for they are always bright; the heaviest rain does not mar their appearance, and, what to some is more, they are quite fashionable. Our best beds of this class are composed of the following plants—*Echeveria secunda glauca*, *Stellaria graminea aurea*, *Alternanthera amœna* and *magnifica*, *Antennaria tomentosa*, *Lobelia pumila*, and *Mesembryanthemum cordifolium variegatum*. *Dahlias* and *Hollyhocks* should be tied as they progress in growth, and climbers, such as *Clematis* and *Tropæolums* should be trained betimes. Just now the *Clematis* are in great beauty, but, unfortunately, will soon be over. After several trials of them for bedding-out we have come to the conclusion to give them up, for just at the time we require them most they are over. We, however, recommend them to be planted wherever suitable places can be found for them, such as on old stumps or rockeries, or corners, where a few sticks can be placed for them to ramble over.

The sub-tropical garden should be supplied with abundance of water. All plants in this department are gross feeders, but especially *Wigandias*, *Castor-oils*, and *Cannas*. Protect from wind and storms all tall growers by timely staking. One of the finest beds we have in this department is composed of *Acacia lophantha*, with undergrowth of *Chamæpeuce Casabonæ*, a truly effective plant. Roses have had a hard battle with wind, sun, and aphides, and now are being attacked with mildew. To remedy this we have adopted the water cure, and trust by an abundance of it and better weather to get rid of this worst of all pests to Roses. All bad flowers should be cut off, the straggling shoots cut in, and otherwise encouraged to make a second growth and bloom. *Rhododendrons* should ere this have been denuded of their seed-vessels, but if not yet done, it should be done at once, and when practicable water should be given them to aid next year's bloom, for even established plantations of these are suffering fearfully from the excessive drought. It seems mockery to say anything about mowing, yet it must be done, for though the grass seems nearly dead, the "bents" still grow, and if not cut they will be a nuisance, and unsightly all the rest of the summer. *W. Wildsmith, Heckfield.*

Succulents.—As far as water is concerned all succulents may be treated as other plants this month. Syringe Cacti every evening, as there is danger of red-spider. When a plant is infested it will be best to put it in the open air. Look after seed as it ripens, and sow in light soil, and put into heat. Stapelia cuttings strike freely now, if taken off at the joint and set in the sun they will root quickly. Any plants not in health should have the soil shaken from them and repotted firmly. Cuttings of Mesembryanthemums should be taken now for next season's use. Should any Agaves be rather shrivelled do not be in too great haste with water, but keep them well exposed; they are sure to start well soon, and plump up again. *J. Croucher.*

FRUIT HOUSES.

Vines.—Where at this season it is necessary to preserve black Grapes as long as possible, unless the foliage is very good, a little whiting or other light shade laid on the roof will greatly assist in preventing the sun from taking out the colour. Examine the bunches occasionally for shanking or decaying berries, and keep the house dry, airy, and as cool as possible. Vines in the earliest house will require a dry, warm atmosphere thoroughly to ripen the wood, for upon this a good show of compact, well-formed bunches greatly depends. All laterals and late growths must be kept in check, and complete rest must be brought on by gradually allowing the borders to become dry and cool. To this end a good supply of dry Fern, or other protecting material, should be prepared for covering the outside borders before heavy rains come on, for it is not improbable that a wet autumn will succeed the long season of drought we are now passing through. Since I saw the magnificent bunches of Madresfield Court Grapes shown by Mr. Loudon at South Kensington on the 15th, I feel that I can with confidence repeat my opinion that every grower ought to have it in an intermediate house. Another Grape of great promise is Venn's Black Muscat, possessing as it does all the good qualities of Muscat Hamburgh without its defects. It sets and swells as freely as the Hamburgh, and if, instead of hiding it under a bushel, the raiser would allow it to pass into good hands, it would soon become one of our leading Grapes. Keep a sharp look-out for red-spider, which is unusually troublesome this season, and apply the usual remedy as soon as it is detected. Spinning spiders are also very troublesome amongst ripe Grapes, and unless incessant war is waged against them, they will soon mar the beauty of highly finished Grapes. *W. Coleman, Eastnor.*

Peaches and Nectarines.—The trees in the late succession houses must now receive every attention as regards syringing to keep the foliage free from the red-spider, and watering the inside borders when dry. To assist in the perfect colouring and ripening of the fruit, they should be exposed as much as possible to the influence of the sun and air by removing some of the foliage where too thickly shaded. In some cases, where the fruit is on the underside of the trellis, the shoots may be untied and regulated, so as to bring them more openly to the light. As there has been a great want of rain in some localities, the outside borders must not be neglected during this hot weather, and if some liquid manure is applied, the fruit will swell to the largest size when ripe. A piece of the Nottingham hexagon netting, if placed below the trees, will help to save any fruit from being bruised should they drop off from ripeness. Some of Mr. Rivers' early Peaches, growing in a succession house here, are now ripe, without much forcing, the varieties being *Early Louise*, *Early Rivers*, and *Early Alfred*. *Early Beatrice* ripened here on a south wall on July 14, and a succession of its fruit has continued ripening up till this date. The earliest Nectarine is an old small variety named *Fairchild's Early*, followed by *Hunt's Tawny* and *Lord Napier*, one of Mr. Rivers' excellent seedlings. *William Tillery, Welbeck, Notts.*

The Cherry-house.—The trees here should now be as fully exposed to the direct action of the natural elements as the house will admit; where the structure is composed of movable sashes and former directions with respect to these are complied with, the trees will now be having the benefit of full exposure. This course of treatment is undoubtedly the best for Cherry trees under such conditions, particularly in arresting premature growth, to which Cherry trees when subject to forcing year after year successively are peculiarly liable. The state of the leaves on the trees is not now very inviting to the red-spider, but still its progress must be checked by an occasional washing from the syringe or engine; so also must the black-fly, which is very troublesome this season, have attention and be eradicated by means of tobacco-water. See that the border, which depends solely on watering, does not become parchingly dry; a copious supply of water or manurial water about this time is advisable. Attend to the ordinary requirements of trees which are in pots, and maintain the foliage in a healthy condition as long as possible. Later sorts of Plums which are in pots should now be removed outside—it will very much add to the colour and also improve the quality of the fruit. *G. T. Miles, Wycombe Abbey.*

The Orchard-house.—A portion of the various kinds of fruit trees growing in pots in this structure may now be moved into the open air, if this has not already been done. Planted-out trees, as well as any portion of potted plants which it may be desired to retain in the house, may be considerably forwarded in the process of ripening their fruit by an increase of temperature, which may be secured by closing the ventilators as early as 5 o'clock P.M., and opening them about 7 o'clock in the morning. Continue to syringe the trees well every night about the time the ventilators are closed until the fruit shows symptoms of ripening, when it must of course be discontinued. By turning out a considerable number of *Peach* and *Nectarine* trees of the various sorts, the season of the ripening of such fruits may be very considerably prolonged, and the same advantage may be secured with the different varieties of *Plums* and *Pears*, &c. The situation selected for the various fruit trees brought from the orchard-house should, if possible, be on the north side of a wall or high hedge, or any similar situation where they can have the benefit of a slight shade during the hottest portion of the day. In all cases the pots should be plunged in the soil to within 1 or 2 inches of the rim. To prevent worms from entering the pots, and also to enable the drainage to pass off freely, a six or eight-inch pot should be sunk in the soil to the requisite depth, and on the rim of this the bottom of the pot containing the tree should be placed, taking care to place it perfectly level. Tread in the soil firmly around it, and attend carefully to the trees as regards watering, syringing, &c. As soon as the fruit has been gathered from *Apricots*, *Cherries*, and *Figs* in pots, the trees will be all much benefited by being placed in the open air for at least two months, and treated as has been directed.

In the case of such fruit as the *Plum*, many sorts, such as *Coe's Golden Drop*, &c., may be allowed to hang for some considerable time upon the trees after they are quite ripe. But if out-of-doors they will of course require to be in some way protected from birds and insects, and this can be effectually done by the use of Haythorn's hexagonal netting; or, when the fruit is nearly ripe, the trees may again be placed in the orchard-house until the fruit is gathered, when they may be returned to their position in the open air. As regards *Pears* it would be unadvisable to return them to the house to complete the ripening process, as this might be the means of deteriorating the flavour of the fruit. Insects, &c., are, moreover, less likely to attack the ripening fruit of *Pears* than of such fruit as the *Peach* and the *Plum*. But if not prevented from doing so the tomtits are by no means unlikely to spoil a very considerable number of the finest Pears, by indulging in their mischievous propensity of picking holes in the ripening fruit near to the stalk, which in most instances induces rapid decay. This evil may, however, be prevented by using circular pieces of cardboard of about the size of a crown-piece. Let a small hole be made in the centre of this, of sufficient size to admit of the stalk of the fruit, and from this central hole make a straight cut to the margin, and through this pass the stalk of each fruit which it is intended to protect. Let *Peach* and other trees which are swelling off or finishing their fruit, whether they are planted out in borders or in pots, have liberal treatment as regards surface dressings, manure-water, &c. The latter should be well

diluted when applied, and the character of the crop borne by the trees should in a great measure regulate the supply of this stimulant. Continue to stop or pinch back over-luxuriant shoots, and as soon as the fruit is gathered from any tree recommence syringing for a time, or until the plant is entirely free from red-spider or other insects. *P. Grieve, Culford, Bury St. Edmunds.*

Variorum.

THE WAIL OF SMELFUNGUS.

It was an old Mycophagist
  Who sadly did complain
He had his favourite toadstools missed
  From lengthened want of rain.
His brow, with discontent o'ercast,
  A rueful aspect wore ;
Said he, "There has no fungus passed
  These lips this month and more !

"Saint George's mushroom, one or two.
  I found in early spring ;
Agaricus gambosus, due
  With swallows on the wing.
Lycoperdon, too, giganteum,
  Two light repasts supplied ;
And then, alas ! no more would come
  From pastures too soon dried.

"Marasmius Oreades,
  Which wet in season brings,
The buff Champignon, that one sees
  In verdant elfin rings,
When seared were all those circles green,
  No seeker's eye could see.
What disappointment that has been
  To fairies and to me !

"The Amanita changing hue,
  Rubescens, blushed me none ;
The Russula heterophylla, blue,
  And puce, I found not one,
And as for the Boletus e-
  dulis, so plump and fat,
A fungus which I love to see,
  I found no more of that.

"The Fistulina hepatica
  Grows out of the Oak tree
Like liver to behold, but, ah,
  Has not yet grown for me !
Coprinus, eke, comatus, fails ;
  Atramentarius, too ;
For ketchup neither aught avails,
  So what am I to do ?

"I can but sigh for heavy rains,
  And thunderstorms implore,
With Agarics to make all the lanes
  And meadows teem, galore.
The farmers might wet weather weep,
  But I hot summer moan,
Forbidden by the drought to reap
  A harvest of my own."

—*Punch.*

ESPARTO OR ALFA.—The Franco-Algerian Company obtained from the French Government, in April last, the concession for ninety-nine years of more than 800,000 acres of land, the greater part of which is to be devoted to the production of Alfa. The company calculates on a minimum production of 100,000 tons per annum. A ton of Alfa costs 90 francs at Arzew, and is worth 140 francs at an Algerian seaport. The company believes it will be able to reduce the price of the fibre to 130 francs. In order to enable the company to carry out its important work of supplying material for paper-making, the French Government has authorised it to lay down and to work for ninety-nine years, a railway from Arzew to Saida, with branches, in all about 130 miles in length. The Alfa grounds are those known as the Hauts-Plateaux ; the other lands conceded to the company lie about fifty miles to the east of Oran, on the line of the Alger and Oran Railway.

Notices to Correspondents.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. Letters relating to advertisements should be addressed to the Publisher.

ANTS IN KITCHEN GARDEN WALLS: *C. W. H.* Try the plan of sinking saucers of oil along the base of the wall to the level of the ground. The ants will greedily seek the oil, but will not be able to extricate themselves, and can thus readily be destroyed.

CHLOROPHYTUM ORCHIDASTRUM: *F. J. C.* A common stove plant, but which will do very well in a greenhouse. The flowers are greenish and inconspicuous. Owing to its peculiar habit of producing long runners, with tufts of leaves here and there, and aërial roots like those of an Orchid, it forms a good plant for hanging baskets. It belongs to the order Liliaceæ, and is a native of west tropical Africa. You will find an interesting account of the plant and its connection with Goethe in our number for January 11, 1873, p. 40.

DRIED FLOWERS: *X.* Mrs. Aston's correct address is, No. 6, Elgin Road, St. Peter's Park, Paddington. The lady writes that she will communicate the plan gratis to charitable institutions.

MANCHESTER SUPERS: *A. G.* Mr. S. Yates, Seed Merchant, Old Millgate, Manchester. He will know what is intended, by asking for Pettigrew Supers. *R.*

NAMES OF PLANTS: *J. D.* 1, Sedum kamtschaticum ; 2, S. album. — *F. H.* Sambucus racemosus (the scarlet-berried Elder), which always attracts attention and is yet so seldom planted.—*J. P. McM.* Athyrium Filix-fœmina.—*P. H. G.* In the absence of leaves, your Masdevallia would appear to be Lindley's M. coriacea.—*G. M.* Euonymus europæus (common Spindle Tree).—*S.* 1, Blue Platycodon (Campanula) grandiflorum, probably,—wretched specimen ; 2, white Aponogeton distachyon ; 3, Vaccinium Myrtillus (the Bilberry). — *Mr. Lawrence.* Ipomœa tuberosa.—*Diss.* Catalpa syringifolia.—*R. J. W.* Panicum capillare.—*A. Woods.* The Coleuses are too numerous to be distinguished by means of a withered leaf. Yours belong to the C. Gibsoni type.—*W. Davis.* A robust-growing form of Gymnogramma chrysophylla, of which many seedling variations are extant. —*C. W. D.* Epilobium palustre, L. 1, Mentha arvensis ; 2, M. aquatica, var. hirsuta, probably.—*C. B.* Hemizonia pungens.

PELARGONIUMS: *T. Martin.* Your Pelargoniums are what are sometimes called gold and bronze zonals, sometimes bicolors. They are undoubtedly zonal varieties, and as such eligible for exhibition in a class for zonals, unless specially or inferentially excluded, as, for example, by the existence of a class for gold and bronze zonals only, and the limitation of these varieties to that special class.

PENTSTEMON: *W. Sharpe.* Your flowers were somewhat faded, but they do not appear to equal some of the fine new Continental sorts.

RHYNCHOSPERMUM JASMINOIDES: *A. G.* This was Lindley's name, not A. De Candolle's, as we inadvertently stated at p. 792 of our last volume. De Candolle's Rhynchospermum is quite a different genus, now called by Mr. Bentham Rhyncodia. Lemaire's name of Trachelospermum jasminoides is, as we stated, the name that should be adopted in gardens. The true Rhynchospermum is a Composite.

ROSE-BUDS: *Inquirer.* In preparing Rose-buds for budding to travel a few days' journey, take care in the first instance that the shoots are thoroughly ripened. Cut all the leaves off, leaving, however, the footstalks on, and pack the shoots in thin layers in damp moss. Wrap them in brown paper, moss and shoots together, and pack them in a box or basket.

THE ROUND AND REVOLVING GLOBE: *John Hampden.* We decline to insert any correspondence on this subject.

TROPICAL FRUITS: *W. T.* We know of no such book, treating of them as a whole.

CATALOGUES RECEIVED.—Louis Van Houtte (Ghent, Belgium), Catalogue of Bulbs, Hyacinths, Tulips, Crocuses, &c.—Dicksons & Co. (Waterloo Place, Edinburgh,) Catalogue of Roses, and Catalogue of Dutch Flower Roots, Pansies, Violas, Fuchsias, &c., for 1874-75.

ERRATA: On p. 113, col. *a*, for "granite crop," read "granite cross;" col. *b*, for "froze with 7°," read "—7°;" in the same col. "9°" should be "—9°." In p. 115, article Cucumber, for "height," read "weight."

COMMUNICATIONS RECEIVED: C. H. H., Cambridge (many thanks).—Henry Viner (next week).—H. N. E.—A. H. H.—D. T. F.—R. D.—W. E.—Miss H.—Miss O.—J. H. (received).—G. M.—W. O. F.—E. S. D.—B. M.—G. J. W.—A. R. P.—C. W. H.—Geo. B.—C. W. D.—A. H. H.—C. A.—B. S. W.

Markets.

COVENT GARDEN, *July* 30.

The continuance of fine sunny weather contributes largely to the regularity of the supplies, especially in bush fruits ; but vegetables have suffered considerably for want of rain, Strawberries are nearly over. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d. s. d.		s. d. s. d.
Apricots, per doz.	2 0– 4 0	Nectarines, per doz.	6 0–12 0
Cherries, p. lb.	0 6– 2 0	Nuts, Cob, p. lb.	1 0– 1 6
Currants, p. ½-sieve	4 0– ..	Oranges, p. 100	16 0–20 0
— black, do.	5 0– ..	Peaches, p. doz.	8 0–18 0
Figs, per doz.	3 0– 8 0	Pears, p. doz.	2 0– 3 0
Gooseberries, p. qrt.	0 4– 0 9	Pine-apples, p lb.	3 0– 6 0
Grapes, English, p. lb.	2 0– 6 0	Plums, ½-sieve	3 0– 4 0
— finest, do.	8 0– ..	Raspberries, p. lb.	0 6– 0 9
— Muscats, do.	4 0–10 0	Strawberries, p. lb.,	1 0– 3 0
Lemons, per 100	18 0– ..	Walnuts, p. bush.	20 0– ..
Melons, each	4 0– 8 0		

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Asparagus, per 100.	3 0– 8 0	Mint (green), p. bun.	0 6– ..
Aubergines, per doz.	6 0– ..	Mushrooms, per pott.	1 0– 2 6
Beans, Broad, English, per bush.	3 0– 3 6	Onions, young, bun.	0 4– 0 6
— French, per lb.	0 6– ..	Parsley, per bunch.	0 4– 0 6
Beet, per doz.	1 0– 2 0	Parsnips, p. doz.	0 9– 1 0
Broccoli, p. bundle.	0 9– 1 6	Peas, per quart	1 0– 2 0
Cabbages, per doz.	1 3– 2 0	Radishes, per bunch.	0 2– 0 4
Carrots, new, p. bun.	0 9– ..	— black, Turnip, do.	– 0 6
Cauliflowers, per doz.	2 0– 6 0	Rhubarb, p. bundle.	0 4– 1 0
Celery, per bundle	2 0– 3 0	Shallots, per lb.	0 6– ..
Cucumbers, each	0 6– 1 0	Salsify, per bundle.	1 6– ..
Endive, per doz.	1 0– 2 0	Spinach, per bush.	2 0– 3 0
Herbs, per bunch	0 2– 0 4	Tomatos, per doz.	3 0– ..
Horse Radish, p. bun.	3 0– 5 0	Turnips, per bundle.	1 0– ..
Leeks, per bunch	0 2– 0 4	Veg. Marrows, doz.	3 0– ..

New Potatos:—Round, 5s. to 7s. per cwt. ; Kidneys, 6s. to 8s. per cwt. Supplies large, and trade bad.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Carnations, per doz. bunches	4 0– 9 0	Mignonette, 12 bun.	2 0– 6 0
Corn-flower, p. doz. bunches	2 0– 6 0	Pelargoniums, per 12 sprays	0 6– 1 0
Eucharis, per doz.	4 0– 9 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Escholtzia, p. 12 bun.	2 0– 6 0	Pinks, mixed do.	2 0– 4 0
Gardenias, p. doz.	3 0– 9 0	Roses, indoor, p. doz.	1 0– 6 0
Heliotropes, per doz. sprays	– 0 6	— Outdoor, do.	0 4– 1 0
Lilies, red, p. bunch	0 6– 1 0	Spiræa, per 12 sprays	1 0– 2 6
— white, do.	2 0– 2 6	Stephanotis, 12 sprays	3 0– 9 0
		Sweet Peas, 12 bun.	3 0– 6 0

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Balsams, p. doz.	3 0– 9 0	Geraniums, dbl., doz.	4 0– 9 0
Begonias, do.	6 0–12 0	Heaths, in var., do.	12 0–30 0
Bouvardias do.	9 0–18 0	Hydrangea do.	9 0–18 0
Calceolarias, shrubby	6 0–18 0	Liliums, in var., each	1 0– 3 6
Coleus, p. doz.	3 0– 9 0	Mignonette, per doz.	4 0– 6 0
Cyperus do.	6 0–12 0	Myrtles do.	3 0– 9 0
Dracæna terminalis	12 0–30 0	Pelargoniums do.	6 0–18 0
,, viridis doz.	12 0–24 0	do, Scarlet do.	3 0– 9 0
Fuchsia do.	4 0–12 0	Rhodanthe do.	6 0–12 0

SEEDS.

LONDON: *July* 29.—For the time of year a good amount of business has lately been doing on our market. For Trifolium especially there has been an excited demand at rapidly advancing prices. Present values show a rise since this day week of fully 5s. per cwt. It is now pretty evident that the quantity of Trifolium saved in France is comparatively small, and as the home demand there has suddenly become strong, it naturally follows that buyers this side of the Channel have to give much more money for the article. Our English crop appears to be small. Old and yearling parcels of Trifolium are now in greatly improved request. The new English winter Tares which thus far have come to market, although clean, sound, and in good condition, have been small in size. We have still a good inquiry for yearling Vetches. In Clover seed there is scarcely anything doing. The high prices asked for new home-grown Trefoils prevent business. New French-Italian is now meeting with more attention. The late grateful rains have brought us an increased demand for Mustard and Rape seed, and prices are tending upwards.—*John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday a little better inquiry prevailed for Wheat, at a reduction of 1s. per qr. on the week. A few samples of new Talavera Wheat were offered, but their quality was very poor, and the prices asked ridiculously high. Barley was steady in tone, but sparingly purchased. Malt was dull and cheaper when pressed for sale. There was a moderate demand for Oats, and prices were rather higher on the seaboard. Maize was rather weak in price. Beans and Peas were taken off quietly on former terms. In flour the quotations for sacks and barrels underwent a decline of 1s. and 6d. respectively.—On Wednesday trade was dull, and prices in buyers' favour. The dealings in both English and foreign Wheat were particularly limited, although factors appeared willing to accept still lower rates. Barley was also very quiet, and the value of malt pointed towards reduction. There was less inquiry for Oats, and prices showed no material change from Monday. Maize was neglected and cheaper to sell. Beans and Peas were unaltered, but flour was slightly easier in some instances. The average prices for the week ending July 25 are—Wheat, 60s. 5d. ; Barley, 40s. 1d. ; and Oats, 29s. 8d. per quarter. For the corresponding week last year—Wheat, 60s. 1d. ; Barley, 36s. ; Oats, 30s. 10d.

CATTLE.

At the Metropolitan Market the average quality of the beasts was very inferior, consequently the few choice ones on offer were readily disposed of at higher rates. Sheep were worse in quality, but prices rather improved. There were a large number of middling lambs on offer, which made low prices ; choicest were rather dearer. Very little alteration was reported in the calf trade. Quotations :—Beasts, 4s. to 6s. ; calves, 3s. 8d. to 5s. 4d. ; sheep, 4s. 4d. to 5s. 4d. ; lambs, 5s. 4d. to 6s. 4d.

HAY.

The market at Whitechapel has been moderately supplied with fodder, nearly all classes of which experienced a steady demand at fully late rates. Prime Clover made from 100s. to 114s. ; inferior do., 70s. to 80s. ; prime meadow hay, 90s. to 102s. 6d. ; inferior do., 55s. to 75s. ; and straw 33s. to 40s. per load. The quotations from Cumberland market are :—Superior old meadow hay, 110s. to 117s. ; inferior do, 84s. to 100s. ; new hay, 95s. to 110s. ; superior old Clover, 115s. to 126s. ; inferior do., 90s. to 105s. ; new Clover, 90s. to 112s. ; and straw, 40s. to 44s. per load.

POTATOS.

From the Borough market we learn that the supplies of Potatos are less extensive, and a steadier tone pervades the trade. Very few foreign Potatos are now on offer. Kidneys, 6s. to 8s. ; Regents, 5s. to 7s. ; and shaws, 4s. to 5s. per cwt.—The Spitalfields market report is to the effect that supplies continue ample, and trade rather quiet, prices remaining without essential change. Quotations :—Regents, £7 to £7 10s. ; shaws, £6 to £6 10s. ; kidneys, £7 10s. to £8 per ton.—Last week's imports into London were only 743 packages from Jersey, 285 from Barfleur, 153 from Antwerp, and 297 barrels from Dunkirk. At Southampton the receipts were only 4335 bags, chiefly from France and Jersey.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes.

THE CHEAPEST AND MOST DURABLE

SHADING.

"FRIGI DOMO" CANVAS.

Two yards wide	.. ..	1*s.* 10*d.* per yard run.
Three yards wide	.. ..	3*s.* per yard.
Four yards wide	.. ..	3*s.* 10*d.* per yard.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.

E. T. ARCHER, Stanstead and Brockley Roads, Forest Hill, London, S.E. All goods carriage free to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

SIMPSON'S RED SPIDER, THRIPS, and GREENFLY ANTIDOTE.—The following unsolicited Testimonials have been received among others regarding the *bona fide* character of this remedy:—

From Mr. DAVID THOMSON, *Gr. to the* Duke of Buccleuch.

"Dear Sir,—I consider your Antidote an invaluable remedy for Red Spider. Three washings have annihilated the pest on our Muscats, and the Vines look much more fresh and green since the application. No bad effects to the foliage whatever. "Truly yours, D. THOMSON."

From Mr. SPREADBURY, *Gr. to the* Earl of Portsmouth.

"I like your Antidote better than any other insect destroyer I have used, being so very clean and efficacious."

In quarts, 6*s.* each. One quart diluted sufficient for 200 gallons of water as a preventive.

Supplied by JOHN KILNER, Wortley, Sheffield.

Sold by Seedsmen and Chemists.

The Royal Pottery, Weston-super-Mare.

UNDER ROYAL PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.

JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants. See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE. Illustrated Price Lists free. HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

SYRINGES & GARDEN ENGINES.

G. & W. PURSER'S

List of Engravings for this Season

Is now ready, and may be had, post free, on application.

Sole Makers of the Jet d'Eau.

WORKS: WARWICK STREET, BIRMINGHAM.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

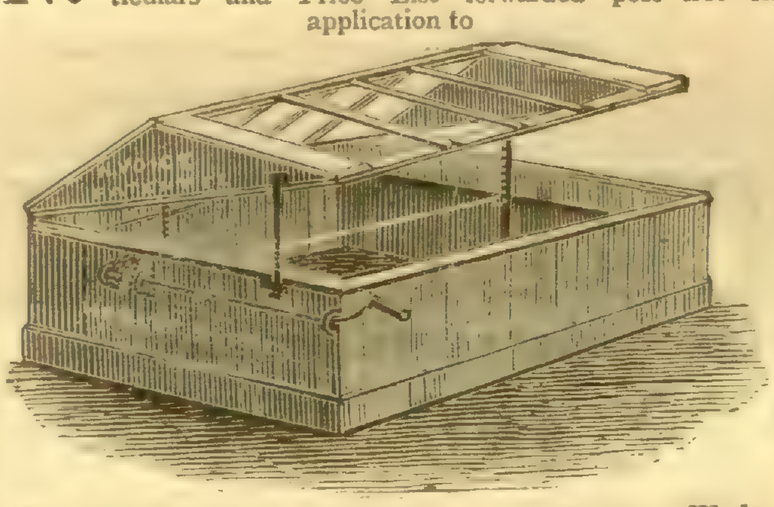
J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to

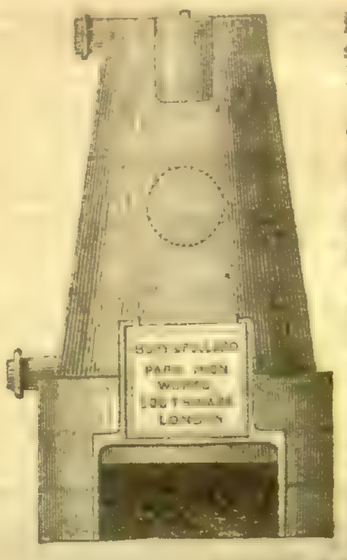


N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

Heating by Hot Water.

PUBLIC and PRIVATE BUILDINGS, MANUFACTORIES, CONSERVATORIES, &c., heated on the most improved system, combined with perfect ventilation.



These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require no BRICKWORK.

POLLARD AND CO. (late Bury & Pollard, Successors to John R. Peill, late Stephenson & Peill), Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Fixed at seats of Duke of Newcastle, Lord Belper, Lord Middleton, &c. At Viscount Sydney's replaced, after being twenty years in constant use. Foreign orders promptly executed. The Prince Salm Salm, the Duke de Croy, &c., recently supplied.

PRICE LISTS free by post.

Bear Garden, New Park Street, Southwark, London, S.E.

AGRICULTURAL LOCOMOTIVES,

STEAM PLOUGHING MACHINERY,

ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES, STEAM ROAD ROLLERS.

For Prices, Description, and Reports of Working, apply to the Manufacturers,

AVELING & PORTER,

ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

First-class Certificate.

THE TERMINAL SADDLE BOILER is by far the cheapest and best, and is working its way into general favour.

The following Letter from Mr. WM. THOMPSON needs no comment:—

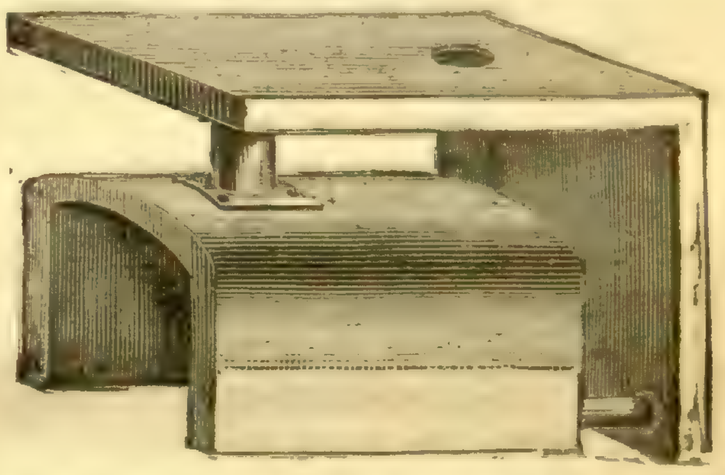
"Tweed Vineyard, March 21, 1873.

"Dear Sir,—I have now had your Terminal Saddle Boiler heating two large Span-houses, 21 feet wide and 15 feet high, containing 1484 feet of 4-inch pipe, and it does its work to my entire satisfaction. In fact I know of no Boiler of the same size and cost that will do the same amount of work with the same quantity of fuel. It is an excellent Boiler. You should advertise more than you do, for it deserves to be better known than it is.—Yours truly, WM. THOMPSON."

Illustrated Circulars, post free.

THOMAS JONES, Temple Street, Manchester.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



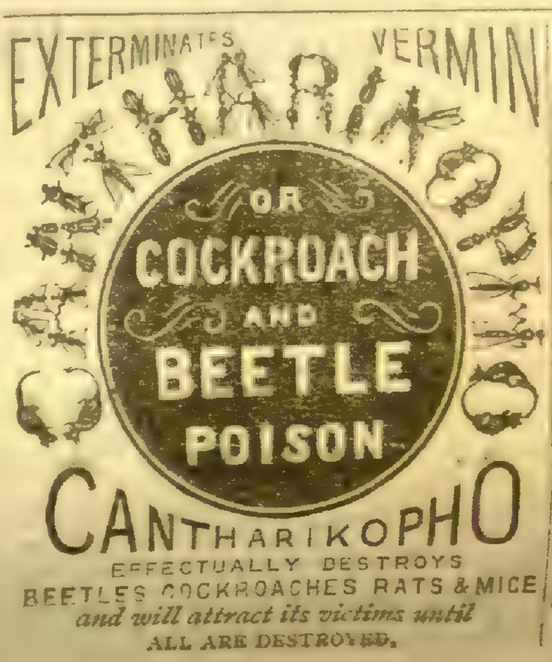
These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	460	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0
30 ,,	30 ,,	72 ,,	2,600	35	0	0
36 ,,	36 ,,	96 ,,	4,500	50	0	0
48 ,,	48 ,,	108 ,,	7,000	75	0	0
48 ,,	48 ,,	144 ,,	10,000	100	0	0

And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.



Is indispensable to Nurserymen, Gardeners, and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1*s.* and 1*s.* 6*d.*, and sent post free with directions, for 1*s.* 3*d.* and 1*s.* 10*d.*, by the Proprietors—

WILLIAM ROLLISSON AND SONS, Tooting, London, S.W.

Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL JUST RECEIVED.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

CARSONS' PAINT,

PATRONISED BY THE QUEEN,

The British, Indian and Colonial Governments, 8000 of the Nobility, Gentry, and Clergy, Railway and Canal Companies, Collieries, Ironmasters, &c., &c.,

Is extensively used for all kinds of

OUTDOOR WORK.

It is especially applicable to

WOOD, IRON, BRICK, STONE & COMPO.

CAN BE LAID ON BY UNSKILLED LABOUR.

Sold in all Colours.

2 cwt. free to all Stations.

Prices, Patterns, and Testimonials sent Post Free

WALTER CARSON & SONS,
LA BELLE SAUVAGE YARD,
LUDGATE HILL, LONDON, E.C.
And 21, BACHELOR'S WALK, DUBLIN.
NO AGENTS.

J. G. SMEATON & CO.,
Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

"LEARNED, CHATTY, USEFUL."—*Athenæum.*

Every Saturday, 24 pages, price 4d., of all Booksellers, or Stamped to go by Post, 4½d.,

NOTES AND QUERIES:

A MEDIUM OF INTERCOMMUNICATION FOR LITERARY MEN, ARTISTS, ANTIQUARIES, GENEALOGISTS, &c.

CONTAINING EVERY WEEK AMUSING ARTICLES ON SOME OF THE FOLLOWING SUBJECTS:—

ENGLISH, IRISH, and SCOTTISH HISTORY, Illustrated by original communications and inedited Documents.
BIOGRAPHY, including unpublished Correspondence of eminent Men, and unrecorded Facts connected with them.
BIBLIOGRAPHY, more especially of English Authors, with Notices of rare and unknown Editions of their Works, and Notes on Authorship of Anonymous Books.
POPULAR ANTIQUITIES and FOLK LORE, preserving the fast-fading relics of the old Mythologies.
BALLADS and Old Poetry, with Historical and Philological Illustrations.
POPULAR and PROVERBIAL SAYINGS, their origin, meaning, and application.
PHILOLOGY, including Local Dialects, Archaisms, and Notes on our old Poets.
GENEALOGY and HERALDRY, including Histories of Old Families, Completion of Pedigrees, &c.
MISCELLANEOUS NOTES, QUERIES, and REPLIES, on points of Ecclesiastical History, Topography, Fine Arts, Natural History, Miscellaneous Antiquities, Numismatics, Photography, &c.

The following eminent Writers, besides many others equally distinguished who have chosen to preserve their *incognito*, have contributed to NOTES AND QUERIES:—

A. Ashpitel, Esq.	Hepworth Dixon, Esq.	M. A. Lower, Esq.	E. Smirke, Esq.
Lord Braybrooke	Dr. Doran	Lord Lyttelton	A. Steinmetz, Esq.
Rev. Thomas Boys	Sir Henry Ellis	W. B. MacCabe, Esq.	George Stevens, Esq.
John Britton, Esq.	E. Foss, Esq.	Rev. Dr. Maitland	H. E. Strickland, Esq.
John Bruce, Esq.	Rev. A. Gatty	Sir F. Madden	Earl of Shaftesbury
J. Burtt, Esq.	Henry Hallam, Esq.	J. H. Markland, Esq.	Sir J. E. Tennent
W. D. Christie, Esq.	J. O. Halliwell, Esq.	Rev. J. E. B. Mayor	Professor Thompson
J. P. Collier, Esq.	E. Hawkins, Esq.	Lord Monson	W. J. Thoms, Esq.
W. D. Cooper, Esq.	Samuel Hickson, Esq.	R. M. Milnes, Esq., M.P.	B. Thorpe, Esq.
Bolton Corney, Esq.	Rev. J. Hunter	J. G. Nichols, Esq.	Rev. J. H. Todd, D.D.
P. Cunningham, Esq.	George Vere Irving, Esq.	George Offor, Esq.	Sir W. C. Trevelyan, Bart.
Rev. T. Corser	Rev. John Jebb	George Ormerod, Esq.	T. H. Turner, Esq.
Rt. Hon. J. W. Croker	Douglas Jerrold, Esq.	William Pinkerton, Esq.	Rev. Henry Walter
J. Crossley, Esq.	Thomas Keightley, Esq.	J. R. Planché, Esq.	Albert Way, Esq.
Dr. Dalton	Rev. Dr. Kennedy	E. F. Rimbault, Esq.	Benjamin B. Wilford, Esq.
Professor De Morgan	Rev. L. B. Larking	Rev. Dr. Rock	W. Yarrel, Esq.
Dr. Diamond	Rt. Hon. Sir G. C. Lewis	S. W. Singer, Esq.	J. Yeowell, Esq., F.S.A.

NOTES AND QUERIES is published every Saturday, price 4*d.*, or Stamped to go by Post, 4½*d.* It is also issued in Monthly Parts; and in Half-Yearly Volumes, each with Copious Index, price 10*s.* 6*d.* cloth boards.

The Subscription for Stamped Copies for Six Months, forwarded direct from the Publisher (including the Half-Yearly Index), is 10*s.* 3*d.*, which may be paid by Post Office Order, payable at Somerset House, to JOHN FRANCIS.

NOTES AND QUERIES may be procured by order of every Bookseller and Newsman; or at the OFFICE, 20, WELLINGTON STREET, STRAND, LONDON, W.C.

THE AGRICULTURAL GAZETTE

AN ILLUSTRATED JOURNAL FOR

LANDOWNERS AND TENANT FARMERS.

PRICE FOURPENCE.

AFTER thirty years' association with "*THE GARDENERS' CHRONICLE,*" *THE AGRICULTURAL GAZETTE* now stands alone, and the double space at its disposal is occupied with matters strictly Agricultural.

SUBSCRIPTIONS PAYABLE IN ADVANCE,

Including postage to any part of the United Kingdom:

Three Months, 5s.; Six Months, 9s. 9d.; Twelve Months, 19s. 6d.

P.O.O. TO BE MADE PAYABLE AT THE KING STREET POST OFFICE, W.C., TO WILLIAM RICHARDS.

Publishing Office, and Office for Advertisements:

7, CATHERINE STREET, STRAND, LONDON, W.C.

THE AGRICULTURAL GAZETTE, SATURDAY, August 1, 1874.

Contains—

Over Three Hundred Returns on the PRESENT APPEARANCE OF THE CROPS in England, Scotland, and Ireland.

Portrait and Agricultural Memoir of H.R.H. THE PRINCE OF WALES, K.G.

Original Articles on Early Lamb — Harvest Work — Agricultural Chemistry.

Home Correspondence on Maintenance of Turnpike Roads —County Shows and Shorthorn Breeding—The Farmer and the Labourer—Irish Farmers and Farming, &c.

FULL REPORTS OF AGRICULTURAL SHOWS AT INVERNESS AND TEWKESBURY.

Also—

The Veterinarian—The Bee-keeper—The Weather—Our Live Stock (Illustrated) — Markets — Agricultural Machinery (Illustrated)—Farm Notes and Memoranda—Notices of Books, &c.

Price 4*d.*; post free, 4½*d.* Published by William Richards, at the Office, 7, Catherine Street, Strand, W.C.

THE FLORIST and POMOLOGIST for AUGUST, price 1*s.*, will contain beautifully Coloured Plates of NEW CYCLAMENS and of NEW VARIETIES of CLEMATIS (double Plate), with Illustrated articles on Garden Lilies, Rustic Summer-houses, Ficus Parcellii, and other interesting papers on the Fruit Crop of 1874; Rough Plate Glass, Schizopetalon Walkeri, Isolepsis gracilis (pygmæa), Garden Literature, Garden Gossip, and Garden-work for the Month.

The *Spectator*, in noticing the FLORIST and POMOLOGIST, speaks of it as "full of useful matter and well illustrated."

London: 171, Fleet Street, E.C.

Just Published, imperial 8vo, on fine toned paper, with eleven Illustrative Plates,

THE NATURAL PRINCIPLES of LANDSCAPE GARDENING. By Jos. Forsyth Johnson (Landscape Gardener), Curator, Royal Botanic Gardens, Belfast.

Price 7*s.* 6*d.*, post free 7*s.* 9*d.*, from the Author.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. Fountaine, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL AND NEW SOUTH WALES ADVERTISER.

Contents:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London .. Mr. George Street, 30, Cornhill, E.C.
Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham. Mr. R. S. Kirk, 90, New Street.
Liverpool .. Lee & Nightingale, 15, North John Street.
Bristol .. James & Henry Grace, Royal Insurance Buildings.
Edinburgh .. Robertson & Scott, 13, Hanover Street.
Glasgow .. W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

WANTED, a GARDENER (must be a good Florist), to take Charge of a small, highly kept Flower Garden. A knowledge of Wall Fruit Culture would be desirable.—C. N., 8, Birchin Lane, Cornhill, E.C.

WANTED, IMMEDIATELY, as JOURNEYMAN GARDENER, an active, industrious young Man, not under twenty years of age, chiefly for the Outdoor Department, but must have been accustomed to Glass.—Apply, stating full particulars as to experience, references, wages, &c., to J. ANDERSON, The Gardens, Streatham Grove, Norwood, S.

WANTED, IMMEDIATELY, a steady, active Young Man, to take Charge of a small Garden. Must have lived under a good Gardener, and understand the management of Grapes and Cucumbers.—Apply at Tivoli House, Gravesend, stating wages required.

WANTED, an UNDER GARDENER, between 18 and 25 years of age, in a Garden three miles from London.—R. G. B., Ivy Cottage, Parsons' Green, Fulham, S.W

Gardener.

WANTED, a reliable and experienced FOREMAN, to take Charge of a Collection of Orchids, &c. Liberal wages. — J. W. AVERY, Gardener, Poulett Lodge, Twickenham, near London

WANTED, a WORKING OUTDOOR FOREMAN in a small Nursery; must be a good Budder and Grafter.—Apply to JAMES BIRD, Nurseryman, Downham.

WANTED, a first-rate INDOOR PROPAGATOR of Hardy Trees, Shrubs, Conifers, and Roses. To a thoroughly efficient, energetic, and persevering Man liberal wages will be given.—State experience, when applying, to Mr. RICHARD SMITH, Nurseryman, Worcester.

To Farm Bailiffs.

WANTED, a WORKING BAILIFF, age 30 to 40, to take charge of an Arable and Dairy Farm; must be competent to Buy and Sell, to keep Accounts, and assist an Agent in the Management and Building Works of a large Estate. His Wife to have the care of Poultry and Work of a Dairy of ten Cows.—Applications, stating terms required, and giving references to last employer, may be sent to Mr. HIPPISLEY, Estate Agent, Wells, Somerset.

WANTED, a FORESTER who thoroughly understands Planting, Thinning, Felling, and Measuring Trees; also, Care of Park Roads, &c., Management of Horses, Keeping Accounts, and Superintending the Work of about 20 men. A married man without incumbrances preferred. Good testimonials and security indispensable. No application will be answered unless likely to suit. For further particulars apply to W. FRENER, Estate Agent, West Rudham, Rougham, Norfolk.

WANTED, as HEAD SHOPMAN, an energetic steady Man, having a thorough knowledge of the Seed Trade in its various branches, to take the general Management of a Seed Shop and Warehouse.—Apply, stating references, DICKSON and ROBINSON, Seed Merchants, Manchester.

WANT PLACES.

To Gardeners in Want of Situations,

Whose characters will bear strict investigation.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (Head), where several Men are kept.—Age 38, married, one child; understands Forcing of Vines, &c., Stove, Greenhouse, and other plants. Twenty-four years' experience. Satisfactory reasons for leaving last place.—J. A., Post Office, Woodlesford.

GARDENER (Head), where three or more are kept.—Age 28; thoroughly uuderstands the Management of Vines, Melons, Cucumbers, and Flower and Kitchen Gardening, Forcing, &c. Six years' good character from present employment.—A. Z., Post Office, Broughton, Hants.

GARDENER (Head), where more are kept. —Age 30, married, no family; good practical experience in Forcing, Stove and Greenhouse Plants, and Flower and Kitchen Gardening, &c. Eight years' excellent character from last places.—J. C., Post Office, Henley-on-Thames.

GARDENER (Head), age 30, married.—Mr. G. Palmer, The Nursery, Putney, Surrey, is desirous of recommending a competent, trustworthy Man as above.

GARDENER (Head).—A Gentleman wishes to recommend to any Lady or Gentleman a thoroughly experienced Working Gardener in all branches.—B. L., Mr. Jennings, 54, North End, Croydon.

GARDENER (Head).—Age 28, single; has served four years in present situation as Foreman, at Wycombe Abbey Gardens, Bucks. Can be highly recommended.—EDWARD WILLMET, Wycombe Abbey Gardens, High Wycombe, Bucks.

GARDENER (Head), to any Gentleman requiring the services of a thoroughly practical Man.—Age 31, married; has had nineteen years' experience in several first-class Establishments. Good references from late employer. —A. B., Mr. Wood, 1, Auckland Terrace, Auckland Road, Tunbridge Wells.

GARDENER (Head).—Age 30; thoroughly understands the Cultivation of Pines, Vines, Peaches, Melons, Cucumbers; also the Growing of Stove and Greenhouse Plants, Orchids, Palms, Ferns, &c., and Flower, Fruit, and Kitchen Gardening. Can be highly recommended as to character and ability.—W. E., Messrs. Osborne & Son, Fulham Nursery, S.W.

GARDENER (Head).—Age 30, unmarried; experienced; has had first-class opportunities of learning the profession in some of the leading establishments in England; is an excellent Plantsman and Fruit Grower, and a successful Cultivator of Flowers and Vegetables, understanding his business thoroughly. Industrious, steady, trustworthy. A 1 references from his late employers.—T. O. R. T., Post Office, Rushy Green, Lewisham, S.E.

GARDENER (Head).—Married, one child (six years); thoroughly understands the Cultivation of Stove and Greenhouse Plants, Ferns, Orchids, Vines, Melons, Cucumbers, and Forcing in all departments, Early and Late, having had sixteen years' experience in good Establishments. No part objected to. Highest references from late and previous employers.—R., Gardener, Post Office, Newton Abbot, Devon.

GARDENER (Head, Working), to any Lady or Gentleman requiring the services of a thoroughly practical Man.—Understands Gardening in all its branches. Good character.—A. B., Post Office, Hampton, Middlesex.

GARDENER.—Age 32, married, one child (nine years); understands Vines, Cucumbers, Melons, and Flower and Kitchen Gardening. Wife to assist in the House if required. Two and a half years' good character, four previous. —E. MASON, Beenham, Reading, Berks.

GARDENER (Under or Single-handed), in a small Garden.—Age 24. Good character. State wages.—J. T., Queen's Head, Harlow, Essex.

GARDENER (Under).—Age 20; having had experience in Nursery and Gentleman's Garden, requires a place where In and Out-door Work is carried on with spirit. Highest references given. State wages. — C. D., Post Office, Englefield Green, Staines.

FLORICULTURAL MANAGER. — Has had considerable practical experience in a very large Establishment.—M. H., 35, Maiden Lane, Covent Garden, W.C.

FOREMAN. — Age 27; twelve years' experience in large establishments, thorough Plantsman, Good references.—H. DAWES, The Grange, Wallsend-on-Tyne.

FOREMAN, in a Nobleman's or Gentleman's Establishment.—Age 25; nine years' experience with Stove and Greenhouse Plants, Vines, Pines, Wall Fruit, and House Decorations. Can be well recommended.—J. W., 22, Little Boughton Street, Bransford Road, St. John's, Worcester.

PROPAGATOR, or PROPAGATOR and FOREMAN (Indoors).—Good experience. Last three years with Messrs. James Veitch & Sons, Royal Exotic Nursery, Chelsea.—C. T., 2, Dudmaston Terrace, King's Road, Chelsea, London, S.W.

PROPAGATOR, under Foreman.—Age 21; good experience in Soft-wooded Plants. Good character. —J. WELLER, 45, St. Mary's Street, Woolwich, S.E.

FOREMAN and SALESMAN in a good Nursery.—Age 40; nearly ten years in present place.—SAMUEL APPLEBY, The American Nurseries, Downham Market, Norfolk.

SHOPMAN (Second), or COUNTERMAN. —Age 25. Eight years in the trade. First-class references.—K. A., Post Office, Danvers Street, Chelsea, S.W.

JUNIOR SHOPMAN, or CLERK.—Age 24. Good references.—Z., J. Llewellyn, 16, Cathay, Bristol.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

PURE AERATED WATERS—ELLIS'S RUTHIN WATERS—Soda, Potass, Seltzer, Lemonade, Lithia, and for GOUT, Lithia and Potass.

Corks Branded "R. ELLIS and SON, RUTHIN," and every label bears their trade mark. Sold everywhere, and Wholesale of R. Ellis and Son, Ruthin, North Wales.

LONDON AGENTS:—W. BEST and SONS, Henrietta Street, Cavendish Square.

Grateful—Comforting.

EPPS'S COCOA, BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*

Manufacture of Cocoa.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*

Made simply with boiling water or milk.

Sold by Grocers, only in packets, labelled

JAMES EPPS and CO., HOMŒOPATHIC CHEMISTS, 48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, N.W.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD and CO., 172, New Bond Street, London, W., and of all Chemists throughout the World.

BEST MATERIALS ONLY.

JAMES WATTS & COMPANY,

(F.R.H.S.)

HORTICULTURAL CONTRACTORS,

AND

HOT-WATER ENGINEERS

353, OLD KENT ROAD, LONDON, S.E.

CONSERVATORIES, GREENHOUSES, FORCING PITS, CUCUMBER AND MELON FRAMES.

MANSIONS, WAREHOUSES, BATHS, ETC.,

Heated on the most Approved and Scientific Principles.

PLANS, ESTIMATES, AND SPECIFICATIONS FURNISHED ON APPLICATION.

ARCHITECTS' DESIGNS CAREFULLY EXECUTED.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, August 1, 1874.
Agent for Manchester, John Heywood.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 32.—Vol. II. { New Series. } SATURDAY, AUGUST 8, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

American blight	181	Orangery	181
Aphides	175	Peaches	179
Bedding Pelargoniums	181	Perforated flower-pots (with cuts)	168
Books, notices of	171	Periodical phenomena of vegetation, the	162
Bulbophyllum gracile	162	Periodic phenomena	178
Cattleya iricolor	162	Farm, the (with cut)	178
Certificates of the Royal Horticultural Society	174	Pisciculture	166
Clematis, purple-flowered	174	Plants, new garden	162
Cucumis Anguria	179	Pleached alleys	161
Dendrobium erythroxanthum	162	Pleurothallis scapha	162
Diggings from old mines	162	Potatos from seed	179
Diplacus glutinosus	179	Primrose, double crimson	181
Ferneries, Messrs. Veitch's (with cuts)	164	Queensland, letter from	175
Florists' flowers	176	Recently published portraits of garden plants	167
Forestry	170	Rose show in the Royal Botanic Society's garden	179
Garden operations	182	Rose shows	180
Gibson testimonial	174	Size of fruit	181
Gourd, the bonnet or dishcloth	178	Societies:—	
Henna	169	Royal Horticultural	181
Hops, monœcious (with cut)	174	Southampton Horticultural	182
Hurricane lamp (with cut)	177	Stowmarket Horticultural	182
Japanese vegetable wax	177	Wateringbury Horticultural	182
Joseph Priestley	173	Table decorations	163
Italian gardens	168	Useful and noxious insects	173
Lily bulbs	165	Weather, the	184
Liquidambar trees	177		
Mushrooms, maggots in	181		
Myosotis dissitiflora	181		
Natural history	166		

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION *to the* GARDENERS' CHRONICLE, *including postage to the United States, is* £1 6s.

Condition of the Fruit Crops, 1874.

THE GARDENERS' CHRONICLE for SATURDAY NEXT, August 15, will contain a [illegible] *and* TABULAR STATEMENT *of the* CONDITION [illegible] FRUIT CROPS *throughout the United Kingdom.*

May be had of all Booksellers. Price 5d.; post free, 5½d.

Published by W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

WESTON-SUPER-MARE and EAST SOMERSET HORTICULTURAL SOCIETY.

The ANNUAL SHOW will be held on TUESDAY, AUGUST 11. £200 in Prizes.

Schedules of Prizes may be obtained of the HONORARY SECRETARY, Weston-Super-Mare.

TAUNTON DEANE HORTICULTURAL SOCIETY.

President—The High Sheriff, G. F. Luttrell, Esq.

The largest Provincial Flower Show in England will be held at Taunton on THURSDAY, August 13. Twelve Stove and Greenhouse Plants in pots, £20, £10, £5. £250, and several valuable Silver Cups, will be offered as prizes for competition. Schedules and Forms of Entry can be obtained at the Offices, 14, Hammet Street, Taunton.

August 1. F. H. WOODFORDE, M.D., W. B. HELLARD, } Hon. Secs.

GLAMORGANSHIRE HORTICULTURAL SOCIETY.—The TWELFTH ANNUAL FLOWER SHOW will be held at Cardiff, on WEDNESDAY, August 19 (being the day before the Pontypool Show, which is within easy distance of Cardiff), when £300 will be given away in Prizes. For Schedules and full particulars apply to HENRY BOWEN, Hon. Sec., Cardiff.

PONTYPOOL HORTICULTURAL SOCIETY.—The SECOND ANNUAL FLOWER SHOW will be held at Pontypool on THURSDAY, August 20 (being the day after the Cardiff Show, which is within easy distance of Pontypool), when £100 will be given away in Prizes. For Schedules and full particulars apply to MARTIN EDWARDS, Hon. Sec., Glanwern, Pontypool.

DEVON and EXETER BOTANICAL and HORTICULTURAL SOCIETY.—The Autumn Show of this Society will be held at Exeter, on FRIDAY, August 21 next. Valuable Prizes for Stove and Greenhouse Plants, Palms, Ferns, Fuchsias, Gladioli, Dahlias, Asters, &c. Competition open. Schedules now ready.

Exeter, July 28. T. W. GRAY, Hon. Sec.

TAMWORTH POULTRY SHOW, in connection with the Staffordshire Agricultural Society, will take place on SEPTEMBER 8. Prize Lists and Forms of Entry may be had on application to the Secretary. ENTRIES CLOSE on SATURDAY, August 22.

Newcastle, Staffordshire. W. TOMKINSON, Sec.

RODERICK NICHOLSON, Advertising Agent and General Commission Agent, 112, Fleet Street, E.C.

FOR SALE, a beautiful specimen of the NEW ZEALAND ARAUCARIA, 11 or 12 feet high, grown in a wooden box, so as to be easily removed. Apply to Mr. FRASER, Morden, Surrey.

Early White Roman Hyacinths.

SMITHERS AND CRICHTON have just received their first Importation, in fine order, which they offer at moderate prices. Special quotations for large quantities upon application.

20, Commercial Street, Whitechapel, E.

LILY of the VALLEY.—Strong 3-yr. old clumps for forcing, 6s. per dozen, or 40s. per 100; variegated do., 6s. per dozen.

ANTHONY WATERER, Knap Hill, Woking, Surrey.

CENTAUREA RAGUSINA CANDIDISSIMA (the best variety), in packets, for thirteen stamps and upwards. Price to the Trade as usual.

CHARLES YOUNG, The Nurseries, Balham Hill, and Upper Tooting Park, S.W.

DOUBLE FLOWERED CINERARIA, as exhibited at the Royal Horticultural Society, Kensington, supplied in Seed Packets, at 3s. 6d., 7s. 6d., and 10s. 6d. each. Also CALCEOLARIA, PRIMULA, CYCLAMEN, and CINERARIA, of extra quality, mixed, or in separate colours, in 1s., 2s. 6d., and 5s. packets.

E. G. HENDERSON AND SON, Wellington Nursery, St. John's Wood, London, N.W.

Cineraria, Primula, Calceolaria, and Cyclamen.

WM. CUTBUSH AND SON very highly recommend their choice strain of the above, which always gives satisfaction. In packets, 2s. 6d., 3s. 6d., and 5s., post free. Highgate Nurseries, London, N.

Splendid Herbaceous Calceolaria.

LUCOMBE, PINCE, AND CO., can offer good packets of their superb strain at 2s 6d., 3s. 6d. and 5s each; also their celebrated strains of CINERARIA, PRIMULA and CYCLAMEN, at 2s. 6d., 3s. 6d. and 5s. each. PRIMULA JAPONICA, new seed, 1s. 6d., 2s. 6d., 3s. 6d. and 5s. per packet. Exeter Nurseries, Exeter.

To the Trade.

EPIPHYLLUM TRUNCATUM, good grafted plants, of the best varieties, 9s. per dozen, 65s. per 100. The New Double CINERARIA, strong plants, 9s. per dozen, 70s. per 100. Strong CINERARIAS of Messrs. Standish's fine strains, 2s. per dozen. STRAWBERRY RUNNERS, in great variety, 2s. per 100. Terms cash.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.

RICHARD SMITH, Nurseryman, Worcester.

To the Trade, &c.—Roses! Roses! Roses!

EWING AND CO. are offering very fine plants of the best varieties in cultivation. Twelve new varieties of 1874, in fine well-established plants, sent, carriage and package paid, to any Railway Station in the United Kingdom, on receipt of Post Office Order for 31s. 6d.

Descriptive and Priced CATALOGUES, and further information, gratis and post free on application.

The Royal Norfolk Nurseries, Norwich.

Twelve Acres of Roses in one Patch.

RICHARD SMITH invites inspection of his ROSES, now in fine bloom, at The Nursery, St. John's, Worcester.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WANTED, a large quantity of small MORELLO CHERRIES. Apply to F. B. WATSON, Minster, near Ramsgate.

WANTED, 500 or less 2-yr. old KESWICK CODLIN APPLE TREES, in the autumn. State lowest price per 100 to J. G. MITCHINSON, Seed Stores, Penzance.

WANTED, two or three large plants of each of the following:—CALANTHE VERATRIFOLIA, DENDROBIUM NOBILE, ONCIDIUM FLEXUOSUM, EUCHARIS AMAZONICA. Size and price to T. PRIOR, 7, Tokenhouse Yard, Lothbury, London, E.C.

WANTED, fine handsome CONSERVATORY PLANTS and TREES.—The Pine-Apple Nursery Company having a great demand for large Conservatory Plants, are open to purchase to any extent large well grown specimens of an ornamental character. Please address, with full particulars, to

Mr. JOHN BESTER, the Manager, Pine-Apple Nursery, Maida Vale, W.

PRIMULA JAPONICA.—Being quite hardy, this beautiful crimson-flowering Primrose, now that it can be supplied cheaply, would be extremely useful and effective for grouping in borders, shrubberies, &c., and would be exceedingly pretty planted in quantity along the sides of carriage drives. Special price per 100 or 1000 on application to

WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

British Fern Catalogue.

ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.

Foot's Cray Nursery, Sidcup Hill, Kent.

New Turnip Seeds for Present Sowing.

H. AND F. SHARPE are now harvesting TURNIP SEEDS, of 1874 growth, and are prepared to execute Orders from the Trade at very moderate prices, and on receipt of Letter or Telegram.

Seed Growing Establishment, Wisbech.

Seeds for Present Sowing.

JAMES DICKSON AND SONS can supply, of best quality, all SEEDS, including Turnip, Rape, Mustard, Trifolium, Cabbage, Vetches, Italian Rye-grass, mixed Grasses and Clovers for permanent pasture; also all other Farm Seeds, as well as Garden and Flower Seeds of all sorts.

108, Eastgate Street, Chester.

F. J. DRECHSLER, Patentee and Sole Maker, 23, Rathbone Place, Oxford Street, W. MACHINE noticed in this Number. Prices, £5 10s., £9, £15

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing Second sized Archangel, 100s.; Petersburgh, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; packing Mats, 20s., 30s., and 35s. per 100; and every other description of Mats at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

TANNED GARDEN NETTING, to protect Fruit from Birds and Blight. Suitable for Poultry 1d. per square yard; whole Nets, averaging 600 yards, £2 2s. widths cut from 1 to 12 yards, any length over 50 yards.

C. COTTON, Potter Street, Worksop.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.

DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE, sifted and carefully prepared solely for Gardening purposes by JAMES STEVENS. Invaluable for Forcing and Plunging Plants in. Especially nutritious for Gardens in Summer, retaining its moisture under great heat, and imparting an agreeable colour. Price 9d. per bushel; 20 bushels at 5d. per bushel; 100 bushels at 4½d. per bushel.

JAMES STEVENS, Fibre Works, York Terrace, High Street, Battersea, London, S.W.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO. 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

GREENHOUSES, VINERIES ORCHARD HOUSES, &c., erected in any part of the Country. Every description of HOT-WATER WORK and PLANTHOUSE FITTINGS made and fixed. PLANT PRESERVERS, neat, useful, and portable. PLANS and ESTIMATES supplied without charge.—WILLIAM JAMES RIVETT, Horticultural Builder, Stratford, London, E.

Scott's Wasp Destroyer.

J. SCOTT, Seedsman, Yeovil, offers his well-known preparation to Fruit Growers at 1s. 9d. and 2s. 9d. per bottle, post free, on receipt of stamps. No one who has fruit to preserve should be without it. It is also useful in the destruction of Flies, Cockroaches, and Crickets. See testimonials. None Genuine except the Corks bear "Scott, Seedsman Yeovil."

The Trade supplied. Prices on application.

WHEELERS' CHOICE SEEDS

FOR PRESENT SOWING.

WHEELERS' COCOA-NUT CABBAGE.

Wheelers' Cocoa-Nut is a new and very early variety, perfectly distinct, of most excellent flavour. It should be planted 18 inches apart; will yield an early and continuous supply. This Cabbage is a decided novelty and a great acquisition.

Per ounce, 1s. Packets, 6d. each, post free.

"I consider the Cocoa-Nut Cabbage the best I have ever grown."—A. W. Harper, Westhall Hill, Burford, Oxon.

"I grew the Cocoa-Nut Cabbage last year, and admire them very much."—Robert Mangham, School House, Kingsbarn.

"I have some of your Cocoa-Nut Cabbage growing in my garden now from seed sown last March. They are such fine ones,—it is a pleasure to look at them."—George Evans, Abergwilly.

"I have given some of the Cabbages (Cocoa-Nut) to my friends, and they all say they are the best they have seen."—J. Bratley, Briggs.

"In my experience Wheelers' Cocoa-Nut Cabbage is far superior to any other in cultivation."—James Harris, Sunninghill.

"Will you be so good as to send me a packet of your Cocoa-Nut Cabbage; I find your Lettuces so good that I never grow any other, and I hope the Cabbage will prove equally good."—A. Phillips, Windsor Cottage.

WHEELERS' TOM THUMB LETTUCE.

A small compact Lettuce, of fine flavour and of excellent quality; a capital variety for winter and early spring.

Large packet, 1s.; small packet, 6d., post free.

"I am going to try how your Tom Thumb Lettuce will stand the winter. As a summer Lettuce it is invaluable, and not to be approached by any in cultivation."—Chas. Brettingham, Goodwick.

"Please forward me two packets of your most excellent Tom Thumb Lettuce, the best Lettuce ever introduced into this country."—C. Thurnall, Whittlesford, near Cambridge.

"Your Tom Thumb Lettuce is the most tender and delicious of all Lettuces.—W. M. Thomas, Fanfield, Bedale, Yorkshire.

J. C. WHEELER & SON,

SEED GROWERS, GLOUCESTER, and 59, MARK LANE, LONDON, E.C.

NEW QUEEN ONION.

THE EARLIEST IN CULTIVATION.

Sown now will produce nice Onions, fit for use, this year, and will keep late into next spring. Seed per ounce, 2s. 6d.; per packet, 1s.

Also the following choice varieties for present sowing:—ITALIAN TRIPOLI, GIANT ROCCA, WHITE TRIPOLI, and GIANT MADEIRA, each 1s. per ounce; 6d. per packet, cheaper by the pound. WHITE LISBON, a fine Onion for spring use, 4d. per ounce. EWING'S No. 1 CABBAGE, one of the earliest in cultivation, a fine selected stock, per ounce, 1s. WHEELERS' COCOA-NUT ditto, per ounce, 1s. 6d.; per packet 6d.

For other Choice Seeds for Autumn Sowing see our "Illustrated Guide for Amateur Gardeners," price 1s.; gratis to Customers.

DANIELS BROTHERS,

The Royal Norfolk Seed Establishment, Norwich.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

DR. DENNY'S GERANIUMS.

SECOND SET.

JOHN COPELIN

Begs to announce that the Price of the above is now reduced to 10s. 6d. per set.

TYSSEN STREET NURSERIES, WEST HACKNEY, LONDON, N.

NEW CHESHUNT ROSES OF 1874.

PAUL & SON,

THE "OLD" NURSERIES, CHESHUNT,

Are now supplying Strong Plants, in pots, of NEW HYBRID PERPETUAL ROSES raised here.

W. WILSON SAUNDERS (Paul & Son), a finely shaped reflexed flower of vivid crimson, most intense colour, and of the freest perpetual character of any Rose. 7s. 6d. each.

THE SHAH (Paul & Son), a Seedling of Duke of Edinburgh, a fair-sized well-built flower, colour pure red: the brightest flower yet produced, a good free garden Rose. 5s. each.

Also, THE NOVELTIES OF 1873.

H.P. REYNOLDS HOLE and TEA CHESHUNT HYBRID.

Good Plants in pots with buds, 3s. 6d. each.

All the above may now be seen, finely in bloom, at the "Old" Nurseries.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEIR

ANNUAL CATALOGUE OF DUTCH FLOWER ROOTS,

Illustrated with upwards of 60 Woodcuts, and containing Descriptive LISTS of all the finest kinds of HYACINTHS, TULIPS, NARCISSI, LILIUMS, GLADIOLI, &c., including also a Select LIST of VEGETABLE and FLOWER SEEDS for Autumn Sowing,

Is now ready, and will be forwarded Post Free on application.

A Select LIST of STRAWBERRIES is also ready.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

DUTCH FLOWER ROOTS.

OSBORN & SONS

BEG TO ANNOUNCE THAT THEIR

ANNUAL CATALOGUE OF THE ABOVE

IS NOW PUBLISHED, AND MAY BE HAD POST FREE ON APPLICATION.

It contains a Choice Selection of HYACINTHS, TULIPS, CROCUS, NARCISSUS, LILIUMS, and various other BULBS; also a SELECT LIST of VEGETABLE and FLOWER SEEDS for Autumn Sowing.

THE NURSERY, FULHAM, LONDON, S.W.

NEW PLANT CATALOGUE 1874,

Gratis and Post Free.

B. S. WILLIAMS'

NEW PLANT AND GENERAL

CATALOGUE OF NURSERY STOCK

Is now ready, and will be forwarded to all applicants.

It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

Sutton & Sons

ARE PREPARED TO OFFER

NEW SEEDS

OF THEIR CHOICE STRAINS OF

FLORISTS' FLOWERS

FOR PRESENT SOWING.

Post Free.

SUTTONS' SUPERB CALCEOLARIA.

Our Stock of this favourite Greenhouse Flower has been saved from the finest strains only. Price, 2*s.* 6*d.* per packet.

DOBSON'S, JAMES'S, THOMAS'S,
And other Strains can be supplied at the advertised prices.

The following can also be supplied :—

SUTTONS' CHOICE CINERARIA, 2*s.* 6*d.* per packet.
SUTTONS' CHOICE PRIMULA, 2*s.* 6*d.* per packet.
SUTTONS' CHOICE CYCLAMEN, 6 varieties, 5*s.*

Complete particulars of other CHOICE FLOWER SEEDS for present sowing, gratis and post free.

SUTTON and SONS,
SEEDSMEN BY APPOINTMENT TO THE QUEEN AND PRINCE OF WALES,
ROYAL BERKS SEED ESTABLISHMENT,
READING.

Sutton & Sons

RECOMMEND THE FOLLOWING

CHOICE

ONION SEEDS

For Present Sowing.

The varieties, if sown at once, will come to a very large size next Spring and Summer.

NEW QUEEN.—The earliest of all Onions, if sown at once will be ready for use this Autumn. 1*s.* 6*d.* per packet.

NEW GIANT ROCCA.—Very large, mild flavour, can be grown 2 lb. to 3 lb. in weight. 1*s.* per ounce.

LARGE EARLY RED ITALIAN and LARGE EARLY WHITE ITALIAN.—Very large, hardy, and good keepers. Each 1*s.* per ounce.

GIANT LATE RED ITALIAN and GIANT LATE WHITE ITALIAN.—Coming in a fortnight after the preceding, very large. Each 1*s.* per ounce.

NEAPOLITAN MARZAGOLA.—Very quick growth. 1*s.* per packet.

☞ Postage 2*d.* per ounce extra.

Particulars of other Choice Vegetable and Flower Seeds for Present Sowing, Gratis on application.

ROYAL BERKSHIRE SEED ESTABLISHMENT,
READING

FINEST ONIONS in the WORLD.

Carter's

PRIZE ONION SEED,

for Present Sowing.

NEW GIANT TRIPOLI
NEW GIANT ROCCA
NEW EARLY WHITE NAPLES
NEW NEAPOLITAN MARZAJOLE
} 1*s.* per pkt. post free.

P.S.—J. C. & Co. think it necessary to caution the Public against purchasing spurious varieties under the above names.

CARTER'S
The Royal Seedsmen,
237 and 238, HIGH HOLBORN, LONDON, W.C.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

SYRINGES & GARDEN ENGINES.

G. & W. PURSER'S

List of Engravings for this Season

Is now ready, and may be had, post free, on application.

Sole Makers of the Jet d'Eau.

WORKS: WARWICK STREET, BIRMINGHAM.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

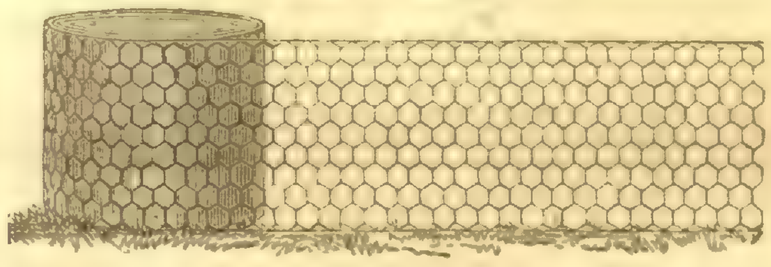
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

Messrs. J. B. Brown & Co.'s VIENNA PRIZE WIRE NETTING.

THE MEDAL FOR MERIT
At the Vienna Universal Exhibition, 1873,

Was awarded to Messrs. J. B. Brown & Co., for "excellence and perfection in material and workmanship, large extent of production, and cheapness of produce."



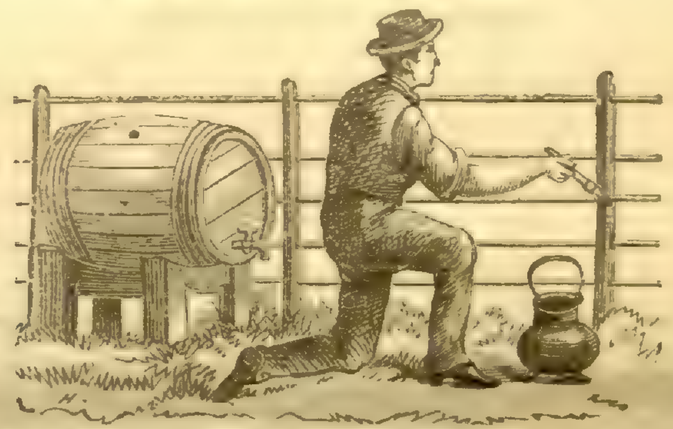
Prices per Lineal Yard, 24 inches high:—

Size of Mesh.	Mostly used for	Gauge.	Or Light Quality.	Gauge.	Or Medium Quality.	Gauge.	Or Strong Quality.
			s. d.		s. d.		s. d.
2 in.	Dogs or Poultry .	19	0 3¾	18	0 4½	17	0 5¾
1⅜ in.	Small Rabbits, &c.	19	0 4¼	18	0 5¼	17	0 6¼
1½ in.	Smallest Rabbits	19	0 5¼	18	0 6¼	17	0 8

Price Lists of Fencing Wire, Iron Fencing, Hurdles, Fruit Espaliers, &c., on application.

J. B. BROWN & CO.,
Offices—90, CANNON STREET, LONDON.

Oil Paint no Longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone This Varnish is an excellent substitute for oil paint on all outdoor work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL JUST RECEIVED.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

CARSONS' PAINT,

PATRONISED BY THE QUEEN,

The British, Indian and Colonial Governments,

8000 of the Nobility, Gentry, and Clergy,

Railway and Canal Companies, Collieries, Ironmasters, &c., &c.,

Is extensively used for all kinds of

OUTDOOR WORK.

It is especially applicable to

WOOD, IRON, BRICK, STONE & COMPO.

CAN BE LAID ON BY UNSKILLED LABOUR.

Sold in all Colours.

2 cwt. free to all Stations.

Prices, Patterns, and Testimonials sent Post Free.

WALTER CARSON & SONS,
LA BELLE SAUVAGE YARD,
LUDGATE HILL, LONDON, E.C.
And 21, BACHELOR'S WALK, DUBLIN.
NO AGENTS.

NEW PLANTS.

WILLIAM BULL, F.L.S.,

Begs to announce that he is now sending out the following Novelties, which are of unexceptionable merit :—

CROTON MAJESTICUM.

One of the finest of this now extensive and varied family of ornamental-leaved stove plants. It is of free-growing and bold habit, though the leaves are narrowish and elongate; when mature they are from 15 to 18 inches in length, including a petiole of about 2 inches long. They are linear in form, acute or sometimes bluntish, in the young growth deep green, with golden rib, and markings representing venation, but more or less confluent. In the older and more matured foliage the green takes on a deep olive hue, while the yellow portions change to deep crimson, the intermediate leaves being coloured in an intermediate manner. The regularly-drooping elongate leaves give the plant a very elegant character, which is very greatly enhanced by its rich tints of colour. This was imported from the South Sea Islands. It has received a First-class Certificate from the Royal Horticultural and Royal Botanic Societies. Two and Three Guineas.

CROTON SPIRALE.

This is a very distinct and effective variety, both on account of its form and colouring. The spiral twisting of the leaf blade, which has suggested its name, is very marked and very constant. The leaves are from 9 to 13 inches long, and about an inch wide, deep green, with a broad golden-yellow bar up the centre, the green margin twisting spirally around the golden bar, some leaves being partially spiral and partially undulate. The older leaves become a deep bronzy green, almost purple, and the mid-rib a deep crimson. One of the very best of the Crotons for ornamental purposes. It has been imported from the South Sea Islands, and has received a First-class Certificate from the Royal Horticultural and Royal Botanic Societies. Two and Three Guineas.

CROTON VOLUTUM.

A very distinct-looking and beautiful form of the multifarious Croton or Codiæum, the great peculiarity of which consists in the leaves being rolled up from the end in a volute, after the manner of the curving of a ram's horn. These leaves are 6 inches long, and an inch and a half or more in breadth, and beautifully coloured. The ground colour is a deep green, a golden bar a quarter of an inch wide runs down the centre, from which yellow veins diverge at about half-inch intervals, and meet near to, and so as to coalesce with, the golden margin, in which occurs irregularly-scattered green spots. The markings are very regular, a little pink sometimes appearing in the mid-rib; the curving of the leaf-blade is also very constant, causing the edges to be elevated so as to form a kind of channel. The bark of the young shoots is also variegated with yellow. This will prove one of the most beautiful and effective among the many fine Crotons which have come to us from the islands of the South Seas. It has received a First-class Certificate from the Royal Horticultural and Royal Botanic Societies. Three Guineas.

DIPLADENIA BREARLEYANA.

This splendid variety of Dipladenia will make one of the best exhibition plants extant. It is of free growth, and of the most floriferous character, in this respect greatly exceeding any other Dipladenia. It is an evergreen stove climber of the very first rank, and is furnished with opposite oblong-acute dark green leaves, which serve as a fine contrast for the superbly coloured flowers, which are of the largest size and of the richest crimson colour; they have, moreover, this peculiarity, that the colour increases in intensity with the age of the flowers. Beautiful as were the Dipladenias of some few years since, they have been quite eclipsed by the improved varieties which have been obtained, and amongst these D. Brearleyana is certainly the most distinct and beautiful. It has received a First-class Certificate from the Royal Horticultural and Royal Botanic Societies. Two and Three Guineas.

DRACÆNA ALBO-ROSEA.

This is a bold-habited stove shrub from the South Sea Islands, with erecto-patent leaves densely set upon the stems, from 16 to 18 inches long and upwards of 3 inches wide, with a stalk-like base 5 inches long, having a glaucous bloom and a rose coloured border. The mature leaves are of a deep green, with a bronzy tint, are edged with rose colour, the younger central ones being freely coloured with greenish white, changing to pale rose of varied intensity, the margin in the case of these younger leaves being whitish. Two Guineas.

MEDINILLA AMABILIS.

A remarkably showy stove plant, introduced from Java, and having the general habit of M. magnifica, but with erect pyramidal panicles of large rosy peach flowers. The stem is quadrangular, the angles being furnished with a narrow undulated wing; and the leaves are opposite, sessile, oblong-obovate, obtuse with a short acuminate point, a foot long, and 7 to 8 inches broad. The flowers grow in large panicles, which are erect and composed of 4-branched whorls, the branches each forming a cyme of numerous rosy pink flowers, which measure 2 inches across, the unexpanded buds being of the same delicate pink colour, and having a waxy appearance. A grand stove plant, of the flowering sub-division. Two Guineas.

SPATHIPHYLLUM PICTUM.

A grand stove plant, with something the aspect of a Dieffenbachia. Its large, half-leathery half-fleshy leaves have a broadly ovate-elliptic blade, which even in young plants is as much as 18 inches in length, and 8 inches in breadth, with a marginate stalk of 4 to 5 inches long. They have a glossy dark green surface, freely mottled along the course of the transverse veins with blotches of golden green, the mid-rib being prominent and of a pale green. It is a very effective plant, its bold leaves being very handsomely mottled. It has been introduced from South America. One and a half Guinea.

NEW PELARGONIUM, QUEEN VICTORIA.

This new Pelargonium is now being sent out. To say that it is handsome conveys but an inadequate idea of it, for it is the most marvellously beautiful and novel variety ever offered.

The flowers have peculiarly crispy petals; they are not really double, but from their fulness of form and the extra number of petals, they have the appearance of being so. The colour is a rich vermilion; all the petals broadly margined with pure white, and the upper ones blotched with maroon. The contrast of the broad white margin with the vermilion ground colour makes the flower extremely pleasing and attractive. Price One Guinea each.

One dozen handsome flowered Pelargoniums, including the beautiful Queen Victoria, for Three Guineas.

A drawing of Pelargonium Queen Victoria, by Macfarlane, can be had on application, price 2*s.* 6*d.*

TREE FERNS.

The Largest and Best Stock in Europe.

Prices Moderate.

An Inspection is invited.

CYCAS MEDIA.

MR. WILLIAM BULL intimates that he has just received from Australia the largest and finest importation of this beautiful Cycas that has ever reached Europe.

The trunks are of various sizes, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, 9 feet, 10 feet, and 14 feet high, symmetrical, straight, and in the finest condition possible.

These Cycas are admirably adapted for the decoration of Greenhouses and Conservatories.

N.B.—The Collection of Ornamental Cycadaceous Plants in Mr. William Bull's Establishment is the largest and finest extant.

An inspection is invited, or prices on application.

NEW HYBRID BEGONIAS.

The following New Begonias belong to the handsome-flowered tuberous-rooted section, and are most desirable acquisitions :—

	Each—*s.*	*d.*
ANACREON, bright deep crimson, a beautiful flower with very long petals	7	6
CAROLINE, deep rosy pink, with broad petals	5	0
CLIMAX, deep rich rosy carmine, the two outer petals extremely broad	5	0
CORSAIR, rosy salmon, profuse bloomer	5	0
ENSIGN, bright pink, a very elegant variety	5	0
GEM, bright cream colour, the reverse of the petals light pink	5	0
GLITTER, vivid orange-scarlet, extremely showy	7	6
LOTHAIR, deep rose, a fine flower, with short broad petals	7	6
MAGNET, beautiful light pink, the reverse of the petals deep pink	5	0
MAZEPPA, very light cream colour, the reverse of the petals tinted with orange-pink	5	0
SURPRISE, bright pink, a very pretty colour	5	0
TROJAN, light rosy pink, very distinct	5	0

Seed of the above New Begonias, each 2*s.* 6*d.* per packet; mixed, 3*s.* 6*d.* per packet.

DOUBLE FLOWERED CINERARIA.

This Novel Strain has received *a Silver Medal at the International Horticultural Exhibition at Florence;* First-class Certificate from the Royal Horticultural Society, Kensington. Packets of Seed, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Also

	Per packet—*s.*	*d.*
PRIZE PRIMULA SINENSIS, Red and White	each 2	6
PRIZE PRIMULA SINENSIS, Fern-leaved, Red and White	each 2	6
PRIZE PELARGONIUM, Gold and Bronze	2	6
PRIZE CINERARIA	2	6
PRIZE CALCEOLARIA	2	6
PRIZE GLOXINIA	2	6
PRIZE BEGONIA, handsome-flowered	3	6
PRIZE AURICULA, Alpine	2	6
PRIZE CARNATION	2	6
PRIZE COLEUS	2	6
PRIZE FUCHSIA	2	6
PRIZE PETUNIA	2	6
PRIZE CYCLAMEN	2	6

ORCHIDS.

SUCH LARGE IMPORTATIONS and Consignments of Orchids are constantly arriving at Mr. WILLIAM BULL'S Establishment, that he is able to offer the following at the low prices annexed :—

	Each—*s.*	*d.*		*s.*	*d.*
CATTLEYA TRIANÆ	7	6	and	10	6
„ DOWIANA				42	0
ODONTOGLOSSUM TRIUMPHANS	15	0	and	21	0
„ PESCATOREI	15	0	and	21	0
„ ANGUSTATUM, new and handsome	21	0	and	31	6
BROUGHTONIA SANGUINEA	7	6	and	10	6
ONCIDIUM MACRANTHUM	42	0	and	63	0
SACCOLABIUM AMPULLACEUM				31	6
„ FURCATUM				42	0
ONCIDIUM PHILIPSIANUM				15	0
DENDROBIUM BENSONIÆ	15	0	and	21	0
„ THYRSIFLORUM	42	0	and	63	0
„ AMŒNUM.—This pretty Dendrobium, the flowers of which are white tipped with pink, and scented like Violets, has lately received a First-class Certificate, both from the Royal Horticultural and Royal Botanic Societies	31	6	and	42	0
SACCOLABIUM VIOLACEUM	15	0	and	21	0
„ BLUMEI MAJUS	15	0	and	21	0
PERISTERIA BRUCHMULLERIANA	21	0	and	31	6
CYPRIPEDIUM NIVEUM	21	0	and	31	6
„ PARISHII	31	6	and	42	0
ANGULOA CLOWESII	10	6	and	15	0
AERIDES GOODYERA DAWSONIANA	10	6	and	15	0
„ CRISPUM	10	6	and	15	0
„ LINDLEYANUM	15	0	and	21	0
CATTLEYA EXONIENSIS		8	and	10 gs.	
DENDROBIUM SENILE	21	0	and	31	0
CALANTHE VESTITA LUTEO-OCULATA	5	0	and	7	6
„ „ RUBRO-OCULATA	5	0	and	7	6
ODONTOGLOSSUM CITROSMUM	7	6	and	10	6
„ „ ROSEUM	10	6	and	15	0
BIFRENARIA AURANTIACA	15	0	and	21	0
PLEIONE MACULATA	15	0	and	21	0
„ REICHENBACHIANA	15	0	and	21	0
„ WALLICHII	7	6	and	10	6
PHALÆNOPSIS GRANDIFLORA	31	6	and	42	0
ONCIDIUM WELTONI	21	0	and	31	6
ODONTOGLOSSUM HASTILABIUM	21	0	and	[illegible]	
„ GRANDE	7	6	and	10	6
LIMATODES ROSEA	5	0	and	7	6
LÆLIA PURPURATA	15	0	and	21	0
EPIDENDRUM DICHROMUM	10	6	and	15	0
DENDROBIUM PIERARDII	7	6	and	10	6
„ PARISHII	10	6	and	15	0
„ JAMESIANUM	15	0	and	21	0
„ DEVONIANUM	7	6	and	10	6
VANDA LAMELLATA.—This scarce and beautiful Vanda has lately received a First-class Certificate both from the Royal Horticultural and Royal Botanic Societies	31	6	and	42	0
CYPRIPEDIUM LONGIFOLIUM	21	0	and	31	6
HOULLETIA LINDENIANA	10	6	and	15	0
ODONTOGLOSSUM LINDENI	21	0	and	31	6
ONCIDIUM CUCULLATUM	7	6	and	10	6
„ TRULLA	10	6	and	15	0
CATTLEYA CHOCOENSIS	15	0	and	21	0
PLEIONE LAGENARIA	15	0	and	21	0
ONCIDIUM KRAMERIANUM	15	0	and	21	0
VANDA BENSONIÆ	15	0	and	21	0
SCHLIMIA JASMINODORA	21	0	and	31	6
ODONTOGLOSSUM PHALÆNOPSIS	21	0	and	31	6
DENDROBIUM INFUNDIBULUM	15	0	and	21	0
„ CHRYSANTHUM	7	6	and	10	6
LYCASTE HARRISONÆ	10	6	and	15	0
ONCIDIUM SPHACELATUM	7	6	and	10	6
„ OPULENTUM, new and handsome	31	6	and	42	0

And quantities of other Orchids at equally low prices.

Choice Collections of Orchids made at 6, 9, and 12 gs. per dozen.

By sending names of those already possessed, different varieties can be given, and purchasers will have a good selection made for them.

The Ornamental Plants in Mr. William Bull's Winter Garden are many of them the handsomest in this country.

MR. WILLIAM BULL'S ILLUSTRATED CATALOGUE of NEW and RARE PLANTS for 1874,

is now issued, and can be had on application. Price 1*s.*

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

NEW STRAWBERRIES.

"TRAVELLER."

First-class Certificate, Royal Horticultural Society.

Unquestionably the best Strawberry for flavour, firmness of flesh, and handsome appearance. The fruit is of good size, solid, highly glazed, and ripening well to the point. Stalk strong, foliage dark glossy green: the plant hardy and healthy, and producing sufficient but not an excess of runners.

Raised by Mr. Laxton from a cross between La Constante and Sir Charles Napier, and has deservedly received the name of "Traveller" on account of its great suitability for packing, which renders it undoubtedly the best Strawberry in cultivation for transmission.

The *Gardeners' Chronicle* says—"the flavour was considered so remarkably fine by the whole of the members of the Committee [R. H. S. Fruit, &c.] that it was deemed worthy of a First-class Certificate."

The *Journal of Horticulture* says—"It is conical and occasionally slightly cockscomb shaped. The skin is very dark red, and when quite ripe approaching dark mahogany. The seeds are large and prominent, the flesh very firm and solid, with a brisk and rich flavour similar to the Hautbois."

Strong Plants now ready, 25 for £1 1s., £3 per 100.

"EXQUISITE."

This is another firm-fleshed, high-flavoured, free-bearing seedling of Mr. Laxton's, and was selected by several eminent connoisseurs and pomologists from a batch of many hundred seedlings, and having been repeatedly tested against the British Queen and other richly-flavoured Strawberries, can be recommended as maintaining fully the rich vinous flavour of that variety, and although not so large, is of good size, ripens fully to the point, and is hardier and more fertile than the Queen.

Strong Plants now ready, 25 for 12s. 6d., £2 per 100.

TRADE TERMS ON APPLICATION.

Orders will be executed in strict rotation by

W. & J. BROWN,

NURSERYMEN, STAMFORD.

SATURDAY, AUGUST 8, 1874.

PLEACHED ALLEYS.

I WISH every garden had its summer and winter pleached alley. The summer one, consisting of the orthodox Shakspearian Roses and lush Woodbine, commencing with the early white and very sweet Lonicera fragrantissima, Sweet Briar, and Scotch Roses (attracting early bees), and ending with the evergreen L. glabra and Gloire de Dijon—tempting sunning places for the latest butterflies (Red Admiral)—both of which, if the season be favourable, would flower far into December. Among the Honeysuckles I would also include the delicious L. flexuosa, L. xanthocarpa, and L. parviflora, that form fine clusters of yellow and red berries; and I would decidedly have a single Persian yellow and copper Austrian Briar up the trellis for the sake of their refreshing and fragrant early foliage.

The Sweet Briar would be as a hedge outside the whole length, and all varieties of Scotch Roses in a row on the other side. With the tiny *allée* of Rose (Scotch) and the huge Gloire extremes would meet, and make a long season for the Beatrices to "run like lapwings" to their "Woodbine coverture." A light pair of steps should be kept at hand, to reach the late Roses, that one may never fancy them "sour Grapes;" the dwarf Scotch bushes are convenient to hover over and select and re-select from, each dainty bud more tempting than the other.

But the winter alley would, I am confident, be the most pleasant resort in a close summer day. I would make it entirely of these four Poplars—Balsam, Aspen, Italian, and Abele. The first, with its aromatic fragrance in earliest spring, would form principally the sides, and the roof would be arched over with the sweet tinkling tremula and Italian. All these Poplars have a more or less flattened foot-stalk set at right angles to the leaves, which form the special charm, particularly in the two last named species. I would have two or three Abeles, for the sake of their white under-leaves, to give light as well as air to my high roomy alley, and a wand of Willow here and there of all those sorts that have early and pleasant catkins, and bright red, yellow, and purple barks within reach of eye and hand.

I would make the entrance through an arch of Rosemary, and the exit through one of Salix Caprea, whose early flowers would attract innocent flies of various sorts, and please me when I came out to watch the stirring of the Balsam buds, and see if the resinous sap was showing. There should be a hedge of Rosemary on the one side of this alley, and a bed of evergreen Thymes, Lavender, and all sorts of sweet aromatic green herbs on the other, all collected together safe under my eye. But it is as an alley "of the winds" that I would principally advocate this Poplar, and I am sure popular, covered walk. Some of the endless and beautiful effects produced by a breeze could conveniently be studied, and we do not in planting take this sufficiently into account—the bad effects of wind we are always keenly alive to. We are sure to have wind, therefore let us see the white under-leaf of wild Raspberries in the hedges, Bay Laurels in shrubberies, planted in the direction of the prevailing wind—Abeles, and Acer dasycarpum, and the purple colour of the under surface of the leaf in A. pseudoplatanus purpureum in our plantations and woods, and in particular Lombardy Poplar for their peculiar and beautiful swoop in a breeze. Let them have plenty of room, so that from any quarter that the wind may blow from we can admire its graceful sweep unimpeded, unlike that of any other tree. I will quote better words than my own: "One beauty the Italian Poplar possesses, which is almost peculiar to it, and that is the waving line it forms when agitated by wind. Most trees under these circumstances are partially agitated—one side is at rest while the other is in motion—but the Italian Poplar waves in one simple sweep from the top to the bottom—'*elle plie et ne se rompe pas.*' All the branches coincide in the motion, and the least blast makes an impression upon it when other trees are at rest." (*Vide Macdonald's Dictionary of Practical Gardening*, 1807.)

In the alley not a "catspaw" will be lost; long before one feels it it will be seen in the gentle quiver of one or two leaves (not always at the top or on one side of one branch); it will be heard first in the sweet tinkle of the Italian, more sensitive than the Aspen, and of a completely different sound. How instantaneously does the Aspen stop at times, or, may be, go on pattering like rain for a few seconds; no two airs giving the same sounds. I always fancy Poplars make the best trees for hot weather, as they multiply and utilise the slightest breath. The mere rippling sound cools one, and they certainly keep off flies, which heavy shade trees like Sycamore and Horse Chestnut do not, for insects cannot settle upon their restless foliage, which in July, methinks, is no small advantage. After a thunderstorm or steady rain, when the summer flower-alley will be dripping and strewed with Rose petals and Honeysuckle flowers, the Poplar leaves will have "merrily danced" themselves dry, if even they were wet. No trees, authorities tell us, suffer so little from storms. In spring the alley would be bright yellow with the young Balsam leaves, and rich gold in autumn with the old foliage of the Aspens, beautiful to look at as well as to hear at that season.

As all Poplars have suckers more or less, a succession crop can be selected to have tops on a level with the eye; the leaves on the young rank suckers do not twitter so well as those on the older wood. We have all paused to listen to the soft hushed sound of the young deciduous needles of the fragrant Larch in spring, or the louder soughing of the hard evergreen ones of the Scotch Fir in winter, and the brittle rattling of Beech leaves in autumn; but for summer sounds there are no trees like the Poplar, as sensitive as an Æolian harp, but not made by man—they are perfect, and never go out of tune. By-the-by Goëthe (as I have read somewhere) had these wailing instruments, true Penseroso nightingales, "most musical, most melancholy," hung in the trees in his garden. If I live to extreme old age, and my winter walk can only be to "trace this alley up and down," I shall have Æolian harps hung up (air harps they are called in Germany)—a large one at the entrance arch, where there will be the strongest draughts, and little ones among the Aspen branches—in keys (they are usually in A, three sharps), to suit my aged quivering fancies and humours when the Poplars are silent.

In winter the birds would be fed regularly in both alleys, and, thus encouraged to build, one would be sure to have robins and wrens, and

> "The ouzel cock, so black of hue,
> With orange tawny bill,
> The throstle with his note so true,
> The wren with little quill."
> *Midsummer Night's Dream*, act. iii., s. 1.

Blackbirds and thrushes I observe always love to build on the top of arches or bowers. Sparrows would not be permitted to build their

untidy nests, as straws, rags and tags are an abomination; but they would be fed, and they would keep the Roses clear of caterpillar and aphis. We should have great enjoyment in the birds, and we should mutually watch and trust each other.

Then the alleys must not be far from the house, at the same time retired from the main paths, for the birds must not be disturbed, nor the Roses pulled by every idle passer-by. North and South would be the direction of the summer alley, so that the Roses and "Honeysuckles ripened by the sun" (*Much Ado about Nothing*, act iii., s. 1.) would get the morning and evening rays. The leaf-alley must be planted according to the direction of the prevalent wind in each district, avoiding anything approaching to a funnel or extreme draughts. Thus we can step out at all hours in any weather or season, without any ceremony. *F. G. Hope, Wardie Lodge.*

New Garden Plants.

Pleurothallis Scapha, *n. sp.**

"A Pleurothallis!" the reader will say sneeringly. "Oh yes—a Pleurothallis." If it had the name of Restrepia it would be highly welcome. It has a raceme with 6—8 flowers such as is admired so much in Restrepias, but in lieu of four pollen masses there are but two. The flowers are nearly 2 inches long. The superior sepal is yellowish-white with three dark brownish-purple lines; the inferior sepal is totally dark brownish-purple; the petals are yellowish-white with three purple lines; and the lip is of the same colour, with three purplish lines. The plant is very much in the way of Pleurothallis Sirene, yet the flowers are much longer, the inferior sepals appear to be constantly connate, and the lip has no teeth at its anterior part. The inflorescence, too, is a good deal laxer. I have been favoured with a good inflorescence from Mr. J. Day. *H. G. Rchb. f.*

Dendrobium erythroxanthum, *n. sp.*†

A very pretty Dendrobe, much like Dendrobium Bullenianum, but distinct in the shape of the lip, the top of the column, and the more slender spur. The flowers are equal to those of D. secundum, orange, striped with purple. They form a dense mass. I have no knowledge of the stem, yet it may not be very different from that of D. secundum. It flowered with Mr. W. G. Brymer, who had it from the Philippines. I obtained it from Mr. Stuart Low. *H. G. Rchb. f.*

Bulbophyllum gracile, *Parish et Rchb. f.*‡

A very interesting little thing. The pseudobulbs stand in close masses, and are covered with many impressions. They are equal in size to a threepenny piece. There appear to be two leaves from the scars. The flowers are very small, numerous, green mottled with brown. This is one of the very numerous discoveries of the Rev. Mr. Parish. Your readers will be glad to hear that this indefatigable gentleman is well, according to his last letter, dated June 20, 1874. He is full of energy, and will, no doubt, continue to render most important services to science. His last highly interesting discoveries are just published in the last part of the *Journal of Botany*—a periodical that is decidedly likely to be the botanic interpreter of the whole globe. I have to thank Mr. Stuart Low for living specimens. *H. G. Rchb. f.*

Cattleya iricolor, *n. sp.*§

A very remarkable novelty, one of such strange harlequin-coloured things as Miltonia anceps. I hear from Mr. Harry Veitch that the plant, obtained some years ago at Mr. Stevens' rooms, looks like a dwarf Cattleya Mossiæ. The sepals are rather narrow, pallid sulphur coloured; the petals nearly equal; the lip of a similar ground colour, with a zig-zag band of dark orange from the tip of one side-lobe to the other. There are numerous violet lines both before the orange zig-zag line and behind it, and from thence to the base of the lip. The small column is whitish, and has a large violet spot on its front. The flower is somewhat larger than that of C. Skinneri, yet the parts are thicker and narrower. It might perhaps be compared to a small-flowered Lælia grandis. The colours, however, are more pallid, and the orange zig-zag band and the violet stripes are quite unique. I have to thank Messrs. Veitch & Sons for this novelty. *H. G. Rchb. f.*

* (Acuminatæ, Lindl., juxta P. Sirenen, Rchb. f.; Bonpl. iii., 1855, p. 71: Lindl. Folia, Pleurothallis, No. 107, May, 1850.) "Caule secundario folio sublongiori; folio ovato coriaceo; spatha . . . .; racemo laxo plurifloro; bracteis ochreatis pedicellos non æquantibus; sepalo dorsali triangulo longe setaceo; sepalis inferioribus subæqualibus, longe setaceis, apicem usque fere coalitis; tepalis basi obtusangulo-rhombeis dein longe aristatis; labello basi humerato trifido; laciniis lateralibus semilunatis apice obtuso inflexis, lacinia media producta ligulata acuta; carina utrinque a basi laciniæ lateralis in laciniam mediam insiliente; columna brevi postice acuta.

† Pedilonum aff. D. Bulleniano, Rchb. f.; racemo densifloro capitato; sepalo dorsali ac tepalis ovatis acutis; sepalis lateralibus oblongis acutis in cornu extinctoriiforme acutum extensis; labello longe unguiculato antice oblongo acuto, plica calloso semilunari transversa in ungue basin versus; columna apice trifida; laciniis lateralibus triangulis; lacinia postica subulata, antro parvo antice in basi; anthera basi supra rostellum antice penicillata.

‡ Pseudobulbis dense aggregatis depresso sphæricis multifavosis; pedunculo capillari basi vaginis paucis acutis distantibus; apice longe racemoso subspithamaeo; bracteis triangulo-setaceis ovaria pedicellata hispida subæquantibus; sepalis triangulis tri-quinquenervosis extus hispidulis; tepalis linearibus uninerviis; labello cordato ligulato obtuse acuto ancipiti; columnæ triseta, setis anticis longioribus.

§ "Habitu Cattleyæ Mossiæ;" racemo bifloro; sepalis ligulatis acutis, lateralibus deflexis; tepalis cuneato ligulatis acutis; labello amplo medio trilobo, labis lateralibus obtusangulis; lobo antico semioblongo obtuse acuto, sinubus inter lobos crispis; columna trigona, antice valde excavata, androclinio cucullato immerso.

DIGGINGS FROM OLD MINES.

Ancient Theories of Vegetation.—The Rev. John Lawrence, of Yelvertoft, in Northamptonshire, who wrote *The Clergyman's Recreation; showing the Pleasure and Profit of the Art of Gardening*, published by Bernard Lintott between the Temple gates, Fleet Street, in the year 1714, thus tells us how to inoculate with variegation the plain-leaved Jessamine:—"Supposing a plain Jessamine tree spreading itself into two or three branches from one common stem near the root, into any one of the branches, in August, inoculate a bud taken from a yellow-striped Jessamine where it is to abide all winter; and in the summer, when the tree begins to make its shoots, you will find here and there some leaves tinged with yellow even on the other branches not inoculated, till by degrees in succeeding years the whole tree, even the very wood of the tender branches, shall be most beautifully striped [thanks for this handsome testimony to the merits of variegation] with yellow and green intermixed. It is not material whether you cut off the branch above the inoculation to make the bud itself shoot, for it will have the same effect of tinging by degrees all the sap of the trees as it passes by or through this bud, and communicating its virtue to the most distant and opposite branches, though the bud itself should not shoot out." Marvellously potent buds these must have been in olden times. It seems almost as if they have degenerated since then. Perhaps, as in other matters, the diffusion of variegation over a far wider area has lessened its force. Be that as it may, our modern buds are not found to have such certain and powerful effects. But then we may have budded at the wrong season, and may have kept our buds disengaged for too long a time. It will be observed that our old author is specific in regard to time—August, and he precedes his description of his experiments with the statement, "That it must be taken notice of that the branch or shoot which you make choice of for buds to inoculate with must not lay any time (as in grafting), but must be immediately made use of." Whether it was found that some of their potency oozed out our author does not say. That it was essential to husband the inoculative force unbroken is obvious from what follows. "Nay," says our author, "I have myself several times experienced that if the bud do but live two or three months, and after that happen to die, or be wounded by any accident, yet even in that little time it will have communicated its virtue to the whole sap, and the tree will become entirely striped." This, however, was not found to be the case with other plants, such as the painted Phillyrea and Holly. But our author, who was a true philosopher, does not, therefore, doubt the case of the Jessamine, but, on the contrary, sets himself to discover the cause of the difference. It is a somewhat singular coincidence, in view of some remarks in the *Gardeners' Chronicle* some time ago, offering mechanical solutions of the difficult problems relating to the tension of vegetable tissues, that Mr. Lawrence explains the variable effects of inoculation, or budding with variegated buds on green stocks, in the same manner. Still adhering to his undeniable proofs in the case of the Jessamine, though he could not account for the different phenomena in the case of the Holly, the author proceeds:—"But indeed the true reason of that difference seems to be plainly this: the bark and leaves of those evergreens are so tough, hard, and stubborn, that they do not easily suffer any adventitious juice to alter their natural colour, and we find some of them will hardly retain the stripe made even from the shoots of the bud itself, whereas the Jessamine hath a marvellous thin bark and silky leaves, which easily receive an impression and change of colour from a tinged or poisoned sap continually circulating through their veins or pores." This is lucidly and boldly put, and fortunately such a purely mechanical theory of variegation is easily tested. Such an old mine as this can never be altogether worked out, and fresh deeper diggings in this direction could hardly fail to yield some profitable return. Modern experimentalists might do much worse than follow the lead of this old, clear-sighted writer.

Some years ago Mr. Thomas Rivers, of Sawbridgeworth, chiefly, if I remember rightly, at the suggestion of Mr. Darwin, made numerous experiments on green trees with variegated buds. I saw numerous Maples operated upon with Acer Negundo variegatum, and numerous other experiments on other trees or shrubs. I never remember seeing a report of these trials. If not troubling our venerable friend too much, possibly he would kindly inform us how far his experience confirms the inoculative force of variegated buds, dormant, dead, or otherwise. It would be important to state the time at which the operation was performed, and also the time of day or night when the buds were separated from the tree, for if the degree of tension varies in plants at different times of the day (see leader in your volume for 1871, p. 1097, col. *c*), why not also the virus of distempered buds, as these old authors would have put it? Probably the colouring matter may have its flow and ebb tides of energy, and we moderns may have operated at neap-tide. Darwin in his chapter on bud variation (vol. i., chap. 11, *Variation of Plants and Animals under Domestication*) is not very explicit on this point. Numerous instances indeed of bud variation or sport among flowers, fruits, and leaves, are given, but the causes are not made clear. One fact, however, is important—Mr. Rivers testifies to the change thus effected in the Jessamine, though he has never seen a purple Filbert throw out a single purple branch below the graft. What is needed is direct proof that so-called sports are caused by the insertion of variegated buds. It might be supposed that Pelargoniums were good subjects for experiments of this kind, but hitherto they have yielded no results. I have not yet heard of a single speck of variegation having been produced on a green plant by the insertion of any number of variegated buds or grafts upon it. It almost shakes one's faith in our old teachers to find that we have so much difficulty in doing what they assure us they did so readily. I write this in full view of the cases cited by Darwin, and others given from time in the *Gardeners' Chronicle*. The great difficulty is to get direct evidence of changes induced by budding. I do not deny the changes of form, size, and colour; these are obvious enough; but while they refuse to come at the bidding of our manipulators, they, or other and greater variations, come without any help from us. How, under such circumstances, can we distinguish between them. For instance, a Yew tree, a hundred years old possibly, showed a true golden sport: had I been operating upon it, what a convincing proof of inoculation. But no Golden Yew had ever come within 500 yards of it to my knowledge, and no change in soil or condition of life was likely to have occurred since it was planted. Neither had I ever seen such a sport before; but there it came, alike unexpected and unbidden. Mr. Barron, of the Borrowash Nurseries, and late of Elvaston, has grafted or budded thousands of Golden Yews. Will he kindly say whether he ever found the green stocks below the graft inoculated with the golden tint? Or is it contended that, in order to such an admixture of golden with green juice, there must be an extension of the green parts beyond the coloured, so that the two fluids may return together thus? I think that both Mr. Rivers and Mr. Barron could give important testimony in regard to this condition likewise. If I am not mistaken, Mr. Grieve, who has used the variegated blood of Pelargoniums by impregnation to such good effect, confesses his inability to do so by inoculation. *D. T. Fish.* [The most satisfactory case of this nature is that of the Abutilon Thomsoni, often referred to in these columns. Eds.]

THE PERIODICAL PHENOMENA OF VEGETATION.

Any observations that can be made on the periodical phenomena of vegetation are most interesting to the naturalist, and if the botanical serials of past years are consulted it will be found that the subject has not been entirely neglected, though not exactly tabulated on a very particular plan. The late Mr. Bree gave a "Calendar of Coincidence," with regard to the flowering of plants and the appearance of insects, in *Loudon's Magazine of Natural History* some years ago, though this might be greatly extended, and take in the arrival and departure of the migratory birds, &c. But, looking only to the vegetable kingdom, as remarked in the leading article of the *Gardeners' Chronicle* (July 25), and "the periods of leafing, flowering, fruiting, and leaf-fall of plants," I would remark that, as everything depends on temperature, which is too often exceptional in this variable climate, the leafing of trees, their fruiting, and the fall of the leaf constitute a guide more to be depended upon than the flowering of plants, whether in the garden or in the open country, unless attention be given to the commencement, culmination, and

going out of flower of the species under examination. Common weeds are of little use in this respect, as a Daisy, a Dandelion, or a Dead Nettle may be noticed in flower any bright day in January, and Primroses this very year were gathered in full flower in February in this vicinity.

Trees and shrubs are not so sensitive to a transient sunny gleam in the early part of the year, so that their leafing is better fitted for general observations, though in such an uncertain climate as ours discrepancies are not unfrequent, and at least half a century would be required to strike an average with correctness. A few years' observation would be only deceptive in any locality. I remember a season in which, from a continued high temperature, the leafage of nearly all our forest trees was completed within a week in March, and I have known other years when the woods in general were bare at the end of May, and the Oak was quite leafless. If limited observation took in only one of these exceptional years the results obtained would not be trustworthy. In the year 1848 a paper of mine appeared in the *Phytologist* "On the Acceleration of the Flowering of English Plants" in that particular year, which showed weeks of difference in the times stated for their flowering in the various British Floras. It becomes therefore very important to fix upon plants for observation that are well known and of general occurrence, but not domestic or field weeds that flower irregularly either on waste ground or in pastures. Some very common plants keep up a flowering state far into the winter, which would prove nothing as to climate but only the hardiness of those particular species, and a looker-out might easily gather a bouquet of wild flowers at Christmas if snow was not covering the ground or a very hard frost prevalent. Indeed of late years we have been unaccustomed to severe weather until after Christmas. Some particular plants stand out as beacons of constancy, unless under very exceptional circumstances, and these demand particular attention. Among these I may mention the Daffodil (Narcissus Pseudo-Narcissus), the Cuckoo-flower (Cardamine pratensis), Stitchwort (Stellaria Holostea), Salix Caprea, Prunus spinosa, Caltha palustris, Orchis mascula and Morio, the common Bluebell (Scilla nutans), and the Lily of the Valley (Convallaria majalis). In an average season the Prunus spinosa should show expanded flowers on April 1, and I know a season to be backward or forward as the flowering of the Sloe is accelerated or retarded. The flowering of the Elder (Sambucus nigra) clearly denotes a decided summer temperature, and the yellow Iris (I. Pseudacorus) often shows its flowers true to June 1. So also with regard to Rosa canina, which ought to show expanded flowers early in June, as well as Rubus cæsius, while the common Bramble (R. discolor) only exhibits its inflorescence late in July. Lychnis Flos-cuculi is a good summer harbinger, and the Yellow Rattle (Rhinanthus crista-galli), conspicuous among the grass, is said to mark mowing time by the rattle of its seeds in their capsules. The Hawthorn, if in flower before May 1, would indicate an advanced season; but this is not often the case, as it is rather connected with old May Day, the 12th, when, if not to be seen in flower, vegetation must be considered as behind the average time.

Mr. F. Forster, in his *Perennial Calendar*, published some years since, has indicated six distinct seasonal periods in the English floral year, and as his work seems neglected or forgotten, a quotation from it may be deserving of notice. He says:—"As individual plants may be noted as flowering, culminating, and deflowering, according as they first open, arrive at full maturity, and fade, so the same may be said of the aggregate of flowers of each particular season, and this is the best method we can adopt for illustrating the face of Nature at each of the six principal periods of the revolving year." The various indications of the approach of the seasons are to be deduced principally from the periodical return of certain natural phenomena, such as the reappearance of the birds of passage, the awakening of insects and other hybernators from their long inaction, the pairing of animals, nidification of the feathered tribes, the flowering of plants, and the ripening of fruits. In the case of plants temperature is the great instigator of vitality, and retardation or acceleration of flowering will take place accordingly.

The floral periods adverted to are:—1, the Primivernal; 2, the Vernal; 3, the Solstitial; 4, the Æstival; 5, the Autumnal; 6, the Hibernal.

In the first period, looking only to the garden with a poetical eye, Thomson may be considered to trace appearances correctly:—

> "Fair-handed Spring unbosoms every grace;
> Throws out the Snowdrop and the Crocus first,
> The Daisy, Primrose, Violet darkly blue,
> And Polyanthus of unnumbered dyes."

But the attentive botanist will see an earlier indicator in the catkins of the Hazel, and the Lamium purpureum may often be seen in flower before the Snowdrop. To this period, as selecting the most obvious plants, Tussilago Farfara (Colesfoot), Draba verna, Potentilla Fragariastrum, Primula vulgaris, Ranunculus Ficaria (Celandine), Narcissus Pseudo-Narcissus (Daffodil), and Anemone nemorosa (Wood Anemone) belong. March Violets are of course characteristic.

The Vernal time is introduced by Cardamine pratensis (Cuckoo Flower), the gorgeous Caltha palustris (Marsh Marigold) and Freckled Cowslips cover upland meadows. In some fields Dandelions become very numerous and conspicuous, while on the margin of woods Orchis mascula (Long Purples), that "liberal shepherds" gave a grosser name to in Shakspeare's time, and Ranunculus auricomus are conspicuous to the eye.

Early in April many hedges are white with the small but densely clustered flowers of the Sloe (Prunus spinosa), and, later in the month, the common Bluebell (Scilla nutans) beautifies the woods, and ought to be true to St. George's Day (April 23). The culmination of the Vernal season is marked by the flowering of the Hawthorn, while a golden week is given to the pastures by the too numerous flowers of Ranunculus acris. The Germander Speedwell (Veronica chamædrys), the Broom (Sarothamnus scoparius), and Anthriscus sylvestris, where it abounds, may also be here particularly noticed. The Pear orchards ought in genial seasons to be generally in flower in the second week in April; but I have known years in which they were not fully in flower before the middle of May. The Apple orchards are usually in flower during the first week in May. The Horse Chestnut shows its splendid flowers in general towards the close of April, but in 1837 an ungenial spring checked it until May 25.

The approach of the Solstitial reign is well marked by the appearance of the great Midsummer Daisy (Chrysanthemum Leucanthemum—(Dog Daisy) seldom behind time, and it is actually advanced when the yellow Iris Pseudacorus gilds the marshes, and Rubus cæsius and Rosa canina appear in the hedges. Poppies then flame in the corn-fields, the Foxglove is an ornament to sandy lanes (Malva silvestris—common Mallow), Potentilla anserina (Silver Weed), various Geraniums, and St. John's Worts (Hypericum) appear in waste places, and calcareous banks are covered with Helianthemum vulgare in golden array. The Stonecrops are now in flower, and Sedum acre spreads a bright yellow tint over roots and walls. The lofty Mullein (Verbascum) now rears its lofty spike of flowers, Chamomiles and Bindweeds are abundant. Vicia Cracca and others of the leguminose class appear, and Hieracium Pilosella (Mouse Ear) leads the Compositæ to revel in the sunny rays. The fragrant Lime (Tilia) now displays its flowers, with the Privet, as well as Cornus sanguinea, and the Elder spreads its silver-spreading cymes in profusion. Hillsides are covered with the scented Thyme in full bloom. Forster makes the Solstitial period last from the beginning of June to July 15, and within this time the hay harvest is carried on in the midland and southern counties of England, beginning, says Stillingfleet in his *Calendar of Flora*, with the flowering of the Lime, Clover being out of bloom and Cockscomb (Rhinanthus crista-galli) shedding its seeds.

The Æstival, or advanced summer floral reign, is closely linked with the Solstitial, but it may be convenient to make a distinction. The Hawkweeds and Bell-flowers are now conspicuous on rocks and walls—

> "Midst ruins tumbling to decay,
> Their flowers attractive hues display,
> Still ever springing
> Where pride and pomp have passed away,
> On ancient tomb and turret grey
> Like friendship clinging."

The purple Loosestrife (Lythrum Salicaria), so generally fringing ponds and brooks, well characterises this portion of the floral year, and the Water Lilies are in their perfection of beauty. By road-sides and in waste places the whole tribe of Thistles, lovers of high temperature, mark the advanced summer time, as well as the Ragworts. The conspicuous golden-yellow flowers of the Tansy (Tanacetum vulgare), belong to this period, and in moist places the odorous Meadowsweet (Spiræa Ulmaria) scents the air. The Erica tribe now give effulgence to heathy spots gloomy at other times, and hillsides became golden-hued with the late flowering Gorse (Ulex Gallii). The universal substitution of the flowers of different Brambles instead of Roses show the culmination of the Æstival period, while the berries of the Mountain Ash, Hawthorn, and Guelder-Rose become coloured, though not as yet ripe. The flowering of the Virgin's Bower (Clematis Vitalba), tells of waning days and another phase of the floral reign.

The cool autumnal period begins as soon as the Meadow Saffron (Colchicum autumnale) shows pale purple flowers, commonly called "naked ladies," in the meadows, and the aftermath of pastures exhibits a faint tinge of gold from the numerous flowers of Apargia autumnalis. In the wild flora of September floral tints are toned down to the more sober aspect of the declining year, and purple tints prevail as shown in the various whorled or capitate-flowered Mints (Mentha), now prevalent in damp places, also Gentiana Amarella, and in the abundant Devil's-bit Scabious (Scabiosa succisa), often filling moist pastures at this time. On hillsides, or in moist sandy places, the scented triple Lady's Tresses (Spiranthes autumnalis) presents its pallid flowers in a spiral spike, and among the withered flowers whose time is past the Soapwort, also called "Farewell Summer" (Saponaria officinalis), and a rustic favourite, makes a show like a flame about to expire. The orchards now show their products, "red as evening sky"; Elderberries droop in sable clusters; ripe berries of various kinds, especially those of the Hawthorn and Mountain Ash, glisten in the dews of morning; Hips show their ruddy tint, and every Bramble hedge is loaded with Blackberries. On mountain sides the glaucous-tinted Bilberries abound. The floral period closes with the flowering of the sombre Ivy, on whose green umbels numerous insects alight to take their last sip of honeyed enjoyment in the transient sunshine. The foliage of deciduous trees now assumes various colours, indicative of fading life; and with the first frosts and the equinoctial gales the leaves fall, and are whirled about in all directions.

The Hibernal season shows the floral world in ruin, and, except that berries and fruits remain scattered in hedges and thickets. Ferns, mosses, and the cryptogamic tribes claim this foggy and chill period entirely as their own. In calcareous spots, however, where the Clematis Vitalba forms dense thickets, its clustered plumose seeds make a remarkable and characteristic appearance.

I have only given a sketch of what a skilful observer of experience, making use of the accumulated stores of those that have preceded him, and tabulating where necessary, might develope into an interesting volume, especially if the appearance of birds and insects were made to synchronise with the flowering of plants. In our general Floras the time of the inflorescence of the native plants is given very loosely, and often incorrectly, and greater accuracy is required. Distributed lists to be marked by naturalists would no doubt be very useful if the country were marked out in well-defined geographical districts, and not merely confined to county limits. *Edwin Lees, F.L.S., Worcester.*

TABLE DECORATIONS.

Decorations for Round Dinner-Tables.—In some remarks which I lately made (vol. i., 1874, p. 536) on the subject of vases for round tables, I mentioned that one of the reasons which induced me to prefer that form of table to any other was, that it could be made to look well with only one vase, judiciously decorated, placed in the centre. Lest, however, it should be thought by some that I intended to advocate the invariable use of one central decoration only for round tables, I propose to show the applicability of such tables for more elaborate styles of ornamentation, by describing the manner in which a table 10½ feet in diameter was lately arranged.

In the centre was placed a graceful Palm, Thrinax elegantissima, about 4 feet high. Around this were placed four tin trays, so made as to form a circle of 3 feet in diameter, but leaving a square hole in the middle for the central plant. These trays were filled with common moss, high enough in the middle to hide the Palm-pot, and going off down to the edge, as the carpenters say, "to nothing." This moss was surfaced over with Selaginella, which also formed a fringed margin to the mossy mound. Near the top of this mound were plunged, at equal distances apart, three little plants of Anthurium Scherzerianum, each having a couple of small blooms on them, and between each pair of plants two blooms of Cape Jasmine on their own branches were stuck into the moss. I had some fears at the time that these six Gardenias might prove too odoriferous for a room 24 feet square, but such was not the case. An outer circle was formed of six large blooms of flame-coloured Cactus, interspersed with trusses of Stephanotis somewhat irregularly disposed, so as to break up without destroying the geometrical arrangement. Towards the edge a few pieces of Erica ventricosa were introduced here and there; the whole was toned down with a few good fronds of Maidenhair Fern, which having been wired, arched over the flowers without resting upon them, and in some instances projected a little beyond the outer margin. Near this margin were placed, equidistantly, six elegant trumpet-shaped glass vases, 21 inches high, the edges and feet of which were ornamented with a narrow band of ruby glass. These vases were all connected together by arches of fine brass wire, the ends of which went down to the bottom of the tube of the vase. Over these arches were lightly twined long sprays of Lygodium japonicum, shorter pieces of the same branched out from the top of each vase, and around the tall slender stem was entwined a long spray of the same Fern, the end trailing upon the white table-cloth. There were not more than three flowers placed in each vase, and these were various Orchids, amongst which Cattleya Mossiæ, C. intermedia, Oncidium ampliatum majus, Phalænopsis ama-

bilis, and Brassia verrucosa may be particularly mentioned, the fine sprays of the three latter being quite as effective in their way as the more gorgeously-coloured blooms of the two former. At the back of each vase were two fronds of Pteris serrulata major (a kind which curves naturally, and wants no wiring), arching over towards the central Palm, while a piece or two of light Maidenhair served to hide the stalks of the Orchids, all of which had to be mounted on wires to keep them in proper positions.

The crowns of the arches were 30 inches above the table. Under each arch was placed a small foliage plant of light character, the pots standing in very small saucers, and being bound round with wet moss, into which small fronds of Maidenhair were stuck. The plants used were Stadmannia Jonghii, Areca Verschaffelti, Dæmonorops fissus, D. palembanicus, and two of Jacaranda mimosæfolia. The table was laid for sixteen persons, and in front of each was placed a finger-bowl, having a specimen-glass rising up from its centre. In each bowl were three pips of large double pink Pelargoniums, each pip floating upon a small leaf of the Oak-leaved Geranium. The specimen glasses contained for coat flowers Rose buds made up with Rose leaves, alternately yellow and white, Maréchal Niel and Niphetos, all round the table. The whole arrangement was greatly admired by those who dined, the more so as they were somewhat surprised to find on taking their seats that there was nothing to interrupt the view or interfere with conversation in the slightest degree.

It is idle to suppose that such arrangements as these are ever likely to become common, since, even if the materials were at command, the time necessary for the arrangement of them could not often be spared, nor could the room always be given up for the time required. Such work as this cannot be arranged in the florist's shop, sent out in a covered van, and placed on the table half-an-hour before dinner. Neither can it be done in the housekeeper's room, as is the practice in so many private houses. It must be built up piece by piece on the table at which the guests are to dine: and it is a good day's work for two practised hands to mount the flowers, and wire the Ferns, and get everything properly arranged, even though measurements, sketches, and notes have been made previously, which greatly facilitate and expedite work when the day arrives. Those, however, who do not shirk the trouble and forethought that are indispensable in such undertakings, are never likely to be disappointed with the result. *W. T. P.*

Fig. 34.—Fernery at Messrs. Veitch's (No. 1).

MESSRS. VEITCH'S FERNERIES.

The accompanying engravings (figs. 34 and 35) represent the charming groups of Ferns in the establishment of the Messrs. Veitch, of Chelsea, such as might form a most pleasing outlook to many a dining or drawing-room in London, or in other towns, in situations where there is not sufficient space to provide a suitable outdoor garden scene. All that would be required would be to build outside the window a small greenhouse on the Wardian case principle, to keep the glazed roof sufficiently above the line of sight, and to erect on the further side opposite the window a tasteful piece of rockwork to be planted with suitable Ferns and Lycopods. One can scarcely imagine a more pleasing terminus to a London dining-room, which in the majority of cases looks "nowhere," than would be afforded by a tastefully arranged group of Ferns planted on the model of those which are here depicted.

We have given prominence to the idea of introducing such a fernery as this in connection with a dining-room, on account of the grateful coolness of which such a picture would be suggestive in such an association, but there are other positions to which the fernery might with great appropriateness be introduced. Thus, for example, on the half-landing of a staircase, where a small conservatory is often introduced, nothing could be better or more appropriate than a fernery of this sort on a larger or smaller scale; and nothing that could be introduced in such a position would be more prominently engaging than a well-designed and well-planted fernery, which would in great measure, when once set going, take care of itself, while a conservatory in which the growth of flowering plants was attempted would (ten to one) prove a failure, on account of the greater amount of attention required. In fact, a rocky bank planted with Ferns, and provided with a small perforated water-pipe, set going once a day in summer and once a week in winter for an hour or two, would leave very little further additional attention to be provided, while the roof could be glazed with the corrugated or rough plate-glass, which would require no trouble whatever in shading, but would secure a permanently agreeable and enjoyable atmosphere.

In a word, wherever in connection with a town residence there happened to be an outlook which was not agreeable, the fernery would prove a practicable remedy. The Ferns to be used are numerous—the selection would be influenced by the amount of heat to be provided. We may mention the following genera as comprising species which would be suitable to

secure the most *recherché* and picturesque effects, while they would afford an almost endless variety :—

Polybotrya	Polypodium
Stenochlæna	Phlebodium
Pœcilopteris	Goniophlebium
Platycerium	Campyloneurum
Lomaria	Pleopeltis
Blechnum	Aspidium
Adiantum	Polystichum
Cheilanthes	Sagenia
Hypolepis	Nephrodium
Adiantopsis	Lastrea
Pteris	Nephrolepis
Litobrochia	Acrophorus
Woodwardia	Davallia
Asplenium	Dicksonia
Thamnopteris	Dennstædtia
Diplazium	Cyathea
Gymnogramma	Alsophila
Platyloma	Osmunda
Nothoclæna	Todea

Fig. 35.—Fernery at Messrs. Veitch's (No. 2).

In certain particularly favourable positions many species of Trichomanes and Hymenophyllum must be appropriately added ; and in all cases the common garden Lycopod, Selaginella Kraussiana, would come in as a most useful and desirable plant for filling up blank spaces, and forming, as it were, a groundwork for the Ferns.

LILY BULBS.

The following extract is taken from Mr. Baker's memoir of Tulipeæ, just published in the *Journal of the Linnean Society* :—

Underground Development.—All the plants of the tribe are able in a state of Nature or under cultivation to hold their ground, and increase more or less, by means of bulb-reproduction, independent of being multiplied by means of seed. In the structure of the bulbs of the tribe we may define four leading types :—

1. The squamose perennial bulb, as exemplified in all the Old World species of Lilium. This consists, in its mature form, of a large number of thin flat lanceolate or oblong-lanceolate scales tightly pressed against one another face to back, and spirally arranged round a central axis which is not produced either vertically or horizontally. From the underside of the central axis proceeds downwards a dense tuft of fleshy fibres, and from the upper side is produced the flower-stem of the year, its lower part, between the summit of the bulb and the surface of the soil, giving off copious radicular fibres, which assist greatly in procuring the nourishment and strengthening the hold upon the ground of the developed flower-bearing stem. This underground root-bearing portion of the stem above the bulb is often vertical, but in some species, as, for instance, Lilium Leichtlinii, will creep for the length of half a foot, so that, if grown in a pot and the bulb planted in its centre, the stem will spring up from the side of the pot. All these numerous flattened scales of the bulb possess potentially the power of developing new bulbs in their axils, and will do this, in some species at any rate, under cultivation, if a bulb be broken up and properly treated ; so that what with bulb-reproduction and what with seed-reproduction, a skilful operator may in three or four years multiply fifty-fold his stock of a desirable species or variety. But in a state of Nature there is only one new flower-bearing stem developed each season from the centre of the bulb, and a few from the axils of the decaying outer scales. A new bulb, whether grown from seed, or from bulblets developed in the axils of the above-ground leaves of the floriferous stem, or produced in the axil of one of the bulb-scales, takes not less than three years under the most favourable circumstances before it developes a flower-bearing stem. The first season we get an ovoid mass, perhaps a quarter of an inch in thickness, composed of half a dozen tightly imbricated scales, which sends out three or four slender radicular fibres from its base. At the end of next summer we have a bulb as large as a Hazel nut, with a copious development of strong radicular fibres from its underside, and the half-dozen scales prolonged above the soil into a rosette of oblanceolate leaves. Next year, if circumstances be favourable, the flower-bearing stem is developed ; and then, if nothing untoward happens, the bulb goes on living for an indefinite period, sending out each year a flower-stem from its centre, and shredding off old scales with buds in their axils, more copiously in some kinds, less copiously in others, from the circumference all round. In two of the Californian Lilies (Washingtonianum and Humboldtii) this type of structure is modified by the central axis of the bulb being prolonged horizontally, so that the scales are thrown out of a regular spiral, and the mature bulb is irregular in shape and more or less flattened laterally. Here, then, we get a squamose bulb taking the first step to pass off in the direction of a true rhizome ; but the fleshy scales are quite similar to those of the typical form. The direction of the rhizome is vertically oblique, the new scales being formed at the deepest end. A second modification of this type of structure I cannot do better than describe in the words of Duchartre (*Observations sur le genre Lis*, p. 28) :—

"To give an idea of this development, allow me to report what I have seen in Lilium candidum, as

examined at the commencement of the month of March, and in consequence at a time when only the first indications of the vegetation of the year were observable. At the base of the stem which had flowered the preceding year, and of which there remained only a small portion hidden in the ground, was found the bulb from which that stem had issued forth, a bulb formed of short scales, still fleshy and fresh for the most part, pointed and laxly imbricated, which, taken as a whole, was about twice as broad as deep. Immediately above this bulb was the remainder of the old stem, bearing a ring of root-fibres now dead and dried up. Finally the extreme base of this same old stem was prolonged below the bulb with a diameter nearly double that which it had above it; and after half an inch or more it ended by a broad truncation. It is from this old stem which has flowered in the preceding year, immediately below the old bulb, and very likely from the axil of a scale that has fallen, that the horizontal branch is originated, which at its extremity bears the new bulb from which the conical summit of the shoot which will soon develope into the flower-stem of the year is already seen to arise. This rhizome does not reach a length of more than an inch or an inch and a half. From its points of origin it descends a little into the soil, then raises itself to become horizontal, and finally rises at its extremity to form the axis of the new bulb and to be finally continued as the new flower-stem. In its underground progress it bears small spiral scales, thick and fleshy, of which the first are slightly spaced, but those at the end of this subterranean branch growing closer and larger and forming thus the new bulb. From the anterior portion of this rhizome, especially from the part that bears the lower part of the young bulb, arise numerous thickish rootlets, on the healthy action of which the vitality of the new vegetation evidently depends. Later on in the year the old bulb disappears, the horizontal rhizome thus becoming free. Then the rhizome dies in the part which does not produce rootlets; and at the same time a new rhizome arises from the base of the bulb of the year, to form in its turn at its extremity another bulb to yield the flower-stem of the year following. There are produced, then, in these Lilies a succession of subterranean bulb-bearing branches, or a series of successive generations, each of which has an annual bulb for its fundamental basis."

In parting finally from this squamose type of structure,* I wish to point out that there are three different kinds of "rhizome" in different species, developed in connection with it, all of which are spoken of in books under the general term "rhizome," but which are not homologous, namely:—1st, the produced oblique central axis of the Californian Lilies; 2d, the lower part of the horizontal branch originating from a bud developed in the axis of a leaf-scale, which branch at its extremity bears a new bulb, as in Lilium canadense; 3d, the lowest part of the flower-bearing stem above the bulb when it creeps below the surface of the soil, as in L. Leichtlinii.

2. In most of the Fritillariæ we get a well-marked type of structure, for which I am not aware that any distinctive name has been proposed. Take the bulb of Fritillaria Meleagris at the flowering season, and we find as follows:—In the centre the flower-producing stem, bearing from its base, but not above the bulb, as in Lilium, a tuft of slender radicular fibres. Tightly pressed against the base of the flower-stem are a couple of hemispherical scales, not thin and flat as in Lilium, but half as thick as broad (say half an inch broad and a quarter of an inch thick), rounded on the outside, flat on the inside, where they are pressed against one another and the base of the flower-stem. These are the bases of single leaves, homogeneous, not at all laminated in structure. From the summit of each, before the development of the flower-stem, arises an oblanceolate leaf which dies down before the flower is produced. In the autumn these two scales produce in their axils buds in the same way as in Lilium, one of which produces the flower-stem of the following year; and on the outside they are wrapped in two or three thin membranous tunics, which have never produced leaves or fulfilled any nutritive function. This type of structure is scarcely varied through about half the genus Fritillaria; and it is this type that is distinguished in the synopsis of the genus as a tunicated bulb. But in the American Fritillaries there are no outside tunics, and the scales are numerous, not large and flattened as Lilium, but small granules as thick as wide. Upon this difference Dr. Kellogg has proposed to separate the American Fritillaries as a genus under the name of Liliorhiza; but there is no difference in flower-structure between the Old World and the New World species, whilst the bulb of the New World pudica is sometimes barely distinguishable from those of the Meleagris group; and we get the Liliorhiza type represented in Asia in F. kamchatcensis; and in the Old World F. imperialis and persica, which were classed as Lilies by the pre-Linnean authors, we get a large perennial squamose bulb without any tunic, not materially different in any way from that of Lilium, with the scales as thin, but not so regularly formed, and broader at the base. So that it will be seen that Fritillaria, which has been little studied from this point of view, presents great variety and much interest in its bulb-structure, and runs over the line of transition which separates the squamose from the tunicated type. In *Gen. Fl. Germ.* there is a figure, for F. pyrenaica, of an accessory bulb at the end of a horizontal elongated stolon, as is frequent in the Tulips.

3. The third type of structure, an annual laminated tunicated bulb, runs, with much modification as regards the number and thickness of the laminæ and the texture and persistence of the tunics, through Tulipa, Calochortus, and Lloydia. In all these radicular fibres are developed from the stem on the underside of the bulb only, and at the end of the flowering season the old stem may be traced down to its base quite slender and cylindrical, with all the nutriment absorbed from the leaf-bases that have nourished it; and outside of it, within the same external tunic, stands the bulb, well developed, which is to bear the flower-stem of the following year. In Tulipa the outer tunics are brown and leathery, the inner tunics several in number and so thick that the bulb is broad-ovoid in shape; and by the side of the old stick-like stem and well-developed bulb that is to flower next year, may be traced the nascent bulb of the following year, so that the bulbs are in their third year when they reach the flowering-stage. The subordinate bulbs thrown out from the base of the old ones are often lengthened out upon rhizomes; and it is this that is meant in the synopsis when the bulbs are said to be stoloniferous; and it is upon the difference whether these accessory bulbs are sessile or stalked that the distinction between Reboul and Parlatore's "Tulipa gregariæ" and "Tulipa erraticæ" depends. In Calochortus the structure is similar to that of Tulipa; but the inner tunics are fewer, and the outer thinner. In the Mexican species of Calochortus the outer dry coats form a dense mass of reticulated fibres mixed with little cellular tissue, like those of Crocus vernus and reticulatus. In Lloydia serotina the outer coats are thin, grey, and membranous, and the inner coats so little thickened that the bulbous dilatation at the base of the stem is very slight; and we thus get an oblique rhizome-like bulb similar to those of Allium and Rhiziridium. But the essential structure, which has been fully illustrated by Wydler,* Irmisch,† and Michalet,‡ is identical with that of Tulipa; and it is said that, owing to the thinness and dryness of the tunics, and the high alpine stations in which the plant grows, by careful dissection its history may be traced out for eight or ten years. Here it has been clearly shown that the accessory basal bulbs are sometimes sessile and sometimes stalked, in one and the same species, according to circumstances.

4. In the section Gageopsis of Lloydia we have a fourth modification of structure, a tunicated corm. Here, as in Gagea, the floriferous stem is nursed and nourished by the modified base of a single leaf, which leaf is fresh and green at the time that the floriferous stem is developed, springing of course from the tip of the corm, whilst the stem arises close to it from a little on one side of the corm. In some species of Gagea the nascent corm of the year following may be seen protruded from the side of the old corm at the flowering time, already bearing a well developed leaf. This is in the two-leaved species, like G. arvensis. In some other species it may be seen at the flowering time, but does not grow out into a leaf; and in some others, as in our English G. lutea, it is invisible at the flowering time: and these have always a solitary leaf. In Erythronium also the flower-stem is nursed by the much thickened base of a single leaf. In a newly discovered American species a very remarkable kind of rhizome has lately been figured and described by Dr. Asa Gray.§ The corms are nearly half a foot deep; and a lateral offset springs from the base of the stem near the surface of the soil about mid-way between the corm and apparent bases of the solitary opposite pair of leaves. This offset works downwards, sometimes remaining short, sometimes lengthening out; and its apex dilates into a new corm.

To sum up the bulb-structure of the tribe, the two main points of interest are:—

1st. That throughout the tribe the bulbs are strictly determinate and monocarpic, the main axis elongating into a flower-bearing stem, and the bulb, the cycle of existence of which is from one to three years, either dying or remaining, but in either case developing a new bulb in the axil of one of its scales. In what is called in the synopsis a perennial squamose bulb the old scales remain and a new bulb is developed into a flower-stem in their centre; in the third and fourth types the old scale or scales die, and the new floriferous stem is developed outside them.

2d. We get in the tribe, side by side, with a general uniformity in flower-structure, every range of transition from a typical squamose bulb, through a typical tunicated bulb, to a tunicated corm, the differences between them depending upon the breadth and thickness of the enlarged bases of the leaves, their duration, their uniformity or difference in texture, and whether they all or some only grow out to produce leaves above-ground, and whether some only or all are dilated below the surface into reservoirs of nutriment.

* See also Royer in *Bulletin Soc. Bot. France*, tome xix., p. 157, and Duchartre's remarks in the same volume, p. 159.

* *Regensburg Flora*, 1859, pp. 33—36.
† Mohl and Schlecht., *Bot. Zeit.*, 1863, pp. 161—164 and 169—173, tab. 6, with twenty-nine analytical figures
‡ *Bulletin Soc. Bot. France*, vii., p. 676.
§ *American Naturalist*, July, 1871.

Natural History.

Pisciculture. — M. Isidore Geoffroy Saint-Hilaire, in his *Acclimatation et Domestication des Animaux Utiles*, directs the attention of travellers to a fish, the Osphromenus olfax of Commerson, generally known by the name of Gourami or Gorami, a species found in the rivers of Eastern Asia, particularly of China: *devectus e Sindâ*, says the celebrated explorer who first studied the Gourami. It often attains more than a yard in length, sometimes, according to Lacépède, even reaching two; and as its depth is very considerable in proportion to its other dimensions, it furnishes a copious supply of food. The head is deep-set and not large, with the back rising abruptly from the upper lip, after the manner of a lofty forehead, giving it an air of benevolent intelligence. Admiral Dupetit-Thouars saw individuals weighing 20 lb., and some are still heavier. About the alimentary qualities of the Gourami there is only one opinion. Lacépède describes it as "remarkable for the excellence of its flesh as well as for its form and size;" and Cuvier calls it "delicious, and even more savoury than the turbot." Commerson, speaking not from hearsay but from his own personal experience, goes further: "I have never tasted a more exquisite fish than the Gourami—*Nihil inter pisces, tam marinos quam fluviatiles, exquisitius unquam degustavi.*" "Its flesh is excellent and of delicate flavour," says, also from his own experience, a recent author—M. Reisser; adding, "it is a wholesome as well as an abundant food."

After being successfully introduced to Mauritius or the Ile de France, its further introduction to Europe was naturally suggested on several occasions. In 1802 Lacépède remarked how desirable it would be to stock French fish ponds with it. The attempt made on a large scale by Péron and Lesueur unluckily failed; their fish, in considerable number and in excellent health, perished altogether through the awkwardness of a sailor. More recently, Captain Philibert lost the last of 100 individuals within sight of the coast of France. Attempts have also been made to introduce the Gourami to Sidney, New South Wales, and to establish and distribute it in the Australian streams. Certainly it deserves to be made a cosmopolite quite as much as the gold fish or the carp.

But many shots have often to be fired before the mark is eventually hit. Which will be the first to possess the Gourami, a British, Colonial, or foreign aquarium? Pisciculturists deserve to succeed, for their perseverance and patience are often sorely tried. The *XIXe Siècle* of July 8 informs us that the *Bulletin Mensuel* of the Paris Société d'Acclimatation for May, 1874, p. 332, contains a letter from the celebrated pisciculteur, M. Carbonnier, respecting an importation of Gouramis. Forty individuals of that valuable species were sent from Calcutta to Marseilles. Thanks to the forethought of the sender, who had spared neither Ganges water nor aquatic plants—thanks also to the devoted zeal of the *Sindh's* engineers, thirty-three fish out of the forty reached Marseilles in good health after a voyage of thirty-five days. Unfortunately, the story is not finished. The poor Gouramis had not come to the end of their troubles—they had still to face the Grand Railway Company, which domineers between Paris and the Mediterranean.

"They were immediately taken," M. Carbonnier relates, "to M. Chevalier, Gérant du Cercle des Méchaniciens at Marseilles, with whom I always leave a supply of the apparatus necessary for transporting live fish to Paris. I must add that I have always found M. Chevalier most obliging and ready to render us disinterested service. But here begin the tribulations which turned out fatal and destroyed the results of so much painstaking.

"As the package slightly exceeded the weight of 5 kilogrammes (=11.023 lb. avoirdupois), it was impossible for M. Chevalier to conquer the resistance of the railway *employés*, who refuse to admit into express trains any goods parcel weighing more than 10 lb. He applied to several *chefs de service*, explaining the importance of transmitting those creatures by the most rapid conveyance possible. He found them all mounted on horseback on their 'Regulations,' and determined not to quit the saddle. Starting on Friday evening by the 10.35 train, the fish did not reach me till 12.30 on Sunday. All were dead, and that quite recently, as was evident from their state of freshness."

Here, then, are unfortunate fish who travelled without accident from Calcutta to Marseilles, and whom the Paris-Lyons-Mediterranean Company deliberately exterminates between Marseilles and Paris. The worse for the fish; it is all their own fault. Their package weighed a little over 10 lb. The company cannot break through its "Regulations."

RECENTLY PUBLISHED PORTRAITS OF GARDEN PLANTS.

Name and Reference to Figure.	Character and Quality.	Leaves.	Flowers.	Season.	Native Country.
COMBRETUM MICROPETALUM, *De Cand.* .. Flore des Serres, t. 2018.—Combretaceæ.	Stove shrub, very showy ..	Elliptic, glabrous, scaly beneath	Yellow, subsecund, in axillary spikes	....	Brazil
CORYNOPHALLUS AFZELII, *Schott* .. .. Gard. Chron. 1872, 1619, fig. 343.	Stove tuberous perennial (l.-stalk 1—2 ft. high) [Araceæ]	Ternately decompound, cut into linear drooping segments	Spathe ovate-acute, purple within; spadix club-shaped at tip	....	Tropical Africa *Mr. W. Bull*
COTYLEDON MAMILLARIS, *Linn.* .. .. Bot. Mag., t. 6020.—Crassulaceæ.	Greenhouse succulent shrub, 1—2 feet high	Spindle-shaped, succulent, 2½ in., scattered	Red-brown, with deeper limb, in terminal pendulous spikes	....	Namaqualand *Kew*
CRASSULA COOPERI, *Regel* .. .. .. Gartenfl., t. 786.—Crassulaceæ.	Greenhouse succulent, of neat trailing habit	Oblong-lanceolate	Numerous, small, white	Winter	S. Africa *Haage & Schmidt*
CRASSULA PROFUSA, *Hook. f.* .. .. Bot. Mag., t. 6044.	Greenhouse succulent herb, with pendulous creeping branches	Orbicular-ovate, fleshy, slightly connate	White tinged with pink, in capitate cymes	March, May	S. Africa *Kew*
CRASSULA SAXIFRAGA, *Harv.* .. .. Bot. Mag., t. 6068.	Greenhouse, tuberous-rooted succulent, interesting	Orbicular, or subreniform, fleshy, 2—3 in. across; red beneath	Flesh-coloured, on slender terminal scapes	June	S. Africa *Kew*
CROCUS CANCELLATUS, *Herbert* .. .. Bot. Mag., t. 6103.—Iridaceæ.	Hardy bulb, beautiful, with reticulated bulb-coats	Linear, borne after the flowers ..	Large, white, with yellow throat	November	Greece, Asia M. *Mr. G. Wood*
CROCUS CHRYSANTHUS, *Herbert* .. .. Floral Mag., t. 111, fig. 1.	Hardy bulb, showy	Linear, reflexed at the edge ..	Small, rich yellow	January	Greece *Messrs. Backhouse*
CROCUS OLIVIERI, *Gay* .. .. .. Bot. Mag., t. 6031.	Hardy bulb, spring-flowering ..	Linear, acute, with a ciliolate keel, cotemporary	Deep golden-yellow, shorter than the leaves	January	Greece and Asia Minor
CROCUS SIEBERI, *Gay*.. .. .. .. Bot. Mag., t. 6036.	Hardy bulb, spring-flowering ..	Linear, rather broad, cotemporary	Violet-blue or white with blue streaks, throat golden-yellow	January to April	Greece *Mr. Munby*
CROTON VOLUTUM, *Hort.* .. .. .. Gard. Chron. 1874, 691, fig. 143.—Euphorbiaceæ	Stove evergreen shrub, ornamental, = C. cornigerum	Elliptic-oblong, curiously recurved, 6 in. long	Variegated with golden costa and veins	....	South Sea Islands *Mr. W. Bull*
CURCULIGO RECURVATA, *Dryander* .. Gartenfl., t. 771.—Hypoxidaceæ.	Stove perennial, ornamental ..	Broadly elliptic-lanceolate ..	Small, yellow	July	India
CURMERIA PICTURATA, *Lind. et And.* .. Illust. Hort., 3 ser., t. 121.—Araceæ.	Stove perennial, like a stemless Dieffenbachia	Elliptic-cordate, spreading, stalked, green with broad silvery central band	Spathe green, spadix included ..	....	New Grenada *M. Linden*
CYATHEA BURKEI, *Hooker* .. .. .. Florist and Pom. 1873, 181, with tab.—Polypodiaceæ.	Greenhouse Tree-Fern, with stout trunk, 7—10 ft. high.	Fronds ample, drooping, bipinnate, with a dark mahogany-coloured tubercled stipe	Pinnules with oblong-ovate obtuse segments	....	Natal *Mr. W. Bull*
CYCNOCHES MACULATUM, *Lindl.* .. .. Illust. Hort., 3 s., t. 143.—Orchidaceæ.	Stove epiphyte, curious	Ovate-lanceolate acute	Racemose, straw-colour dotted with purple; lip white	June	Mexico and New Grenada
CYPRIPEDIUM DOMINIANUM, *Hort.* .. Veitch Cat. 1873, 12, with tab.	Stove perennial, = C. caudatum × C. Pearcei [Orchidaceæ]	Linear-ligulate, arching	Showy, brownish-yellow, with elongated petals	June	Garden hybrid *Messrs. Veitch*
CYPRIPEDIUM LONGIFOLIUM, *Warc. et Rchb. f.*—Belg. Hort. 1873, 65, t. 4.	Stove perennial, stately; scape many-flowered	Distichous, narrow strap shaped, keeled, 8 in. long	Yellowish-green and purple; petals 3½ in. long	January to December	Central America *M. Pirlot*
CYPRIPEDIUM ROEZLII, *Regel* .. .. Gartenfl., t. 754; Rev. Hort. 1873, 416 fig. 36-7; Illust. Hort., 3 ser., t. 138.	Stove perennial, scape 3—3½ ft., many-flowered	Distichous, loriform acute, very long	1 — 20, greenish yellow, tinged with purple	January to September	New Grenada and Columbia
CYPRIPEDIUM SEDENI, *Hort.* .. .. Jennings' Orchids, t. 4; Veitch Cat. 1874 16, with tab.	Stove perennial, = C. longifolium. × C. Schlimmi, very handsome	Linear-lorate, distichous, shining green	Rosy purple lip, with broad whitish rosy margined sepals and petals	August	Garden hybrid *Messrs. Veitch*
CYPRIPEDIUM SUPERBIENS, *Rchb. f.* .. Flore des Serres, t. 1996.	Stove perennial, very handsome	Distichous, oblong, maculate ..	White and brownish purple, petals handsomely spotted	July and August	Java and Assam
CYRTODEIRA FULGIDA, *Lind.* .. .. Illust. Hort., 3 ser., t. 131.—Gesneraceæ.	Stove perennial, of creeping stoloniferous habit	Ovate, coppery metallic green, with silvery ribs and veins	Vermilion-scarlet, axillary ..	....	New Grenada *M. Linden*
CYTISUS EVERESTIANUS, *Hort. Ang.* .. Rev. Hort. 1873, 390, with tab.	Greenhouse evergreen shrub, very showy [Leguminoseæ]	Small, numerous, trifoliate ..	Very numerous, racemose, deep orange-yellow	March to May	Garden variety *Mr. Everest*
DAHLIA VERT, *Sieckmann* .. .. .. Flore des Serres, t. 1994.—Compositæ.	Half-hardy perennial, curious ..	Of the ordinary character ..	Monstrous, consisting of green petal-like scales	August	Garden variety *M. Sieckmann*
DELPHINIUM ELATUM KETELEERI, *Hort.* Gartenfl., t. 736, fig. *b*; Flor. and Pom. 1874, 73, with tab.—Ranunculaceæ.	Hardy perennial, very showy ..	Palmatipartite, the lobes divided into acute segments	In dense spikes, double, blue with reddish centre	August	Garden variety
DENDROBIUM AINSWORTHII, *Moore* .. Gard. Chron. 1874, 443, figs. 93, 94.—Orchidaceæ.	Stove epiphyte = D. heterocarpum × D. nobile	Oblong-obtuse, on the young stems	In short lateral racemes, white, with amaranth blotch	February	Garden hybrid *Dr. Ainsworth*
DENDROBIUM CHRYSOTIS, *Rchb. f.*.. .. Bot. Mag., t. 6013; Flor. 1871, 145, with tab. Illust. Hort., 3 ser., t. 155.	Stove epiphyte, showy, 2—3 ft. high	Oblong-lanceolate (see Gard. Chron. 1873, 612)	In drooping racemes, yellow, with two dark spots, the lip bearded	Sept., October	Assam *J. Day, Esq.*
DENDROBIUM INFUNDIBULUM, *Lindley* .. Illust. Hort., n. ser., t. 172.	Stove epiphyte, handsome, near D. formosum	Oblong-lanceolate, acute ..	4 in. across, white, with orange blotch on lip	July	Moulmein *Messrs. Low*
DENDROBIUM LITUIFLORUM, *Lindl.* .. Bot. Mag., t. 6050.	Stove epiphyte, showy; one of the nobile group	Oblong-lanceolate, on slender reed-like stems	Lateral, 4—5 in. across, light purple, trumpet-shaped lip	April	India
DENDROBIUM WARDIANUM, *Warner* .. Jennings' Orchids, t. 2.	Stove epiphyte, grand; stems knotted, drooping	Oblong-lanceolate, acute (flowers large)	White with magenta tip; lip spotted orange and crimson	April and May	Assam *T. Ward, Esq.*
DIEFFENBACHIA LATIMACULATA, *Lind. et And.*—Illust. Hort., 3 ser., t. 112.	Stove caulescent perennial [Araceæ]	Oblong-lanceolate, yellowish-green, with deeper blotches	L. narrower than in most other species)	.....	Brazil *M. Linden*
DIEFFENBACHIA NOBILIS, *Hort.* .. .. Gard. Chron. 1873, 815, fig. 161.	Stove caulescent perennial (l. effective, bold)	Oblong-ovate, green blotched with white and cream colour	(Leaves marked with angulate blotches)	....	Trop. America *Mr. W. Bull*
DICLIPTERA TWEEDIANA, *Nees.* .. .. Rev. Hort. 1874, 171, with tab.—Acanthaceæ	Half-hardy perennial, very showy, stems numerous	Opposite, oblong-obtuse.. ..	Numerous, tubular, orange-red..	Autumn	Monte Video *French Gardens*
DESMODIUM PENDULIFLORUM, *Sieb.* .. Rev. Hort. 1873, 211, with tab.	Hardy sub-shrub, 5—6 ft., very floriferous [Leguminosæ]	Trifoliate, with oblong-lanceolate leaflets	In axillary racemes, numerous, small, purple	September	Japan
DIOSCOREA ILLUSTRATA, *Hort.* .. .. Bull Cat. 1873, 6, with fig.; Gard. Chron. 1873, 1730, fig. 345.	Stove climber, with wiry stems and irregular leafstalks [Dioscoreacæ]	Cordato-sagittate, with band and angular patches of silvery-grey on satiny olive-green	(Leaves marked with transverse lines between the nerves).	....	Brazil: Rio Grand do Sul
DIOSPYROS MAZELI, *Carrière* .. .. Rev. Hort., 1874, 70, with tab.	Hardy or half hardy, fruit-bearing tree [Ebenaceæ]	Elliptic-ovate or subcordiform, deciduous	(Fruits large, spherical, orange-red)	Ripe in November	Japan *French Gardens*
DISA BARRELLII, *Hort.* .. .. .. Floral Mag. 1874, t. 104.—Orchidaceæ.	Greenhouse perennial, showy; like D. grandiflora	Lanceolate acute	Orange-red, the hood-shaped sepal veined with crimson	....	South Africa *Mr. W. Bull*
DOLICHOS BICONTORTUS, *Dur.* .. .. Flore des Serres, t. 1985.—Leguminosæ.	Half-hardy climbing annual, with curiously-recurved pods	Trifoliolate, on long stalks ..	White and purple, on long peduncles	Summer	Japan *M. Durieu*
DORYANTHES PALMERI, *Hill* .. .. Gard. Chron. 1874, 181, figs. 44, 45.	Stove herb, of great beauty; stem 6—8 ft. [Liliaceæ]	Narrow-lanceolate, elongate, 5—6 ft. long, 2—3 in. wide	Red, with centre almost white, in terminal thyrse 3 ft. long	September	Queensland *Mr. W. Bull*
DRABA BRUNIIFOLIA, *Stev.* .. .. Gartenfl. t. 780.—Cruciferæ.	Hardy perennial, dwarf, cæspitose	Rosulate, linear-oblong, rigid, pectinately ciliate	Small, yellow	June and July	E. Caucasus *Petersb. Gard.*
DRACÆNA AMABILIS, *Veitch* .. .. Veitch Cat. 1873, 14, with fig.—Liliaceæ.	Stove shrub, robust habit and ornamental	Oblong-lanceolate, green, marked with pink and creamy-white	(Young l. in mature plant, rosy; l. 24—30 in. long, 4—5 in wide)	....	Garden variety *Messrs. Veitch*
DRACÆNA BELLULA, *Lind. et And.* .. Illust. Hort., n. ser., t. 163.	Stove shrub, erect, slender ..	Small, crowded, linear-lanceolate acute, 6—8 in. long	(L. purplish, with red margin ..	....	So uth Sea Isl. *M. Linden*
DRACÆNA REALI, *Lind. et And.* .. .. Illust. Hort., n. ser., t. 140-1.	Stove shrub, robust, dense, dwarfish	Crowded, ovate-oblong, spreading	(L. dark green, striped and edged with rosy red)	....	South Sea Isl. *M. Linden*
DRACÆNA SHEPHERDII, *Bull* .. .. Bull Cat. 1873, 7, with fig.; Illust. Hort., 3 ser., 125-6 (as gloriosa).	Stove shrub, free and robust, ornamental	Bold, oblong-lanceolate acute ..	(L. deep green, bordered and striped with orange-red	....	South Sea Isl. *Mr. W. Bull*
ECHEVERIA AGAVOIDES, *Lem.* .. .. Flore des Serres, t. 2003.—Crassulaceæ.	Greenhouse stemless succulent, neat	Rosulate, very thick, dilated at the base, tapered to the point	Dull orange-scarlet	....	Mexico *J. Verschaffelt*
ECHEVERIA GIBBIFLORA METALLICA, *Baker.*—Belg. Hort. 1874, 153, t. 7.	Greenhouse succulent, very handsome	Obovate emarginate, rosy, with a coppery reflection, glaucous	Dull orange red	Autumn	Mexico *Mr. H. Cuming*
ECHINOCACTUS CUMINGII, *Salm-Dyck* .. Bot. Mag., t. 6097.—Cactaceæ.	Greenhouse succulent, neat ..	(Stems sub-globose, greyish green)	Large, bright golden-yellow ..	June	Bolivia *Mr. Pfersdorff*
ECHEVERIA ROSACEA, *Lind. et And.* .. Illust. Hort., 3 ser., t. 124.	Greenhouse succulent, stemless .	Rosulate, crowded, oblong-spathulate, bluish glaucous	(Near E. secunda glauca) ..	....	Mexico? *M. Linden*
ECHINOCACTUS MIRBELII, *Lem.* .. .. Gard. Chron. 1873, 983, fig. 196.	Greenhouse succulent, interesting [Cactaceæ]	(Stems globular, deeply ribbed, coated with white scales	Yellow, freely produced (spines yellow)	Summer	Mexico *Mr. Peacock*

ITALIAN GARDENS.

Pisa Botanic Garden.—At a comparatively short distance from the "Etrurian Athens" lies the demure city of Pisa, once the rival and formidable antagonist of Florence. The chains which once stretched across the harbour of Pisa, and which were taken in triumph to Florence, have, in these happier times, been taken back to Pisa, and now hang as grim mementoes of the past in the Campo Santo, over the tombs of patriots and heroes, side by side with antique frescoes, and in juxtaposition to still more ancient relics of Roman times. It is no part of these Notes by the Way, to speak of these Old World treasures, nor of the incomparable architectural features of this famous city. It is, nevertheless, quite within our province to mention the circumstance that in the frescoes above alluded to, and some of which are not less than five centuries old, representations may be seen of the pyramidal Cypress so prevalent to this very day throughout Italy, and of the Date Palm which flourishes so well, even though it does not ripen its fruit along the northern shores of the Mediterranean. We may also add that the stiffness and artificial appearance of the trees in the backgrounds of Raffaelle's pictures, as in those of other Italian painters of the same date, is not, as might have been thought, a mere piece of conventionalism. The artist has not lavished all his art on the delineation of the human form, its artistic grouping and the matchless representation of human expression, but he has faithfully reproduced the scenery of his native land; and even those formal trees, which we had thought had no real existence save in a child's Noah's Ark, may be found in many a valley amid the Apennines. Many a lopped and trimmed Poplar did we see *en route* which might have been painted by Raffaelle as a background to his pictures.

Another point of Italian scenery is very noteworthy, the more so because rightly or wrongly we cannot help imagining that the future condition of Italy depends on its water supply to no small extent. The rivers of Italy bear classical names, Tiber, Arno, Po. We read of them in our earliest days, we dream of them in later years, and yet these same rivers, seen in spring, are insignificant streamlets, and in summer must be almost non-existent. The rivers in spring are merely wide, flat, stony grooves in the surface of the land, with a tiny streamlet picking its devious way amid the innumerable grey boulders. At a little distance are the Apennines, scored with the marks of many a winter torrent, but in spring and summer dry and waterless. Fertile plains—wonderfully fertile, traversed by wide stony seams which, as they are spanned by bridges, must be watercourses—these tell a tale. They indicate the enormous wash and waste from the mountains, they tell of a gradual rise in the land, of continually diminishing river-beds, and an ultimate scarcity of water. Nowhere are the present climatal conditions and the future prospects of a land so clearly marked as in Italy. The same features are discernible both north and south of the Apennines. To the north the rivers may be larger because there is a greater mass of snow to be melted from the not distant Alps, but, on the whole, the conditions are very similar on both sides of the central watershed.

Pisa has many attractions for the tourist, few even of the "hundred cities" of Italy can surpass it in historical and architectural associations. Our business, however, lies specially with the botanic garden, which is decidedly one of the most remarkable and interesting of similar establishments in any country.

The garden dates from the sixteenth century, and is associated with the labours of Cæsalpinus, Benincasa, and other names famous in science. Owing to the favourable climate it is enabled to possess many plants which in less favoured spots it is not possible to grow in the open air. Its trees especially are most remarkable. Its laboratories, museums, and herbaria, though not among the largest or most important, are well adapted for their purpose, are in good working order, and have a thorough work-a-day, business look about them, which is the more striking after the stagnation that one sees in some establishments of a similar kind, and the stately do-nothing grandeur of others. The garden occupies a space of about 2 hectares (about 5 acres). In the strictly botanical portion the species are arranged in natural orders, disposed in the usual ugly rectangular grid-iron-like beds, containing about 2000 species. The arrangement is such as to facilitate the comparison of nearly allied groups one with another, though none of the recognised systems of classification are followed. A regular linear succession is possible in books, but it by no means enables the student to gain accurate and comprehensive ideas of the various affinities of plants. We are by no means sure that the plan adopted in this garden fulfils this desideratum any better. An herbarium where all or the majority of forms are represented, and these in duplicate or triplicate, and in divers places, so as to represent cross affinities, is the only possible plan of fulfilling the necessities of the case, and even that does it but imperfectly. The arrangement of the Oxford Botanic Garden, with its beds of different sizes and shapes, is perhaps the nearest approach to a perfect representation in a garden of the various and complex affinities of plants, and the relative magnitude of different groups. Each plant in the Pisa garden has a number corresponding to a printed catalogue. This involves the necessity of constantly referring to the catalogue, which, to say the least, is not convenient.

Horticulturally speaking, the trees form the most remarkable feature of the garden. A Horse Chestnut, dating from the foundation of the garden, is 24 metres high (a metre is 3 feet 3 inches, about). A Salisburia, planted by Savi in 1787, is 25 metres high, and there are others nearly of the same dimensions. A noble tree of Pterocarya caucasica, 60 years old, is 21 metres in height, with a clear bole 4 feet in diameter at 4 feet from the ground, and with bark like that of a Walnut, and in whose interstices Cotyledon Umbilicus grows as a weed. A Quercus Tauzin measures 24 metres. A splendid Tilia argentea is 26 metres high. A Beech attains 23 metres. Cedars of Lebanon of great dimensions are here to be seen, and a noble Magnolia grandiflora 14 metres high. Sequoia sempervirens here attains a height of 12 metres. Araucaria brasiliensis and Callitris sp. 7 metres, Cupressus torulosa 14 metres, Cunninghamia sinensis is also represented by a noble specimen. Persea gratissima and Bumelia lycioides, form large bushes. The Pomegranate, as might be expected, thrives well, but we were hardly prepared to see Lagerstrœmia indica, a stove shrub with us, growing here as large as a full-sized Arbutus, and with a smooth cinnamon-brown bark not unlike that of the tree last mentioned. A variety of Broussonetia papyrifera, with foliage cut into linear segments, is a very curious form, which we do not remember to have seen elsewhere. Fabiana imbricata, a greenhouse shrub with us, here forms a dense bush, 12 feet high, covered with flower. The Loquat attains a large size here, and ripens its fruit, as also in other parts of Italy. Of that fruit, however, we cannot speak highly; we incline to the opinion expressed by an English lady, to whom we sat next at dinner one day, and who, on being told in reply to a question as to what the fruit (Loquat) handed her was, received for answer from the polyglot waiter, "Italian Apricot, madame." "Oh, indeed," was her reply; "I prefer English Apricots!"

To resume our notes of the more interesting trees and shrubs, we may mention Callitris quadrivalvis, Fontanesia phillyræoides, 20 feet high, in full bloom; Eucalypti, of course; Metrosideros, and other New Holland plants; Deeringia, Amhersti variegata, an elegant plant with drooping habit and variegated leaves; a fine tuft of Chamærops humilis, some 16 feet high; Stillingia sebifera, Carya tomentosa, Ephedra monostachya, and E. distachya, in fruit. A gigantic Camphor tree in full bloom may also be noted, and also a fine tuft of a Bambusa nigra, with shoots like those of the gigantic Asparagus lately introduced. We may also mention Cocculus laurifolius, with elegant drooping habit; and a rich collection of Conifers; but we are catalogue-making, and that is dreary reading. It must suffice to say, that the collection of trees and shrubs is, in many ways, the most remarkable we have ever seen, and it affords as good an index of climate as could well be desired. One other specimen we cannot refrain from noting—a gigantic specimen of the Tussack grass (Gynerium argenteum), to which the largest we have seen in Britain is a pigmy.

The plant-houses occupy an area of 480 metres superficial; their contents were chiefly dispersed throughout the grounds at the time of our visit (May 18). Others were placed under light sheds of reeds supported by poles. The collection, though rich and numerous, is unimportant by the side of the extraordinarily rich out-of-door collections.

The Museums are by no means pretentious structures, but they have a business look about them which shows well for the zeal of the director; indeed, the arrangements for teaching and for study appeared, though on a small scale, to be much superior to those in other establishments of much greater pretensions. The establishment comprises a director, who is also professor of botany, an assistant professor, a keeper of the herbarium, a head gardener, an artist, a messenger, a gatekeeper, and six gardeners. The revenue is 6000 francs only per annum! and the number of students about eighty annually.

It is impossible to do justice to such an establishment in one hasty visit, but although our notes are necessarily very imperfect and superficial, they would be yet more so if they did not expressly convey the impression that the botanical establishment at Pisa is, for its size, quite one of the most remarkable of similar establishments, and one that Professor Caruel, the present director, may well feel pride in. A few days after our visit the authorities of the city and university received with splendid and cordial hospitality the members of the Botanical Congress. The memory of this entertainment will be treasured by those who took part in it as one of the most memorable incidents of the Florence International Exhibition and Botanical Congress. Perhaps, we may here add, a reception like this by the university authorities and scientific bodies is to most culturists, and specially to most botanists, a more acceptable thing than a royal reception, which after all must be more or less of a sham. Recognition by the universities and scientific bodies would be far more appropriate and gratifying than the formal courtesies of monarchs who can hardly, as a rule, be expected to have much sympathy with scientific pursuits. What man of science familiar with the history of such universities as Padua, Bologna, Pisa, but would value a recognition from such bodies more than any formal perfunctory reception by a king? We go further and say that the selection of one or two representative men from each country to receive honorary degrees, or an equivalent compliment, would be taken by many as a more sensible and appropriate recognition than any cross or red ribbon such as our Continental friends love to decorate their coats with.

PERFORATED FLOWER-POTS.

These, not a new invention, are probably a contrivance of the Dutch, for the cultivation and enjoyment indoors of the spring bulbs of which they are so fond. And, as old fashions revived often command success, our readers are reminded of these antiquated flower-pots, because, after the bulbs in them have lost their beauty, they can easily be filled with foliage plants, or even be entirely reserved for that branch of culture. They merit favour also through being portable, taking little room, and being easily accommodated in a nook or a corner in the apartment, the courtyard, the balcony, or the terrace.

B, fig. 36, not inelegant in its form, is the perforated bulb-pot, empty. It stands on a light saucer or circular dish, made of the same material as itself, which may be either common red flower-pot clay, or earthenware glazed and ornamented outside with coloured designs, according to taste and intended cost. The foot is hollow, to admit of drainage from the earth inside; the globular portion is pierced with holes, regularly placed in quincunx order, and sufficiently large to allow a Crocus, placed inside, to grow through the aperture without, however, falling out; the upper orifice must be large enough to introduce the hand, for the arrangement of the bulbs inside and gradually filling the pot with earth, which should be well pressed down to keep the bulbs firmly fixed in their places; if the bulbs are much smaller than the holes through which they are to grow, the open portion of the surface round them must be stopped with pebbles or bits of shell, to prevent the earth from falling out. The upper orifice can be planted with a Hyacinth, a Polyanthus Narcissus, or other early-flowering bulb, and may be surrounded, if there is room, with another circle of Crocuses, or of Van Thol Tulips, Siberian Squills, Dogs'-tooth Violets, or even a simple fringe of moss (see fig. 36, A).

As soon as the plantation is completed the vase should be carefully and gradually watered from the top until the whole mass of earth is thoroughly moistened. Some even plunge it in a tub of water, leaving it submerged for two or three minutes, to make sure that its contents are unmistakably soaked. After draining a while it is put for a month or five weeks in any dark place, neither too hot nor too cold—a cellar or cupboard or out-of-the-way closet—where the development of the root-growth will begin. It may then be brought into the warmed and lighted apartment where it is eventually to remain; but, as the air of living rooms, in consequence of the fires kept there, is drier than the spring atmosphere of gardens, the vase must be frequently and regularly watered with water of a temperature not lower than the room itself. A few broken crocks at the bottom of the vase will allow superabundant moisture to drain away.

When the bulbs have flowered they can be removed, replanted in the open ground to ripen their leaves and complete the cycle of their vegetation, and the perforated pots can be employed for the culture of other flowering plants, such as Achimenes, Gloxinias, Begonias, terrestrial Orchids, Musk, Mimulus, &c., or of Ferns, Lycopods, and Selaginellas. The holes in the pot are especially adapted for the reception—and for allowing them to peep out permanently—of the rock-loving Ferns and those which like to grow on a surface perpendicular to the horizon, such as small plants of Hart's-tongue and its numerous varieties, of Aspleniums Ruta-muraria, septentrionale, and marinum, and above all of Adiantum Capillus-Veneris, the true Maidenhair Fern. This latter possesses the great merit of thriving in the hottest and sunniest exposure (as well as in the shade), and in the driest atmosphere, provided its roots are kept permanently moist. With the last condition well fulfilled it is sometimes found wild and self-sown in the most extraordinary situations. Thus, at Amélie-les-Bains (Oriental Pyrenees) is a Catalan forge, which would make our great iron-masters smile; iron-ore is found there, but no coal. The smelting and everything else is effected by charcoal, brought down from the hills on mule-back. Water-power, derived from the torrent, crushes the

ore, blows the bellows, and makes the hammers beat. It is curious that, in spite of the heat from the charcoal fires, one of the inner walls of the Amélie forge (built of rough blocks of stone against the side of an earth-bank) should be beautifully draped with the Maiden-hair Fern—a bright green embroidery on a ground of black. The whole bit makes a most effective picture—wild-looking smiths, mixed qualities of fire-glare and daylight, ore, Ferns, bellows, hammers, and all.

Perforated pots may be rendered useful as well as pretty by growing, in winter, the materials for culinary service. Fill the holes with double moss-curled Parsley; the upper range may contain tufts of Thyme, common and lemon-scented alternately; stick a handsome plant of Celery on the top (the fringed-leaved variety is most suitable here), surround it with young specimens of that sweetest of sweet herbs, Knotted Marjoram, and you have a bunch of aromatic verdure not to be despised either in parlour, or kitchen, or hall.

Collections of old earthenware often contain specimens of the French Bouquetière of former days (fig. 36, D), which could be hung up against a wall by a string passed through two holes in its flat back. The top only, which hollows backwards like the under shell of an oyster, is pierced with holes, which can receive cut flowers if the vessel is filled with water only, or through which plants can be made to grow if earth is introduced at the larger central aperture; but there are no means of drainage, which is a great defect. It is a convenient flower-pot, because it is small and can be hung up anywhere out of the way. Length of specimen at top and back 7 inches, at bottom 5 inches, height 3½ inches. These old bouquetières are gaily coloured outside, after the fashion of the period, on which modern taste could effect an improvement without exceedingly long searching out.

Perforated suspension pots (fig. 36, C, E) are comparatively new; they have the same fault of no drainage, and are consequently best suited for drought-loving plants. The holes might be filled with rosettes of Houseleek or Echeveria, the upper part with Epiphyllum, Cactus, or other showy succulent. Greatest diameter, 10 inches. *E. S. D.*

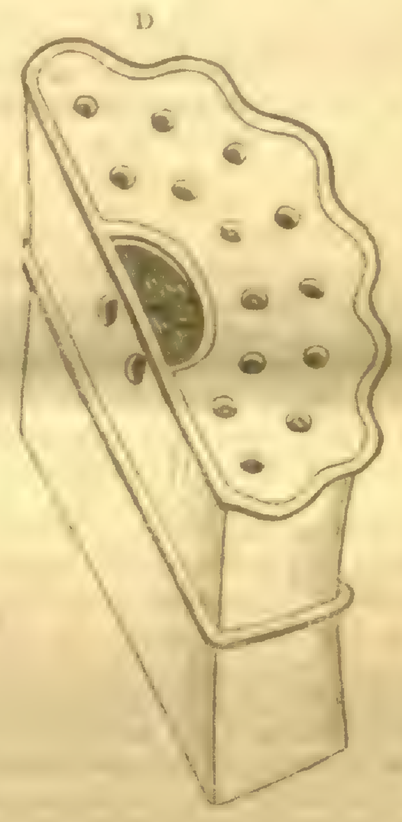


Fig. 36.—PERFORATED FLOWER POTS.

HENNA.

When an interesting article appears in the *Gardeners' Chronicle* on a subject which allows of further treatment, it is well for those to contribute their mite who can do so as auxiliaries. Actuated by this feeling, I send you a few particulars, which may perhaps be new to some of your readers, in reference to the Henna plant, the uses of which are described on p. 835 (June 27, 1874). Two varieties are distinguished by the writer of the article, and very properly, but there can be little doubt that they are only forms of a single species—the Lawsonia alba of Linnæus, representing extreme conditions, and, to compare small things with greater ones, corresponding with what we see in the two extreme forms of the common English Rest-harrow, these being distinguished by Koch and others as Ononis repens and Ononis spinosa, but which it is best to call simply Ononis arvensis. It would be well if, in seeking to establish distinctions among exotic plants, our practical gardeners especially would take lessons from the field-flowers of Old England. The exactest analogy prevails between wild English plants and foreign ones. If a gardener wants a good A. B. C. in regard to the vexed question of species and varieties, he will get it far better and more readily from the wild flowers and the Ferns of his own country than from garden and greenhouse plants. This alone should be a motive with him for devoting a good part of his leisure and to indigenous British botany without a fair knowledge of the leading particulars of which branch of plant science no man can consider himself entitled, in this country, to speak positively, or, what is every bit as unwise, to think too confidently that he is right in regard to a given exotic. I don't believe in learning foreign plants without the help and the illustration that is got from wild English ones, any more than I believe that the "Higher Education of Women"—the great, or rather the sonorous cry of the age—is quite so good, right and left, as would be a little more of the "Lower Education."

Let us call the plant, then, Lawsonia alba, and regard it as a unity, capable of assuming two widely different aspects. It is a native of Egypt, and of many parts of south-western Asia, reaching, apparently, as far as India. When fully developed, it forms a handsome shrub of some 8 or 10 feet in height, and may be compared to a Persian Lilac, or to a well-grown Japanese Privet. The leaves are opposite, ovate-lanceolate, an inch or two in length, entire, and glabrous, hence not unlike the leaves of the two shrubs which it resembles in complexion; the flowers also remind us of the Privet and the Persian Lilac, being produced in thyrsi of much the same size and feature, as well as like them individually. The four little white petals spread away from the eight stamens which they surround; the fruits are berry-like globular, and many-seeded. Structurally, these latter parts conform with what occurs in the beautiful purple-spiked Lythrum by our English water-sides; also in the Heimias, the Nesæas, and the Grisleas of the stove and greenhouse; also, to a certain extent, with what is observable in the now familiar Cupheas, though here the likeness is somewhat obscured by the frequent suppression of the petals, and the vivid colouring of the calyx. The genus is placed accordingly in the natural order Lythraceæ; while in the Linnean system, which every intelligent gardener is bound to know the meaning of, it stands in Octandria Monogynia. The name of Lawsonia was bestowed upon it in honour of a man eminent in his day, Isaac Lawson, M.D., author of a *New Voyage to Carolina*, 1709. Previously it had been best known by the name of Alcanna, which last is the same as Al-henna, the "al" being the Arabic prefix, as in Alhambra, alcove, algebra, alkali, almanac, and many other words which were born in the East more than a thousand years ago, were then carried on the lips of that wonderful people, who, pushing their way along the southern shores of the Mediterranean, at last crossed the water at Gibraltar, and established in Spain the famous Moorish kingdom of Grenada—literally "the country or place of Pomegranate trees"—and which eventually became Spanish words—England importing them after the same manner that she has imported words from the languages of almost every land beneath the heavens. The interest of this original Eastern name, alcanna, is considerable, seeing that it was from the same term that in process of time the French, learning it from their neighbours on the other side of the Pyrenees, made their word "orcanette," which we ourselves in turn have changed into "alkanet." So curiously do things float back, oftentimes to their beginnings, and realise the ancient fable of the serpent with the tip of its tail in its mouth, for in "alkanet," though the word is now applied to a different thing, we scarcely have departure from alkanna itself. That *c* should change into *k*, and *k* change into *c*, when words move from one language into another, it may be well to remark, is a very common phenomenon. Familiar examples of it occur in cornu and horn, casa and house, and in a word which agriculture and horticulture claim as peculiarly their own,—haulm, which is identical with culmus and calamus. That henna and canna, or cana, should correspond is thus perfectly natural. I am not sure that the student of plants may not learn a good deal from comparative philology, and that the philologist, in turn, if he will go to living and growing Nature—to trees and plants and flowers—instead of stopping in his chair and poring over dictionaries and curious glossaries, may not gather, in nice balance of acquisition, what he would never learn from his books, however big. There is only one philosophy in the world, though there are many shapes or forms of philosophy; and when I see a plant assuming quite a new complexion with change of latitude and climate, I cannot but say to myself, There it is over again—the old, old story; the old tune played in another key; *c* changing to *k*, and *k*

changing to *c*; leaves, flowers, fruit, all taking it in turn to pretend to be something else, but never escaping the skilful eye which finds its best education in noting the wonderful flexibility as well as the glorious constancy of Nature. Sometimes I am disposed to think that every plant whatever ought to be placed in the genus Mimosa, which was named, as most of us know, I presume, from the extraordinary way in which the leaflets, when you touch them, mock or mimic the movement of a human being, every plant, I mean to say, is after its own fashion a Sensitive Plant, doing something quite the contrary of what we expect in an orthodox and respectable individual that has no feeling or sensation, directly it is placed in strange or beguiling circumstances. Words also are sensitive plants, Mimosas every one of them; the parallel is complete in every particular.

Everything in the world, regarded from a sufficiently elevated stand-point, becomes for the time being the very centre, middle, and pivot of Nature As with the Forum in ancient Rome, a street leads from it in the direction of every chief province of the empire. This must be my excuse for wandering away so far from my original theme. The leaves of the Lawsonia, let me proceed to say, are rightly described in the interesting article in p. 833, as having been employed as the material for a sort of personal ornament from the earliest ages. It is not mentioned, however, that they were used by the ancient Hebrews, and that we have a reference to them in the Old Testament, under the name of copher or kopher. The passages occur in the Song of Solomon, i. 14, and iv. 13. "My beloved is unto me a cluster of kopher in the vineyards of Engedi." "Thy plants are an orchard of Pomegranates, with pleasant fruits, kopher, and spikenard." The Authorised Version renders this word kopher in both places by "camphire," whence the popular impression that Solomon referred to camphor. But there is not the slightest reason to suppose that the white, crystalline, and powerfully-scented solid familiar to everybody as camphor, the produce of the Laurus Camphora, was known to the primitive Hebrews, or to any nation so far to the west of the native country of that tree, at the period when the Song was indited, say B.C. 1000 or 950, though it is quite true that the renowned old monarch had organised a magnificent system of oriental commerce, both by water, *viâ* the Red Sea and the Indian Ocean, and by land *viâ* Palmyra; and that camphor, as we understand it to-day, is the proper translation of kopher, no one any longer contends. It will be interesting to see how the learned divines, the chief priests and the elders, who now periodically assemble at Westminster to engage upon a revision of the Scriptures—it will be interesting, I say, to find out, when their new edition comes to be published, after what manner they have dealt with the notoriously incorrect translations in the A. V. of the terms applied to objects of natural history. Camphire, accordingly, must be understood as the henna, henné, or henneh plant, and nothing could be more appropriately introduced in an ode like that which we call the Song of Solomon. It gracefully indicates that nothing was forgotten that would be pleasing to the new-made spouse; and supplies the foundation also of a delicate compliment. So sweet and softened is the white and copious bloom of the Lawsonia; so bright is the green of the foliage, both colours improving through the deep hue of the bark of the younger shoots; so fragrant, withal, are the flowers, that nothing could be selected as a more suitable image for a bride in the May of her lifetime. To this day it is reckoned as one of the favourite flowers of its native land: the women of the East gather and cherish it as our English maidens do the Lily-of-the-Valley; they place it in the bosoms of their dresses, and no doubt, as in a thousand other oriental usages—for the East is the stronghold of the changeless as to manners and customs—in so doing they but repeat the practice of twenty-five centuries ago.

The introduction of kopher into the bride's garden carries with it, however, another purpose—that which is referred to in your former article (p. 833) as having given the Lawsonia celebrity in reference to the toilette. The use is rightly described, and I have little to add except that the accounts given by travellers are very various in regard to the colour communicated by the application of the paste, this being described by different writers as orange, fulvous, iron-rust colour, yellow, red, and pink. The diversities are probably casual, or they may be optional, and controlled, in a measure, by the strength of the preparation, by the length of time the paste is allowed to remain in contact with the parts, and the length of time it may have been customary on the part of an individual to resort to it. On these points information is wanting. Red or rosy would seem to be the most perfect colour produced, since "alkanet" above-mentioned, the application of which word may legitimately be supposed to refer to it, is of a deep rich red. The modern alkanet, as need hardly be said, is obtained from the roots of the Anchusa tinctoria, a plant of the natural order Boraginaceæ, and in no way to be associated with the Lawsonia. I am disposed to believe it to be a shade of pleasing red, from a statement in one of the most accurate and picturesque books of Eastern travel—namely, *Eöthen*. To this day, the author tells us, in Constantinople, as in the Turkish provinces in general, not to conform to the ancient practice of staining the nails with henné would be considered indecorous, if not worse. "Wherever the English visitor meets one of the native ladies clothed in white from head to foot, he must see the tips of the stained fingers depending like Rose-buds."

Light is thrown, perhaps, upon the matter by the famous epithet in old Homer, when he speaks of "rosy-fingered morn." Aurora, as befitted a Grecian goddess, wore a saffron-coloured robe:—

"The cheerful Lady of the Light, decked in her saffron robe,
Dispersed her beams through every part of this enflowered globe;"

but she also had "rosy fingers," and as such a term applied to the fingers bodily would suggest ideas of anything but pretty, we are probably intended to understand the finger-ends, the nails, that is to say. This interpretation gives to the charming old picture a thorough completeness, Aurora being supposed to finish her toilet after the same manner as the maidens and matrons of earth. All the ancient Greek divinities were glorified men and women, and the highest impersonations of them were the loveliest, the most accomplished, and the most exquisitely adorned of human beings. Aurora steps out of her golden chamber, clad in a saffron-coloured robe, and wearing a light and flowing veil, which she throws back to denote the dispersion of night, this last—the veil—being the sweet early mist upon the mountains, so dear to Shakspeare; then opens with rosy fingers the gates of day. It is true that, as in the opinion of some, the saffron-coloured robe may refer literally to the tint of the sky at daybreak in eastern countries, so the "rosy fingers" may perhaps refer to the level bars of crimson sometimes observed in company therewith; but Homer was a man of sympathies too deeply human go to inanimate Nature for a simile when he could take one from living humanity. In a later age, nevertheless, this seems to have been the view adopted by Ovid, since he represents the courts or *atria* of watchful Aurora as strewed with the flowers in question, but the weight of argument is certainly still in favour of rosy-tinted finger-nails. It is probable that the staining of the nails had not so much in view the colour that was communicated by the henné, as the clear and definite outline that was given to their shape, a characteristic which, as every English lady knows, is of the first importance to a well-finished hand. Good nails will supply the place of costly rings; the most splendid and expensive circlets, with all their pearls and diamonds, will never redeem finger-ends that are uncomely, neglected, or vulgar. That the clear delineation of the almond-outline of the nails was the principal object, seems to be illustrated in the curious expression in Deuteronomy xxi. 11—12, when it is required of the captive woman, who is taken upon her month's trial as a wife, that she shall "pare her nails;" for this injunction seems to indicate that she shall spoil the shape so much esteemed. If, after doing this, and shaving her head, she still pleases her captor, the matrimonial future may be counted safe.

There is evidently some connection between the Hebrew *copher* and the name of Cyprus, the Greek name of the plant, as quoted on p. 833, and again between this and the name of the celebrated island at the extreme east of the Mediterranean, upon which, it is said, the Lawsonia in ancient times grew in great plenty. The proximity of Cyprus to Egypt made it a general rendezvous for the merchants of Tyre, who doubtless found the trade in cosmetics quite as profitable as it has continued ever since. The principal seat of the worship of Aphroditë, the goddess of love and beauty, was in this self-same island, surnamed Macaria, or the Blest, whence her synonym Cypris.

That the camphire of Scripture is the henna of the orientals is no new discovery; Ursinus describes it as such in that very curious little volume, the *Arboretum Biblicum*, A.D. 1673, and likewise gives a rude drawing of the plant (p. 368). Rumphius does the same in his *Natural History of Amboyna* (1750), and with the accompaniment of a faithful picture (iv. 42—47). The account of this plant given by the last named author is the original of almost all the descriptions to be found in modern Cyclopædias, &c., so enormously are the writers of every succeeding generation beholden to the industry of others who have preceded. It would be a curious bit of information could we be told how much of what has been printed during the last fifty years has been sucked out of the books produced by our forefathers.

Lastly, it is interesting to note that the resemblance of our common Privet to the Lawsonia led to the bestowal upon the former of one of the ancient names of the latter, namely, Ligustrum, the appellation under which, according to Pliny, the henné plant was known in Italy, and which in lib. xxiv., cap. 10, of his immense book, Pliny applies to it himself. Virgil, however, applies the name of Ligustrum to the great white hedge Convolvulus, Calystegia Sepium, as Ovid does likewise (*Met.* xii. 789). The resemblance of the two shrubs, the Privet and the Lawsonia, is noticed by the old traveller, Ranwolf, who likewise gives a drawing of the spineless variety of the eastern plant, while of the spinous one there is a representation in Rheede's *Malabar*, vol. i., fol. 40. *Leo Grindon, Manchester.*

Forestry.

How Should we Lop Trees?—This subject is one well worth careful consideration, and judging from the way one often sees it done, it seems to be either very imperfectly understood or very carelessly executed. In the first place I would ask, Why is pruning of large timber trees necessary at all? Two or three reasons might be given, but the best one seems to be that those who had charge of the trees up to a certain age either suffered them to go astray through neglect, or, what is equally probable, did not consider them of sufficient value to repay close attention in order to make them develope themselves into whatever form would be most beautiful and useful. But since pruning in some form must be done, the question then is how is it best to be done? I am of opinion that no definite rule can be laid down to apply to every case, so much depends on the variety to be operated on, the surrounding circumstances, and the object to be attained, and every one entrusted to prune trees should have a proper knowledge of the relation existing between roots and branches, and how far the denuding the tree of the one affects the other. This should not be left, as is too often the case, to mere day labourers, who know nothing more about it than to do so much work for so much money. I am sorry to say I have seen men of whom better things might be expected from the position they hold, making but a sorry mess of it as far as pruning and training go. With the exception of trees overhanging roadways, or where a large branch intercepts a view, I would never prune close to the bole or leave a stump of a few inches, but in such cases I would cut close to the bole and dress the surface as smooth as possible, and give a slight coating of paint or varnish of some sort, to counteract the effects of the weather. As regards the stump system, I consider it of as much service to the tree as the stump of an old tooth is to the head when left by the dentist. But, unless in exceptional cases, I would never close prune. The system I would always employ, as I have seen it done with splendid results, is what is hereabout termed foreshortening, which means cutting a part off a branch, it may be one-third, more or less, according to the strength and object to be attained. I have seen trees in a gentleman's home park assuming a round ball-shaped head from rival branches contending with the leader, which, on being foreshortened, all except the leader soon assumed a pyramidal form, and had the reverse been the object desired, by foreshortening the leader a round head would have been the result. I am fully convinced that by timely attention to foreshortening a tree may be induced to take almost any form the fancy pleases. How often do we see fine trees spoiled from allowing some strong branch or branches to contend with the leader, until the evil becomes so glaring that even the merest tyro in arboriculture sees that something should be done; and what is the remedy generally employed? Cutting the branches off, and leaving the tree in much the same state for future development as a man who has lost one of his lungs! By a little timely foreshortening the tree might have been a well-balanced healthy specimen. The object of every timber-tree pruner should be how to effect his object by removing as little as possible from the tree, and, instead of removing the offending branch in order to restore the balance at once, he should rather foreshorten, so as to induce the sap to flow more strongly to the weaker parts, and thus make Nature the main agent in restoring it. It is during the first fifty years of the tree's existence that all training should be done, and if properly attended to by competent men up to that time the question of "How are we to lop our trees?" would be a thing of the past.

Might not our Oaks and Elms, &c., be made much more valuable by a proper system of training in their younger days? This involves another question of much importance to landed proprietors—viz., are the growing plantations of Britain managed as they ought to be, seeing the importance of timber as a source of national wealth? I, for one, consider that there is far too little care taken in the management of timber in its young and growing state, and that a much more rigid training ought to be required of young foresters than is the case at present. Is it of so much less importance than gardening, that one must work three years for next to nothing, and go through several establishments at little better than labourers' wages before he is considered fit for a master's place, and even then at wages often less than the forester, whose whole course of training may have been a few months' felling trees in a wood and planting under a foreman, all the time receiving full labourer's pay? That there

are many well-qualified men acting as foresters every one will allow, and I know several myself; but any one conversant with forestry in Scotland will at once admit that there are too many such cases still in existence, although I am glad to say they are getting fewer; and until some more rigid course of training is introduced the foreigner will still have cause to point the finger at us, as much in want of a lesson, especially as regards forest tree training. *J. S.*

Notices of Books.

Remarques sur le Fait de l'Existence en Société à l'Etat Sauvage, des Espèces Végétales Affines, *et sur d'autres Faits relatifs à la Question de l'Espèce.* Par Alexis Jordan. (Remarks on the Fact of the Existence of a Social Intermingling of Closely Related Species of Plants in a Wild State, &c.)

This is a pamphlet of about two dozen pages, and may be described as a vindication of the author's view of what constitutes a species, and a challenge to other botanists to disprove his assertions. It is now some years since M. Jordan gave the world his then still immature estimate of specific limitations, as applied to the dismemberment of what he calls Linnean types. The type known as Erophila verna (*alias* Draba verna) he attempted to show was in reality an assemblage of distinct species, perfectly constant in their characters, and of which he at that time had succeeded in discriminating fifty-three; subsequent researches have, as the author tells us, augmented this number to nearly two hundred. Now, whether we accept or not M. Jordan's definition of a species, we must allow that he is a most careful and conscientious observer. But as he has taken up what he holds to be an impregnable position, and boldly proclaims all those who do not entertain his notions on this point to be superficial workers, too indolent to investigate the phenomena of Nature, and too much influenced by prejudice to acknowledge the benefits that have accrued to science from the light that he has thrown upon the difficult subject of species, we may be permitted to criticise his tenets as freely, if not so decidedly, as he condemns the labours of other botanists. Hear, first of all, what he has to say himself in defence of his convictions, and against his opponents in the arena of botanical science. As the result of thirty years' study of the flora of France he claims the merit of having discovered the existence of numerous permanently distinct species, either not detected or neglected by other botanists. He complains that his species are rejected in a very unphilosophical spirit, because they do not possess the value of Linnean species, and because botanists are appalled at the depths to which they must extend their studies to be entitled to the rank of scientific men. He does not pretend that his species are of equal value to Linnean species, but he maintains that they are perfectly and permanently distinct, as he has proved beyond discussion by cultivating them from seed year after year, each species being exactly reproduced every year from the commencement of his experiments. Linnean species furnish a good illustration of his conception of genera. He looks upon them as centres of species, just as in a wider sense different regions are centres of groups or families of plants. The individuals of these species commingle, or exist in what he terms a social state in Nature. It is not only those "species" called polymorphous that he finds are constituted of an assemblage of well-characterised species, but also those reputed monotypical "species," of which no varieties have been detected, such, for example, as Convallaria majalis, Polygonatum vulgare, &c.

A pretty general misapprehension of the laws and effects of hybridisation, he assumes, accounts for the prevailing misconception of species. Independently of the fact of the existence of these species in a social state, he affirms that they show no tendency to unassisted inter-hybridisation, and in this he says he is supported by the observations of others, who find that spontaneous (unassisted, we understand it) hybridisation almost invariably occurs between relatively well-marked types. As a further proof of this assertion he cites an experiment with a number of different forms of Ægilops ovata, of Linnæus, which under cultivation preserved their distinctive characters year after year, though grown side by side, whereas when planted near Wheat the result was a number of hybrids. He then deals rather severely, and perhaps justly, with those who look upon Ægilops as the parent of the cultivated Wheats. After more details on this subject, he adds, that though hybridisation usually takes place between very distinct types, he is far from asserting that there are not cases, in some families especially, where its action is more general. One species, he continues, may cross with several others, and cause no end of confusion and perplexity to the botanist, whom he recommends to destroy them, and commence afresh. He further contends that the seed progeny of a fertile self-fecundated hybrid present variations, whereas a true self-impregnated species does not; hence M. Decaisne's experiments to prove that all cultivated Pear trees are varieties of one species proved most decisively the contrary. Before publishing his species as such, M. Jordan has cultivated them for years, and satisfied himself of their title to that rank. And he very pointedly asks, "Who has been able to contradict or refute his experiments?" and answers, "Nobody, that he is aware of." "Scientific facts necessarily assert themselves. A fact is a fact, and there is no gainsaying it. What is true here is universally so; for it is impossible to doubt the constancy and the universality of the laws of Nature."

"The different species of Erophila are, therefore, hereditary; and I may say that this is a new fact for science. Those who are tempted to deny this will ever find it impossible to adduce proofs in support of their argument." M. Jordan ridicules the idea of individual transmisible variations, due to soil, climate, altitude, or what not; and he thinks it a loss of time to adduce anything in refutation of what is called the hypothesis of natural selection. But he will pardon us for saying that he evinces a very shallow knowledge of his subject when he says, that selection or choice assumes consciousness, discernment, judgment. Certainly his objections lead us to consider whether the term "selection" adequately expresses the sense it is intended to convey. He estimates the flora of France at ten times the number of species at present described. After a glance at the value of microscopic and other characters as distinguishing species, and giving Linnæus a hard rap for presuming to set himself up as an authority in so wide a field, he finally concludes with an expression of belief that the services he claims having rendered to science will one day be re-recognised. We do not propose going into detail and marshalling all the evidence we could collect to upset M. Jordan's theory of species, for that is the side we must perforce take. But having laid the pith of the contents of M. Jordan's paper before our readers, we may point out some of the defects in his reasoning, and the consequences it would lead to if adopted.

Very few persons will inclined to deny that M. Jordan's species of Erophila may preserve their characters from seed for an indefinite number of years, but yet fewer would admit that this quality is the exclusive attribute of a species. Naturally we must go to cultivated plants to find a test of the value of his arguments. Every one who has raised Pelargoniums, Roses, &c., from seed, will remember instances in which it was evident there could have been no cross-fertilisation, for the seedlings have come exactly like the plant that bore the seeds, which itself was most certainly of hybrid descent. Florists know perfectly well that certain undoubted varieties may be perpetuated from seed if care be exercised in saving the seed. Asters of different colours and varieties, double-flowered Balsams and Stocks of different colours, different varieties of Wheat, Maize, and numerous other plants, may be mentioned as capable of reproducing themselves exactly from seed if not cross-fertilised. The propagation of esteemed varieties of Pelargoniums and other perennials being much easier effected from cuttings, their propagation from seed is rarely tried; but, as we have already mentioned, so far as our experience goes, the seed of a self-fertilised variety reproduces its like. Now, it is well known that there are several well-marked species variously crossed and blended in our cultivated Pelargoniums; hence the fallacy of the argument that varieties of hybrid descent necessarily produce a mixed progeny; and if pure self-fertilised species alone reproduce their like, the differently coloured Asters would be entitled to specific rank. Some of the colours have originated in gardens, probably the result of the crossing of two differently coloured varieties, but they are as constant from seed as the originals. Other peculiarities are transmitted with the same certainty, as every practical gardener is aware. But continued self-fertilisation has a degenerative effect, and varieties so perpetuated lose their constitution in time, and disappear from cultivation, until cross-fertilisation shall give birth to a similar variety. Recent investigations seem to indicate that in Nature continued self-fertilisation is an exception, therefore we might expect to find numerous varieties capable of reproducing themselves exactly from seed for a number of years, if prevented from receiving foreign pollen. How many years, we contend, would depend upon other conditions. It is quite feasible, too, that identical forms should occur in distant places, just as two florists sometimes independently raise varieties possessing the same likeness or qualities, each raiser giving it a different name, and strongly impressed with the belief that the other has not come by it honestly. As for the characters upon which M. Jordan bases his species, they would be utterly unintelligible in a diagnosis; and even with well-executed figures it would be impossible to determine each species. That he, after many years' study, can distinguish forms to which he gives certain names no one doubts any more than we should deny that certain Rose growers know 200 or 300 varieties of their favourite flower. But because it is possible it is not desirable, would answer no useful purpose, and is about as logical as describing individuals—for some slight differences extend to individuals even.

With regard to the cross-fertilisation of closely related forms, arguing from analogy, it is probably not so frequent, but still is no rare occurrence. As to his facts, they having nothing whatever to do with the limitation of species, one fact does not annihilate another; but the relation of facts may be differently viewed, and their individual and combined existence of unequal importance in the estimation of different men.

It is scarcely to be expected that M. Jordan will listen to our suggestion that he should devote his talents to a more worthy object than describing these trivial forms, however constant they may appear, for his efforts would be far more likely to meet with recognition. *W. B. H.*

—— Messrs. Reeve & Co. have lately published parts 2 to 5 of Mr. Jennings' *Orchids and How to Grow Them in India, &c.* We have already alluded to this work, but may now say that as it progresses its interest increases, that the directions for culture appear sensible and judicious, and that the execution of the plates is decidedly superior to what it was, though still in cases open to improvement. The plates represent Sophronitis grandiflora, Lælia anceps (including the variety Dawsoni), Cœlogyne cristata, Saccolabium giganteum (an unsatisfactory solid looking representation), Lycaste Skinneri, Vanda Cathcartii, Oncidium Papilio, Cypripedium Stonei, Odontoglossum grande, Barkeria Lindleyana var. Centeræ, Phalænopsis Schilleriana, Cymbidium eburneum, Masdevallia Lindeni, Cattleya gigas, Dendrobium Boxalii (a capital representation), and Aerides Fieldingii—the Foxbrush Orchid. It will be seen that this publication is of interest to Orchid lovers of whatever nation, and although it is specially addressed to Indian horticulturists, it will also prove very serviceable to European Orchid lovers. Botanical details and the history of the manners and customs of these plants, points as interesting as their flowers are striking, are almost entirely omitted, which is perhaps a pity; for if a hobby is to be made permanent, and if the greatest amount of pleasure is to be derived from its pursuit, it must be studied intelligently from more than one point of view. The following remarks will show the judicious spirit in which the cultural remarks are written, and it will be at once obvious that much of what is therein said is as applicable in this country as in the tropics:—"The careful management of watering is one of the most important subjects that will occupy the personal attention of the cultivator of Orchids. Left to an ignorant gardener, whose indiscriminate use of the watering-pot at all times and seasons will surely bring about a most unsatisfactory state of things, no collection can ever be expected to thrive, or afford the anxiously hoped-for bloom. Time, method, and quantity must be all studied; whether much or little water should be afforded, whether to use the syringe or the watering-can, or whether to immerse the whole plant, will depend on the state of the atmosphere, as well as on the condition of the plant, and this must never be left to the caprice of a native. There is a reason for everything, and frequent visits to the Orchid-house must be paid, or some very essential duty will probably be neglected, entailing results which may be most difficult to remedy." As a class, the author believes that the native gardeners of India are for the most part really interested in their work, and would make capital servants if they could only be persuaded that you know better than they do, and this can be achieved in no other way than by constant personal supervision. They are so wedded to the customs of their predecessors, that to induce them to change their treatment is a most difficult matter; but, that important point gained, everything else becomes easy. For this reason it is always preferable to employ an intelligent new man for Orchids rather than one who has had long experience in the flower-garden. Such a man can be trained to carry out any system of cultivation, and will not be biassed by prejudices in favour of his old-fashioned ideas. Explain your reasons for every course of treatment, and you will soon have a man upon whom you can thoroughly rely. The author's best gardeners were always those who knew nothing at all when they first entered his service.

—— The plates of the *Botanical Magazine* for the present month include representations of Crinum Moorei, Brachysema undulatum, the very singular Decabelone elegans, Kniphofia Rooperi, and Achillea ageratifolia. Owing to an unfortunate accident, the publication of the text which should accompany these plates must be deferred till next month.

—— The third part of the re-issue of *British Wild Flowers*, illustrated by J. E. Sowerby, and described by C. P. Johnson (Van Voorst) brings the work up to the end of Tiliaceæ. The chief feature of the work consists in its illustrations, which for their size are excellent.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., Importers and Manufacturers. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

Notice.

FOR SALE—TWO of Messrs. J. WEEKS and CO.'s IMPROVED UPRIGHT TUBULAR BOILERS (No. 5), with hollow Furnace Bars, Sliding-doors, and Boiler Valves; also 4600 feet of PIPING, with Casting and Valves all complete and in first-rate condition; and several HOUSES, of good construction, containing about 26,000 feet of Glass. Apply to
THOMAS EAST, Wolveton Gardens, Dorchester, Dorset.

THE THAMES BANK IRON COMPANY
(Successors to Lynch White),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

HENRY ORMSON,
Horticultural Builder and Hot-Water Apparatus Engineer,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

GLASS for HORTICULTURAL PURPOSES is forwarded by Messrs. LOVELL and CO. to any part of England at considerable reduced prices.

Estimates sent by return of post upon receipt of sizes and thickness. Dealers in all descriptions of Glass, White Lead, Oil Colours, and Varnish.

LOVELL and CO., 53, Red Lion Street, Holborn, London.
Established over one hundred and fifty years.

TOTTENHAM LOCAL BOARD OF HEALTH.—SEWAGE MANURE.—The above Board are desirous of DISPOSING of an accumulation of SEWAGE MANURE at their Outfall Works on the River Lee Navigation, adjoining the Great Eastern Railway bridge at Tottenham; and are prepared to permit its removal, free of charge, on application to me at the Board's Office, Coombes Croft House, Tottenham.—By order, EDWARD CROWNE,
July 31, 1874. Clerk to the Board.

THE LONDON MANURE COMPANY
(Established 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA.
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY Limited).

MILDEW.

The best and most easily applied composition for the Prevention and Destruction of Mildew is

EWING'S INFALLIBLE COMPOSITION.

Can be had retail through all Seedsmen and Florists, in bottles holding about ¾ pint, sufficient to produce 8 gallons of fluid fit for use, at 1s. 6d. per bottle; or direct of the Manufacturers, EWING and CO., the Royal Norfolk Nurseries, Norwich, carriage paid to any Railway Station in the United Kingdom for 24 penny postage stamps.

"OPEN SPACES IN THE CITY."—DRAPERS' and CARPENTERS' GARDENS.
School House, London Wall, July 31, 1874.

At a Meeting of the Inhabitants of Broad Street Ward, held this day pursuant to notice—

"To take into consideration the proposal of the Drapers' and Carpenters' Companies to let their Gardens for Building purposes, and to take such steps thereon as may be deemed necessary to preserve, if possible, these open spaces in the City"—

John Whittaker Ellis, Esq. (Alderman), in the Chair, it was moved by Mr. T. A. Roberts, seconded by Mr. H. Rivington Hill, and resolved unanimously—

"That this Meeting has learnt with regret that the Drapers' Company propose to let for building purposes the large Garden in the rear of their Hall known as the 'Public Garden,' and to which, from time immemorial, the public have had free access. That as the adjoining garden and premises belonging to the Carpenters' Company are also being prepared for letting for building purposes, it is desirable to take prompt steps to preserve if possible these open spaces in the City."

Moved by Mr. Matthew Wood, seconded by Mr. James Gowland, and resolved unanimously—

"That a Committee be appointed and empowered to take such steps as shall be considered advisable."

By order, DAVID STUART, Ward Clerk.

Nursery Grounds and Residence.

MR. MASON is instructed to LET a well-planted NURSERY GROUND near Windsor. It contains altogether nearly 7 acres. The position is one of the best in the South of England. The present owner and his family have carried on the Business nearly three-quarters of a century. Amongst the Customers Her Majesty the Queen is one of the best. £900 will purchase this most lucrative and fascinating Business. The trade may be largely increased by an energetic Man, or a lazy one may put £300 a year in his pocket by merely looking on. Principals only dealt with.
Mr. MASON, Land Agent, Windsor.

TO BE LET, with immediate possession, a capital NURSERY GROUND, at White Hart Lane, Tottenham, not far from the White Hart Lane station, with five large GLASSHOUSES or PITS, covering nearly three-fourths of an acre; also a HOUSE to LET, adjoining the above. For particulars and cards to view apply to
Messrs. LANDER and BEDELLS, Surveyors, 6, John Street, Bedford Row, W.C.

To Gardeners and Others.

TO BE LET, for a term of years, with immediate possession, within five minutes' walk of the Railway Station, very productive KITCHEN GARDENS, Stocked with choice Fruit Trees in full bearing—forty-eight Wall, fifty-eight Standard and Pyramid. Between 600 and 700 feet of Wall, from 7 to 12 feet in height. House and more Ground can be had, if required. Soil gravel. Apply on the Premises,
The Rectory, Ardleigh, near Colchester, Essex.

Morden, Surrey.

TO BE LET, an excellent GRASS FARM, of 60 or 70 Acres, admirably calculated for a Breeding Establishment of Horses and other Stock, with capital Residence, Gardens, Greenhouses, Vinery, &c., and most ample accommodation in the way of Sheds, Barns, Stables, and Outbuildings suitable for young Stock. Apply to
Mr. FRASER, Morden, Surrey.

To Nurserymen, Florists, and Market Gardeners.

TO BE SOLD, or LET, a well Stocked NURSERY, containing about 4 Acres, planted with a choice variety of Fruit Trees, Roses, Stocks, Shrubs, &c.; the land has a good supply of Water, and adjoins the road from Narborough to Enderby. Also a newly-erected and well-built DWELLING-HOUSE, with Stabling for Two Horses, Loft, Cart Shed, Two Greenhouses (each about 100 feet in length by 14½ feet wide), large Water-cistern, and other requisite conveniences, situate in the village of Narborough, and distant three minutes' walk from the Station of the London and North-Western Railway, from which place there is a good service of trains.

Narborough is 5 miles from the important town of Leicester, and 8 miles from Hinckley.

Part of the Purchase Money may remain on Mortgage, if required.

To view, and to treat for same, apply to Messrs. J. and T. BOTTRILL, Southgate Street, Leicester; or to Messrs. H. and F. TARRATT, Auctioneers, Leicester.

SALES BY AUCTION.

Cirrhopetalum grandiflorum.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, August 10, at half-past 12 o'Clock precisely, an importation of several lots, a quantity in each lot, of the exceedingly rare and fine CIRRHOPETALUM GRANDIFLORUM. This species, not at present known to exist in any collection, is now re-introduced; it has large flowers streaked and speckled with crimson, lip deep red, with yellowish posterior sepal and petals.

On view the morning of Sale, and Catalogues had.

Cattleya Mendelii, Phalænopsis intermedia,
P. SCHILLERIANA, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, August 10, at half-past 12 o'Clock precisely, imported plants, in quantity, of CATTLEYA MENDELII; amongst them are the finest masses hitherto offered, containing twenty, thirty, and forty bulbs each, with numerous young growths, and altogether in the finest possible condition. Also an importation, just to hand by Royal Mail Steamship Tasmania, consisting of fine plants of LÆLIA SUPERBIENS, PESCATOREA CERINA, CATTLEYA SKINNERI, TRICHOPILIAS, SOBRALIAS; also strong growing plants of PHALÆNOPSIS INTERMEDIA, P. SCHILLERIANA, and P. LUDDEMANNIANA.

On view the morning of Sale, and Catalogues had.

Asclepias tuberosa.

E. H. KRELAGE AND SON, NURSERYMEN, Seedsmen, and Florists, Haarlem, the Netherlands, will have to offer next autumn an immense stock of the above named beautiful orange-flowered herbaceous plant, in flowering tubers, as well as in stronger plants. Price per 100 and per 1000 on application. Large quantities of flowering tubers can be supplied at very moderate terms, orders for which are now being booked.

To the Trade only.

A. M. C. JONGKINDT CONINCK'S WHOLESALE LIST, including a fine stock of Maiden Apples, Pears and Plums, Moss Roses, Dwarf, Half-standard and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants, is now ready, and will be sent, post free, on application.
Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

Just Arrived.

FRESH SEED of the SPLENDID and VALUABLE NEW GREENHOUSE PALM, from Lord Howe's Island, PTYCHOSPERMA ALEXANDRÆ. 10s. per 100, £4 per 1000.

Also fresh Seed of SEAFORTHIA (PTYCHOSPERMA ELEGANS. 5s. per 100, £2 per 1000.

The delicious Tropical Fruit, GARCINIA LIVINGSTONI. Fresh seeds, £1 per dozen.

NELUMBIUM SPECIOSUM, fresh seeds, 6s. per dozen.
NELUMBIUM LEICHHARDTII, fresh seed, 12s. per doz.

Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

WORCESTERSHIRE AGRICULTURAL SOCIETY.

MEETING at DUDLEY, on AUGUST 25, 26, and 27.

President—The Right Hon. the Earl of Dudley.

A GRAND HORTICULTURAL EXHIBITION, in connection with the above, will be held in the SHOW GROUND, at Dudley, when Prizes to the amount of nearly £200 will be offered.

Prizes are also offered for competition to all Cottagers residing in Worcestershire and within 12 miles of Dudley. Entries close August 18.

For Schedule of Prizes and Rules, &c., apply to ALBERT BUCK, Secretary, Worcester; or to J. S. HAYWOOD, Nurseryman and Seed Merchant, 26, Broad Street, Worcester, Hon. Sec. to Horticultural Show.

BANBURY HORTICULTURAL SOCIETY.—TWENTY-EIGHTH ANNUAL SHOW, in the Pleasure Ground of W. Manton, Esq., TUESDAY, August 25, 1874. Open Prizes. Entrance fee, 2s. 6d.:—1. Stove or Greenhouse Plants, either in flower or ornamental, but not Achimenes, Fuchsias, Geraniums, or Annuals, six varieties, to be grown in not less than 8-inch pots, 1st prize, £5; 2d, £2. 2. Twenty-four Dahlias, twenty-four varieties, 1st prize, £2; 2d, £1. 3. Twenty-four Roses, not less than twelve varieties, 1st prize, £1 10s.; 2d, 15s. 4. Eighteen Hollyhocks, two blooms of each, 1st prize, £1 10s.; 2d, 15s. 5. Gladiolus, single spikes, twelve varieties, 1st prize, £1; 2d, 10s.

The Judges may withhold any prize if the productions exhibited be not considered worthy.

Roses may be shown singly, or with such buds and leaves as are on the same stalk.

Intending Exhibitors must give notice to the Secretary on or before Saturday, August 22.

The Society will, if requested, convey the productions from and to the Railways.

The Band of the Coldstream Guards will attend.

E. J. HARTLEY, Secretary.

TESTIMONIAL to Mr. JOHN GIBSON.

Committee:—

Chairman—Geo. F. Wilson, F.R.S., Heatherbank, Weybridge.

Treasurer—Thomas Moore, Botanic Gardens, Chelsea.

Hon. Secretary—Harry J. Veitch, Royal Exotic Nursery, King's Road, Chelsea.

Dr. Hogg, F.L.S.	Fisher, Holmes & Co.	J. Shaw
G. Eyles	J. W. Thomson	P. Grieve
A. Roger	M. Temple	Arch. Henderson
W. Bull, F.L.S.	F. Dewsberry	J. Matthews
C. Edmonds	Wm. H. Baxter	J. Wills
J. Lee	Hooper & Co.	Right Hon. W. Cowper-Temple, M.P.
A. Henderson	J. Chapman	W. P. Warner
J. Drewitt	J. Richards	P. Barr
R. Budd	H. Hepburn	Col. Stuart Wortley, Private Secretary to the late First Commissioner of Works.
W. Robinson, F.L.S.	Osborn & Sons	
Dr. Masters, F.R.S.	Rev. Reynolds Hole	
W. Paul	R. Parker	
T. S. Ware	Wm. Smythe	
J. Fleming		

It is proposed to present a Testimonial to Mr. John Gibson, whose name is so familiar among horticulturists as the originator of that style of garden embellishment which is called Subtropical Gardening, and for which Battersea Park, while under his superintendence, became so widely famed; and also throughout his career has, both as a Landscape Gardener and Designer, and in early life as a Collector of Plants in India, done much for the advancement of gardening.

Mr. Gibson has for some months past been suffering from a severe attack of paralysis, and it has been thought by some of his friends that a presentation of the kind now contemplated would both cheer him in the midst of his sufferings, by assuring him of their sympathetic regard, and also in some degree, meet the manifold expenses which are incidental to a prolonged illness.

A Committee, as above named, with power to add to their number, has been formed to give effect to the proposal to offer this mark of esteem to a most worthy man, whose personal qualities, in addition to his public services, have won for him universal regard.

Contributions to the fund may be sent either to the Treasurer or to the Secretary at the above addresses.

Subscriptions already promised:—

	£	s.	d.		£	s.	d.
Appleby, H.	1	1	0	Manning, T.	1	1	0
Baker, G.	0	10	6	Marnock, R.	2	2	0
Bannerman, T.	1	1	0	Masters, Dr., F.R.S.	1	1	0
Barr & Sugden	2	2	0	Matthews, J.	2	2	0
Barron, A.	1	1	0	McDonald, R.	0	10	6
Baxter, W. H.	1	1	0	McKay, A.	0	10	6
Beadon, Rev. F.	2	0	0	Meston, J. F.	5	5	0
Browne, Wm.	1	1	0	Moore, T., F.R.H.S.	2	2	0
Budd, R.	1	1	0	Moore, T., Jun.	1	1	0
Bull, Wm., F.R.H.S.	10	10	0	Nash, D.	1	1	0
Carmichael, W.	0	10	0	Ormson, H.	3	3	0
Coutts, Baroness Burdett	5	0	0	Parker, R.	5	5	0
Cowper-Temple, Rt. Hon. W., M.P.	5	0	0	Paul, Mr. Wm.	5	5	0
Dewsberry, F.	1	1	0	Pearson, J. R.	1	1	0
Dominy, J.	1	1	0	Quilter, H. G.	5	5	0
Drewitt, J.	1	1	0	Richards, J., F.R.H.S.	2	2	0
D. J.	0	10	6	Robinson, W., F.L.S.	2	2	0
Edmonds, C.	2	2	0	Roger, A.	2	2	0
Eyles, G.	2	2	0	Rothschild, Baroness	10	0	0
Fish, D. T.	1	1	0	Rucker, S., F.R.H.S.	5	5	0
Fisher, Holmes & Co.	10	10	0	Selwood, T.	0	10	6
Fleming J.	1	1	0	Shaw, J.	1	1	0
Fraser, John	1	1	0	Smythe, W.	1	1	0
Gibbs, T. B.	1	1	0	Standish, J.	1	1	0
Gibbs & Co., Geo.	2	2	0	Sutton, M. H.	1	1	0
Grieve, P.	1	1	0	S. T.	0	10	0
Henderson, Arch.	1	1	0	S. Z.	0	10	0
Henderson, A.	10	10	0	Temple, M.	1	1	0
Hogg, Dr.	5	5	0	Thomas, O.	0	10	0
Hole, Rev. Reynolds	2	2	0	Thomson, J. W.	2	2	0
Hooper & Co.	3	3	0	T. A.	1	1	0
Hepburn, H.	0	10	6	Veitch & Sons	10	10	0
J. D.	0	10	0	Waite, Burnell, Huggins & Co.	1	1	0
Jones, W.	0	10	6	Ware, T. S.	2	2	0
Kempe, Rev. Mr.	1	1	0	Warner, W. P.	5	5	0
Leach, C., F.R.H.S.	2	0	0	Webb, A., F.R.H.S.	1	1	0
Lee, J. & C.	10	10	0	Wheeler, J.	0	10	6
Lidgard, Mr.	1	1	0	Wills, J.	5	5	0
Mackay, J. B.	1	1	0	Wilson, G. F., F.R.S.	10	10	0
Macpherson, J.	1	1	0	Wortley, Col. Stuart	1	1	0
				Young, J.	1	2	0

Condition of the Fruit Crops, 1874.

THE GARDENERS' CHRONICLE *for SATURDAY NEXT, August 15, will contain a* FULL *and* TABULAR STATEMENT *of the* CONDITION *of the* FRUIT CROPS *throughout the United Kingdom.*

May be had of all Booksellers. Price 5*d.*; post free, 5½*d.*

Published by W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom:—

Three Months .. 5*s.* 11½*d.* | Six Months .. 11*s.* 11*d.*
Twelve Months .. £1 3*s.* 10*d.*

FOREIGN SUBSCRIPTION.

£1 6*s.* *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10*s.* 4*d.* *for* 12 *months, including postage to*—
AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14*s.* 8*d.* *for* 12 *months, including postage to*—
RUSSIA, ITALY, DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, AUGUST 8, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Aug. 10	Sale of Valuable Imported Orchids, at Stevens' Rooms.
TUESDAY,	Aug. 11	Sale of Live Birds and Cages, Stevens' Rooms.
		Hillmorton (Rugby) Horticultural Society's Show.
		Hereford Horticultural Society's Exhibition (three days).
		Clay Cross Horticultural Society's Exhibition.
		Hartlepool Horticultural Society's Exhibition.
		Hereford Horticultural Society's Show (three days).
		Weston-super-Mare and East Somerset Horticultural Society's Show.
		Meldrum Horticultural Society's Show.
WEDNESDAY,	Aug. 12	Ellon Horticultural Society's Show.
		Taunton Deane Horticultural Society's Show (Vivary Park, Taunton).
THURSDAY,	Aug. 13	Royal Horticultural Society of Ireland's Autumn Exhibition.
		Malmesbury Horticultural Society's Show.
FRIDAY,	Aug. 14	Birmingham Horticultural Society's Show (two days).

FEW persons, we imagine, outside the so-called scientific world can estimate at their proper value the importance of the discovery made by JOSEPH PRIESTLEY. The story of his life has been told in brief of late in all the daily papers. It formed the theme of Prof. HUXLEY'S discourse on the occasion of the canonisation, if we may so call it, of a man whose property and happiness a fanatical mob in its ignorant rage did its best to destroy. Few careers indeed are more instructive than this one of PRIESTLEY'S. We make no allusion to his political or theological views, as these are beyond our limitations, but we may appropriately make some few comments on the scientific position of the man whom a former generation of Birmingham men conspired to destroy, and to whose memory the present generation of Birmingham men have lately done no more than justice. We may first allude to the circumstance that he—PRIESTLEY—a man entirely free alike from the learning and from the dust of schools, with no previous training, and with apparatus at which a tyro in chemistry would now smile, yet made some of the grandest discoveries in chemistry and in vegetable physiology—a discovery which changed the face of chemical science, and which formed the basis of all we now know of the work done by the leaves and green parts of plants. One would have thought that such a man would have been specially honoured by chemists and botanists, and yet the singular fact remains that a great zoologist, CUVIER, was called on to pronounce his *éloge* many years ago; and another great zoologist, HUXLEY, was told off to do a like service on the occasion of the erection of a statue to his memory, and neither chemist nor botanist, so far as we know, took part in the ceremony. Do the chemist and the botanist, then, ignore the capital value of the facts which PRIESTLEY brought to light? That is an impossibility.

Another circumstance that strikes us as worthy of comment is that a great discovery like that of PRIESTLEY'S should have been made without those preliminary advantages which students even at that time had, and without those laboratories and apparatus generally considered essential. We are accustomed, and rightly so, to lament the utter absence of any provision in this country at the present time of laboratories for the teaching of vegetable physiology and the carrying on of experimental research. Germany, France, Italy, Belgium are all far in advance of us in this respect, and the progress which has been made of late years in this particular branch of science, so essential to the future of agriculture and horticulture, has been made mainly in Germany, while we in this country have contributed comparatively very little. On the other hand, we may proudly point to HALES and PRIESTLEY as founders of Vegetable Physiology; and we may point out that neither of these men were trained in laboratories, but each depended on his own natural genius and personal means. This being so, it would rather seem that our deficiencies as students and workers in vegetable physiology are to be attributed to the want of men, rather than of means. If the man were forthcoming he would, like PRIESTLEY or HALES, render himself independent of extraneous aid. But this is a point we are not concerned to pursue further on this occasion. Let us rather indicate, for the sake of the general reader and the gardener, what PRIESTLEY did for vegetable physiology.

The Swiss chemist, BONNET, had remarked that bubbles of air escaped from the leaves of plants when placed in a vessel of water and exposed to the air. PRIESTLEY, remarking the same circumstance, pushed the discovery further by showing, first, that the bubbles of air were emitted from the tissues of the leaf itself, and next that this air consisted of oxygen gas. Seeing that air is as necessary to plant-life as to that of animals, he thought that the quality of that air must be the same in the two cases, and that the action and results would be the same in both. He was previously, of course, aware that animals deteriorated the atmosphere by their breathing, so that if an animal be shut up in a close vessel or jar without access of fresh air, it sooner or later dies, stifled by its own emanations; and more than this, PRIESTLEY had ascertained that a lighted candle introduced into a vessel in which an animal had been thus confined, was forthwith extinguished—the air being rendered so impure as not to allow of combustion. But when he came to experiment on plants, he was surprised to find opposite results. He took a spray of Mint, placed it in a closed vessel, inverted that over water, and exposed the whole to the action of light. He imagined that a lighted taper introduced into this vessel would be extinguished by the exhalations from the plant, as it had been from those of the animal. But it was not so. The light introduced into the vessel which had held the plant burned freely, and a mouse was found to live perfectly well in it. Again, on August 17, 1771, he tells us he placed a spray of Mint in a vessel filled with air so impure that a candle would no longer burn in it. Ten days after the introduction of the plant, he found that a taper would burn perfectly well in it. He repeated the experiment frequently, always with the same result. When, he further tells us, he placed sprays of Mint in an atmosphere strongly tainted with putrid vapours from decaying animal matter, the shoots grew with extraordinary vigour, and this in an atmosphere prejudicial to animal life. These experiments led PRIESTLEY to the conclusion that so far from plants affecting the atmosphere in the same way as animals do, the exact reverse was the case, and that plants had the function of purifying the atmosphere corrupted and rendered impure by the breathing of animals. This was truly a splendid discovery to make, and that it was considered so even at the time is evidenced by the fact that the Royal Society awarded PRIESTLEY a COPLEY Medal. INGENHOUZ some years later complemented PRIESTLEY'S discovery by showing that in darkness plants vitiate the atmosphere by the emission of carbonic acid gas, while SENEBIER ascertained that the oxygen gas eliminated from the leaves and green parts of plants, under the influence of solar light, was derived from the decomposition of the carbonic acid gas taken up by the plant by the leaves and roots.

The value of PRIESTLEY'S discovery, and the accuracy of this statement, remain unaffected, though in our own times a different interpretation is put on them. We have seen that PRIESTLEY speaks of the emission of gas from the leaves as a process of respiration, like the corresponding process in animals, save that the nature of the expired gas was exactly opposite in the two cases. Modern research, however, goes to show that the process which PRIESTLEY discovered is not the true respiratory process, but is a process of assimilation or nutrition. The true respiration of plants is, as PRIESTLEY himself originally surmised, the same as that of animals. The elimination of oxygen under the influence of sunlight is, on the other hand, a process of digestion in which the carbonic acid gas derived from the air or the soil is digested and altered in the plant; and as a result of which, the carbon is retained in the plant to build up its tissues, while the oxygen is given out. Respiration proper goes on in light or in darkness alike, carbonic acid gas being under both conditions eliminated. The deoxidising process, as we have seen, goes on but in the green parts of plants when exposed to the full light of the sun. The discovery then of oxygen gas, and the unravelling of the history of its emission from the leaves, constitute the chief claims which PRIESTLEY has on the grateful remembrance of physiologists. Gardeners will be further interested in the fact that it was at Bowood that PRIESTLEY pursued, under the auspices of Lord SHELBURNE, those researches which give him so high a place among the hierarchy of science.

DURING the month of September next, beginning on the sixth, there will be held in the Orangery at the Tuileries, Paris, under the auspices of the "Société Générale d'Insectologie," an exhibition of USEFUL INSECTS, and the products derived from them, as well as of NOXIOUS INSECTS, with specimens of the mischief wrought by them. The objects of the Society are—1, to make known the best methods of propagating useful insects, of preserving them from disease, and of procuring the greatest amount of produce from them; and, 2, to study the destructive insects of gardens, orchards, forests, buildings, &c., and to ascertain the best means of combating their ravages, or of exterminating them. The study of the natural checks in the shape of parasites, of birds, and insectivorous animals, is also a part of the programme.

The Entomological Exhibition of 1874 comprises four divisions. In the first are to be included all useful insects, which are to be shown, as far as possible, in various stages, from the egg to the perfect insect. If diseased the insect is to be shown in different stages of the disorder. Insect-products also will be shown in their various stages of formation. The plants on which the insect feeds are also to be shown. Monographs and works relating to the subject will likewise be exhibited. Information is requested as to the losses occasioned by insects, and it is incidentally mentioned that the losses occasioned by the silkworm disease (*gattine*) have amounted since 1854 to more than 60 millions of francs yearly. The second division of the exhibition is intended to comprise noxious insects, divided into eight classes, arranged according to the plant affected, each insect being separately studied. The six first classes thus include all cultivated plants, including fruit and forest trees. The seventh class is devoted to insects attacking timber (*bois de construction*), the eighth to insects infesting Truffles and other fungi, the ninth to insects preying on dry organic matters, hair, feathers, wool, &c.; and the tenth to insects parasitical on man and domestic animals. Here, again, as far as possible, the object is to show the insect in all its stages, and to add notes on its habits and transformations. Monographs are also requested of a descriptive character, the insects in question being for the most part well known, but such as will elucidate the habits of the insects.

The losses caused by insects to agriculture may be estimated by hundreds of millions of francs annually. It is sufficient to cite the Cecidomyia and the Alucites for cereals, the Phylloxera and the Pyralus for the Vine, the Dacus in the case of the Olive, &c.

The third division comprises those parasitic insects which wage war against the aphides, caterpillars, &c., not omitting the mole and the hedge-hog and insectivorous birds. The Society putting a very wide interpretation on the word insect, or rather extending its operations to other noxious animals, includes in its programme snails and slugs, and the mode of averting their ravages, the culture of fishes, leeches, and "astaciculture"—cray fish!—thus comprising aquaria of various descriptions.

It is not sufficient, say the promoters, in continuation, to collect together all the insects and insect-products of general interest to cultivators, it is desirable also to gather together the cultivators themselves, in order that each may communicate his experience for the common benefit. Hence a Congress—*Congrès Insectologique*—is to be instituted.

The work to be done by this Congress is indicated in the programme before us, which raises questions as to the proper mode and time of destroying caterpillars, cockchafers, mole-crickets, &c. Relating to the Phylloxera of the Vine, it is asked whether it is the cause, or only a result of disease? How it is that insecticides have, for the most part, been ineffectual against it? If the Phylloxera is only a consequence of disease, would it not be advisable to treat the Vine itself by suitable manures?

Other questions relating to the Phylloxera are put, such as the explanation of the good effects of submersion, the manner in which the insect travels or is transported from an affected to a healthy Vine. Then, again, it is asked whether the root parasite most generally known in Europe is, or is not, identical with the leaf-insect in America? Whether there is known one or more parasites affecting the Phylloxera? Whether there are any particular varieties of Vines which are not attacked by this insect, and whether they can be propagated in France? What is the probable amount of loss caused by the insect, and what effect it has on the price of wine, its consumption, the influence on railway transit and taxation generally?

Questions are also propounded as to the best method of rearing silkworms, so as to escape the diseases affecting them, such as Muscardine, Pebrine, &c.; and other inquiries are made as to the value of the silkworms raised on the Ailantus and Oak respectively.

It will be seen that the Exhibition and Congress are of the most directly interesting and practical nature, and it is to be hoped that much benefit may accrue from them. Exhibitors and others desirous of taking part should apply to the secretary, Rue Monge, 59, Paris, on or before September 1, for further particulars.

Lectures, it may be added, will be given during the Exhibition by various professors; thus M. DE LA BLANCHÈRE will treat of insects affecting forests; Dr. BOISDUVAL on those injurious to gardens; M. CHAMELIN will treat of silk-culture; M. GUYOTON, the insects attacking cereals; M. LICHTENSTEIN on the Phylloxera; M. MILLET on insectivorous birds; M. RAMBOSSON on the habits of insects; M. VALSERRES on legislation affecting insects, &c. So well contrived a programme cannot fail to enlist the sympathies of all concerned.

—— WE owe to the kindness of Mr. DARWIN the communication of the following, with the specimen to which it refers:—

"I inclose a specimen of the male Hop with apparently female flowers at the tips of the branches, on the chance of its having some interest for the naturalist. I observed it this morning, and though accustomed to walk Hop grounds for years I have never seen the two sexes on the same Hop plant before. Perhaps, however, it is but the growth of the flower into a male catkin.

FIG. 37.—MONŒCIOUS HOP.

"There are other male plants in the same ground, but I have not seen any other instance of this peculiarity. The whole Hop hill grows in the same way. If we obtain seed, might not it be possible to select a strain of Hops which are uniformly monœcious on the same plant? [Certainly.]

"The Hop ground is in Boughton Monchelsea, facing south, very warm, and of strong rich soil. *L. Lewis, East Farleigh.*"

We are the more interested in this specimen as many years ago a similar instance was brought under our notice by Mr. MASTERS, of Canterbury, and which formed the subject of an interesting notice from his pen in our volume for 1852, p. 597. The case is interesting with reference to the doctrine of Parthenogenesis. The Cœlebogyne, asserted to produce seeds without the formation of male blooms, has now frequently been seen to produce flowers of both sexes. We saw an instance of this lately in the herbarium of Professor BAILLON, of Paris.

—— We are glad to learn that a public meeting has been held of the inhabitants of the Broad Street Ward, City, to take steps to prevent the SPOLIATION of DRAPERS' GARDENS, alluded to in former numbers. Mr. DAVID STUART, School House, London Wall, is the Ward clerk.

—— Testimonials have become such nuisances, and are sometimes originated on such slight grounds, that we feel it an imperative duty to the public on most occasions to pass them over entirely without notice. In the case of the GIBSON TESTIMONIAL circumstances are different. Mr. GIBSON is a man who has done good public service to botany and horticulture, as an introducer of new plants, as a landscape gardener, and as the introducer of a style of garden decoration at once novel, interesting and beautiful. Mr. GIBSON was the first to introduce the Amherstia as well as many Orchids, "invented," if we may so say, "the subtropical style of gardening;" he created Battersea Park, and his untiring efforts led in a great degree to the unparalleled success of the International of 1866. The value of his public services has been enhanced by his modesty, amiability, and willingness to help on all occasions when his help was needed. The time has now come when he himself would be benefited and cheered by the practical sympathy of his many friends. We believe this will be forthcoming, and we refer to our advertising columns to show how this may be done.

—— The second HORTICULTURAL EXHIBITION at VIENNA this year is to take place from October 3—7, and will be exclusively limited to fresh fruits and vegetables. It will be held in the Blumen Sälen, No. 12, Parkring. Foreigners will be allowed to compete, but they must signify their intention, either in writing or verbally, a week previous, at the offices of the K. K. Gartenbau Gesellschaft.

—— We have frequently pointed out the want in the Royal Horticultural Society of some SPECIAL form of CERTIFICATE particularly destined for NEW or INTERESTING PLANTS of a kind which has no value in the eyes of commercial horticulturists or florists, using the latter word in its special or restricted sense, and which ought not to be judged according to their rules. We hold that the Society should encourage exhibitors to send all or any plants provided they be in any way interesting, and that awards adapted to their peculiar nature should be made to them if they merit it. As matters are at present, a plant which may be of very great interest to the plant-lover and botanist is too often passed over entirely because it does not come up to the standard which is very properly laid down for purely decorative or useful plants, but which is not applicable to the cases under consideration. Desirable as it is on all accounts to encourage useful and ornamental plants, and specially desirable as it is to put a mark of approbation on successful cultivation, we yet hold it to be one of the most important functions of the Society—which is not, or should not not to be managed as a mere bazaar—to afford the means of bringing before the public plants likely to be of interest from any point of view whatever. It has been suggested that such plants should be referred from the Floral Committee to the Scientific Committee for award, or not, as they think fit; and that during the period when the Scientific Committee is not sitting, a standing committee of competent persons should be appointed to adjudicate in such cases. The special case which led to these remarks was a very interesting but not very showy species of Fuchsia, with neat creeping habit, from New Zealand, and which would, if hardy (as we suppose it is), be hailed by most plant lovers as an interesting and even elegant addition to the rockwork. The plant in question is alluded to under the report of the Society; and we repeat our conviction that the Society fails in its duty when such plants are allowed to pass without an appropriate certificate of approbation.

—— The CENTRAL HORTICULTURAL SOCIETY OF FRANCE will hold an exhibition of fruits and flowers at their rooms, 84, Rue du Grenelle Saint Germain, Paris, from October 10—14 next.

—— Mr. GEORGE JACKMAN has been fortunate enough to obtain a PURPLE-FLOWERED CLEMATIS FLAMMULA, which it is proposed to distinguish by the name of C. Flammula roseo-purpurea. Several plants identical in character have been observed in a bed of transplanted seedlings of the sweet-scented Clematis, and which had been raised from seeds ripened in contiguity to plants of some of the purple-flowered forms of C. Viticella. The novelty has quite the appearance of being an accidental hybrid between C. Flammula and C. Viticella, though in regard to free vigorous habit of growth, abundance of flowering, and strongly-marked Hawthorn-like fragrance it partakes most strongly of its mother-parent, flowering also at the same season—from the middle of July onwards. Our notes of the plant as growing are as follows:—Habit vigorous, resembling that of C. Flammula. Stems brownish-purple, striated. Leaves pinnate, the pinnæ ternate, three-lobed, or sometimes with only a single lateral lobe; leaflets ovate or oblong, blunt, apiculate. Flowers abundant on short axillary branches, which develope later flowers from the axils of the bracts, and so become successional bloomers as

in those of the Viticella section; scent powerful, Hawthorn-like. Sepals four, oblong-obtuse, at length spreading, ¾—1 inch long, rosy-purple or wine-purple outside, and within of the same towards the tips, becoming paler, almost white, towards the base. Stamens green, forming a close central tuft. This will be a fine acquisition amongst hardy climbers, and will be welcomed not only for its well-marked purple colour, but also for its delicious perfume. It will of course be adapted for the same purposes as its parent, with which it will form a very agreeable contrast. It is quite unlike the fragrant C. cœrulea odorata both in habit and flowers, being a true Flammula in its growth and leafage. *T. M.*

— At the last meeting of the Imperial Royal Horticultural Society of Vienna it was resolved that the next Congress of German Horticulturists and Botanists should be held at Carlsruhe, in 1875. The programme is already published. The members will assemble at 8 o'clock on Sunday evening, April 4, for introductions, and to elect officers. On Monday, the 6th, business will be commenced, and continue, with intervals of pleasure—excursions, banquets, performances at the State theatre, &c.—until Saturday, the 10th.

— Mr. W. B. Hemsley, Herbarium, Royal Gardens, Kew, is about to undertake a series of Botanical Monographs, with the special object of determining and properly naming the species cultivated in gardens. Mr. Hemsley will, in the first instance, devote his attention to the Musaceæ, Marantaceæ, and Zingiberaceæ—groups which greatly stand in need of revision. Good service will be done if those who have collections of these plants will kindly furnish Mr. Hemsley with lists of the species they cultivate, together with specimens of their leaves and flowers.

— The Pomological Society of France will hold its seventeenth annual meeting at Angers from September 28 to October 3. An exhibition of fruits will be held, open to all nations, and a Congress of Pomologists will hold its sittings at the same time.

— The Rev. H. N. Ellacombe sends us specimens of the very pretty flowering shrub, Genista polygalæfolia, a native of Spain, which at this season is a mass of bright yellow flowers. G. ovata, a native of Hungary, is similar, but has smaller leaves, and is not such a free-flowerer. Both are small shrubs suitable for borders, and are not so well-known as they should be.

— The *American Agriculturist* announces the decease of Mr. Olm, the well-known landscape-gardener and florist, of Newark, New Jersey. Mr. Olm was a native of Luxemburg, and met with his death from an accident.

ON APHIDES.

It is difficult for the Rose cultivator to look with any degree of interest at the swarm of green plant-lice which sometimes infest his choicest specimens, or for the farmer to contemplate placidly the black pests which are destroying his Bean crop, but the life-history of these creatures is so curious, and so replete with interest, that the mere naturalist may be excused if he sees in them something to admire. I have no doubt more than one species of aphis is more than sufficiently well known in appearance to all my readers, but I doubt if we have all taken our revenge so fully as we might have done by making them reveal the secrets of their wonderful economy to us in return for the damage they have done to our floral pets.

The aphis, or plant-louse, belongs to the order Homoptera, and the genus is a very large one, numbering, I believe, some 320 species, almost every one of which requires its own peculiar plant to supply it with nourishment. The species with which we are most familiar are those found in the Rose, Bean, Hop, and fruit trees. The damage done by the hop-fly, as it is called, is sometimes very great, affecting the duty to the extent of many thousands of pounds. Other species cover the stems of plants, or infest the under surface of the leaves, causing them to form hollow cavities of a red colour, in which they find a perfect shelter. Their mode of feeding is to draw up the sap through the rostrum, and thus, by diminishing the vigour of the plant, they produce deformity and injury to the fruit or flowers. It is said that they do not attack plants in perfect health, and this I believe to be the case generally, but whether it always holds good I cannot say; certain it is that any circumstance (drought, easterly winds, &c.) which checks the vigour of the plant is favourable to the attacks of the aphis. I have also noticed that an improvement in the health of the plant is attended by a corresponding decrease in the aphides, and that they will again multiply should the plant exhibit fresh signs of sickliness. The suddenness with which they make their appearance, and the vast numbers acquired in a very brief period, are wonderful: the plants in a whole field of Beans will appear to be covered in a few days; but this will be less astonishing when we consider the mode of reproduction and the rapidity with which it takes place. Sexual intercourse takes place only in the autumn, after the insects have become fully developed; the female then deposits her eggs in some secure spot, where they remain dormant through the winter, the first genial days in spring bringing forth, not the perfect-winged form which produced the egg, but the well-known wingless form which is so familiar to us all. This wonderful fertile larval form is possessed of great fecundity, but it is its mode of reproducing which is so remarkable: this is carried on by internal gemmation, the young one being produced alive, and differing from its parent only in size. This process of development goes on for several generations without any change in the form of the insect; at the close of the summer, however, the fertile forms which have not reproduced themselves pass, by metamorphosis, into the winged insect, males and females, for the most part winged. These, after pairing, produce the eggs which are to be hatched in the ensuing spring, after which they die. During the summer numbers complete their metamorphosis, and appear as winged insects. The larval form which will undergo the final metamorphosis may easily be recognised, the bulbs in which the wings are inclosed being visible on either side of the thorax. I have separated many of these, and placed them under a glass shade, but in no instance have they reproduced, the development continuing until, after the final shedding of the skin, they have appeared as fully developed winged insects. They have never produced eggs, and I think, were all males; it seems probable that although winged insects are produced during the summer, it is not till the autumn that the perfect females are produced; all the fertile larval females which I have kept, either alone or under the same shade with the winged form just mentioned, having increased rapidly in the usual way, and in no instance produced eggs. The perfect insect is very different from the larval form, and, under the magnifying glass, is a very handsome object, with six long legs, graceful antennæ, shining wings, and spotted sides, also a pair of curious projecting tubes, standing out like horns, near the extremity of the abdomen, of which more hereafter. This intermediate but fertile form of the aphis is an example of the nursing system of Steenstrup, observed also in the vegetable kingdom in the case of the Ferns and Horse-tails, which increase by spores, which, falling into the ground, produce the prothallium. The prothallium never becomes a Fern, but on it are formed the true generative organs which produce the embryo afterwards developed into the perfect plant. This case differs from the aphis in the nurse-form (the prothallium) producing the generative organs.

The Echinoderms, &c., exemplify other variations of the same phenomena. Mungo Ponton thus describes the fertile nurse-form and the way in which it is illustrated by the aphis:—"By fertile nurse-form is to be understood an organism which becomes fertile without ever attaining, or at least before having attained, the perfect form due to its species. . . . . In simple metamorphosis, it is one and the same individual organism that passes through all the stages, from the form which it wears on leaving the egg to that which it assumes on attaining the perfection belonging to its species; but in the case of a fertile nurse-form, it is in general only those forms which are produced by the nurse that ever attain the specific type. So, likewise, in simple concurrent reproduction, it is one and the same organism that exerts both the power of individual multiplication and the faculty of sexual generation; whereas, in the case of fertile nurse-forms, it is seldom that they possess both; but if the nurse be endowed with the one, its offspring will be endowed with the other." (*The Beginning: its When and its How*, pp. 242, 243.) It sometimes occurs that the nurse acquires the power of sexual generation, also that the species passes through more than one nurse-form, either similar or diverse, before attaining the perfect form of the species. In the aphis is found one of the most decided examples of the fertile nurse-form (and one which it is very easy to study), the immature females standing in that relation to the perfect insect.

These fertile females, as has been said before, reproduce by internal gemmation, the bud falling into a proper receptacle in the parent's body, and being produced alive, exactly like its parent, except in size; each female producing from fifty to one hundred young ones. So rapidly do they increase, that it has been calculated that from one individual there might be descended, under favourable circumstances, the enormous number of 4000 billions in a single summer.

Were it not for its many enemies, the increase of the aphides would be beyond all bounds; but, fortunately for us, its enemies are very numerous. Birds consume great numbers, but the larvæ of the ladybird, feeding exclusively on the aphides, destroys them wholesale, extracting all the soft parts, and leaving the empty skins to testify to their enormous appetites. The larva of the beautiful lace-wing fly destroys great numbers, as does also that of the various species of Syrphidæ. In July, 1869, we were visited by a great plague of aphides, and all the three species I have named speedily made their appearance also in great numbers. The ladybirds swarmed in countless numbers, and immense numbers of their unsightly larvæ soon appeared. The rapidity with which these larvæ cleared the aphides from a Hop plant in my garden was truly astonishing. The clusters of curious pedunculated eggs produced by the lace-wing fly were numerous, as were the perfect insects, than which nothing can be imagined more delicate and beautiful or a greater contrast to its larva, which, from its voracity, has been named the aphis lion.

Another foe is a small species of ichneumon, which deposits its eggs in the body of the aphis, the larvæ feeding upon its soft parts. The brown and swollen skins of the insects thus infested may frequently be seen, and, if placed by themselves in a glass topped box, the active little ichneumons will soon burst through their prison and reveal the secret of the death of the unfortunate aphides.

There is another curious chapter in the history of the aphis which is worthy of notice. It is the unfair treatment which it receives at the hands, or antennæ, of the ants. Linnæus calls the aphis the ants' "cow," and the use to which this sagacious little insect subjects it fully justifies the term. The aphides eject from the two tubes before mentioned as situated one on either side of the abdomen, a quantity of saccharine fluids, which is very attractive to the ants, and forms in some cases almost their only food. This fluid may be noticed overspreading the leaves of plants infested by these insects till they have a glazed appearance, and seem to have been washed with honey and water. It is commonly called "honey-dew," and was long a puzzle as to its origin. Not only do the ants consume the fluid voluntarily ejected by the aphides, but by a peculiar movement of their antennæ upon the bodies of their "cows," excite them to an increased supply. This has not inaptly been called "milking." But even this is not all. Kirby and Spence give a most wonderful account of the way in which some species of ants, particularly the yellow ant (F. flava), convey the aphides to their nests, and keep them there for the supply of their necessities. The yellow ant makes prisoners of root-feeding species of aphis (A. radicum), and even carries off its eggs, which are tended with care and placed in situations favourable for their early development.

I think it will be allowed that whether we consider the aphis as a marked example of the wonderful "nurse-form," as described by Steenstrup in his "Alternation of Generations," and one accessible for study to us all; or whether we confine our attention to its life-history and the singular connection between it and the ant, to which it is so serviceable, there is ample scope for observation, and that, too, of a character, from the delicacy and exactness required in its pursuit, which must of necessity be good training, should it even only extend to verifying the observations of others on this interesting but generally unwelcome little creature. *Science Gossip.*

Foreign Correspondence.

Queensland (*concluded from p.* 148).—The next river north of the Johnstone is the Mulgrave, which, at Cowrie Point, 3 miles inside of the bar, receives the waters of a south branch, and also of the Russell River. At the southern side of the entrance is a sandy beach a mile in length, and behind it sandy forest ground scantily covered with Bloodwood (Eucalyptus corymbosa), &c. From here to the banks of the south branch there is a Mangrove swamp. At the southern end of the forest land, and close to the beach, there is a fine stream of running water, which comes from the range that begins here.

On the northern side of the entrance to the Mulgrave there is another beach 2 miles in length, at the back of which the land is mostly of a sandy character, and is sparsely covered with Eucalyptus, Melaleuca, Pandanus, &c. About the middle of this tract there is a large lagoon of fresh water. Between the forest ground and the Russell the land is nearly all covered with Mangroves, with the exception of about 3 acres near Cowrie Point. This spot is some 3 feet above salt-water mark, and is surrounded with Mangroves. The soil is of a sandy description, with a large admixture of decomposed vegetable matter. The principal trees are Dammara robusta, 60 to 80 feet in height, and 3 to 4 feet in diameter; Cardwellia sublimus; Alstonia scholaris; Elæocarpus grandis, also of great size; and the noble Cycad Catakidozamia Hopei, upwards of 60 feet in height, with the trunk measuring 7 feet in circumference 3 feet from the ground. This is the lowest situation in which I have found the latter tree; the highest elevation in which I have seen it was 4000 feet above the sea. It is the grandest of the Cycadeæ.

The land suitable for sugar cultivation on the

banks of the Russell consists of brown and yellow loams of good quality. The principal trees, &c., are Cardwellea, Grevillea, Aleurites, Bambusa, Calamus, Musa, Hellenia, &c. The ranges are also well covered with trees, &c., the vegetation being similar to that found on the Moresby Range, and the soil of the same character. Several fresh-water creeks and springs were found along the river and at the foot of the ranges. The river water can be used at about 8 miles from Cowrie Point.

The agricultural land referred to appeared to be above flood mark, and was well studded with Calamus Cardwelli, &c. The Banana and wild Ginger plants, which are plentiful on the Russell River, are not so frequently met with on this branch. The soil is similar in character to that of the Russell. The ranges on each side resemble the Moresby Range, as regards soil and vegetation. We followed up two creeks that run into the left band,—the first about 4 miles from Cowrie Point. The land on both was unsuitable for cultivation, being low and swampy.

We also traced up a creek opposite Cowrie Point for about 6 miles, which led to a low marine plain covered with Pandanus aquaticus.

The next place we visited was Trinity Inlet, which extends inland for some 7 or 8 miles. On either side of the entrance is a sandy beach, which, at a short distance, is closed in by the coast range. The inlet had the appearance at first of a river much broader than the Brisbane. We expected to make some useful discoveries here from the promising look of the surrounding country, but met with complete disappointment.

To the north of Trinity Inlet is the Mossman River, which was examined for a distance of 5 miles. On either side of the entrance there is a sandy beach stretching along the coast for about a mile; and behind the beach, on the south side, there is a narrow belt of sandy forest ground leading to some grassy ridges of easy ascent, which appeared to be thinly covered with Eucalypti. For about a mile up the river the land is generally low, and lined with Mangroves; but from that distance to the furthest point to which we proceeded there are several patches of high ground showing no signs of being flooded, and closely covered with vegetation. The soil is a strong yellow loam; the trees consisting of Alstonia, Cedrela, Cardwellia, Castanospermum, Brassia, Archidendron, &c. Beyond the distance of 5 miles to which our exploration extended, the country had the appearance of a fine valley, reaching a long distance into the ranges, densely clothed with trees and shrubs.

Farther to the north than the Mossman is the Daintree, to all appearance the finest river that we had entered. We anchored about 2 miles inside the bar. On the south side a sandy beach extends for some 2 or 3 miles, behind which there is a strip of sandy forest ground from 100 to 300 yards in width, sparsely covered with Casuarina, &c. Fresh water was found in native wells in several places, where the Melaleuca Leucodendron, grew in clumps. On the northern side there is also a fine beach, extending to the foot of a rocky range, which terminates at the coast. Here, also, there is a narrow belt of sandy forest ground at the back of the beach, having a few trees—Eucalyptus, Pandanus, Acacia, &c.; and a good spring of fresh water flows from under the rocks at the back of the beach. We rowed up the river for a distance of 16 miles from the estuary, and found the banks, for about 6 miles, low, and almost uninterruptedly fringed with Mangroves. The land immediately adjoining is in many places still lower, and being naturally swampy, and subject to be periodically inundated with brackish water, it is chiefly remarkable for the exuberance of its marine vegetation. Continuing up the river, in the next tract of country, the Mangrove is replaced by the Hibiscus, and the land is densely covered with tropical vegetation, consisting chiefly of the genera Mimusops, Wrightia, Cordia, Cocos, Costus, with numerous other trees and shrubs, &c., peculiar to these districts. The description of the trees and their luxuriant growth would alone testify to the natural richness of the soil. The extent of the land suitable for sugar-cane between the river and the ranges varies from a quarter of a mile to several miles in breadth. At the farthest point we reached we landed on the right bank, and examined a fine open forest ridge, about a mile inland, and some 300 feet in height. It was thinly studded with Eucalypti and Acaciæ, and the soil covered with grasses, of which the Anthistiria cliata (Kangaroo-grass) was the most abundant. From the summit a most magnificent scene presented itself: an extensive valley opened out before us, stretching far to the north, the east, and the west.

The banks of the main river, with branches of less size flowing into it, could be traced to far in the distance, bordered with dense vegetation extending for miles back from their banks. We also observed many low grassy ridges thinly clad with trees, and elevated plains or plateaus were seen about the heads of some of the watercourses. Near this, our farthest point, the Palmer Range approaches near the river, and appears to join on to another range more to the westward. There is abundance of land for the cultivation of the Sugar-cane and of other tropical productions; there is also a large quantity of pastoral land, and I feel convinced that from this river will be found the best and easiest route to the newly discovered mineral region beyond the ranges from which its head waters flow. Timber suitable for building purposes is almost everywhere to be obtained, and stone, as well as clay for bricks, &c., is easily procurable.

At the northern side of the entrance of the Annan the land is high, apparently everywhere above flood-mark. It is a sandy forest ground, scantily covered with trees, the more predominant of which are Eucalypti, Grevilleæ, &c. The grasses are Anthistiria ciliata, Chloris divaricata, Cenchrus australis, &c., which also grow somewhat sparsely. Beyond the highest point we reached the country had every appearance (as well as it could be judged of from a distance) of containing a better description of land than that of the lower part of the river.

The Endeavour River was examined for a distance of 10 miles from its mouth. On the northern side the land is too low to admit of being successfully cultivated, and both banks are fringed with Mangroves. On the south side is Mount Cook, a steep elevation covered with trees, which grow down to the edge of the rocky shore. Farther up, extending for about 5 miles in length, and back inland to the ridge that divides the Annan from the Endeavour, the soil is of a poor sandy nature, the vegetation consisting of Eucalyptus, Parinarium, &c.

On our return trip we examined the Maria Inlet, which is about 14 miles north of Tam o' Shanter's Point. On the northern side is a fine sandy beach extending some 2 or 3 miles, immediately behind which there is a narrow belt about 200 feet in breadth. The soil is of a sandy nature, with a little admixture of vegetable matter. The trees consisted of Calophyllum Inophyllum, Terminalia melanocarpa, Hernandia ovigera, Eugenia grandis, &c. They grow so regularly that they have the appearance of being planted, and give to the place the aspect of a well laid out park. At Dunk Island, the Calophyllum surpasses all other trees for shade, but here the Eugenia takes the lead. The trunk is taller and stouter than any that can be compared with it, its branches extend a greater distance, the foliage is much closer, the flowers give a better effect at a distance, and it bears a fruit which is often used as a relish. In the study and practice of my profession I have visited the royal parks, and the most celebrated of those belonging to the nobility and landed gentry of the mother country; but the natural groves of Maria Inlet, to my taste, produced a far more pleasing effect than any work of the landscape gardener's art which I have seen. At the south side there is a small sandy beach, and behind it some elevated ground well covered with trees and herbage. We traced the inlet up for a distance of 10 miles, which was as far as we could go, and to our great disappointment we stopped in the midst of an extensive Mangrove swamp. The banks of the inlet generally are low and composed of a sandy soil, the vegetation consisting chiefly of Eucalyptus, Barringtonia, Wormia, Casuarina, &c.

In addition to Dunk Island, above described, several other islands were inspected, the more important being Fitzroy, No. 4; Frankland; North and South Barnard; and the largest of Brook's group. Fitzroy Island rises to a considerable height; it is about 5 miles in circumference, and thinly wooded, with the exception of the banks of two or three streams between narrow gullies on the western side, which fall into the sea near a small bay, where the vessels visiting the island anchor. The forest trees are principally Eucalyptus, Tristania, Casuarina, &c. The grasses were Anthistiria ciliata, Cynodon polystachys, Leptaspis Banksii, &c. The scrub vegetation consists of Alstonia, Mimusops, Gardenia, Cryptocarya, &c. The soil is of fair quality, but the greater portion of it is better adapted for grazing than agriculture. Some eleven years ago I visited this island, and was much struck by the fine appearance of the shade trees, particularly Calophyllum Inophyllum, &c., and which, in former times, had been highly spoken of to me by the captains of vessels calling at the islands. These trees have all been cut down, and no traces of them are to be found. But this is not all the wanton injury that has been perpetrated, for the many handsome Tree Palms (Livistonia inermis), which used to adorn the lightly-clad forest ridges, have all been destroyed, with one exception. Frankland Island, No. 4, we found to be surrounded by a rocky shore, with the exception of a low sandy spot about 3 acres in extent, surrounded with a coral beach. The higher position was thickly clad with Myristica, Cadaba, Dysoxylon, Aglaia, Geijera, &c., and the lower part with Hibiscus, Cæsalpinia, Aristolochia, &c. On the extreme end of the island we found two clumps of Cocoa-nut trees, extending for about 50 yards inland, but within reach of the sea spray. They were twenty-eight in number; thirteen of them were bearing, and the others will bear in the course of two or three years. Three or four of them were about 50 feet in height. The trunks, in some cases, were much cut; and two trees had been felled, no doubt for the purpose of obtaining the nuts. It is to be regretted that there is no means of preserving Cocoa-nut trees from destruction in this way, for there is no necessity for cutting them down in order to obtain the fruit.

The Barnard Islands are surrounded with a rocky shore, with the exception of a small tract of sandy ground on the western side of the South Island, and a small coral beach on the north-western side of the north island. We found fresh water on both. The higher ground is well covered with Myristica, Gyrocarpus, Cryptocarya, Timonius, &c.; whilst the trees and shrubs on the margin of the lower ground consist of Panax, Exocarpus, Canthium, Ixora, &c.

Brook's Island is situated about 20 miles south of Cardwell; it is about half a mile in length, and a quarter of a mile in breadth. With the exception of a narrow patch of coral beach on the north-western side, the shore is rocky. It is well studded with trees and shrubs, amongst which are Premna acuminata, Vitex glabrata, Clerodendron lanceolatum, Diospyros rugosula, Sersalisia sericea, &c. The soil consists of a sandy loam with decomposed vegetable matter, but of no great depth. Fresh water was found, but it was not plentiful. The Megapodius Tumalus (a description of scrub turkey) and five species of pigeons were seen, together with several other kinds of birds.

In my opinion it would be expedient to reserve some of these islands for acclimatisation purposes. For instance, the Fitzroy Island would be very suitable for such animals as Angora goats, the different varieties of the deer tribes, &c.; whilst Brook's Island would find food and good shelter for game birds that it might be considered advisable to introduce on the mainland. I purchased in Brisbane a pair of Guinea fowls, and Mr. Sheridan, the police magistrate at Cardwell, who displayed a great interest in introducing and distributing plants and animals to be acclimatised, has also added to the stock (two females), and put them on shore along with the pair I took on Brook's Island.

W. Hill.

Florists' Flowers.

The production of New Hyacinths is by no means on the wane. The granting of Certificates to some of the best of these each succeeding year by the Floral Committee of the Royal Horticultural Society appears to be acting as a strong incentive to Continental raisers, and lists of new varieties are being given in some bulb catalogues. Thus Messrs. E. H. Krelage & Son, of Haarlem, have just put forth a list of novelties for 1875, but they modestly say that though they "may not say they surpass above the old varieties, they think they may honourably rank at the side of those already known. Their value as articles of commerce cannot be fixed before further trials have been made." It would appear that the demand for new Hyacinths made annually is so great, that efforts have to be made to supply it, and it is to meet this demand that Messrs. E. H. Krelage & Son are putting forth the new list.

As is usual the new varieties are composed mainly of single flowers, but some new doubles are offered also, and it would seem that attention is being turned to the improvement of this once popular class. There are three new double blue flowers, viz., Bloemhof, very double, the flowers light blue, the segments marked with dark lines; President Grant, dark blue, with dark, almost black lines along the segments; and President MacMahon, dark blue, pale towards the edges of the segments, and with violet stripes, very double. General Verspijck is one of the semi-double reds of which Koh-i-noor is such a conspicuous example; the bells are pale rose coloured, with dark stripes on the segments. Willem II. is a new double yellow variety—a class that is open to very great improvement, the varieties in it being of inferior character generally—the bells large, loosely hung on the spike, and much wanting in colour. The new form is of a dark yellow shade, striped with orange, the bells very double; the price put against it ought to indicate that it is really first-class.

The following new varieties are classed with the single blues:—Emilia Ingham, dark purple-violet, with black lines; Bourgmaitre de Gand, very dark violet-blue, with a quite black stripe along the segments; General van Swieten, black-blue, with black shading; General Moltke, bright porcelain, forms a beautiful spike; Justus von Liebig, dark black-blue; Karl Immerman, clear blue, with dark lines and shading; and Sieraad van Flora, blue, with broad dark violet lines, and white eye. The new single reds are—David Seghers, light red, with darker lines; Max Nisson, bright red, with pale eye; Rachel Ruysch, dark rose, with bright red lines; and Van Huysum, bright red, with dark lines. Singular to state, no new white variety, either double or single, is included in the list; but there are three new single yellows, viz., Alma Tadema, bright yellow, with dark lines; General Köhler, clear bright yellow; and Gustave Doré, bright yellow, with beautiful spike, a late-flowering variety.

It is computed that Messrs. Krelage & Son have already as many as 1700 varieties of Hyacinths in cultivation—an astonishing number—all of which are more or less in demand. We ought to receive good bulbs this autumn, for it is stated by this firm, who are extensive growers, that the Hyacinths have recovered in a remarkable manner from the bad influences of the former year, and the flowers of this spring surpassed all their expectations. In general, the prospects are not unfavourable, although the frost of last spring, and the cold weather of May, will not remain without influence.

The large demand in recent years for mixtures and bedding Hyacinths, that are much used for forcing and out-door decorative purposes, has necessitated advanced prices; and not only do the orders often surpass the available stock, but the expenses of culture in England have increased in a considerable degree, wages, manure, covering material, and the enhanced value of land, all serve to augment the expenses of production. The pretty early flowering Roman Hyacinth has been in such request during the last few years, and the bulbs have likewise so suffered from attacks of disease, that the present year's supply will be a moderate one. The annual requisition is said to be extravagant, and every year the smallest roots are sold, which materially affects the production.

The New Pelargonium, Queen Victoria, now in course of distribution by Mr. W. Bull, possesses a special interest for florists, because of what may be termed the marked individuality of character belonging to it. The flowers have a peculiar crispy outline, and in consequence of their being so numerous, and having such a thickness of substance, they appear to be double. It is, in fact, a semi-double large-flowering form of the Pelargonium. Instead of the petals falling away as they decay, they appear to be so tightly held by the calyx as to be unable to do so, and they do not appear to possess seed-bearing properties. The rich vermilion hue of the base of the petals, which is broadly margined with white, affords a striking contrast, while it greatly enhances its free-blooming valuable decorative character.

JAPANESE VEGETABLE WAX.

The *Japanese Mail* contains an account of the manner in which this article of commerce is obtained. The trees from which wax is made are the Urushi, or Lacquer tree, the Yama-urushi, the Hage-urushi, better known as the Ronoki, and the Koganoki. [? Various species of Rhus, such as R. succedaneum]. The wax is made from the rind of the fruit. In places where the wax is manufactured to any great extent the Urushi is not used for its lacquer. As the trees are not cut for several years they may be seen in the wax-producing districts growing to a height of 35 or 40 feet. In districts where the trees are used for their lacquer or varnish, they are cut every seven or ten years. The mode of obtaining the wax from the Urushi, or Lacquer tree, is as follows:—

Late in the autumn the branches, heavy with fruit, are lopped off and taken into the house. The fruit is pounded with a pestle, and then shaken in a basket-sieve, so as to separate seed from rind. From this rind the wax is made. The mode of expressing it differs here and there, but in no very important particulars. The following brief description is taken from the mode as followed out in Sendai and Aidzu: Boiling water is got ready in an iron cauldron, over which a lattice-work of sticks is placed, and on these some matting. The sifted rinds of the fruit are then laid out on the matting and steamed, after which they are placed in hempen bags and again steamed. The bag, with its contents, is then put in a wooden trough, wedges on blocks are inserted in the trough, and driven home into the bag with heavy blows from a mallet. An aperture at the bottom of the trough provides for the egress of the wax. The trough and wedges are made of Kiaki wood, and the mallets and blocks of wild Mulberry, a very hard wood, and well suited for the purpose. A small quantity of oil, in the proportion of about one-tenth, is added to the wax, to allow of its being expressed more easily. It then goes through another steaming process, and is again pounded in the trough.

Wax from the Yama-urushi, or wild Lacquer tree, is obtained thus. The fruit is collected at the latter end of summer, and is at once steamed, without being pounded with a pestle, as is the case with the Urushi wax. The wax is purified by melting. A large tub of cold water is taken and placed under a wooden tank having a small aperture close to the bottom. The melted wax is then poured into this tank, and escapes through the aperture into the tub beneath; while doing so it is stirred rapidly with the hand, after which it is placed either in matting or shallow boxes, and dried in the open air for about fifteen days.

The Hage-urushi, from which wax is largely obtained, grows in the south-western part of Japan. This tree was first brought from the Loochoo Island to Sakurajima, an island near Satsuma. Its production has so increased that there are now no less than seven different species. The Hage-urushi tree is raised from seed or from slips. Koga wax is made from the fruit of the Koga tree, which differs from the Urushi and Hage-urushi trees. It is an evergreen, and is largely grown in Ossugori, in the northern part of Nagato. It flowers in the middle of summer, the fruit ripening in autumn, when it is plucked and soaked in water for four or five days, after which it is trodden out with the feet, thus separating the outer rind. The Koga wax contains a large proportion of natural oil, which in a measure restricts its use to cold and temperate districts. Candles made of it show a very bright light, and if some contrivance could be hit upon for extracting the oil, the consumption of this wax would be increased, as it is very cheap compared with the other kinds. Refuse wax is used for manuring purposes.

THE HURRICANE LAMP.

Messrs. Dietz, of Carter Lane, have brought under our notice a form of lamp specially adapted for outdoor use in gardens, stables, barns, and

Fig. 38.—Hurricane Lamp.

such-like situations. The advantages claimed for it are safety economy, simplicity of construction, ease of management, and intensity of light.

The light is obtained from petroleum, and the lamp is so arranged that the current of cold air is warmed and deflected on to the wick in different directions, so as thoroughly to mix with the vapour of the petroleum and insure perfect combustion and steady persistent illuminating power. The broad flat wick presents a large area of white flame without wasteful consumption of oil. Comparative experiments have been made which bear out the assertions made above, especially as to the length of time the light remains brilliant. For our own part we can after trial endorse the latter statement, and we can, moreover, recommend the lamp for outdoor use so far as brilliancy and durability of light is concerned, and specially as to the difficulty of extinguishing the lamp by wind or displacement, on which account indeed, it has been called the hurricane lantern.

The illustration (fig. 38) has been drawn by our own artist, and serves to show what a handy, serviceable lamp this is.

LIQUIDAMBAR TREES.

There are two reasons for saying something respecting these elegant ornamental trees—one is to point out their claims on the landscape gardener to be more generally planted, and the other is the desirability of an attempt to clear up satisfactorily in a horticultural journal what has already been done elsewhere by more than one writer, namely, the distinguishing characters of the two species in cultivation. Firstly, then, as to the nomenclature and characters: though this may appear superfluous to those who have access to a good library, nevertheless, in spite of the two species having been thoroughly discriminated by Loudon (*Arboretum Britannicum*, 1842), by Hanbury (*Pharmaceutical Journal*, 1857), by De Candolle (*Prodromus*, 1864), and by Oliver (in Hooker's *Icones Plantarum*, 1867-71), they are frequently confused in English gardens; and even so good an authority as Professor K. Koch does not seem to be perfectly acquainted with both forms. Indeed, he states (*Dendrologie*, vol. ii., part 2, p. 465) that the oriental Liquidambar so closely resembles the American species that it is with difficulty distinguished from it, though, he adds, it is much tenderer, and easily killed by frost. He says, moreover, that the characters given in the diagnosis are uncertain and untrustworthy, and it is perhaps more correct to look upon L. orientale, Mill. (imberbe, Ait., not Willdenow, as given by Koch), as a variety of the American L. styraciflua due to different climatal conditions. To give weight to this view, he quotes as a fact that recent investigations have rendered it doubtful whether L. orientale is really indigenous in the East, and states that it has never been found in a locality where anybody would have taken it for wild. Now, what Koch intends to convey by "recent investigations" we are at a loss to understand. But if he mean more recent than 1857—the date when Mr. Hanbury determined beyond a doubt that it is a native of the Levant, and that it furnishes the liquid storax of commerce—it implies that the statements in the *Pharmaceutical Journal* are based upon insufficient grounds. But we are more inclined to believe that Professor Koch has overlooked this and other papers on the subject, especially as he does not seem at all clear as to the distinguishing characters of the two species. Mr. Hanbury gives the habitat of L. orientale, on indubitably good authority, as south-west of Asia Minor; forests in the districts of Sighala, near Melasso; forests near Monghla, and near Giova and Ulla, in the Gulf of Giova; also near Marmorizza, and Isgengak, opposite Rhodes. In the Kew herbarium there are specimens from the two latter habitats, collected by Mr. Maltass, and presented by Mr. Hanbury. With regard to the stability of the characters upon which L. orientale and L. styraciflua rest, both have usually five-lobed (rarely three or seven-lobed) leaves. In L. styraciflua the principal divisions are simply serrated, and not furnished with lateral lobes, as is the case in L. orientale. Now and then a leaf may be found, however, showing a tendency to develope lateral lobes to the main divisions, but in the smaller leaved L. orientale it is constantly so. The latter, too, has no tufts of hair on the under-surface is the axils of the principal nerves of the leaves at any stage, but L. styraciflua has them perhaps constantly in the young state. There may be other characters in the inflorescence and flowers of the two species, but we have had no opportunity of examining them. As they rarely flower in this country, such characters would be of little service. In all the numerous dried and living specimens we have seen, we have experienced no difficulty in distinguishing the two species. The leaves of the two are accurately given in Loudon's *Arboretum Britannicum*, and Mr. Hanbury figures a fruiting specimen of L. orientale. L. imberbe, Aiton, is a synonyme of L. orientale, Miller, the latter name taking priority. The plant often seen in nurseries as L. orientale is no other than styraciflua, which is undoubtedly the hardier of the two, and will bear the severest winters with impunity except when quite young. Both will flourish in the South of England, at all events. With regard to their claims as ornamental trees, no one would dispute them after a short experience. By the incurious in such things they might be passed as species of Maple, but here the leaves are alternate, not opposite, as in the Maples. Their habit, or more particularly that of L. styraciflua, when vigorous and healthy, is more strictly pyramidal than we remember any species of Acer. L. orientale is comparatively a slow grower, but L. styraciflua grows very rapidly after the first three or four years.

Early in the autumn, like many other American trees (*e.g.*, Quercus coccinea and Virginian Creeper), the leaves of L. styraciflua change to a beautiful crimson, intermingled with orange, and continue so until the frost compels them to release their hold and fall to the ground. For colour, indeed, it is one of the most striking objects in a mixed plantation, and for this alone it merits a more honourable position than it at present occupies. Although the American species was introduced as long ago as 1681, and the oriental in 1759, there are very few large trees in this country. After the first introduction of many American trees, when it was discovered that they were less valuable for timber than our native representatives, there seems to have been no further introductions for some time; and, although many plant for ornamental purpose rather than utilitarian, the hardy deciduous trees of

North America have been neglected in favour of endless varieties of evergreens. There are several other species of Liquidambar besides the foregoing—chinense and Altingia, with Laurel-like foliage, not hardy; and acerifolium and formosum, with trilobate leaves, natives of Japan, and the former, or both, probably hardy in the south-west. *W. B. H.*

THE "BONNET" OR "DISH-CLOTH GOURD."

This is one of the most interesting and probably useful members of the family of Cucurbitaceæ, and one but little known. As a peculiar Gourd it is worthy of a place in every garden, whether cultivated for its graceful and handsome foliage, so striking to the eye, its flowers of rich colour, or its curious fruit.

The Bonnet Gourd (Luffa sp.) is a most rampant grower, making in a short summer season a "vine" running from 25 to 30 feet, somewhat sharply five-angled, and conspicuous for its abundant foliage, glistening with metallic or dark green leaves. These leaves are from three- to five-lobed, and 6 to 9 inches in diameter, covered with short bristles, the upper portion of the leaf smooth, and lighter coloured beneath.

The plant has axillary flowers, in long spikes or racemes, with male and female flowers on the same spike of a deep rich chrome-yellow, 3½ to 4 inches in diameter, with a five-parted calyx and five obovate petals. One noticeable fact is observed, that the flower is entirely unlike many other members of this family in this respect, that it throws open its rich bloom in strong sunlight, and when in full flower the effect produced is quite beautiful. The fruit is three-celled, and from 20 to 30 inches long, somewhat triangular in shape, and marked by ten deep longitudinal stripes or furrows, elongated or club-shaped; these gradually swell from the stem to about two-thirds or three-fourths of its length, then abruptly taper to a point. The largest diameter is from 4½ to 5 inches. When in an unripe state the colour of the fruit is a dark green, but when ripening it rapidly changes to a yellowish green, or bronze. When fully ripe it somewhat varies in colour, like the well-known Hubbard Squash, and may often be found with well-marked white streaks. When grown in rich ground the vine is unusually prolific, and from fifteen to twenty perfect fruit are produced from a single plant. In its ripe state the fruit consists of a thin brittle shell, hardly thicker than common writing-paper, the interior being composed of a peculiar white membrane, soft and pliable, yet very strong. This membrane is an interlaced mass of fibres, resembling knitted goods. The seeds are black, and oval-shaped, covered with a thin transparent membrane, resembling gold-beaters' skin.

This Gourd, in its unripe state, is said to be quite edible, and can be used like the Egg-plant for the table. It resembles much a large Cucumber, being quite fleshy. The seeds are very numerous—from two to three hundred being found in a single fruit—and they will keep for a number of years. The principal use of this Gourd, in its dry state, is for the curious membrane of fibrous material, and which no doubt will be found to be of great service in some branches of manufacture or the arts. It has already been used in the manufacture of a kind of bonnet, or open hood, for the natives of the sunny South—hence its name, "Bonnet Gourd;" and from its snowy white colour and curious appearance is quite a curiosity. It was also used for washing purposes during the late civil war in America, even descending to the kitchen, where it was found indispensable for washing dishes, from whence it derived the name or synonyme, "Dishclout Gourd."

For any washing purposes it cannot be excelled, as it is as soft and pliable as a sponge in water, is perfectly clean and nice, and will last for years. As a substitute for hair gloves for frictional purposes it has no equal, and those who have used it have considered it superior to hair. For washing the skin it is unsurpassed, being healthful and natural, and so well does it perform its office that it answers all the purposes of a Turkish bath.

This membrane is so light and strong that it could no doubt be applied to many useful purposes, and its growth on a large scale in hot countries would well repay the trouble. The fibre would make good strong rope, twine, and paper; it would also make an excellent article for stuffing mattresses, cushions, and pillows, and would even be susceptible of being used as an article of ladies' dress as soon as proper machinery could be adapted for its manufacture.

This singular yet most useful Gourd will grow on almost any soil, but generally prefers a rich sandy loam, with plenty of organic matter and well-decomposed manure. The roots extend to a great distance, seeking its own moisture below the surface. It needs plenty of moisture if artificially grown in conservatory or pots, but requires no culture save keeping the grass or sods green about its roots.

In planting it is best to start the seed in a hot-bed as early as possible in the spring, where it can remain till warm weather and the heat of the sun effects vegetation, when it can be shifted to its permanent place in the garden, and kept well watered and protected from the rays of the sun till firmly rooted and started. It must be planted near a fence, wall, or trellis, upon which it can climb, and but one plant should be allowed to every 4 or 6 feet of lattice-work, as it spreads so rapidly and the foliage is so luxuriant. The ground near the young Gourd plant must be dug or hoed until it throws out its strong lateral roots, when it can be surrounded with grass or turf, and not again be disturbed. It can be advanced in growth by plenty of water and manure. The plant sends up one main stalk, which often attains 1½ inch in diameter, and from this spread out from ten to twenty lateral branches.

The same insects which attack the Cucumber and Squash vines infest this Gourd, and care should naturally be taken, though sulphur sprinkled lightly over it will rid it of the troublesome pests.

It commences to flower in June in Florida, and continues till frost sets in. The fruit ripens in September and October. No more showy Gourd could be introduced into gardens for summer foliage, while in the conservatory it would even grow to greater advantage, and become a beautiful and curious climber, and perpetual in growth. *W.*

PERIODIC PHENOMENA.

The following Report to the Meteorological Society has been prepared by R. McLachlan, F.L.S., as to the insects proper to be observed in connection with seasonal phenomena, temperature, &c.:—

Having been appointed by the Scientific Committee of the Royal Horticultural Society to confer with a committee of the Meteorological Society respecting the insects best adapted for observation in connection with seasonal phenomena, temperature, &c., I beg to submit my suggestions.

At the outset it struck me that the list ought to be as short as possible, and that results equally valuable could be obtained from the observation of a few species, as of many; and practically more valuable, because the observers' attention would be more concentrated.

Furthermore, I thought it highly important that these few species should be all common and familiar insects of general distribution. But it should be left to individual observers to add at discretion any particular species that circumstances render, in particular cases, favourable for observation; it being understood that any addition to (or modification of) the list, must be rigidly adhered to, and not varied year by year.

As the activity of most insects so greatly depends upon the state of the weather, independently of actual temperature, it is desirable that the records should be accompanied by notes as to the amount of cloud or sunshine. The species I have selected are the following:—Melolontha vulgaris (the cockchafer or May-bug), Rhizotrogus solstitialis (the fern-chafer), Apis mellifica (the honey-bee), Pieris brassica (the large white cabbage-butterfly), Pieris rapæ (the small white cabbage-butterfly), Epinephile Janira (the meadow-brown butterfly), Bibio Marci (St. Mark's fly), Trichocera hiemalis (the winter gnat). In all cases where the slightest doubt exists in the mind of the observer with respect to the species, specimens of the insect should accompany the record.

The time of first appearance of any particular species should be carefully noted, as also the time when it becomes common. This is especially necessary with the two white butterflies, for, as certain larvæ of these often enter houses and other buildings in order to undergo their transformations, it follows that these will necessarily be developed before the main body of individuals that pass through their transformations out-of-doors.

Notes on the species here follow:—

The appearance of the cockchafer may be taken as an indication of the near approach of summer.

The fern-chafer is a beetle much like the cockchafer in appearance, but very much smaller. It flies in swarms in the evening round any object (trees, the observer, &c.), and indicates that summer has fairly set in.

The honey-bee need not be observed after the end of March in spring, or before the end of October in autumn.

The two white cabbage-butterflies need only be noticed in their vernal broods. P. rapæ always appears before P. brassicæ, and care must be taken to avoid mistaking for the latter hibernated females of Gonopteryx rhamni (the brimstone butterfly), which appear in fine sunny weather from the earliest advent of spring or the end of winter.

The meadow-brown butterfly may be taken as indicating summer.

St. Mark's fly is a large, intensely black hairy dipterous insect with rather long legs, appearing generally about St. Mark's Day (April 25), and lasting for a very short time.

The winter-gnat dances in the air (singly or in little swarms) throughout the winter, excepting during the hardest frosts. A continuous record of its appearance should be kept from Christmas to the end of March.

Occasional Appearances in Unusual Numbers.—It is well-known that certain insects appear occasionally in enormous numbers, and then are comparatively rare, or disappear altogether, for a series of years. Vanessa cardui (the Painted Lady butterfly), Colias Edusa and Hyale (the clouded-yellow butterflies), Sphinx Convolvuli (the Convolvulus hawk-moth) are familiar examples. Such exceptional occurrences should be carefully noticed. Meteorologists may thus possibly throw light upon phenomena that have never been satisfactorily accounted for by naturalists.

THE FARM.

Wheat Sowing.—No sooner is the Wheat harvest of the year ingathered than the farmer begins to prepare for the next year's crop, and it is because we think the earlier this is done the better that we now offer a few notes upon the subject.

Wheat growing, to be successful, depends mainly upon the following points—(1) Timely preparation of the soil; (2) choice of seed; and (3) a moderately thin sowing.

1. As a rule early sown Wheats turn out best, and in the colder parts of our island ploughing for the future crop of Wheat should, if possible, precede the harvesting of the present one. On large farms, however, this work cannot all be done in time. Seasons may be opposed to early ploughing, as the land may be too dry and hard, or too wet and clinging, but when the farmer can command all the conditions necessary for the best Wheat culture, September is the best month for getting in the seed, and, therefore, as the small farmer has his holding more under command he ought to get the best Wheat crops. That it so seldom happens that he does so, we conclude is because he neglects the conditions necessary to success. For example, his land is warm, and so he need not be in a hurry, and then if he delays he sows thickly, as there is no time for tillering, and then he puts in a quantity of, it may be, a poor seed; and the result is that one Wheat plant is indeed a weed to its neighbour, and so for the want of time for the best development of the crop it is enervated and diseased.

2. We have always found that the best seed to be got is the cheapest. Indeed, for a small holding we should plant the pedigree sorts so cleverly produced and maintained by Major Hallett, and for these reasons—it is a fine bold seed, all alike, each seed the most perfect in size and shape, and all true to sort. No cost, then, can be too much where such care is taken; a fact which will come out all the stronger from the consideration of the next point.

3. The general seeding of Wheat throughout England is at the rate of from 6 to 8 pecks an acre, and usually this is drilled in rows 7 inches apart. Now in large farming we recommend 4 pecks, albeit 2 pecks too much, but birds and insects are sometimes more active in large than in small fields, and in the former they are not so much under command.

Having tried experiments with Wheat drilled at 7 and at 10 inches apart, we decidedly prefer the latter. During last autumn we sowed a patch of Golden-drop Wheat at the rate of 4 pecks to the acre, 10 inches apart in the rows. It was much attacked by insects, but for all that we are enabled to state that the remaining roots tillered out in a remarkable manner, and the ears are now considerably longer than those in the rest of the field sown closer. Having taken up one bunch, all derived from a single seed, we counted no less than twenty-five large ears, averaging sixty grains of good corn in each; 25 × 60 = 1500 grains—a no bad increase from one seed.

The truth is, that when Wheat is sown thickly it does not tiller to any extent, but comes up in from two to three weakly stalks, bearing but a poor ear, and in this case the grains are not fully developed. We have no hesitation in saying, that the proportion of tail to head corn will have a direct relation to the thickness of seeding. If, however, we are to be thoroughly successful with thin sowing our three positions—namely, early sowing, good seed, and an equable and thin distribution thereof—will be necessary. We have been told, and, indeed, we have experienced it, that thin seeding often results in mildewed stems, but this is only so, for the most part, where it has been sown late. Strong Wheat, with a horizontal and vertical increase, requires all the time that can be given to become thoroughly matured.

We advise then, where it can be accomplished, that the future Wheat crop be at once prepared for; that the best seed be at all times chosen, and that the sowing should vary from 2 to 4 pecks an acre, according to circumstances. The small farmer should remember that he has a more thorough command of

those conditions which tend to the fullest development of a pure sort, and as this always commands an increased price for seeding purposes, it is more particularly worth his attention to procure.

New Winnowing Machine. — The annexed illustration (fig. 39) represents Mr. Drechsler's improvements in machines for blowing and sifting seed, corn, Barley, Clover, grass, Linseed, Peas, &c. The sieves, separately considered, are also important improvements for the use of seeds that have hitherto been separated by special machines with rotary or flat screens having mesh-cleaning appliances. Part of these improvements are now applied to the blowers invented by the same gentleman three years ago, and which are already well known in Europe and America.

This new machine is stated to be capable of taking out the largest quantity of impurities, such as sand, weeds, lean or small seeds, mites, dead seeds, smuts, dust, and sprouted seeds, and of sifting seeds that are almost of the same size, and to separate the greatest number of seeds, difficult by reason of their structure, small size, lightness or weight, with a minimum loss of good seed.

These advantages are obtained mainly through the finer sieve of the two generally used not clogging in this machine when used for the smoother and more or less oval kinds of seeds, and but partly in the case of the rough, long and thin seeds, like Rye-grass, for instance, which is due to a peculiar motion imparted to that fine sieve and to its position in the machine. In other words, this machine is well adapted for dressing seeds of a nature to stick in the sieves, or to discharge themselves with difficulty from off their surfaces, such, for instance, as grass seeds, Barley, Oats, Linseed, Lettuce, Onion, &c.; and for fine or very light seeds, such as the red and white Clovers, most grasses, Tobacco, Mignonette, &c.; and of course for the easier round seeds, such as Rape, Turnip, Cabbage, &c., and for sifting round and wrinkled Peas, and for blowing at the same time the maggotty, germinated, and rotten ones out to an extent hitherto unattainable.

A single slide regulates the blast to any degree, or cuts it off entirely, to work the sieves only if desired. The exhaust made use of in some machines would be a superfluous complication in this one, since the blast is made more effective and with less power. The whole machine is made in two parts—the stand and the machine proper. In the illustration (fig. 39) A is the hopper, which has a vibrating flap at its bottom, producing an even and regular feed in the case of the lighter, as well as in that of the heavier kinds of seeds. B is a lever for feeding faster or slower. The light matter is blown out at C, where a board may be placed as dotted out to divide sometimes light but good seeds from the light rubbish. The lever, D, is to incline the coarse sieve more or less, but the pitch of the fine sieve is never altered. The fine siftings run to a point at E, where they may be allowed to accumulate or to run freely by drawing the slide seen in that situation. The same at F, where the clean seed has its exit, and from whence it may be run to one side or the other by placing boards on the legs as dotted out. The coarse sieve is put down the opening, G, and there seen at work.

The coarse matter discharged from the coarse sieve runs down at H, and the light inferior seeds at I. The illustration represents a medium size and easily portable machine. The ordinary large ones have a longer handle and ordinary wheels. The square case or machine proper is not fixed on the trough-like stand. For the ordinary run of seeds in general use the medium size is best adapted; for Peas none but the large size can be used, and for retail use the small size—this latter without sieves, if possible, as it is then always ready for use, and can be carried about in one hand. Its width is 10 inches, the width of the medium size 15 inches, and that of the large size is 2 feet. The stand raises the small and medium size to a convenient height, and the large machine stands low enough to fill the hopper conveniently from the floor, and boxes may also be used to run the separated lots into them.

Fig. 39.—Drechsler's winnowing machine.

Supertuberation in Potatos.—Our drawing (fig. 40) may serve to represent the nature of supertuberation, which we are sorry to say now prevails in the Potato crop.

The extreme hot weather and the drought of weeks, interrupted at wide intervals by thunderstorms, has had the effect of prematurely ripening the tubers and partially withering the haulm of the Potato, and then on the accession of rain the hot earth has stimulated the plant in all its parts—the haulm to make new growth on the one hand, and the young tuber to push out fresh or "supertubers" on the other. We have now growing on our farm some twenty sorts of Potatos, and as the Ashleaf and Walnutleaf Kidney have been quite ripe and the haulm perfectly withered and dead for some time, these have escaped supertuberation; but the medium early, as the Alston Kidney, Paterson's Victoria, the Forty-fold, are now starting into renewed growth, on account of the rain and forcing weather, and are consequently more or less supertuberated. But the latest sorts are now in full and natural growth, and we are expecting a good crop of them, as there is at present no sign of disease.

But the question arises with many, What shall we do with a supertuberated crop? Our advice is to pull off the haulm as soon as the affection is detected, to leave the tubers in the ground for two or three days, then use the best of them, but any so bad as our drawing represents had better be boiled, supertubers and all, and given to the pigs or fowls, as, of course, the tubers will be very poor for food.

This principle of action depends upon the fact that the renewed activity of the leaves has stimulated the main tuber to throw out smaller ones; but once check this growth by pulling up the haulm, and the tubers, but little injured, will consolidate into ripeness, and though they will be less floury, they will at the same time be not unacceptable as new Potatos.

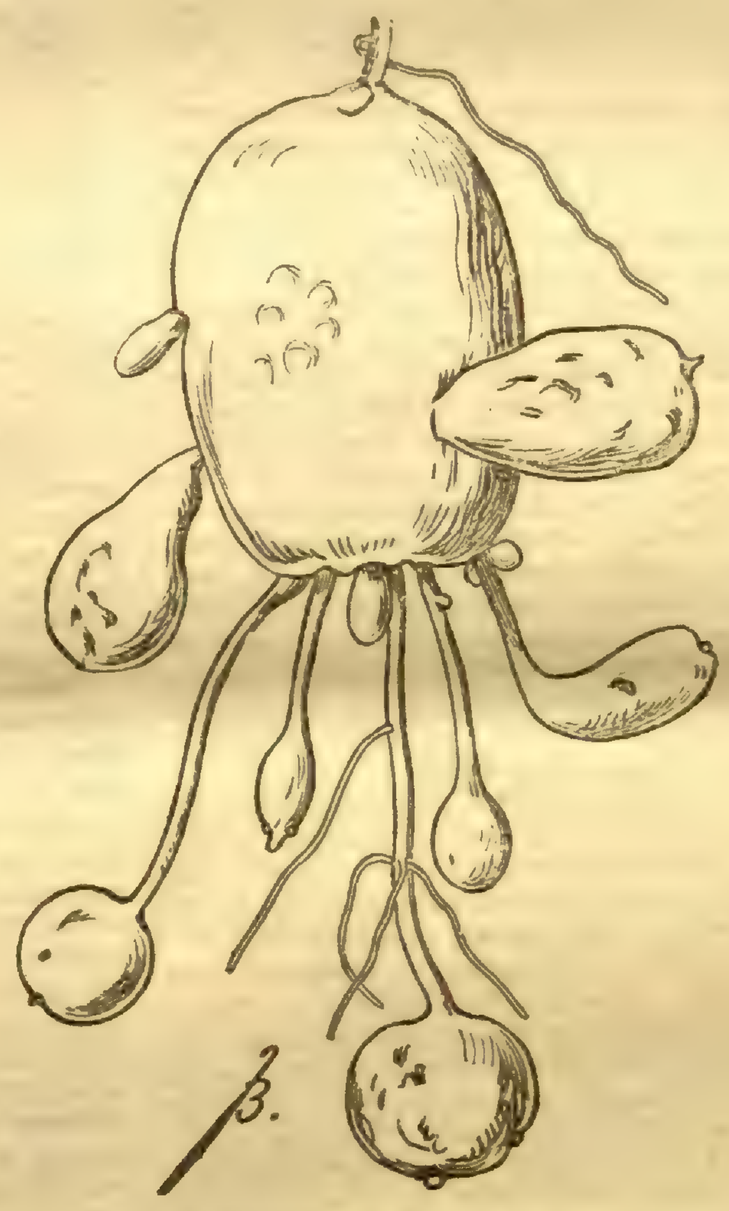


Fig. 40.—Supertuberated potato.

Home Correspondence.

Mr. Wm. Paul's Rose Garden in the Royal Botanic Society's Garden, Regent's Park.—I think I ought to answer the letter of my nephew, which appeared in the *Gardeners' Chronicle* of last week, as it seems to me calculated to depreciate what I consider one of my most successful efforts. When I had disposed of the 8000 trusses of Roses used in the formation of that Rose garden, Mr. Wills, who had been watching my movements at intervals during the day, came forward, and with unbounded enthusiasm pronounced it a decided hit. That opinion was freely endorsed by the numerous and brilliant company who for four hours hung upon the Roses, uttering varied exclamations of surprise and delight. Your leader in the *Gardeners' Chronicle* of the 25th ult.—every word of which as a Rose grower of thirty years standing, and a raiser of some of our best English Roses, I heartily endorse—put the matter before the public in such a way that it might be turned to practical and profitable account. I know it to be true that that series of Rose beds and the combinations of colours was "the talk of the town the next day." But to my task. I assume at the outset that there are two classes of Rose growers—1, those who grow for prizes, and, 2, those who grow for garden and house decoration. As the "blue riband" has been introduced, I may say that in my opinion these classes are as distinct as that which breeds and rears racehorses is from that which breeds and trains horses for the commoner and more useful purposes of life. In paragraph 2 of my nephew's letter he seems to ignore the fact that for many years, so long as I exhibited for prizes, I took more first prizes than any other exhibitor, having not very long since won five silver cups in one day, and on another and more recent occasion, I took thirty-seven first prizes in one week. I ought here to be permitted to say that I discontinued exhibiting for prizes because I judged it more to my interest and to the interest of my clients to grow plants for sale rather than plants and flowers for prizes. Paragraph 6 says the exhibitor "Had no schedule to hamper him, no policeman to turn him out at 10 o'clock, and no need for any special selection of fine flowers." But I had a rough and uneven surface to deal with; I had to be ready by 8 P.M., as exhibitors for prizes have to be ready by 10 A.M.; and as to the quality of the flowers, Mr. Wills testified (p. 146) that "the blooms were most brilliant and beautiful." Their freshness, which was remarked on over and over again, was due to the fact that they were cut for the most part on the morning of the show, whereas the prize Roses are usually cut the morning before, and on show days often look fatigued and faded. Paragraph 7 quotes Madame Plantier and Mrs. Bosanquet as examples of the Roses of which my Rose-garden was composed. Now, this is not fair, and cannot have been done from lack of information; as your leader, on which this remark is founded, after

specifying certain sorts, equally good either as show or garden Roses, sums up with these words, "and most of the leading Roses, new and old, of every colour and shade." Paragraph 8 shows the weak points of our Rose shows. The standard of size and shape required there shuts out many of the best sorts for garden decoration. The Rose shows as at present managed encourage breeding for shape and size, without any regard to habit and constitution, and hence many new Roses are wofully deficient in these fundamental qualities. Many of the finest Roses in the stands at Rose shows are comparatively worthless for effect in the garden. Two out of the three sorts recommended in paragraph 8, namely, Mademoiselle Bonnaire and Mrs. B. Ker, are of this character; the flowers are pretty, but the plants are delicate and short-lived in the hands of ordinary growers, although they may be "managed" by skilful rosarians. The third sort, Madame Lacharme, grows freely enough, but I have often looked over hundreds of plants of this sort when in full bloom before I could find one clean and satisfactory flower. The exhibitor for prizes may "manage" to show a bloom or blooms, but for the garden I prefer infinitely the glorious masses of Madame Plantier and Mrs. Bosanquet to any of the others.

Paragraph 10 reads thus:—

"Whether the exhibition of masses would serve the high educational purposes which the production of the perfect blooms we have aimed at has done, is another matter; a comparison of the amateurs' stands of past times, and of the last two or three years, not only at the metropolitan but at local Rose clubs and shows, proves that those of us who have troubled ourselves to carry here and there fine examples have not taught in vain."

I am not sure that I understand this, but if it means that the exhibition of single flowers and small groups has served the "high educational purposes" (?) of the florist, surely the exhibition of masses will equally serve the "high educational purposes" of the landscape gardener. It is amusing to find Mr. George Paul claiming for himself and colleagues the merit of teaching amateurs by exhibiting, and pluming himself on the "proofs" (?) that they "have not taught in vain." Where are the proofs? Is the improvement in the amateurs' stands due solely or principally to the prize-showing nurserymen? I think not; the amateur's observation and experience in Rose growing, the books he reads, the conversations he holds with his practical friends—amateurs, nurserymen, and gardeners—surely count for something. By looking at a stand of Roses he may learn how to show them, but cannot learn by that means how to grow them.

Paragraph 11 tells us that the writer and others could produce double and treble the quantity of flowers of which this garden was composed. So could I. But they have not even produced a like quantity. A hundred thousand blooms might be cut almost any day in July from the acres of Roses growing in my nurseries. Let me say in conclusion, that I do not envy exhibitors for prizes, or wish to deprecate their efforts. Honour should be given where honour is due; but some of these men want all the "cakes and ale;" and, in my opinion, Rose showing is not the be-all and end-all of Rose growing. *William Paul, Paul's Nurseries, Waltham Cross, Herts.*—P.S. I answer a postscript by a postscript. The idea of holding a Rose show in York Minster is altogether repugnant to my views of the fitness of things. The Germans hold flower shows in their churches, Sunday usually being the opening day, and money being taken at the doors! I should be sorry to see our cathedrals or churches turned into temples where even Roses were bought and sold. *W. P.*

Rose Shows.—The consciousness that I am expressing, not my own opinion only, but that of many more lovers of the Rose, induces me to enter my protest against the views advocated in the leader of the *Gardeners' Chronicle* of July 25, and endorsed to some extent by Mr. Geo. Paul in that of the 2d inst. I should feel much more than I do upon the subject but for the utter impossibility of the plan being ever carried out. When I look back upon the progress that the Rose has made during the last twenty years, I am fain to attribute it to two causes, independently of the intrinsic beauty of the flowers—1st, the introduction of the Manetti stock; and 2d, the multiplication of Rose shows, or shows at which the Rose is the *pièce de résistance*; and I am conscientious enough to ask, when changes are proposed, whether those changes are likely to effect the good that the old ways have done—will the introduction of the seedling Briar (good as this is) cause the Rose to be better grown than it has been? and will the proposed sensational mode of exhibiting add to the value of our shows—for that I conceive is the main point? The visitors to a Rose show may be comprised under the head of those who go simply because it is a place to see and be seen, those who admire flowers but take no very deep interest in them, those who go to see the very best flowers that can be exhibited for the purpose (though they may never exhibit) of adding to their collection, and those who are real connoisseurs. It is quite clear that neither of the two latter classes would be benefited by it, for to have Roses exhibited in the masses you propose quality could never by taken into account. As to the beauty of the arrangement, it may look very handsome—I dare say it does; although what I have seen of French flower shows similarly managed by no means inclines me to the idea that by daylight it would after a few hours be worth looking at, while the amateur who would see a whole mass of flowers huddled together could learn nothing; and as to its being more natural than the present system, it is simply just as unnatural to see 20,000 Roses huddled together on the ground as to see 2000 in boxes. But I rejoice to think that the thing is impracticable; no society can offer prizes large enough to tempt nurserymen to do it until the other Rose shows are over, and then, unless it be for an evening *fête* or something of that kind, it could not be done. In the height of the season there were offered at one place a prize of £20, at another a silver cup and £10, at another £20, for seventy-two Roses, at all of which our great nurserymen exhibited within a few days. Are they, let me ask, likely to spoil their chance of sharing these honours for any prizes that can be offered for wash-baskets full of flowers? I write as a "bigoted old florist" [this expression was not used by us. Eds], but your remarks on Alphonse Karr are my vindication. It is very easy with him to laugh at the florists and find fault with their actions, but it is difficult to suggest anything better. I have seen it done, but it has always failed, and I feel quite convinced that we shall never see the present plan of exhibiting Roses very materially altered; if we did I should say farewell to the pre-eminence the Queen of Flowers has enjoyed. I recollect the 100 Roses Mr. George Paul speaks of, but my memory does not dwell on them with much delight. *D. Deal.*

Cucumis Anguria.—I should feel much obliged if any of your subscribers could inform me how the fruit of Cucumis Anguria, figured in your volume for 1870, p. 210, which is said to form the principal ingredient in the West India pickle, is prepared. I possess several plants of it, and they are now fruiting, but being ignorant of the method of treating them, am anxious to obtain some particulars with regard to the process, and should esteem it a favour to be advised thereon. *H. W. C.*

Potatos from Seed an Antidote against the Disease.—My own ideas fully concur with Mr. Smith's opinion, where he writes:—"We imagine the fact of so many Potato plants bearing neither flowers nor fruit is a certain sign of an impaired constitution." This sentiment was impressed upon me so long ago as in 1854, when not a single berry could I discover on any of the various old sorts of Potato grown by me at that period. However, on removing the stems of some Early Shaws, for the purpose of taking up the crop, which was badly diseased, I did find a solitary, half-ripened fruit, lying on the ground, detached from the stalk. This I kept until the seed became matured, as in the case of Tomatos, and sowed it the following year. Several plants were raised from it, and I continued the propagation, from the tubers produced, for a year or two after; but as these were also more or less affected, most likely owing to the unhealthiness of the seed, I discontinued their cultivation. Circumstances then prevented my putting into practical investigation the notions I had entertained with regard to the raising of seedlings until 1870, when, it being a favourable season for the Potato crop, I found, among the old varieties, a considerable number of berries, adhering to the stalks, in an advanced stage of ripeness. This induced me again to try my seed system, so I accordingly sowed some of it in a pan, placed on a moderate hotbed, in March, 1871, and transferred the offspring when the second leaf was developed, singly, into 4-inch pots, which were hardened in cold frames, and planted out the first week in June in rows 2 feet apart and 1 foot from plant to plant, diagonally, without disturbing the roots. By this treatment many of the tubers attained a good size for the table the first year, beautiful in appearance to behold; but only a few retained a likeness to the parent plant, some being superior and others inferior in quality thereto. Although several of them blossomed that year (1871), no seed was obtained, owing probably to their juvenile state; but nearly all remained free from the black spots on their foliage till a fortnight or three weeks after the old varieties had succumbed to the attack, and whether or not it was through contagion conveyed from the latter that these appeared at all, I am unable to say. The best of the tubers obtained in 1871 were planted out in 1872 in the usual way, and the seed from these—being the second generation—was sown last year, the young plants having been treated precisely as in 1871. All turned out satisfactorily with regard to soundness of tuber, notwithstanding the unfavourable weather we had, and yielded abundantly. Two of the plants continued growing in a tolerably healthy condition, until destroyed by frost on October 27. The sets from the seedlings thus raised last year have this season produced the finest and healthiest-looking plants I have met with since the commencement of the distemper, and, as stated in my former communication to you, they are heavily laden with fruit, scarcely a bloom having failed to set. It is very different in the case of the old varieties, on which only a single fruit here and there is observable, the blossoms having proved abortive, as Mr. Smith has also found in the examination of his own flowers this year. A cluster containing seven berries of the former I now forward, as a sample, for your inspection, but some of the heads have even twelve to fourteen on them [perfectly healthy]. My conviction is that if this plan be carried on, say for five or six successive generations, which will take—according to the experience I have hitherto acquired—ten or twelve years to accomplish, the plants will become entirely free from the influence of mycelial attack of any kind, which, as is well known, is caused through their unhealthy condition. Trying the experiment for one, or even two generations, will not be sufficient to prove the case effectually. The method must be continued, as I have already stated, for several succeeding generations. We are all aware that diseased parents procreate a diseased offspring, and Nature's law also is destruction and reproduction from seed, whether it be in men, animals, birds, or plants. In Potatos tubers are not seed, and therefore, their constant use for propagation may be compared to "breeding in and in," a thing to be avoided on all occasions. Of course, it must depend upon circumstances how long varieties raised from seed will retain their improved constitution. In the case of the Fluke, I remember, it remained quite sound, or nearly so, with me, for about six or seven years from the time of its introduction, and now that variety is as liable as any other kind to be affected. This shows, I think, unquestionably, that a frequent renewal from seed is necessary in order to obtain healthy crops. Whether the present disease was known previous to 1845, I cannot tell, but I imagine I am correct in saying that only old varieties then existed. The Fortyfold, I believe, was the newest, and it had been in cultivation for many years, so that all sorts then used for propagation had got into such an exhausted state, the crops raised therefrom could not contend against the heavy rains which prevailed that year (during the months of July, August, and September), not only in this country but throughout the Continent, and a predisposition to take the disease was from thenceforth engendered in the tubers. When it is considered how easily Potatos are grown from seed, and how interesting it is to watch their progress in such way, it seems to me surprising the plan was not more frequently resorted to at that time. Of late years a rage appears to have sprung up to do so, which, no doubt, is "a step in the right direction" to overcome the malady, and it strikes me that if the societies were to offer prizes at their shows for the best bunches of berries, just in the same manner as for Grapes, it would be attended with immense advantage towards the promotion of that system. Had the Council of the Royal Agricultural Society required, instead of the plan they have adopted, a pinch of seed from each competitor, guaranteed to be of his own saving, for trial at Chiswick, or anywhere else fixed upon, the result to be decided, as in the present case, in 1877, or, better still, in 1887—it would, in my opinion, have been not only far more conducive to success, but given much less trouble. *J. L.*

Peaches.—I have Mr. Rivers' three early Peaches—Early Rivers, Early Beatrice, and Early Louise. They are all out-of-doors, the two former on a south wall, and the last on an exposed east wall. Early Rivers has been here five years, and, though it has blossomed abundantly, has never set one fruit. Early Beatrice has been here three years, and set one fruit this year, small, and ripe July 19. The Early Louise has been here three years, and gave a capital crop last year, and also this year; it was ripe July 23. I have no doubt, therefore, for out-of-doors it is the best by far of the three. The fruit is very handsome, and the flavour delicious. I specially recommend it. This agrees with what my friend and correspondent, Mr. Bréhaut, told me some years back. The crops of Peaches and Nectarines, both indoors and out, are the best I have had for six or seven years. I did not expect anything, so severe was the spring. I have good crops on the east and west, as well as on the south walls. *W. F. Radclyffe, Dorset.*

Diplacus glutinosus—Brugmansia.—In recommending this (p. 111) you state that it only requires ordinary greenhouse treatment. Will you allow me to add that, if not perfectly hardy, it is as hardy as a Fuchsia—*i. e.*, it dies down in the winter and comes up strongly in the spring. I have plants here that have certainly stood out more than ten years, and they are

now in good flower. I have not found D. grandiflora or D. Verschaffeltii quite so hardy, and I have not tried D. puniceus. I am sure that there are a great many plants of the same sort that would do very well treated in this way—*i. e.*, as herbaceous plants. Brugmansia sanguinea is now in flower. It has stood out a dozen or fifteen years. It dies down every winter, and comes up early, and does not seem to be affected by the spring frosts. Treated in this way the flowers and foliage are far finer than I usually see them in greenhouses. *H. N. Ellacombe, Bitton Vicarage, Gloucestershire.*

Myosotis dissitiflora.—Allow me to express surprise at the failure of my friend, Mr. Earley, to grow this beautiful spring flower. I am pleased to inform him that it can be seen at Loxford Hall, a little more than a mile from his place, and that distance nearer the smoke of London, in perfect health and growing luxuriantly. My plants are true, and a portion of them are from seeds, the remainder being old plants received from the country in the spring. I am afraid Mr. Earley starves his plants. The ground should be trenched and well manured. It will then grow and flower profusely. M. rupicola is one of the rarest of Forget-me-Nots, and is never found below an elevation of 2400 feet, yet it grows and flowers very freely, and if any of them would be influenced by smoke this one would. I had masses of flower of it in April, and it was pronounced a perfect gem. It is grown in pots out-of-doors when in flower, and through the summer months. The potting material is rough sandy loam, with pieces of limestone rock added to it. This, as well as M. dissitiflora, requires plenty of moisture at the roots. *J. Douglas.*

—If Mr. Earley has used only divided plants, or plants raised from cuttings of this beautiful spring flower, then his experience of it is not singular, as such plants cannot be relied upon to produce a good display of bloom under any circumstances; but if he has used summer-raised seedlings, then his experience is indeed singular, and altogether at variance with the well-known character of plants if raised from seed. Of the thousands I have grown from seed during several years, I have never known one to fail. Sow seed in some shady spot as soon as ripe. Keep the ground moist until the seedlings are up, and then plant them out for decorative purposes early in the winter. *Alexander Dan.*

Double Crimson Primrose.—My plants of this variety of the Primrose, potted up into 60-sized pots, and plunged in ashes in a shady situation, as mentioned in a previous number of the *Gardeners' Chronicle*, have thriven so well, that several of them are in bloom, having flowers nearly as fine as are developed in the spring. I am so satisfied that this is the best mode of "summering" these plants, that I shall in future seasons serve all choice kinds in the same way. Even very small-rooted crowns so treated in the spring will be sure to thrive well. *A. D.*

Bedding Pelargoniums.—I think, with the exception of Roses, it would be difficult to name a tribe of flowers in which the public is more generally interested than in bedding Pelargoniums. Every one having a garden cultivates them more or less. In some places they are planted by the thousand, in others clumps dotted about in mixed borders give colour, which is much required after the spring flowers are out of bloom. As conservatory plants they are perhaps still more valuable, cultivated with less trouble than most others, less liable to the attacks of insects, and continue in bloom longer than any other tribe; no wonder they are favourites. They have one great fault, which is that they bear carriage badly when in full bloom. For years I have raised thousands of seedlings, every flower carefully crossed with my own hands, with the hope of getting a few superior or different to those previously raised. Dr. Denny, of Stoke Newington, is also an extensive raiser, whilst Mr. Laxton, of Stamford, has taken the double ones under his care. Besides these many persons try their hands at raising a few seedlings most years, the result being that no class of plants has been more improved than this. Most persons, perhaps all, act from mixed motives, and it may be questioned whether the ambition to be the producer of new beauties in a favourite class of flowers or fruits is not as strong a motive as the hope of pecuniary reward. One thing is certain, those who raise a good plant wish to be known as its raiser, and they feel aggrieved when others adopt their favourites without acknowledgment. In 1873 several of us who were thus interested agreed to offer prizes for our seedlings, to the exclusion of all varieties except our own, that the public might have an opportunity of seeing what we had effected. Dr. Denny and I offered £7 7*s.* each to be thus competed for, and others followed suit. The show was to be held at Kensington in July. The Royal Horticultural Society also offered prizes, open to all varieties, *i.e.*, to any one. We were glad to think that all (ourselves including) would have the opportunity of seeing our pets compared with those raised by others. Mark the result. The Society made no stipulation that the raiser's name should be attached to the plants shown, and I had no sooner entered the show than Mr. Gibson, after having congratulated me on the beautiful plants shown by Messrs. Catlin and Brise added, "but you must take care, for others are very close to your heels; amongst the kinds shown for the best twelve new varieties are sorts about as good as yours." As may be imagined, I was soon in search of these rivals. What was my astonishment to find eleven out of the twelve plants staged were my own kinds, but the exhibitor had forgotten to attach the raiser's name to them. Finding several other collections contained varieties of mine all without acknowledgment, it struck me our object, at any rate mine, was defeated. My object was a purely selfish one. I wished to see my sorts well grown and brought in comparison with those of others; and no doubt those who offered similar prizes under similar conditions were also disappointed, for I was the only one who repeated the offer this year. Now I think the object of the Society in offering prizes for new plants ought not only to be the enabling the members and visitors to judge what is the best worth cultivation, and to reward the growers, but to do honour to the raisers of the best varieties. As it is now, good things are welcomed, those who produce them are ignored. Charity ought to be performed in secret, but when we as a rule see objects of art and things of value sent out by men who wish to be unknown, then and then only need we be ashamed of our desire to be recognised. It is unjust that persons should be assisted in taking credit to themselves that belongs to others. Let us have a fair field and no favour, let the Society offer good prizes worth trying for, for collections, subject only to the conditions that name and raiser's name be attached to each plant, and then those interested in the matter will, I have no doubt, willingly help to find the funds. But if it is to be done it should be done at once. Time is necessary to prepare plants worth exhibiting. *J. R. Pearson, Chilwell.*

Maggots in Indoor Summer Grown Mushrooms.—Can any of our mycologists suggest any remedy for the pest of maggots which attack all indoor grown Mushrooms, indiscriminately, during the whole of the summer months? The fact is one of great importance. Mushroom-houses are not at all what they claim to be during these months, other sites having to do duty for them. Are the flies which deposit the maggot-begetting eggs within reach?—and if so, what destroying agencies are there? *William Earley.*

Size of Fruit.—Mr. Murdoch is quite in error, as I did not compare the size of Peaches with other fruits, or say that they could be brought earlier to perfection than other fruit under glass. I merely gave the sizes of them. Mr. Murdoch seems to make very little of a Peach measuring 11 inches; but when they can be got so easily and numerously to that size, the wonder is why they are not seen oftener exhibited when one shows his best productions. The furthest I can now go is 11¼ inches with Stirling Castle; nearly to 11 inches with Grosse Mignonne, and 12 inches from point to point with Walburton Admirable. Mr. Murdoch's experience and mine differ with regard to the culture of the Peach. I can always get finer fruit off trees a little aged, as I can give them more nourishment during their season of growth, when if the young trees receive it the sap runs all to wood, and produces gross growths which robs the fruit of its nourishment, and very often causes it to drop prematurely, leaving nothing but useless wood for the following year. If water be a little withheld till the last swelling, when the wood is comparatively at rest, then one can have fine fruit on young trees without danger, leaving fine wood for the coming season. I have now to say that the size of the Peach does not interfere with its qualities in any way, and the 11-inch Peaches to which I referred are monstrous fruits; and, what is more, any one having 10-inch ones need not be in the least afraid to put in an appearance at any exhibition. *W. Paul, Edinburgh.*

American Blight.—I am anxious to know if other neighbourhoods have suffered from American blight amongst the Apple trees in the same ratio as this has. Here it has spread to an unprecedented extent, amongst small trees especially. I have had for several weeks four men and boys dressing the trees with paraffin oil; they have used between 20 and 30 gallons to 30,000 Apple trees of all ages and growths. During the nine years I have occupied this nursery there has not been so much American blight; indeed, I question if so much has ever appeared in any previous season. The continued dry weather and arid state of the atmosphere is without doubt the cause of the pest. My rain gauge has only registered 5.132 inches of rain for the past five months—less than half the average fall, the weather alternating between hot sun and dry parching winds. There has not been sufficient rain during the past five months at any one time to reach the roots of trees and shrubs; the largest fall was on May 23—0.480 inch; the result is that 1874 will be a memorable year to nurserymen as one of the most disastrous on record. All transplanted trees have suffered severely with us, many thousands having died. I shall be glad to hear the experience of others in different neighbourhoods, both as regards American blight and the excessive drought. *George Davison, White Cross Nurseries, Hereford.*

Potatos.—I have dug all my early Potatos, as they are ripe. The later ones show signs of growing out. I have had all the haulms drawn, as they are ripe, and all will be out of the ground by August 7. It is too late for successful extuberation. If the skin adheres to the tuber you may dig, notwithstanding the greenness of the haulm. The greener the haulm the more grown-out will you find the tubers. The haulm sending forth fresh shoots is a sure sign of growing out. *W. F. Radclyffe.*

Orangery.—I wish to ask a few questions relative to the furnishing of an orangery, and should feel thankful if some of your numerous readers would kindly give me their experience in such matters. Should the trees be planted in the soil, or should they be retained in their present boxes? My house is so built as to give an average distance of 9 feet from the tops of the trees to the glass roof. This appears to me to be too great a distance. Is it so? And then as to the roof. I learn from the experienced gardener of a noble earl living in the North of England that he has recently lost several trees which were planted in a newly constructed house, and that others were languishing from some unexplained cause, but which my friend thinks was due to the fact of his house having been roofed in with glass instead of slate or tiles. This observation appeared to me so strange that I determined to delay my building until the subject had been ventilated through the columns of your journal. I myself cannot conceive that trees planted (although at a distance of 9 feet from the roof) should be more likely to thrive under a dark roof than under glass. *A Thirty Years' Subscriber, Southampton, July 28.*

Reports of Societies.

Royal Horticultural: *August* 5.—W. A. Lindsay, Esq., in the chair. Mr. Berkeley called attention to Campsidium filicifolium, a Bignoniaceous plant, closely allied apparently to C. chilense, but of a much more graceful habit.

The apetalous Fuchsia (shown before the Floral Committee by Mr. Kinghorn) from New Zealand proved clearly to be F. procumbens, which may possibly give rise to a race of totally different habit from what we have now in cultivation.

A Stanhopea in Messrs. Veitch's fine group of Orchids, unnamed, is clearly a pale form of Stanhopea Wardei, figured in vol. lxxxviii. of the *Botanical Magazine*, in a recent number of which is a figure of the beautiful Aerides Huttoni, which also appeared in the group.

One of the most interesting plants exhibited was a Dendrobium, from the collection of Lord Londesborough, with fascicles of deep buff striated-flowers growing on the naked stem. It clearly belongs to Blume's genus Pedilonum, but Mr. Berkeley was not in a position to identify the species.

Ceanothus americanus of two colours was sent by Mr. Woodbridge. Mr. Berkeley stated that the leaves are used in America under the name of New Jersey Tea.

A specimen of the Antigua Queen Pine-apple was sent, but it was stated that it was not much cultivated, as it had a tendency to decay before it was perfectly ripe. This statement called forth some observations from a gentleman who had seen thousands of it in the West Indies, where it is greatly esteemed and acquires a large size, and has not the bad quality just mentioned.

Mr. Smee brought Onions, the produce of seed sown last August, and dressed with phosphate of ammonia, which seemed to be beneficial, but which had no apparent effect on spring-sown Onions. As, however, equally large Onions are produced without any artificial manure, the inference is that it had no more effect on the autumn than on the spring-sown Onions.

Some observations were then made on certain neglected vegetables, which have lately been mentioned in this journal.

Dr. Hogg brought an Onion with bulbs among the flowers, which produced its seed from a small lateral bulb, while the accompanying bulb was not in the least deteriorated, but was perfectly sound and healthy. A whole crop was in the same condition, and experiments will be made as to its real quality.

Floral Committee.—John Fraser, Esq., in the chair. This, though not a full meeting, yet presented several points of interest. Foremost was a batch of very fine double Balsams in pots, furnished by Messrs.

F. & A. Smith, Dulwich; and a fine collection of cut Roses from Messrs. Paul & Son, Cheshunt, remarkably good for the season of the year. Madame Hippolyte Jamain, Madame Laurent, Vicomte Vigier, Alfred Colomb, Marguèrite de St. Amand, Sophie Coquerelle, Etienne Levet, Marquis de Castellane, François Fontaine, Reynolds Hole, a fine shaded crimson flower; Dr. Hooker, Louis Van Houtte, Richard Wallace, Marquise de Gilot, Prince of Wales, Ferdinand de Lesseps, Comtesse d'Oxford, and Tea Belle Lyonnaise, were in good condition. First-class Certificates were awarded to Metroxylon filare, a very elegant Palm in a young state, but said to be difficult to cultivate, from Mr. W. Bull; to Lilium speciosum atrosanguineum, a rich coloured form of rubrum, the segments tipped and edged with white, from Mr. G. F[illegible]son; to Dendrobium species, above referred to, bearing numerous clusters of small orange-coloured flowers like a minute Lapageria, and striped with brown, from Mr. Denning, gr. to Lord Londesborough; and a Botanical Certificate was awarded to Fuchsia procumbens, a very curious and distinct species raised from seed sent home from New Zealand, and thought to be hardy enough to be cultivated in rockwork during summer. It has erect flowers with an orange tube, and green and maroon segments much reflexed. Among miscellaneous subjects were Verbena Esmeralda, from Mr. J. Miller, Upwey, Dorchester—a striped variety, with flakes and stripes of purple in a pale ground, large and of good form, and passed by the committee because it was considered doubtful if it would maintain the striped character. A dwarf Ageratum, shown by Mr. Offord, nurseryman, Upper Norwood, was thought to be too much in the way of the Imperial Dwarf. It looked like a seedling from the Blue Tom Thumb. Cut flowers of African, dwarf striped French, and bedding Marigolds were staged by Mr. R. Dean, Ealing; also flowers of double Balsams from the open ground. From Mr. J. Woodbridge, Syon House gardens, came cut specimens of Pavia macrostachya, Ceanothus americana rosea and C. americana alba, Clethra arborea, a charming hardy evergreen for a cool greenhouse, and Hibiscus syriacus. Mr. R. P. Barr, Tooting, had cut examples of Lilies, including varieties of superbum, Thunbergianum, tigrinum, and the white L. longiflorum. Mr. Henry Eckford, Coleshill, sent seedling Verbenas, the most promising being Duke of Edinburgh, blush, with a band of pale rose round a lemon eye; Miss Emily, rosy cerise with large pale eye; Prince Imperial, purple shaded crimson; and Kercheval Hilton, rich orange-red with lemon eye. Messrs. Veitch & Sons showed an interesting group of Orchids, including Miltonia Moreliana, Odontoglossum Schliperianum, × Cypripedium Sedeni and × C. Dominianum, Aerides Huttoni, Stanhopea Wardii var., Saccolabium Blumei majus, &c. The same firm received a First-class Certificate for a seedling Zygopetalum with dark sepals and petals, and a lip of the colour of that of the old Z. Mackaii. Mr. W. Bull also exhibited a fine group of new and interesting plants, comprising Cypripedium niveum, Odontoglossum Roezlii, Lælia Andersoni elegans, Croton spirale, C. volutum, a fine plant of Phyllotænium Lindeni, the beautiful Macrozamia plumosa, Aphelandra fascinator with olive-green leaves picked out with a network of white, Curculigo recurvata, &c. Mr. Loder, gr. to H. B. Hennel, Esq., showed a Lilium auratum with two spikes, one fasciated, bearing forty-eight flowers, the other bearing seventeen.

Fruit Committee.—Alfred Smee, Esq., F.R.S., in the chair. But few subjects of interest were staged for the consideration of the body. A nice-looking seedling Nectarine came from Mr. Crawford, Thornden, Brentwood, but was thought to be not sufficiently distinct from Elruge. Mr. N. Kneller, gr. to W. S. Portal, Esq., Malshanger Park, Basingstoke, sent Malshanger Green-flesh Melon, medium-sized, netted, but quite unripe. Some fine tubers of the new American Snowflake Potato were staged by Mr. R. Dean, Ealing, six tubers weighing 4 lb.; and the same number of a fine-looking and promising early white Kidney, one of Mr. Robert Fenn's seedlings; and the same exhibitor sent Dean's Green Gem Cucumber, of handsome shape and well flavoured, said to be good for winter work as well as for frame culture. Cucumber Princess Alice, in the style of Telegraph, was shown by Messrs. W. Cutbush & Son; and Messrs. Barr & Sugden sent examples of Marquis of Lorne and Duke of Edinburgh (Daniel's) Cucumber, with a strong family resemblance between them. The latter is said to be the best bearer, but decidedly inferior in quality. From Mr. T. Jones, the Royal Gardens, Frogmore, came two very fine smooth Cayenne Pines, which received a Cultural Commendation; and small, but nice-looking seedling Potatos, of a flat-round shape, were sent by Mr. E. Morriss, Fern Park, Almondsbury. It was announced that, at the meeting on September 2, a "dish" of Potatos should be interpreted as containing nine tubers.

Wateringbury Horticultural: *July* 29.—The second annual exhibition of this society was held in the park of S. L. Lucas, Esq., President of the association. In the subscribers' tents, classes A and B, the productions were artistically placed, and presented a most charming *coup d'œil*. Amongst the exhibits in these tents was a splendid collection of fruit, which secured the 1st prize for Mr. Loveland, gr. to S. L. Lucas, Esq. The 1st prize for a brace of Cucumbers, of good quality; 1st prize for 12 foliage plants, which were of an excellent description; 1st prize for 12 plants in pots; 1st prize, a collection of 12 Ferns in pots, were also received by this gentleman. Mr. Gilbert, gr. to Mrs. Hays, received the 1st prize for three bunches of beautiful white Grapes. Mr. Daines, gr. to Henry White, Esq., was awarded the 1st prize for a table decoration, which was admirably arranged, and a very valuable collection of stove and greenhouse plants, not for competition, was exhibited by Roger Leigh, Esq. Messrs. T. Bunyard & Son and Mr. Frost exhibited some fine specimens, not for competition, of plants, &c., from their nurseries at Maidstone.

Captain Bury kindly contributed to this department by exhibiting a collection of exquisite flowers, which were not for competition. On the centre table were arranged some splendid plants, belonging to Roger Leigh, Esq., and the fruits and vegetables were specimens of an unusual character. The judges were—Mr. Bowman, of Leyborne Grange; Mr. Fry, Addington Place; Mr. Frost, Maidstone; and Mr. Robson, Linton Park. (*From a Correspondent*).

Stowmarket Horticultural: *August* 13.—The annual show of this Society took place at Furborough Park and gardens, the beautiful demesne of R. J. Pottinard, Esq., who ever seems on the outlook to confer favours on the town and neighbourhood. The weather was fine, the management good, and the material of the show of more than average merit.

The exhibits filled three large tents, two being devoted to flowers and plants, and one to fruit and vegetables. The plants were mostly contributed by local growers, and included Mr. Southgate, gr. at Furborough; Messrs. Gilbert, Ipswich; Messrs. M. & E. Prentice, Stowmarket; Messrs. Freuer, Tison, Westrom, and the Revs. W. M. Townsend and H. Lewis. The stove, greenhouse, fine-foliage plants, and Ferns, were among the more noteworthy exhibits.

In cut flowers, several other exhibitors took part, and we noticed the names of Mr. Nichol, from Drinkstone; Mr. Fish, from Hardwicke; and Mr. Raynham, Stradishall; among the successful exhibitors of Roses, some of which looked as if no drought had done its worst to wither them. Cut flowers, exotic and herbaceous, were remarkably well done, Mr. Fish being 1st for twelve exotic, and Miss Gilbert for twelve herbaceous plants. The prizes for bouquets were offered to ladies, and Mrs. Fish was 1st with a chaste bouquet in which Eucharis, Plumbagos, and White Roses were the prominent features; and Mrs. Nichol 2d. For wild flowers Miss Kate Gardesham was 1st, with a beautiful collection. Some beautiful dinner-table decorations were shown, in which fruit and flowers were combined, and here Mr. Nichols carried off the 1st prize. Hollyhocks we were glad to see well shown, proving that the new pest has not yet reached all the gardens in the country. Verbenas were remarkably well shown, as were German Stocks and early Dahlias. Picotees, Pansies, and Carnations, as might be expected from the weather, were poorly represented. Phlox Drummondi (one of the most useful of all annuals) was also well shown, and is worth a separate prize in any schedule.

Fruit and vegetables were remarkably well shown, most of them being of local growth. Mr. Skinner, of Stowmarket, was 1st for black Grapes, and Mr. Southgate 2d. For white Mr. Raynham was 1st. For the best Melon, Mr. Dade, Stowmarket, was 1st, and Mr. Southgate 2d. Mr. Fish was 1st for Apricots, black Cherries, and kitchen Apples, also for the best single Cucumber, with a fine specimen of Duke of Edinburgh (Daniel's), and 2d with a brace of the same—the judges in the latter case electing to give the prize to a short brace of the Ipswich Gem, of the Telegraph type, shown by Mr. Hayward. Mr. Southgate swept off most of the prizes for vegetables, as also the 1st prize for the best collection of vegetables.

The cottagers' vegetables and fruits were magnificent—in most classes equal, and in many superior to those shown in the other classes. The Stowmarket Horticultural Society has done capital work in this direction. By the liberality of its prizes it has stimulated competition, until it almost seems impossible for Potatos, Peas, Runner Beans, Carrots, Turnips, Onions, &c., to be finer than they are shown at these exhibitions. Gooseberries, Raspberries, and red Currants, the latter especially, were very fine. The Potatos, though not so large as usual, were very fine and without a spot of disease. How long they will remain so after the heavy showers of the past few days no one can say; therefore, all that are at all ripe should be lifted and stored forthwith. Bees generally have not done well this season; nevertheless, honey was plentiful and good at the Stowmarket show, and will command good prices and a ready sale this year.

Southampton Horticultural: *August* 1 *and* 3.—The thirteenth annual grand flower show and *gala* in connection with this flourishing society was held on Saturday and Monday, in Westwood Park—kindly lent by Sir Charles Harvey, Bart., for the occasion—and under the most auspicious circumstances. The show, arranged in four tents, was above the average, and the stove and greenhouse plants were especially good, but we noticed the absence of the productions of many local gentry who have formerly shown here, which, however, we hope will not be permanent, as it leaves an opening for the prizes offered by the committee being carried off by strangers to the locality. For instance, in the class for thirty miscellaneous plants the 1st prize was sufficiently tempting to induce Mr. Alexander Heath, of Cheltenham, to compete, and whose success was but a just reward for his spirit in coming such a long distance, and for showing such creditable plants. Mr. G. W. Shireff's collection took the 2d prize, and thus, to a certain extent, the honour of the neighbourhood was upheld. Mr. C. A. Day, for his neat collection, was awarded an extra prize. In the Fern class Miss Rosoman, of Woolston, carried off the palm, the plants, though small compared with the others, being exceedingly healthy. Messrs. Kelway & Sons, of Langport, came out strong in Gladioli, than which, for beauty of growth and colour, a better collection was never seen. They also showed some fine Phloxes, Lothair being beautifully coloured. In the class for twenty-four miscellaneous stove or greenhouse plants Mr. H. Bridport came to the fore. Second in this class was Mr. James Kingsbury, of Bevois Valley; Mr. B. Ladhams was 3d. Mr. W. Stride (Redbridge) took the 1st award for six Pelargoniums—the Grand Duke, with fiery red bloom, being the finest, but we understand Mr. E. H. Holloway would have had the 1st prize had not some of the plants been losing their bloom. Mr. Holloway took the 1st prize in a collection of twenty miscellaneous plants; Mrs. Hazelfoot was 2d with a collection; and Miss Rosoman 3d. In specimen stove plants Mr. Heath was 1st, Mr. Bridport 2d, and Mr. G. W. Shireff 3d. Mr. Heath was again 1st in the specimen greenhouse plant, Mr. Holloway 2d. The latter gentleman was awarded the palm for his six Fuchsias, they being more gracefully grown than Mr. Shireff's; and Mrs. Hazelfoot was 3d. The same lady showed the only specimen Fuchsia, M[illegible]ata, a splendid plant, and Fuchsias again came to the front in table decorations—Mr. Holloway showing five and a Humea elegans, which gained the 1st prize. Mr. J. I. P. Hoare obtained the award for six Pelargoniums, the best being Mrs. Turner, a tricolor. There was but one box of cut Roses, very fine for the season, for which Mr. W. Windebank obtained the 1st prize. Most worthy of notice was the very large and resplendent collection of bronze Geraniums exhibited, not for competition, by Messrs. Elcombe & Son, Romsey, to whom the judges gave a special First-class Certificate. The fruit was splendid, the various collections being most tempting, especially the prize black Grapes (Lady Barker Mill) and Mr. A. L. McCalmont's white Grapes. The vegetable classes were far above the average taken collectively, each competitor—gardeners, amateurs, and cottagers—being well represented, and perhaps in no other part of the show had the judges more difficulty in deciding. However, we believe satisfaction was given by them to all. In Potatos undoubtedly the best were Mr. A. L. McCalmont's, whose collection was infinitely superior to the others. Mr. Shireff's brace of Cucumbers, which gained the 1st prize, were very fine, but nearly equalled by those shown by Mr. W. Stride. A specimen of the Sweet Potato plant was exhibited by Colonel Lacy (Knight, gr.). The judges, who deserve every credit for the manner in which they carried out their arduous duties, were Mr. Wildsmith, gr. to Lord Eversley, Heckfield Place, Winchfield; Mr. Turner, Royal Nurseries, Slough; and Mr. Hills, gr. to Viscountess Gort, East Cowes Castle. (*From a Correspondent*).

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season.

PLANT HOUSES.

Greenhouse Hard-wooded Plants. — The time has now arrived for getting all the plants outside that at this season require full exposure in the open air. That this should not be done indiscriminately

must be evident to any one acquainted with the nature and habits of the different subjects that come under the denomination of greenhouse hard-wooded plants. The objects in view for submitting them to this treatment are twofold: first, to accelerate and thoroughly complete the ripening of the current season's growth, now naturally coming to a close, and thereby to induce a disposition for flowering in such plants as *Epacrises*, *Eriostemons*, *Adenandras*, *Dillwynias*, *Acacias*, *Desfontainia spinosa*, *Mitraria coccinea*, *Tetrathecas*, *Pultenæas*, *Polygalas*, *Pleromas*, *Genistas*, and *Heaths*. The above plants cannot as a rule be induced to flower anything like satisfactorily unless for a time they are subjected to this open air exposure, so as to check growth somewhat, and induce the formation of flower-buds. Secondly, *Hedaromas* (*Darwinia*), *Pimeleas*, *Boronias*, and *Leschenaultias* of both the *biloba* and *formosa* section, will usually flower freely enough without exposure, but unless they are submitted to this treatment they become a prey to mildew all through the autumn and winter to such an extent as often seriously to destroy their foliage, despite close attention and repeated use of sulphur and other parasite antidotes. *Aphelexis* will usually flower freely without placing out-of-doors, neither are they much subject to mildew; but a short exposure in the open air through the autumn renders their flowers after setting less liable to go blind in the winter. *Acrophyllum venosum*, *Chorozemas*, *Gompholobiums*, *Hoveas*, *Dracophyllum gracile*, *Statices*, *Roellia ciliata*, and *Witsenia corymbosa* should never be exposed fully to the open air. There is no good purpose served by submitting them to this trying ordeal, for such it is to any plant grown for the greater part of the year under the protection of a glass covering, and which must necessarily exert an influence tending in even the best and lightest of houses to somewhat weaken the tissues of the leaves, in consequence of which they are less able to bear full exposure. As these plants will ripen their wood sufficiently, set their flowers freely, and are not subject to mildew, exposure has the effect of stopping growth and hardening their wood and leaves to an extent that seriously affects their growth in the season following.

Azaleas are very often turned outside, the impression being that exposure renders them hardier. This effect it has to such an extent as to prevent the free vigorous development in their after-growth, so essential to the required size in the case of young plants, and to the production of large flowers in the older ones. The bed on which the plants to be turned out are placed should consist of 6 or 8 inches of clean ashes, a portion at least of which ought to be new. Numbers of worms enter, and when the plants are stood on its surface, the water that percolates through them is an attraction to the worms, which then find their way into the pots, from which they are difficult to dislodge, and where they do an amount of injury that in the case of delicate-rooted subjects, such as the plants under consideration, it is not easy to remedy. Cover the pots with something to break the direct action of the sun upon their outsides, otherwise the roots, that in a healthy vigorous plant are usually in quantity lying close to the inner surface, will perish or receive a check that will materially interfere with the completion of the growth. Old canvas, such as worn-out blinds, stretched round the pots is as good as anything. Care must be taken whilst the plants are thus exposed that they do not get too wet at the roots by heavy rains. It is best to use a slight framework, just sufficient to carry a roller and canvas covering, that can be run down on doubtful nights, or when heavy rains are threatening. Never allow it to remain over the plants when it is not required to throw off such rains, except during two or three hours in the middle of the day, when very bright, for the first four or five days after their being placed outside. Where no contrivance such as the above exists, the plants must be laid on their sides during very wet weather; this attention is the more necessary in the case of plants that have been recently potted, or that may be somewhat weakly rooted. Whilst here they will want diligent attention with water, as they will dry up much quicker outdoors than in the houses. Examine each plant as it is turned out, to see that it is free from red-spider; if any are detected lay the affected plant down on its side, and give it a copious syringing all round, so as to remove the insects and their eggs as far as possible, and in the course of a week give it a second application. Give all the plants (Heaths excepted) whilst out-of-doors a gentle syringing on the afternoons of warm days, a couple of hours before the sun is off them. This is the only preventive to red-spider, the worst of summer pests. Care must also be taken that the plants are not stood too near Limes, Elms, Apple, or other trees, subject to this insect, else it will be certain to get on them. To those commencing the cultivation of hard-wooded plants, or who have not had experience with other than such as are soft-wooded, or of a deciduous habit, this continuous look-out for insects, more especially red-spider, may appear unnecessary, but a little reflection on the nature of the plants in question will remove such an impression. Most of these naturally retain their leaves for four or five years, after which, having fulfilled their destined office, they turn yellow and fall off; but, if they are allowed to become a prey to insects (particularly red-spider, which more quickly destroys the vitality of the leaves of any plant it effects a lodgment upon than any other insect), they are prematurely injured, a corresponding weakness sets in, which leaves the plant more or less denuded of leaves at the base, where, in consequence of there being less disposition to grow at the bottom, they can least be spared. Deciduous plants naturally recover more quickly, owing to the early renewal of their leaves.

Soft-wooded Greenhouse Plants.—The early flowered *Pelargoniums* will now be ready for cutting down. In the case of large plants, the current year's shoots should be shortened back to within two or three eyes of where cut to last year. Young plants may be allowed a couple of eyes more to each shoot. Let the soil become moderately dry before cutting down, or the roots will be likely to suffer. The plants should then be removed under cover, either to a good light pit or frame, leaving the lights well tilted, so as to admit plenty of air, yet where they will not be in danger of getting too wet through rains. Syringe slightly every afternoon until they have broken, and till then give no more water than just sufficient to keep the soil in a healthy condition. *Zonal Pelargoniums*, both double and single, are indispensable for summer conservatory decoration. They are easily grown, and so continuous in flowering that, with the assistance of manure-water, given once a week or so, in a clear state, before the soil gets too much exhausted, the summer flowering plants can be made to last until the autumn. If the shoots of *Fuchsias* that flowered early, and have had a rest, are now slightly reduced in length, an inch or two of the surface soil replaced with some new and rich, the plants well washed with "Gishurst" (2 oz. to the gallon) to destroy any spider, thrips, or aphides that may be upon them, and afterwards removed to a house or pit, where they can be kept a little close and moist by syringing overhead, morning and evening, they will break freely, and show flower all over, without making very much wood. They will come into bloom in about six weeks, and if assisted regularly with weak manure-water, will continue to flower until the autumn is far advanced. Young *Fuchsias* are much to be preferred to old plants. Good free cuttings should be struck during the present month under bell-glasses, or wherever they can be kept close and moist. They should be removed, as soon as they are rooted, into 3 or 4-inch pots. The soil should be good loam, to which may be added one-sixth part of rotten dung, with an equal quantity of leaf-mould, and as much sand as will keep the soil sufficiently open. Hard blooming bits should not be taken for cuttings, as they never make good plants. The plants should be placed as near the glass as possible in a nice growing atmosphere, with the temperature of an intermediate house, say 50°, at night through the autumn. These in two months' time will require moving into 6-inch pots in similar soil and kept on until Christmas in a like position to that which they have previously occupied. *T. Baines, Southgate, N.*

FRUIT HOUSES.

Pines.—When a Pine sucker has attained a proper condition of ripeness, the sooner it is removed from the parent plant and started so much the better; to keep it on the plant much beyond that period will prove to be more detrimental than otherwise. In most cases the suckers which were produced by the early summer fruiting plants will now be started. The treatment most suitable to such plants was indicated in the Pine Calendar for the week ending July 25. That course of treatment should be continued until a growth in the plants is perceptible, when shading should be gradually discontinued and the plants more freely ventilated on every favourable occasion. By all means allow them sufficient room to form a sturdy base, as a common error still prevails in crowding young growing Pine plants thickly together. It is a fatal mistake to do so, and will greatly tend to upset a systematic course of good management, by reason of the plants being attenuated and weakly—a condition in which there is much uncertainty as to when they will fruit, unless extreme measures are applied, and these are not at all times to be recommended. At this season climatic influences are such that Pine plants in all stages of growth will thrive luxuriantly, provided they have the ordinary necessary attention. See to the state of those beds which have been reversed or upset by the removal and replacing of plants, as such beds will need watchfulness. Do not suffer the heat at the roots to exceed 95° without immediately raising the pots, and placing something beneath them, so that they may stand clear of the material of which the bed is composed. The consequences resulting from inattention to this matter would be most disastrous, especially in the case of plants with fruit, or those with the pot full of roots. In houses or pits where the plants are grown near the glass, particularly those having large panes, a slight shading for an hour or two at mid-day, when sunshine is powerful, through the months of May, June, and July, is highly beneficial to both plants and fruits. This, however, should now be discontinued altogether, and the plants subjected to every ray of light and sunshine, with a bountiful supply of air when the temperature in the house stands at from 85° to 95°; night temperature, fruiting plants, 70° to 75°, others 65° to 70°. *Geo. Thos. Miles, Wycombe Abbey.*

Cucumbers.—Get the autumn fruiting plants out forthwith, and in regard thereto observe the conditions laid down in this week's Melon Calendar, excepting that the temperature need not be quite so high. Ridge Cucumbers are now appearing in the shop windows, and this indicates to the market grower that the demand for indoor fruits will be greatly lessened, and the price correspondingly reduced. He had better, therefore, begin to clear out those of his houses which are nearly exhausted and which will be required for early work, and this will afford him the opportunity of remedying any defects in the heating appliances, thoroughly scrubbing and cleansing the interior and making everything sweet and clean preparatory to a fresh start early in October. Thorough cleanliness is absolutely necessary to the well-being of the Cucumber. By way of cultural detail there is nothing fresh to add just now; let the cultivator, therefore, consult previous directions, and be unremitting in his endeavours to carry them out. Secure at the earliest opportunity a quantity of the small ridge Cucumbers for pickling. In pits and frames keep the foliage well thinned, the old growths constantly removed, and in laying in the young wood take care to add a few handfuls of new soil where convenient, and fumigate occasionally. Close the lights as early as is possible consistent with the well-being of the plants, and maintain a free and fruitful growth at whatever pains. *Thos. Simpson, Broomfield.*

HARDY FRUIT GARDEN.

Unfavourable as the present season has in many respects been, the fruit crops have in many instances been better than could have been expected. *Apricots* are here already quite ripe, and of excellent quality; indeed I do not recollect this fruit ever being finer or or less injured by insects. Ants are generally the most troublesome of all their insect enemies, but they are less so this season than usual; and as to wasps and hornets none have been seen for some considerable time, although the men employed in the gardens destroyed between four and five hundred of them during the months of April and May, being paid a penny for each wasp or hornet destroyed up to the end of the latter month. This has been the custom pursued here for many years, and must no doubt have a beneficial effect in checking their increase to some extent. *Plums* on wall-trained trees are rapidly swelling off, and are in great abundance. The fruit, however, on pyramidal trees were nearly all destroyed by the frost when nearly as large as Peas, the only exception to this being a few trees of Rivers' Early Prolific, which are about a third of a crop, and are now nearly ripe. This is an excellent early culinary Plum, and scarcely ever fails to produce a crop. Keep the leading shoots of wall-trained trees of all sorts closely nailed or tied in, and continue to remove or stop back superfluous or foreright shoots, in order that the young wood retained may become thoroughly ripened. Mildew induced by the dry weather has in many instances appeared upon the fruit of *Grape Vines* on the walls in the open air, but has in all instances yielded to the remedial measures which have been formerly recommended. Continue to remove all superfluous shoots and foliage, so as to allow the free admission of sun and air to the fruit, which should be kept pretty close to the wall, and the berries on each bunch should be carefully thinned out. Examine ripening fruit, such as *Apricots*, *Peaches*, and *Nectarines*, &c., every day, and remove it before it falls from the tree. Such fruits are benefited rather than otherwise by being allowed to lie for a day or two after being gathered before they are sent to table. Such fruit as *Cherries*, *Gooseberries*, *Strawberries*, &c., should not be gathered until they are required. In removing from the trees such fruit as the *Apricot* and the *Peach* great care should be exercised in handling the same, as the slightest pressure or concussion is sufficient to injure the tender tissue, and when this is done decay will at once commence, and progress very rapidly. As soon as the fruit is gathered it should be placed upon shelves covered with cotton-wool or several thicknesses of soft, clean paper in a well ventilated fruit-room. See that *Morello Cherries* are efficiently protected from birds; these, if well preserved, form excellent table fruit in the early part of October. A few bushes of the *Red Warrington Gooseberry*, or any other late sorts, together with *Red* and *White Currants*, should now be covered with nets to preserve the fruit to a late period. Mats should never be used for this purpose, as they exclude air and light, as well as engendering damp, which, alto-

gether, very soon deteriorates the flavour of the fruit. *Red* and *White Currants* are grown here as standards, with clean stems 3 feet in length; and the heads are not allowed to become very large, so that they can be readily covered with pieces of Haythorn's hexagonal net, which is the best material for the purpose. Continue to pot runners of *Strawberries* as they can be obtained, for the purpose of forming fresh plantations, or for forcing, the long-continued dry weather having greatly retarded the raising of the same. *P. Grieve, Culford, Bury St. Edmunds.*

KITCHEN GARDEN.

No time should now be lost in making the last sowings of the Tripoli varieties of *Onions*, and of *Winter Spinach, Cabbage* and *Lettuce.* Of the latter Hicks' Hardy Green Cos, Black-seeded Bath Cos, and Lee's immense hardy green Cabbage, are the best for autumn sowing; the latter is a most useful variety, being very early in coming into use, large, well closed. and crisp. A last sowing of *Endive* may also be made, and where this is in request a good breadth should now be planted from the earlier sown plants. *Turnips* may yet be sown on any spare ground; the earliest varieties—as Strapleaf, Snowball, or Early Red American—are best to sow now. Complete the planting-out of late *Cauliflowers, Broccoli, Kales,* and *Colewords.* With the absence of rain, a liberal watering must be given. Those earlier planted will now require to be earthed-up. *Celery* and *Cardoons* will also require attention; but, previous to adding the necessary earth, make sure that the roots are in a sufficiently moist soil to be in vigorous growth. *Late Peas, Runner Beans,* &c., should receive a liberal supply of water or liquid manure to keep them in bearing: the latter require a good soak at least once a week. Where it is requisite to make new plantations of *Strawberries,* no time should be lost in doing so; for this purpose the ground should be trenched and well manured before planting. Select the strongest runners, and if possible those which have been previously layered in small pots, so that they may be well established before winter. Plant in rows 2 feet apart and the same distance from plant to plant. Where it is an object to have a full crop of fruit next season, plant in rows 1 foot apart and the same between the plants. After the crop is gathered, the alternate rows, and, if necessary, the alternate plants in the remaining rows, may be cut out so as to leave the remainder at the full distance of 2 feet apart. Only three full crops should be gathered, so that it is requisite to plant a third portion of the quantity required each season. Plants intended for forcing should have an occasional supply of manure-water as soon as well established in the pots. When runners are not required these should be removed from the bearing plants, as also all straw or litter used under the fruit, so as to let air and light to the plants, and to allow of the proper maturation of the crowns before going to rest. *William Cox, Malvern.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, August 5, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
July	In.	In.	°	°	°	°	°	°			In.
30	29.80	+0.04	78.7	51.2	27.5	63.4	+ 1.0	53.8	71	WSW	0.00
31	29.85	+0.10	78.4	51.7	26.7	63.3	+ 0.9	56.8	79	WSW	0.00
Aug.											
1	29.75	0.00	69.9	59.0	10.9	62.7	+ 0.3	57.8	84	WSW	0.00
2	29.62	—0.13	79.5	59.7	19.8	67.1	+ 4.7	62.1	84	S.W.	0.00
3	29.78	+0.03	73.2	50.9	22.3	60.6	— 1.6	48.4	64	WNW	0.00
4	29.66	—0.09	63.1	49.8	13.3	55.7	— 6.6	53.8	93	S.W.	0.03
5	29.56	—0.19	62.4	50.6	11.8	55.9	— 6.3	51.9	86	N.W.: S.W.	0.00

July 30.—Fine; light clouds generally prevailed.
— 31.—Fine; partially cloudy.
Aug. 1.—Generally overcast. A little rain fell in the morning.
— 2.—Overcast till noon; fine, but generally cloudy afterwards.
— 3.—A fine day; light clouds were more or less prevalent.
— 4.—Generally overcast, with occasional showers.
— 5.—Generally overcast, and a little rain fell occasionally.

—— In the vicinity of London the reading of the barometer at the level of the sea decreased from 29.88 inches at the beginning of the week to 29.71 inches by noon on the 26th, increased to 29.77 inches by noon on the 27th, decreased to 29.64 inches by the afternoon of the following day, increased to 30.08 inches by the morning of July 31, decreased to 29.93 inches by 3 P.M. on August 1, and was 29.95 inches at the end of the week. The mean reading for the week was 29.83 inches, being 0.06 inch lower than that of the preceding week. From the 26th to the 29th the readings were below their averages to the mean amount of 0.22 inch, and on the remaining days they were slightly in excess of their respective mean values.

The highest temperatures by day ranged from 78¾° on the 30th to 67¼° on the 28th, the mean value for the week being 74°. The lowest temperatures at night varied from 49¾° on July 29 to 59° on August 1, with a mean reading for the period of 53¼°. The mean daily range of temperature was 20½°.

The mean daily temperatures of the air, with departures from their respective averages, were as follows:—26th, 62°.1, +0°.2; 27th, 60°.1, −1°.9; 28th, 58°, −4°.2; 29th, 59°.1, −3°.2; 30th, 63°.4, +1°; 31st, 63°.3, +0°.9; August 1, 62°.7, +0°.3, showing that the differences from averages have been very small, the mean departure for the week being only 1° in defect.

The mean reading of a thermometer with blackened bulb in vacuo, placed on grass in the full rays of the sun, was 123½°, the highest values being 140° on July 30, and 135° on July 31; but on August 1, when the sky was generally overcast, this instrument did not read higher than 90°. The lowest readings at night of a thermometer on grass, with its bulb fully exposed to the sky, were 41° on July 29, and 43° on July 30 and 31. The general directions of the wind were W.S.W. and S.W., and its strength was gentle throughout.

The sky was generally cloudy, and rain fell on four days to the amount of 1 inch, three-fourths of which fell on July 28.

In England the extreme high day temperatures ranged from 78¾° at Blackheath to 66° at Newcastle-on-Tyne, the general average over the country being 73¼°. The extreme low night temperatures varied from 53¼° at Liverpool to 45° at Nottingham, with a general average of 49½°. The mean range of temperature in the week was 23½°. The mean high temperatures observed by day ranged between 74° at Blackheath and 65° at Newcastle-on-Tyne, with an average value of 70½°. The mean low temperatures observed by night varied from 56° at Liverpool to 50¼° at Eccles, the general average being 53°. The mean daily range of temperature was 17½°, varying from 22° at Nottingham to 10¾° at Liverpool. The mean temperature for the week was 59¾°, the highest being at Sunderland, 62°, and the lowest at Newcastle-on-Tyne, 56¼°. The amounts of rain measured at the several stations during the week varied from rather more than 1¾ inch at Newcastle-on-Tyne to one-tenth of an inch at Manchester, the average fall over the country being six-tenths of an inch. The weather during the week was fine but showery.

In Scotland the highest temperatures ranged from 76° at Dundee to 68° at Paisley, the general average being 71°. The lowest temperatures varied from 50½° at Greenock to 44½° at Aberdeen, with a general average of 47½°. The range of temperature in the week was 23½°. The mean temperature for the week was 58½°, the highest being at Greenock, 59½°, and the lowest at Paisley, 57½°. The fall of rain varied from six-tenths of an inch at Glasgow and Leith, to two-tenths of an inch at Paisley, the average fall over the country was four-tenths of an inch.

At Dublin the highest temperature was 74½°; the lowest 41°; the mean 60°; and the rainfall 0.28 inch.

JAMES GLAISHER.

Notices to Correspondents.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. Letters relating to advertisements should be addressed to the Publisher.

Advertisements: *U. G., Leicester.* Write to the publisher, who will forward you the scale of charges. Please remember that all communications relating to advertisements should be sent to the publisher.

Figs for Open Air on the South Coast: *Inquirer.* The best varieties, or those most suitable, are:—1, White Marseilles, or Genoa; 2, Brown Turkey, or Lee's Perpetual; 3, Angelique, or De la Madeleine; 4, Brunswick; 5, Bourjassotte Grise. As to their cultivation, it may be stated that Figs succeed best in a light calcareous soil; a chalky subsoil suits them well, with fresh soil—not too deep. They require abundance of water, but the borders should be well drained. Manure as mulching may be given after the trees begin to bear fruit well, but not before, the general fault being their excessive grossness of growth, which prevents fruiting. *Pruning.*—"A pruned Fig tree never bears," is very nearly a true saying as regards outdoor cultivation in this country. The shoots or branches must, however, be kept thin, so as to admit plenty of the influence of sun and air to ripen the wood; that is the great secret. Don't let the shoots get crowded. The knife must be used for this purpose; and I would recommend pinching out the points of the young growing shoots, so as somewhat to restrict their growth. *Protection.*—If against walls, the shoots should be protected by some straw or mats from the danger of severe frosts in spring, and partially so where the young fruit appears till the end of May. *B.*

Greenhouse Plants: *P. G.* Lilium speciosum album (miscalled lancifolium), and Tritonia aurea, are so commonly grown as greenhouse plants that they ought to be admitted into the class you describe, notwithstanding that they may be known to be nearly or quite hardy in certain places.

Heaviest Prize Gooseberries: *Querist.* The following have obtained the greatest number of awards for weight—cannot say much about quality:—Reds: London, 33 dwts.; Dan's Mistake, 31 dwts. Yellows: Drill, 32 dwts.; Catherine, 32 dwts. Whites: Antagonist, 31 dwts.; Careless, 27 dwts. Greens: Shiner, 32 dwts.; Stockwell, 31 dwts.

Mushrooms: *Lord H. L.* Salt dressings applied to pasture lands for the production of Mushrooms have not been generally used. Isolated cases, however, where heavy dressings have been employed, have produced remarkable results. We would recommend for trial 3 to 4 cwt. per acre, sown broadcast, unless, indeed, a limited space be set apart for the trial, regardless of the herbage, &c., when the larger quantity may be doubled. We surmise you are a month too late, however, for this season. *W. E.*

Name of Apple: *Thos. Bunyard & Son.* It is evidently some variety of Codlin, very early, and very good, but we do not know it.

Name of Peach: *B. and N.* Acton Scott most probably, but without knowing the character of the flowers it is impossible to determine.

Names of Plants: *Student.* 1, Silene inflata; 2, Scleranthus annuus; 3, Epilobium montanum; 4, Veronica serpyllifolia; 5, Euphorbia helioscopia (Sun Spurge); 6, Polygonum maritimum (if near the sea), bad specimen.—*Mrs. Warrener.* Leycesteria formosa, native of Nepaul.—*B. P.* Pavia macrostachya.—*C. Dimmick.* 1, Veratrum nigrum; 2, Phygelius capensis.—*A. B.* Œnothera fruticosa, var.—*Carter & Co.* Tropæolum speciosum.

Potato Disease: *J. L.* Botrytis and Peronospora are two names for the same plant. The latter is the more correct.

Sedum: Dr. Masters, *Gardeners' Chronicle* Office, will feel obliged to cultivators of this genus if they will kindly furnish him with lists of the species grown by them.

Strawberries: *A Constant Subscriber* writes:—"I find my Strawberries cut and gathered in heaps every morning; perhaps some of your intelligent readers would kindly prescribe a remedy for the devouring pest."

Communications Received:—Miss O.—W. F. R.—A. D.—Rchb. f.—J. B.—J. W. S.—W. P.—H. B.—A. R. E.—E. T. D.—W. P.—C. & Co.—R. D. B.—H. W. C.—J. B. (Perth).—A Looker-on.—J. M.—W. B.—Leo G.—G. N.—W. B.—W. E.—P. G.—J. R. P.—A Puzzled Pod (with thanks).—F. C. (with thanks; any of the species may be found fasciated).—H. Battram.—G. F. H.—L. G.—W. T.—A. B. M.—J. G.

Markets.

COVENT GARDEN, August 6.

Markets remain in much the same condition as last week, with scarcely any alteration in prices. A few outdoor Peaches were offered this morning at 6*s.* per doz. A fresh arrival of West India Pines is in the Thames. *Thos. Taylor, Wholesale Apple Market.*

Fruit.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Melons, each	4 0– 8 0
Apricots, per doz.	2 0– 4 0	Nectarines, per doz.	6 0–12 0
Cherries, p. lb.	0 6– 2 0	Nuts, Cob, p. lb.	1 0– 1 6
Currants, p. ½-sieve	4 0– ..	Oranges, p. 100	16 0–20 0
— black, do.	5 0– ..	Peaches, p. doz.	8 0–18 0
Figs, per doz.	3 0– 8 0	Pears, p. doz.	2 0– 3 0
Filberts, per lb.	0 9– 1 6	Pine-apples, p lb.	3 0– 6 0
Gooseberries, p. qrt.	0 4– 0 9	Plums, ½-sieve	3 0– 4 0
Grapes, English, p. lb.	2 0– 6 0	Raspberries, p. lb.	0 6– 0 9
— finest, do.	8 0– ..	Strawberries, p. lb.	..
— Muscats, do.	4 0–10 0	Walnuts, p. bush.	16 0– ..
Lemons, per 100	15 0–18 0		

Vegetables.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Aubergines, per doz.	6 0– ..	Mint (green), p. bun.	0 6– ..
Beans, Broad, English, per bush.	3 0– 3 6	Mushrooms, per pott.	1 0– 2 6
— French, per lb.	0 6– ..	Onions, young, bun.	0 4– 0 6
Beet, per doz.	1 0– 2 0	Parsley, per bunch	0 4– 0 6
Broccoli, p. bundle	0 9– 1 6	Parsnips, p. doz.	0 9– 1 0
Cabbages, per doz.	1 3– 2 0	Peas, per quart	1 0– 2 0
Carrots, new, p. bun.	0 9– ..	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	— black, Turnip, do.	.. – 0 6
Celery, per bundle	2 0– 3 0	Rhubarb, p. bundle	0 4– 1 0
Cucumbers, each	0 6– 1 0	Shallots, per lb.	0 6– ..
Endive, per doz.	1 0– 2 0	Salsify, per bundle	1 6– ..
Herbs, per bunch	0 2– 0 4	Spinach, per bush.	2 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Tomatos, per doz.	3 0– ..
Leeks, per bunch	0 2– 0 4	Turnips, per bundle	0 3– 0 4
		Veg. Marrows, doz.	3 0– ..

New Potatos:—Round, 5*s.* to 7*s.* per cwt.; Kidneys, 6*s.* to 8*s.* per cwt. Supplies large, and trade bad.

Cut Flowers.

	s. d. s. d.		s. d. s. d.
Carnations, per doz. bunches	3 0– 6 0	Mignonette, 12 bun.	2 0– 6 0
Corn-flower, p. doz. bunches	2 0– 6 0	Pelargoniums, per 12 sprays	0 6– 1 0
Eucharis, per doz.	4 0– 9 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Escholtzia, p. 12 bun.	2 0– 6 0	Pinks, mixed do.	2 0– 4 0
Gardenias, p. doz.	3 0– 9 0	Roses, indoor, p. doz.	1 0– 6 0
Heliotropes, per doz. sprays	– 0 6	— Outdoor, do.	0 4– 1 0
Lilies, red, p. bunch	0 6– 1 0	Spiræa, per 12 sprays	1 0– 2 6
— white, do.	2 0– 2 6	Stephanotis, 12 sprays	3 0– 9 0
		Sweet Peas, 12 bun.	3 0– 6 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Balsams, p. doz. ..	3 0–	9 0	Geraniums, dbl., doz.	4 0–	9 0
Begonias, do. ..	6 0–	12 0	Heaths, in var., do.	12 0–	30 0
Bouvardias do. ..	9 0–	18 0	Hydrangea .. do.	9 0–	18 0
Calceolarias, shrubby	6 0–	18 0	Liliums, in var., each	1 0–	3 6
Coleus, p. doz.. ..	3 0–	9 0	Mignonette, per doz.	4 0–	6 0
Cyperus .. do.	6 0–	12 0	Myrtles .. do.	3 0–	9 0
Dracæna terminalis	12 0–	30 0	Pelargoniums do.	6 0–	18 0
" viridis .. doz.	12 0–	24 0	do, Scarlet .. do.	3 0–	9 0
Fuchsia .. do.	4 0–	12 0	Rhodanthe .. do.	6 0–	12 0

SEEDS.

LONDON: *August* 6.—Last Monday being one of the Bank holidays, our seed market was, of course, closed. In Clover seeds very little has been doing. For Trifolium incarnatum the very brisk demand mentioned last week has continued, and prices during the last ten days have advanced fully £5 to £6 per ton. Very little new English Trifolium appears to be now left in the hands of growers, and very long rates indeed are demanded by holders. Yearling parcels also exhibit a considerable improvement in value. White Mustard seed is in steady request at an advance of 6*d.* per bushel. A few samples of new English may be expected in two or three weeks; but the crop, it is said, will be under an average. Fine black Rape seed, on account of its scarcity, is the shade dearer. Winter Tares keep exceedingly firm. Canary seed must be quoted 1*s.* to 2*s.* per quarter higher. Samples of new blue boiling Peas have now come to market.—*John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

Monday being a Bank holiday, no business was transacted at Mark Lane. On Wednesday the market was a degree firmer, owing to the cooler and less settled weather. Little inclination, however, was shown to operate in Wheat, either English or foreign, and the rates of Friday last were not exceeded, but there was some new Essex Wheat offered, the quality of which was sufficiently fine to command from 61*s.* to 62*s.* per quarter. Barley was quiet, as also was malt, and the value of both remained without appreciable change. A moderate inquiry prevailed for Oats at extra prices, but Maize was dull, and, if anything, easier in value. Beans and Peas were fully as dear, and flour, dealings in which were few, supported recent quotations with less difficulty. The average prices per quarter of corn for the week ending August 1 were—Wheat, 59*s.* 8*d.*; Barley, 46*s.* 1*d.*; Oats, [illegible] 9*d.* For the corresponding week last year—Wheat, [illegible] 9*d.*; Barley, 36*s.* 8*d.*; Oats, 28*s.* 5*d.*

CATTLE.

At the Metropolitan Cattle Market on Monday last there was a shorter supply of English beasts, but rather larger of foreign; the total nearly reaching that of the Monday previous. Scarcity of choice qualities continued, and caused a further increase in price. There were a few more sheep, the increase being in foreign. Prices were higher than on Monday se'nnight, but Thursday's advance was with difficulty maintained. Choice lambs, being still scarce, were readily disposed of at fully late rates. Trade was very dull for calves. The quotations were:—Beasts, 4*s.* to 6*s.* 2*d.*; calves, 4*s.* to 5*s.* 6*d.*; sheep, 4*s.* 6*d.* to 5*s.* 6*d.*; lambs, 5*s.* 4*d.* to 6*s.* 6*d.*—There being no improvement in the quality of beasts at Thursday's market, prices for choice animals were high. For sheep Monday's quotations were well supported. The trade for lambs and calves was active, but there was not much advance in price. Milch cows continue dull of sale.

HAY.

From the Whitechapel report we learn that the supplies were short (in consequence of harvest operations), and inadequate to the demand, which continued brisk at full prices. Prime Clover realised from 100*s.* to 120*s.*; inferior do., 75*s.* to 85*s.*; prime meadow hay, 90*s.* to 108*s.*; inferior do., 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load.—Cumberland market quotations:—Superior old meadow hay, 108*s.* to 116*s.*; inferior do., 90*s.* to 96*s.*; new hay, 90*s.* to 108*s.*; superior old Clover, 118*s.* to 126*s.*; inferior do., 90*s.* to 105*s.*; new Clover, 95*s.* to 120*s.*; and straw, 40*s.* to 44*s.* per load.

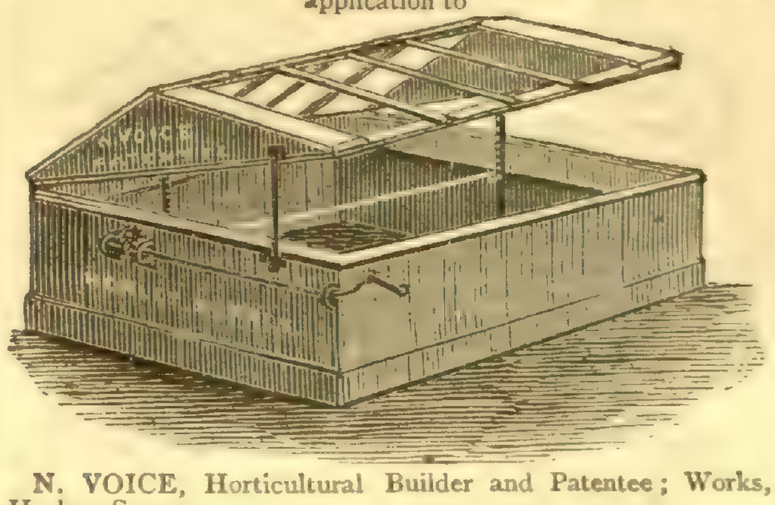
POTATOS.

The Borough and Spitalfields Potato Markets reports state that the full employment of labour in harvesting curtails supplies at these markets, but the quality and condition are good, and the trade is steady, with firm prices. Quotations:—Shaws, £5 to £5 10*s.*; Regents, £6 to £6 10*s.*; and Kidneys, £7 to £7 10*s.* per ton. No foreign of any moment arriving.

COALS.

The market on Wednesday was dull, and best house coals declined 6*d.* to 1*s.* per ton. Quotations:—Holywell Main, 22*s.* 3*d.*; Eden Main, 20*s.* 9*d.*; Walls End—Haswell, 24*s.*; Hetton, 24*s.*; Hetton Lyons, 20*s.* 9*d.*; Hawthorn, 20*s.* 9*d.*; Lambton, 23*s.*; Newbottle, 20*s.*; South Hetton, 24*s.*; Stewarts, 23*s.*; Tunstall, 20*s.* 9*d.*; Caradoc, 23*s.* 9*d.*; Hartlepool, 23*s.*; Kelloe, 21*s.* 3*d.*; East Hartlepool, 23*s.* 9*d.*; Original Hartlepool, 24*s.*; Tees, 23*s.* 9*d.*

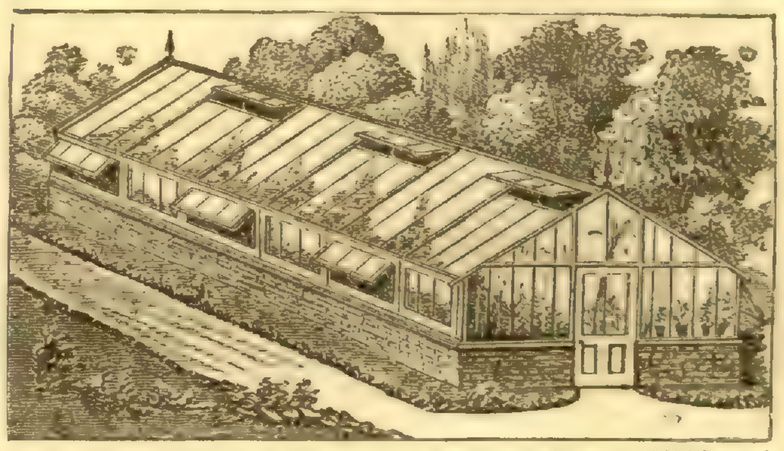
N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

By Appointment to H.R.H. the Prince of Wales.

BARTON'S PATENT STABLE and HARNESS ROOM FITTINGS, BRACKETS, &c.

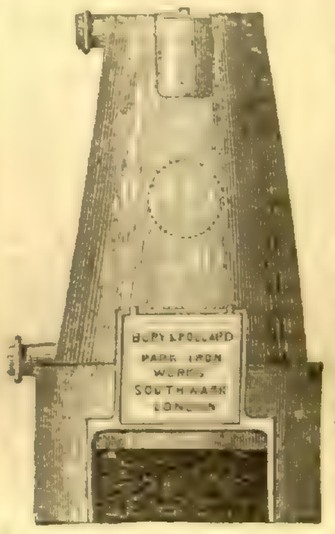
Gentlemen altering their Harness Rooms can be supplied with BARTON'S newly-improved IRON SADDLE and HARNESS BRACKETS. They preserve the Harness, keep it in shape, are light, and very durable. The New Illustrated Catalogue for 1873 sent for six stamps.

For alteration of Stables, a competent person can be sent to any part to inspect and give Estimates.

JAMES BARTON, Ironworks, 370, Oxford Street, W.

Heating by Hot Water.

PUBLIC and PRIVATE BUILDINGS, MANUFACTORIES, CONSERVATORIES, &c., heated on the most improved system, combined with perfect ventilation.



These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

POLLARD AND CO. (late Bury & Pollard, Successors to John R. Peill, late Stephenson & Peill), Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Fixed at seats of Duke of Newcastle, Lord Belper, Lord Middleton, &c. At Viscount Sydney's replaced, after being twenty years in constant use. Foreign orders promptly executed. The Prince Salm Salm, the Duke de Croy, &c., recently supplied.

PRICE LISTS free by post.

Bear Garden, New Park Street, Southwark, London, S.E.

ST. PANCRAS IRON-WORK COMPANY.

CONSERVATORIES, GREENHOUSES, &C.

ARCHITECTS' DESIGNS CAREFULLY CARRIED OUT.

APPLY FOR ESTIMATES TO

OLD SAINT PANCRAS ROAD, LONDON, N.W.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

Have the largest and most complete Stock in the Trade of

HOT-WATER BOILERS, | PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

They are thus enabled to offer these Goods at Low Prices, notwithstanding the very great increase in the cost of all kinds of Iron.

NEW PATENT CLIMAX BOILER (1874).

GOLD MEDAL BOILER (Birmingham, 1872).

PATENT EXCELSIOR BOILER (1871).

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE.

LONDON AND COUNTY
BANKING COMPANY.

Established in 1836, and Incorporated in 1874 under "The Companies Act, 1862."

Subscribed Capital, £3,750,000, in 75,000 Shares of £50 each.

REPORT ADOPTED AT THE HALF-YEARLY GENERAL MEETING, AUGUST 6, 1874.

The Directors, in presenting to the Proprietors the Balance-sheet of the Bank for the half-year ended June 30 last, have the satisfaction to report that, after paying interest to customers and all charges, allowing for rebate, and making provision for bad and doubtful debts, the nett profits amount to £125,830 16*s.* 1*d.* This sum, added to £23,917 13*s.* 3*d.* brought forward from the last account, produces a total of £149,748 9*s.* 4*d.*

They have declared a Dividend for the half-year at the rate of 20 per cent. per annum, which will absorb £120,000, and after reserving £468 15*s.* to meet interest accrued on New Shares, there remains a balance of £29,279 14*s.* 4*d.* to be carried forward to Profit and Loss New Account.

The Dividend, £2 per share, free of Income Tax, will be payable at the Head Office, or at any of the Branches, on or after Monday, the 17th instant.

BALANCE SHEET OF THE LONDON AND COUNTY BANKING COMPANY, JUNE 30, 1874.

Dr.	£	s.	d.	£	s.	d.
To Capital paid up	1,200,000	0	0			
Instalment received in respect of New Shares ..	74,870	0	0			
				1,274,870	0	0
Reserve Fund	600,000	0	0			
Instalment received in respect of New Shares ..	37,435	0	0			
				637,435	0	0
Amount due by the Bank for Customers' Balances, &c.	18,928,918	7	5			
Liabilities on acceptances, covered by Securities ..	3,187,457	12	10			
				22,116,376	0	3
Profit and Loss Balance brought from last Account	23,917	13	3			
Gross Profit for the Half-year, after making provision for Bad and Doubtful Debts, viz.	377,772	15	2			
				401,690	8	5
				£24,430,371	8	8
Cr.						
By Cash on hand at Head Office and Branches, and with Bank of England ..	2,407,537	9	0			
Cash placed at Call, and at Notice, covered by Securities	2,867,842	9	4			
				5,275,379	18	4
Investments, viz.:—						
Government and Guaranteed Stocks	1,948,647	16	9			
Other Stocks and Securities	103,078	13	0			
				2,051,726	9	9
Discounted Bills, and advances to Customers in Town and Country ..	13,402,222	3	3			
Liabilities of Customers for Drafts accepted by the Bank (as per contra) ..	3,187,457	12	10			
				16,589,679	16	1
Freehold Premises in Lombard Street and Nicholas Lane, Freehold and Leasehold Property at the Branches, with Fixtures and Fittings				304,309	17	5
Interest paid to Customers.				86,974	18	8
Salaries and all other Expenses at Head Office and Branches, including Income-tax on Profits and and Salaries				122,300	8	5
				£24,430,371	8	8

Dr. PROFIT AND LOSS ACCOUNT.	£	s.	d.
To Interest paid to Customers, as above ..	86,974	18	8
Expenses, as above	122,300	8	5
Rebate on Bills not due, carried to New Account..	42,666	12	0
Dividend of 10 per Cent. for Half-year ..	120,000	0	0
Reserve to meet Interest accrued on New Shares	468	15	0
Balance carried forward	29,279	14	4
	£401,690	8	5
Cr.			
By Balance brought forward from last Account	23,917	13	3
Gross Profit for the Half-year, after making provision for Bad and Doubtful Debts ..	377,772	15	2
	£401,690	8	5

We, the undersigned, have examined the foregoing Balance Sheet, and have found the same to be correct.

(Signed) WILLIAM NORMAN, RICHARD H. SWAINE, STEPHEN SYMONDS, } *Auditors.*

London and County Bank, 21, Lombard St., July 30, 1874.

By Order, GEO. GOUGH, *Secretary.*

London and County Banking Company.

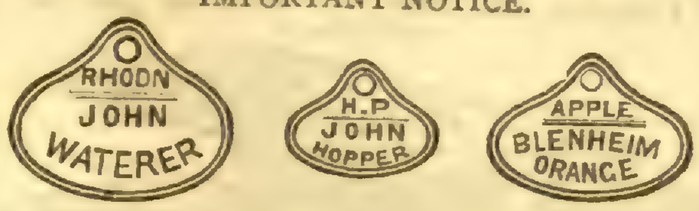
NOTICE IS HEREBY GIVEN that a DIVIDEND on the CAPITAL of the COMPANY, at the rate of 10 per cent. for the half-year ended June 30, 1874, will be paid to the Proprietors either at the Head Office, 21, Lombard Street, or at any of the Company's Branches, on or after MONDAY, the 17th instant.

By order of the Board,

W. McKEWAN, WHITBREAD TOMSON } *Joint General Managers.*

21, Lombard Street, August 7, 1874.

The Improved Imperishable Labels !!!
IMPORTANT NOTICE.



J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.

J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose.

All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

Is indispensable to Nurserymen, Gardeners, and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1*s.* and 1*s.* 6*d.*, and sent post free with directions, for 1*s.* 3*d.* and 1*s.* 10*d.*, by the Proprietors—

WILLIAM ROLLISSON AND SONS,
Tooting, London, S.W.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address. The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*
Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

THE AGRICULTURAL GAZETTE,
SATURDAY, AUGUST 8, 1874.

Contains—

ORIGINAL ARTICLES on Harvest Work—Parasitic Diseases of Stock (Illustrated)—Recent Poultry Shows—Rearing Coops (Illustrated)—Present Appearances of the Crops—Rustic Labourers — Two Queens in one Hive — Agricultural Machinery (Illustrated) — Steam Cultivation—Shorthorn Bulls, "Lord Irwin" and "Telemachus" (with Portraits in 1871 and 1874)—Meeting a Mole—The Agricultural Lock-out—The French Wheat Crop—The Goodwood Meeting—Cricket—Meteorological Influences on Animal and Vegetable Life—An Englishman on French Shows—Fowler's Steam Plough, &c.

HOME AND FOREIGN CORRESPONDENCE on Thin Seeding—The Shorthorn Meeting and Organisation—The Owl—Judging by Points—Wages: North and South—Swine Awards at Inverness—Beer in Harvest—Dieppe to Paris—Agricultural Notes from France and Belgium—New Farm in Canada—Farm Notes and Memoranda from various English, Irish, and Scotch Counties, &c.

REPORTS of Council Meeting of the Royal Agricultural Society, and of the Yorkshire Society's Show at Sheffield.

ALSO—

The Veterinarian—The Poultry Yard—The Bee-keeper—The Weather—Garden of the Farm—Markets—Notes of the Week, &c.

Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

Just Published, imperial 8vo, on fine toned paper, with eleven Illustrative Plates,

THE NATURAL PRINCIPLES of LANDSCAPE GARDENING. By JOS. FORSYTH JOHNSON (Landscape Gardener), Curator, Royal Botanic Gardens, Belfast.

Price 7*s.* 6*d.*, post free 7*s.* 9*d.*, from the Author.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

Just published, Royal 32mo oblong, leather, gilt edges, price 4*s.*, postage 3*d.*,

THE LAND IMPROVER'S POCKET-BOOK of FORMULÆ, Tables, and Memoranda, required in any Computation relating to the Permanent Improvement of Landed Property. By JOHN EWART, Land Surveyor and Agricultural Engineer.

London: LOCKWOOD AND CO., 7, Stationers' Hall Court.

Works on Botany, by Dr. Lindley.

THE VEGETABLE KINGDOM; or, THE STRUCTURE, CLASSIFICATION, AND USES OF PLANTS, Illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25*s.*, with upwards of 500 Illustrations.

EXTRACT FROM THE AUTHOR'S PREFACE.

"The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be brought by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects."

By the same Author.

INTRODUCTION to BOTANY. Fourth Edition, greatly enlarged; with six Plates, and numerous Wood Engravings. Two Volumes, 8vo, 24*s.*

*** It has been the Author's wish to bring every subject that he has introduced down, as nearly as possible, to the state in which it is found at the present day. In doing so, he has added so very considerable a quantity of new matter, especially in what relates to Vegetable Anatomy and Physiology, that the present Edition may be considered, in those respects, a new work.

DESCRIPTIVE BOTANY; or, THE ART OF DESCRIBING PLANTS CORRECTLY, in Scientific Language, for Self Instruction and the Use of Schools. Price 1*s.*

MEDICAL and ŒCONOMICAL BOTANY; or, AN ACCOUNT OF THE PRINCIPAL PLANTS EMPLOYED IN MEDICINE OR DOMESTIC ŒCONOMY. In One Volume, 8vo, with numerous Woodcuts, price 5*s.*

SCHOOL BOTANY; or, THE RUDIMENTS OF BOTANICAL SCIENCE. In One Volume, 8vo, half bound, with 400 Illustrations, price 5*s.* 6*d.*

THE ELEMENTS of BOTANY, STRUCTURAL AND PHYSIOLOGICAL. With a Glossary of Technical Terms and numerous Illustrations. 9*s.* cloth.

This completes the series of Elementary Botanical Works by Professor LINDLEY, of which *School Botany* and *The Vegetable Kingdom* form the other parts.

The first two Parts of *The Elements of Botany*, comprising Structural and Physiological Botany, and a Glossary of Technical Terms, are published in one 8vo volume, price 9*s.*

These three Parts form a complete Manual of Botany for Medical and other Students who have made themselves acquainted with the Author's *School Botany*.

N.B. The Glossary may be had separately, price 5*s.*

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

WANTED, IMMEDIATELY, as HEAD GARDENER, a married Man.—Must be thoroughly competent in Kitchen and Flower Gardening, and understand Greenhouses, Vinery, Stoves, &c. Two Under Gardeners kept. Wages £60 a year.—T. W. A., Post Office, Cockermouth, Cumberland.

WANTED, a respectable Man as HEAD GARDENER.—He must understand the Forcing of Pines, Grapes, Melons, Mushrooms, as well as the Growing of all Vegetables. Age not to exceed 45.—Apply to J. H., Cruchfield House, Maidenhead.

WANTED, a HEAD WORKING GARDENER, where two others are kept; must be a thoroughly competent Man, capable of Managing Flower and Kitchen Gardens, Shrubberies, Vinery, Plant-houses, &c.; must also take Charge of the small Gasworks for the house. Wages 25s. and cottage.—Address, stating age, if married, number of children, present employment, &c., J. H. J., Hildenborough, Tonbridge, Kent.

WANTED, a GARDENER (single Man preferred).—Must be a good Landscape Gardener, and thoroughly understand the Culture and Moving of Shrubs. No Hothouses.—Apply, by letter, to M., Post Office, Burton, Westmoreland.

WANTED, a GARDENER.—A Gentleman will be obliged to any other Gentleman by the recommendation of a Head Working Gardener, thoroughly to be trusted, particularly for honesty; he must be a good Worker, and a good Manager of his Assistants (two), must thoroughly understand Kitchen and Flower Gardening, Roses, Shrubberies, Vines, &c., and Stove and Greenhouse, as well as Bees. He must be a married Man, but without children, or, if any, they must be grown up. The situation is a good and permanent one. —Address W. H., Esq., Post Office, Preston, Lancashire.

WANTED, by a Family in Monmouthshire, a GARDENER, whose Wife can take the Laundry Work, the Gardener's house being fitted with the requisites. One Under Gardener kept.—Apply to A. B., H. Mullock, Bookseller, Newport, Monmouthshire.

WANTED, IMMEDIATELY, as KITCHEN GARDENER, a single Man; must be active, industrious, and bear an unexceptionable character.—State wages required to J. M., Cefn Ila, Usk, Monmouthshire.

WANTED, a strong, active, young Man, from 18 to 20 years of age, as UNDER GARDENER, and to make himself generally useful.—L., Mr. Paterson, 10, Cullum Street, E.C.

WANTED IMMEDIATELY, a good SECOND GARDENER; must understand Stove and Greenhouse Plants, Potting, Tying, &c. Age 24 or 25. Wages 21 per week.—The Gardens, Ewell Castle, Ewell, Surrey.

WANTED, a MAN to take Charge of our Glass Department, and also to assume the oversight of the Nurseries in the absence of the General Foreman. A good knowledge of Hard and Soft-wooded Propagation indispensable. Wages, with a house on the grounds, and every encouragement would be given to a suitable person. — RODGER, McCLELLAND AND CO., Nurserymen and Seedsmen, Newry.

WANTED, an INDOOR PROPAGATOR and PLANT GROWER. Must be thoroughly experienced in Roses, Conifers, Soft and Hard-wooded Plants generally; and above all an expert and successful Grafter. None but competent hands need apply.—Give full particulars, with amount of wages, &c., to A. B., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

WANTED, a first-rate INDOOR PROPAGATOR of Hardy Trees, Shrubs, Conifers, and Roses. To a thoroughly efficient, energetic, and persevering Man liberal wages will be given.—State experience, when applying, to Mr. RICHARD SMITH, Nurseryman, Worcester.

WANTED, a ROSE GROWER.—Mr. Wm. Paul has a vacancy for a leading Man in the department of Roses under Glass. A liberal salary will be given to a man of character and ability.—Paul's Nurseries, Waltham Cross, Herts.

WANTED, a young Man, under the House Foreman. One who has had experience in Growing Bedding and Herbaceous Plants, &c.—Give full particulars as to previous situations, amount of wages, &c., to A. B., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

To Woodmen.

WANTED, upon an Estate in North Devon, an active, experienced WORKING FOREMAN, to serve under the Chief Woodman. Wages 16s. a week, and cottage and garden.—Apply, stating age, whether married or single, and name and address of present or last employer, to J. L. F., Post Office, Torrington, North Devon.

WANTED, as HEAD SHOPMAN, an energetic steady Man, having a thorough knowledge of the Seed Trade in its various branches, to take the general Management of a Seed Shop and Warehouse.—Apply, stating references, DICKSON AND ROBINSON, Seed Merchants, Manchester.

Seed Trade.

WANTED, an active and correct JUNIOR ASSISTANT, for a Scotch Country Establishment: must be well acquainted with Counter and Warehouse Work. Strict inquiry will be made regarding character and qualifications.—Applicants to give references, and state wages expected, to H. S. H., Messrs. Nutting & Sons, 60, Barbican, E.C.

WANTED, a SHOPMAN, having a knowledge of Plants, and of good address. Also a PROPAGATOR (Indoor).—Apply, stating wages and references, to H. SIBLEY, Park Nursery, Rathmines, Dublin.

Seed Trade.

WANTED, JUNIOR SHOPMEN — thoroughly active, good counter hands, and of good address.—DICKSON AND ROBINSON, Seed Merchants, Manchester.

WANTED, a TRAVELLER thoroughly acquainted with the Value of General Nursery Stock both indoors and out.—THOMAS CRIPPS AND SON, The Nurseries, Tunbridge Wells, Kent.

WANTED, a JUNIOR CLERK and SHOPMAN.—Messrs. Paul & Son require the services of a young Man as above; a good careful writer, and used to Execution of Seed Orders. Wages 21s. per week.—Apply by letter only to the Old Nurseries, Cheshunt, N.

WANT PLACES.

To Gardeners in Want of Situations,
Whose characters will bear strict investigation.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (Head), where not less than three are kept.—Thoroughly understands Forcing, and all sorts of Garden Work. Two years' reference.—Address, stating wages, &c., to W. F. S., Post Office, Hildenboro, near Tonbridge, Kent.

GARDENER (Head).—John Macdougal, late of Hampton Lodge, Farnham, Surrey, wishes for a re-engagement. Highly recommended by former employers.—82, Junction Road, Upper Holloway, London, N.

GARDENER (Head).—Age 32, married; thoroughly understands every branch of the profession. Eight years' good character. No single-handed place accepted. —A. B., 43, Taunton Road, Lee Green, Kent.

GARDENER (Head).—Age 28, single; has served four years in present situation as Foreman, at Wycombe Abbey Gardens, Bucks. Can be highly recommended.—EDWARD WILLMET, Wycombe Abbey Gardens, High Wycombe, Bucks.

GARDENER (Head).—Age 30, single; understands the profession in all its branches, Stove and Greenhouse Plants, Orchids, Ferns, &c. First-class references. —T. G., Springwell Cottage, Lower Tooting, Surrey, S.W.

GARDENER (Head), to any Gentleman in want of a first-class practical Man.—Age 31, married. Three years and a half in present situation. Excellent references as to character and ability.—WILLIAM BARNES, The Grove, Hillingdon, Middlesex.

GARDENER (Head).—Middle-aged, married, no family; thoroughly experienced, conscientious, and trustworthy; has had the charge of a moderate Estate, extensive Gardens, and House in absence of family. Wife could undertake small Dairy, &c., if required. Good reference.—F. L. S., Loughton, Essex.

GARDENER (Head), age 34, married.—John Wakefield, Gardener, Bladon House, Burton-on-Trent, wishes for a re-engagement as above. Thoroughly understands the Cultivation of Pines, Vines, Peaches, and Melons. Has grown and exhibited very good Grapes, also Stove and Greenhouse Plants. Fifteen years' good character. —Address as above, or to Mr. PEARSON, Chilwell Nurseries, Nottingham.

GARDENER (Head).—Age 29, single at present; thoroughly understands the Cultivation of Vines, Pines, Peaches, Figs, and all the various ways of Forcing Fruit and Vegetables; thoroughly well up in Growing Native and Exotic gigantic Plants, both Flowering and Foliage; is also a good Flower Garden Plan-drawer. Excellent character. —H. YEDNUM, Banning Street, Romsey, Hants.

GARDENER (Head).—Age 30, unmarried; experienced; has had first-class opportunities of learning the profession in some of the leading establishments in England; is an excellent Plantsman and Fruit Grower, and a successful Cultivator of Flowers and Vegetables, understanding his business thoroughly. Industrious, steady, trustworthy. A1 references from his late employers.—T. O. R. T., Post Office, Rushy Green, Lewisham, S.E.

GARDENER (Head), to any Gentleman requiring the services of an honest and trustworthy Man.—Age 30, married, English; understands the profession thoroughly. Has had sixteen years' practical experience in first-class Establishments in England and Ireland. Good character from present employer.—A. B., Post Office, Newmarket, County Cork.

GARDENER (Head, Working).—E. Cooling can recommend a married Man (age 33, with two children), as thoroughly competent in all branches of the profession.—E. COOLING, Mile Ash Nurseries, Derby.

GARDENER (Head, Working), to any Lady or Gentleman requiring the services of a thorough practical Man in all branches of the profession.—Age 30, married; understands Land and Stock. Has had 18 years' experience in several first-class Establishments. Good character from late employer, with whom he lived several years.—A. B., Mr. Wood, 1, Auckland Terrace, Auckland Road, Tunbridge Wells.

GARDENER (Head), or GARDENER and BAILIFF.—Age 36, married, no family; understands Flower and Kitchen Gardening, and Forcing of all kinds of Fruits and Flowers; also Land and Stock, if required. Good testimonials.—C. H., 13, Rowland Grove, Upper Sydenham, S.E.

GARDENER.—J. Mewes, for many years Gardener at Chiswick House, is open to an engagement with a Nobleman or Gentleman.—J. MEWES, Avenue Lodge, Turnham Green, or Mr. C. Edmonds, Chiswick House.

GARDENER (Under).—Age 23; well acquainted with Glass. Can have good recommendation.—A. B., Post Office, Burghfield, Berks.

GARDENER (Under).—Age 20. Good character.—A. B., Broadwater, Worthing, Sussex.

GARDENER (Under).—Age 23, single; has had experience both in a Nursery and in Gentlemen's Gardens. Two years' good character.—M. A. W., Post Office, Bagshot, Surrey.

GARDENER (Under).—Age 22; good reference from last situation.—J. H., 1, Wilton Villa, Moffat Road, Thornton Heath, Croydon, Surrey.

GARDENER (Second), in a Gentleman's Establishment.—Age 22. Accustomed to Glass. Nine years' experience. Good references.—G. C., New Lodge Gardens, Whetstone, Middlesex, N.

GARDENER (Second), or FOREMAN.—Age 21; understands Stove and Greenhouse Plants, Vines, Peaches, Cucumbers, and Melons. Over two years' excellent character.—A. B. C., Broomwood Lodge, Clapham Common, S.E.

PROPAGATOR, or FOREMAN and PROPAGATOR.—Nineteen years' active practice. For the last eight years extensively engaged in the Rearing of Coniferæ, Clematis, Japanese and general Hardy Stock, &c. Good references.—J. M. W., 17, Boughton Street, St. John's, Worcester.

FLORAL DECORATOR (First-class), FLORIST PLANT GROWER, or GENERAL MANAGER.—Age 36, married and family; many years experience in leading London and Provincial Nurseries. Salary £100 per year. Open to engagement in the United States of America.—DON, *Gardeners' Chronicle* Office, W.C.

FOREMAN and SALESMAN in a good Nursery.—Age 40; nearly ten years in present place.—SAMUEL APPLEBY, The American Nurseries, Downham Market, Norfolk.

NURSERYMAN.—A young Man (age 26), of good character, requires a situation in a Nursery. He understands the Management and Growing of Soft-wooded Plants, &c.—H. B., Mr. Green's, Bookseller, North Finchley.

PLANTER, &c.—A practical Planter is open to engage with any Nurseryman requiring the services of a really steady and trustworthy Man, to Superintend Contracts; is experienced in Laying-out and Improving Grounds, also Transplanting large Trees, and could take the Forest Department, or make himself useful in the Nursery.—ARBOREA, C. McPherson, Ynisced wyn House, Swansea Vale, Swansea.

COMMISSION SALESMAN.—A Gentleman, representing a good House in connection with the Nursery and Seed Trade, and who possesses a sound knowledge of the Nursery Business, wishes to treat with any Large Firm not represented, to Sell Outdoor Nursery Stock only, and to the Trade alone, on Commission or otherwise. Has a good connection throughout the United Kingdom.—J. R. S., Messrs. Allemayne & Co., 41, Kirby Street, Hatton Garden, W.C.

TO THE SEED TRADE.—One who has had five years' experience in two of the leading Houses in the trade, and can be highly recommended, is open to an engagement.—X. Y., Hurst & Son, 6, Leadenhall Street, E.C.

JUNIOR SHOPMAN, or CLERK.—Age 24. Good references.—Z., J. Llewellyn, 16, Cathay, Bristol.

KINAHAN'S . LL . WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA, BREAKFAST.
"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*
Manufacture of Cocoa.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*
Made simply with boiling water or milk.
Sold by Grocers, only in packets, labelled
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS, 48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, N.W.

Lea & Perrins' Sauce,

THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.

ASK FOR LEA AND PERRINS' SAUCE.
Beware of Imitations,
and see the names of LEA AND PERRINS on all Bottles and Labels.
Agents—CROSSE AND BLACKWELL, London, and sold by all Dealers in Sauces throughout the World.

DINNEFORD'S FLUID MAGNESIA.
The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD AND CO., 172, New Bond Street, London, W., and of all Chemists throughout the World.

PARR'S LIFE PILLS clear from the body all hurtful impurities, and promote a regular and healthy action of the Liver and Bowels.
Persons suffering from Headache, Indigestion, Pains in the Shoulders and the Back, Gout, Rheumatism, and General Debility, are particularly recommended to try PARR'S LIFE PILLS. They have never been known to fail in affording immediate relief.—Sold by all Chemists.

CHEAP GLASS-HOUSES,

WITH AMPLE VENTILATION.

Works in LONDON, GLOUCESTER, COVENTRY, ABERDEEN, and PAISLEY,

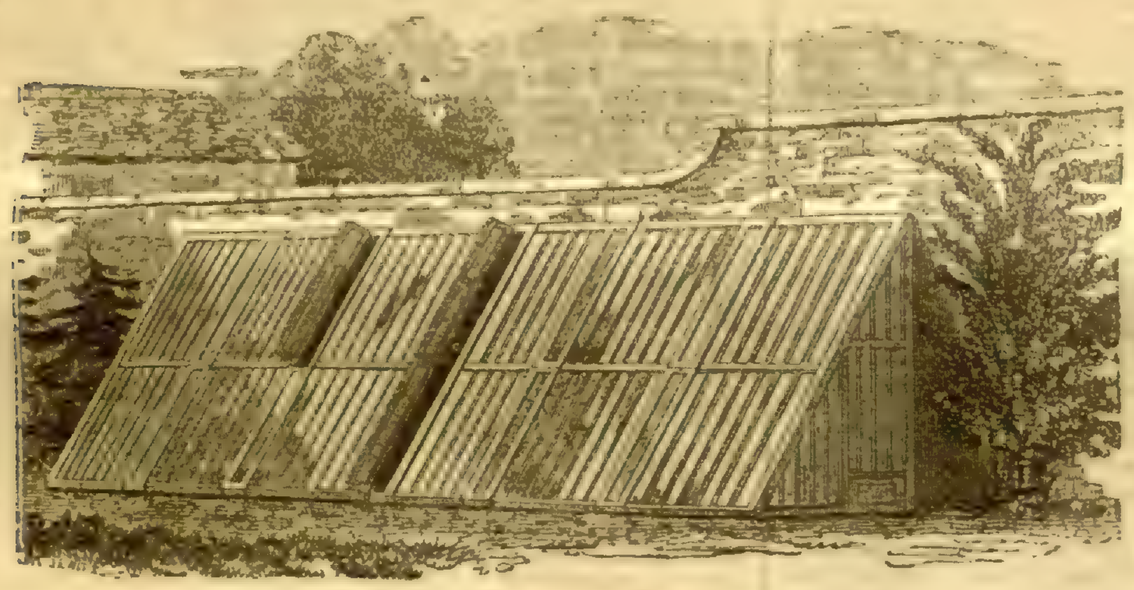
TO SAVE PURCHASERS UNNECESSARY EXPENSE IN CARRIAGE.

"The rage for cheapness and the practice of scamping in workmanship and materials has run a neck-and-neck race along the lines of keen competition until some good authorities have declared that it was difficult to meet with a perfect Glasshouse alike creditable to the Builder and useful to the Cultivator. . . . Mere cheapness is all very well, but quality is of far more moment, and it is far cheaper in the long run."—Mr. D. T. Fish, in *Gardeners' Chronicle*, May 25, 1872.

The above remarks apply very generally to the low-priced structures advertised of late years. In the Houses invented by the late Sir JOSEPH PAXTON the materials used are well seasoned Red Deal, clear English Sheet Glass, best White Lead and Linseed Oil; all of which can be inspected at the Works. The PERFECT SYSTEM of VENTILATION adopted is one of its greatest merits, obtained by narrow sashes over spaces left between the large roof lights (from eaves to ridge), and are made to open, *hinged on either side—at the ridge—or parallel with the roof*, at the option of purchaser, though the opening sideways is the most usual, being a better protection against driving wind and rain. Their SIMPLICITY of CONSTRUCTION allows of their being erected by the purchaser with little assistance from local builder, full plans and instructions being sent with each House; while their PORTABILITY enables short-leased tenants to remove them with ease, without knocking any portion of the framework to pieces, as is the case with most other so-called portable houses.

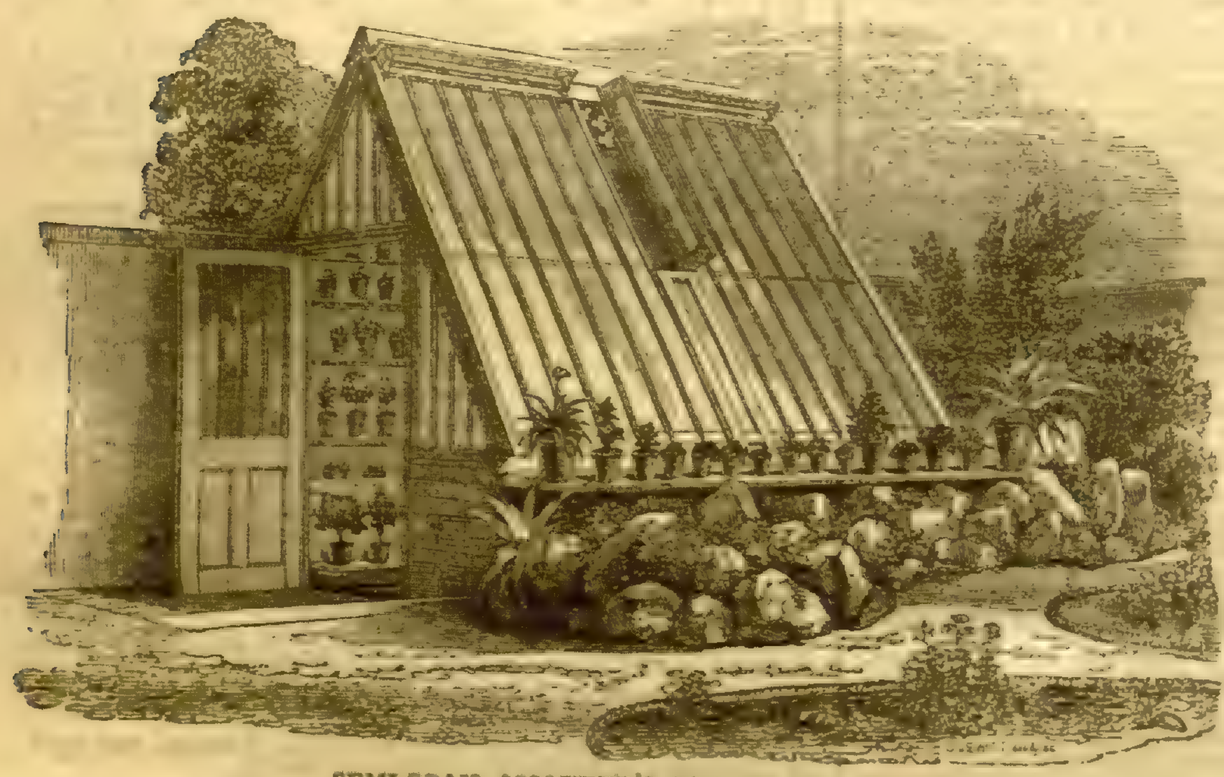
The PAXTON ROOFS are sent out Glazed and Painted complete, all ready for putting on the walls prepared for them; and a House, say 21 by 14 feet outside, can be taken down in sound whole pieces, ready for removal, in an hour. They are durable and efficient, and as permanent structures are equal to others much more expensive, and superior to most, if not all, of those at lower prices.

CONNECTED RANGES, WINTER GARDENS, ETC.

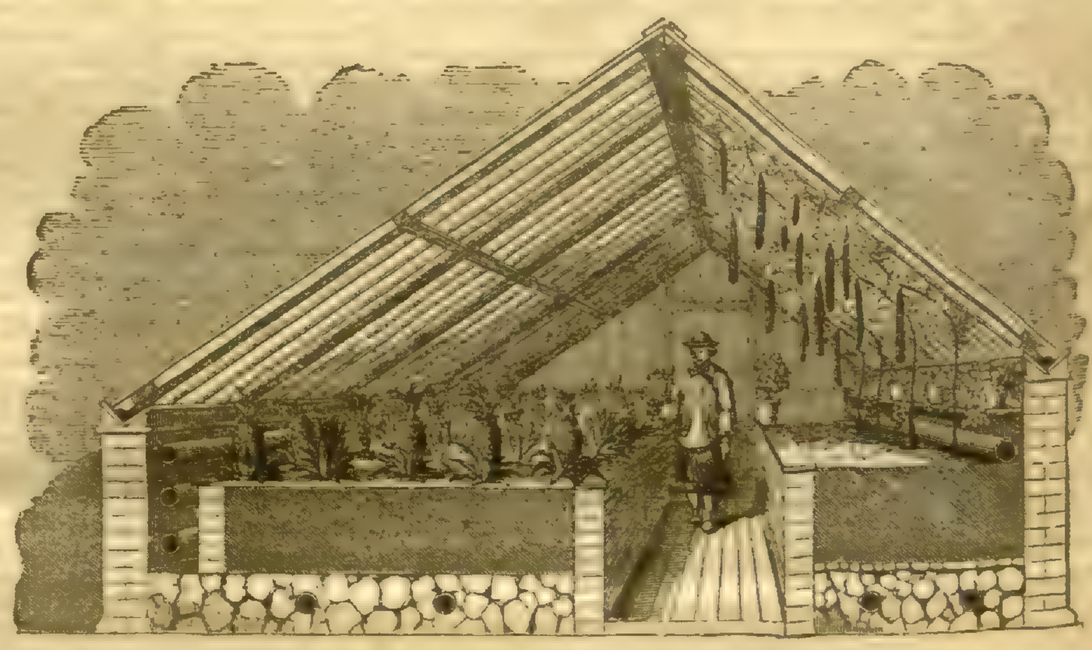


FRUIT WALL—MOVABLE LEAN-TO ROOF.

ORCHARD HOUSE, AVIARY, ETC.



SEMI-SPAN AMATEUR'S PLANT HOUSE.



ODD SPAN-ROOF FORCING HOUSE.

A PAMPHLET, with views of these and other forms of Glasshouses, Ornamental Conservatories, &c., sent for 3 stamps.

ILLUSTRATED PRICE LISTS of the PATENT ROOFS free on application. REFERENCES can be given to work executed in all parts of the Kingdom.

ESTIMATES given for ORNAMENTAL CONSERVATORIES to Architect's Plans and Specifications; also for HEATING APPARATUS for all purposes, and to any extent, fixed complete anywhere in the United Kingdom.

☞ *Plans prepared to suit different styles of Mansions, and to particular dimensions.*

HEREMAN & MORTON, 14, TICHBORNE STREET, REGENT QUADRANT, LONDON, W.

The FOURTH EDITION of a HANDBOOK of VINE and FRUIT TREE CULTIVATION, as adapted to the above Patent Hothouses, containing Illustrations, Hints for Heating Houses, and General Directions for Cultivation, &c., by Mr. Hereman, may be had at our Office, price 1s., or post-free for 13 stamps.

"The instructions given for the cultivation of the Vine and other crops are essentially practical, and are evidently written by one who has himself performed all the operations before he attempted to instruct others."—*Journal of Horticulture.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, August 8, 1874.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 33.—Vol. II. { New Series. } SATURDAY, AUGUST 15, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Agave americana	211
American blight	212
Books, notices of	203
Botanic Society, anniversary of the	206
Camellia cultivation	196
Eryngium maritimum	261
Farm, the	213
French ringing tongs (with cuts)	211
Fruit crops (prospects of the)	198
Fruit crop, remarks on	202
Garden operations	215
Glycirrhiza glabra	212
Honey-dew	211
Horticultural Exhibition at Belfast	215
Insects injurious to the Grape Vine	210
Lilium auratum	212
Lycaste Dowiana	194
,, xytriophora	194
Maize in Ancient Palestine	211
Mistleto growing on Mistleto	206
Myosotis dissitiflora	212
Orchis maculata	205
Peaches and Nectarines	211
Plant gossip	197
Plants, new garden	194
Potato crop, remarks on the	205, 208
Rose show	212
Ruscus (with cut)	207
Scottish Alpine Botanical Club	196
Societies:—	
Manchester Botanical and Horticultural	212
Time works wonders	193
Villa garden	214
Vine training in Italy (with cuts)	194
Weather, the	214
Wood, incombustible, patent for rendering	205
Yucca moth	205
Zonal Pelargoniums	211

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION *to the* GARDENERS' CHRONICLE, *including postage to the United States, is* £1 6s.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price in cloth*, 16s.
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.—NOTICE. — FRUIT and FLORAL COMMITTEES' MEETING, on WEDNESDAY NEXT, AUGUST 19, at 11 o'Clock. General Meeting at 3 o'Clock. Admission 1s.

CRYSTAL PALACE.—AUTUMN FRUIT and FLOWER SHOW, SEPTEMBER 8, 9, and 10: schedules now ready, and can be had on application to Mr. F. W. WILSON, Natural History Department, Crystal Palace.

BISHOP AUCKLAND FLOWER SHOW.—This, the largest and most successful fête in the North of England, is fixed for FRIDAY, August 28, in the renowned Auckland Park. Schedules of Prizes to be had of
Mr. HENDY, Secretary, Bishop Auckland.

TAMWORTH POULTRY SHOW, in connection with the Staffordshire Agricultural Society, will take place on SEPTEMBER 8. Prize Lists and Forms of Entry may be had on application to the Secretary. ENTRIES CLOSE on SATURDAY, August 22.
Newcastle, Staffordshire. W. TOMKINSON, Sec.

PRESTON HORTICULTURAL SOCIETY.—The GREAT AUTUMN SHOW, SEPTEMBER 9 and 10. Ten Stove and Greenhouse Plants, £20; Six Foliage Plants, £10; and numerous other valuable Prizes for Plants, Cut Flowers, Fruits, and Vegetables. For Schedules, and full particulars, apply to
W. TROUGHTON, Hon. Sec., 4, Church Street, Preston.

WARWICKSHIRE AGRICULTURAL SOCIETY'S EXHIBITION, at Knowle, near Birmingham, SEPTEMBER 15 and 16 next.—A GRAND HORTICULTURAL SHOW will be held in connection with the above. Entries close August 31. Schedule of Prizes on application to JOHN MOORE, Sec., Warwick.

New August Catalogue.

PAUL AND SON, The "Old" Nurseries, Cheshunt, have now ready their new LIST of DUTCH BULBS, SPECIALITIES for FORCING, including Azaleas and Camellias, Strawberries and Vines.

ROMAN HYACINTHS.
The Trade should apply to
HOOPER AND CO., Covent Garden, London, W.C.

To the Trade.

HYACINTHS, early white Roman, 27s. per 100; do., picked bulbs, 30s. per 100. NARCISSUS, early Paper-white, 14s. per 100; Early Double Roman do., 11s. per 100. Large consignments of the above to hand in splendid condition. Terms cash.
GEO. POULTON, Seed and Bulb Merchant, Angel Road, Edmonton, London, N.

DUTCH and FRENCH FLOWERING BULBS.—We shall shortly receive one of the choicest and most extensive collections of these Roots ever imported. Orders amounting to 20s. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

PRIMULA JAPONICA.—Being quite hardy, this beautiful crimson-flowering Primrose, now that it can be supplied cheaply, would be extremely useful and effective for grouping in borders, shrubberies, &c., and would be exceedingly pretty planted in quantity along the sides of carriage drives. Special price per 100 or 1000 on application to
WILLIAM BULL, F.L.S., Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Herbaceous Calceolaria.—To the Trade.

WOOD AND INGRAM have just harvested their crop of the above (from Neill's superb strain), and beg to offer it in quantities from one-eighth of an ounce. Price on application. The Nurseries, Huntingdon.

Splendid Herbaceous Calceolaria.

LUCOMBE, PINCE, AND CO., can offer good packets of their superb strain at 2s 6d., 3s. 6d. and 5s. each; also their celebrated strains of CINERARIA, PRIMULA and CYCLAMEN, at 2s. 6d., 3s. 6d. and 5s. each. PRIMULA JAPONICA, new seed, 1s. 6d., 2s. 6d., 3s. 6d. and 5s. per packet. Exeter Nurseries, Exeter.

Wheeler's Superb Herbaceous Calceolaria.

GEO. WHEELER is prepared to offer packets, post free, at 1s. 6d., 2s. 6d., and 3s. 6d. each, of his very superior Strain. Being dwarf and robust the habit of the Plants is all that can be desired, and may generally be grown without the aid of sticks to support the flower-stems.
Young plants of the above may be sent safely by post, when ready, at 3s. per dozen.
The Nurseries, Warminster, Wilts.

Cineraria, Primula, Calceolaria, and Cyclamen.

WM. CUTBUSH AND SON very highly recommend their choice strain of the above, which always gives satisfaction. In packets, 2s. 6d., 3s. 6d., and 5s., post free. Highgate Nurseries, London, N.

DOUBLE FLOWERED CINERARIA, as exhibited at the Royal Horticultural Society, Kensington, supplied in Seed Packets, at 3s. 6d., 7s. 6d., and 10s. 6d. each. Also CALCEOLARIA, PRIMULA, CYCLAMEN, and CINERARIA, of extra quality, mixed, or in separate colours, in 1s., 2s. 6d., and 5s. packets.
E. G. HENDERSON AND SON, Wellington Nursery, St. John's Wood, London, N.W.

Choice Flower Seeds.

CHARLES TURNER is now offering NEW SEED of the following:—

AURICULA, stage and alpine	CYCLAMEN PERSICUM
CALCEOLARIA	PANSY, English and Belgian
CARNATION, tree	PELARGONIUM, show, fancy, and zonal
CINERARIA	

PRIMULA, in distinct colours.
The Royal Nurseries, Slough.

NEW SEEDS of CYCLAMEN. — New Seed of Mr. Kopsel's choice varieties of Cyclamen persicum and europæum can now be supplied by the pound or ounce. Lowest trade prices on application to
ALBERT KOPSEL, The Nurseries, Cothen, Germany.

SPHAGNUM (MOSS), gathered in good condition, and dry. In large or small quantities.
F. G. GODWIN, Seedsman, Sheffield.

British Fern Catalogue.

ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

FERNS.—On Sale about twelve dozen THAMNOPTERIS NIDUS, nice young healthy Plants, from eight to ten fronds on each. Apply to
Mr. DRIVER, Gardener, Wistaston Hall, Nantwich.

Strawberries.

PAUL AND SON have now ready strong NEW transplanted RUNNERS, of leading sorts. Descriptive LIST post free.
"Old" Nurseries, Cheshunt.

NEW STRAWBERRIES, Exquisite and Traveller (First-class Certificate).—The best for flavour and transmission. See advertisement in *Gardeners' Chronicle* of the 8th inst. Strong plants now ready. Particulars post free from W. AND J. BROWN, Stamford.

Strawberries.

CHARLES TURNER can now supply strong Plants of all the leading varieties; the new kind, "LA GROSSE SUCRÉE" is highly recommended for early forcing. CATALOGUE on application.
The Royal Nurseries, Slough.

WANTED, Eight Standard Portugal LAURELS, from 6 to 8 feet high, in pots or boxes.
Please address, stating price, &c., to GEORGE COPLAND, Edenhall Gardens, Penrith, Cumberland.

WANTED, VESUVIUS GERANIUM CUTTINGS in quantity, for cash. State lowest price per 1000 to
WM. CORNHILL, 2, Payne Street, Copenhagen Street, Islington, N.

WANTED, CUTTINGS of Mrs. Pollock, Lady Cullum, Lady Palmerston, Sophia Dumaresque, and Rev. Mr. Radclyffe. State lowest price per 100, and quantity to H. W. BRIDPORT, Florist, Nursling, Southampton.

H. CANNELL is in IMMEDIATE WANT of CUTTINGS of the following GERANIUMS (Zonal):—Master Christine, White Clipper, Jean Sisley, Henry King, Crimson King, Lass o' Gowrie, Bonfire, Miss Kingsbury, Mrs. Little, Macbeth, Peter Grieve, Corsair, Amaranth, Maréchal MacMahon, Crown Prince, and Impératrice Eugenie. Any one having Cuttings of the above, or any other good varieties, are respectfully requested to state quantity and prices.—The Nurseries, Woolwich.

To the Trade, &c.—Roses! Roses! Roses!

EWING AND CO. are offering very fine plants of the best varieties in cultivation. Twelve new varieties of 1874, in fine well-established plants, sent, carriage and package paid, to any Railway Station in the United Kingdom, on receipt of Post Office Order for 31s. 6d.
Descriptive and Priced CATALOGUES, and further information, gratis and post free on application.
The Royal Norfolk Nurseries, Norwich.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

LILY of the VALLEY.—Strong 3-yr. old clumps for forcing, 6s. per dozen, or 40s. per 100; variegated do., 6s. per dozen.
ANTHONY WATERER, Knap Hill, Woking, Surrey.

Lily of the Valley.

ROBERT NEUMANN, The Nurseries, Erfurt, begs to offer large quantities of strong flowering roots, for forcing, of the above, at 45s. per 1000.
Also strong clumps of SPIRÆA (HOTEIA) JAPONICA.

LILY of the VALLEY (Convallaria majalis).—Widow G. CLAESSANS VAN HOOREBEECK, Nursery and Seed Establishment, Termonde, Belgium, offers 15,000 plants of the above, at £4; and 100,000 do., at £24.

To the Trade.

EPIPHYLLUM TRUNCATUM, good grafted plants, of the best varieties, 9s. per dozen, 65s. per 100. The New Double CINERARIA, strong plants, 9s. per dozen, 70s. per 100. Strong CINERARIAS of Messrs. Standish's fine strains, 2s. per dozen. STRAWBERRY RUNNERS, in great variety, 2s. per 100. Terms cash.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

CENTAUREA RAGUSINA CANDIDISSIMA (the best variety), in packets, for thirteen stamps and upwards. Price to the Trade as usual.
CHARLES YOUNG, The Nurseries, Balham Hill, and Upper Tooting Park, S.W.

CONVALLARIA MAJALIS, strong clumps for forcing, £2 6s. per 100. SPIRÆA (HOTEIA) JAPONICA, strong clumps, £1 6s. per 100, larger quantities less. D. JACOBSON, Haarlem, Holland.

To the Trade.

HOLLIES, 1-yr. Seedling.—A sample 1000 sent on receipt of 4s. August is the best month to plant them. Also THUJA GIGANTEA (Libocedrus decurrens), transplanted autumn 1873, extra fine plants, from seed, 3 to 3½ feet, 20s. per dozen; 3½ to 4 feet, 30s. per dozen; a few extra fine specimens, 6 to 7 feet and 7 to 8 feet, 5s. to 7s. 6d. each. Apply to
C. WHITEHOUSE, Brereton Nurseries, Rugeley, Staffs.

PINE PLANTS.—Eighty-two MONTSERRAT and two smooth CAYENNES, fruiting and succession, clean and healthy. Apply to
DICKSON, BROWN, AND TAIT, Seed Merchants, Corporation Street, Manchester.

FOR SALE, cheap, PINE PLANTS, in consequence of the Owner having moved into town—about eighty in all, consisting of Queen, Cayenne, and Jamaica. Ten will have their fruit ripe in a month, thirty before Christmas, and the remainder during next summer. Apply to
ROLLISSON AND SONS, Nurserymen, Upper Tooting, S.W.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

Seeds for Present Sowing.

JAMES DICKSON AND SONS can supply, of best quality, all SEEDS, including Turnip, Rape, Mustard, Trifolium, Cabbage, Vetches, Italian Rye-grass; mixed Grasses and Clovers for permanent pasture; also all other Farm Seeds, as well as Garden and Flower Seeds of all sorts.
108, Eastgate Street, Chester.

New Turnip Seeds for Present Sowing.

H. AND F. SHARPE are now harvesting TURNIP SEEDS, of 1874 growth, and are prepared to execute Orders from the Trade at very moderate prices, and on receipt of Letter or Telegram.
Seed Growing Establishment, Wisbech.

FOR SALE.

			For cash.—s.	d.
200,000	CABBAGE PLANTS,	Enfield Market	3	0
200,000	,, ,,	Wheeler's Imperial	3	6
100,000	,, ,,	Drumhead Ox	3	6
100,000	,, ,,	Drumhead Savoy	6	0

Delivered to Wolverhampton Station.
GEORGE KNIGHT, Whitmore Reans, Wolverhampton.

The New American Potatos.

SNOWFLAKE,	EXTRA EARLY VERMONT,
BROWNELL'S BEAUTY,	COMPTON'S SURPRISE.

HOOPER AND CO. are large holders of these very choice sorts, and can give special advantages to buyers in the trade during the autumn. Prices on application.
HOOPER AND CO., Covent Garden, London, W.C.

WHEELERS' CHOICE SEEDS

For PRESENT SOWING.

WHEELERS' COCOA-NUT CABBAGE.

Wheelers' Cocoa-Nut is a new and very early variety, perfectly distinct, of most excellent flavour. It should be planted 18 inches apart; will yield an early and continuous supply. This Cabbage is a decided novelty and a great acquisition.

Per ounce, 1s. Packets, 6d. each, post free.

"I consider the Cocoa-Nut Cabbage the best I have ever grown."—A. W. Harper, Westhall Hill, Burford, Oxon.

"I grew the Cocoa-Nut Cabbage last year, and admire them very much."—Robert Mangham, School House, Kingsbarn.

"I have some of your Cocoa-Nut Cabbage growing in my garden now from seed sown last March. They are such fine ones,—it is a pleasure to look at them."—George Evans, Abergwilly.

"I have given some of the Cabbages (Cocoa-Nut) to my friends, and they all say they are the best they have seen."—J. Bratley, Briggs.

"In my experience Wheelers' Cocoa-Nut Cabbage is far superior to any other in cultivation."—James Harris, Sunninghill.

"Will you be so good as to send me a packet of your Cocoa-Nut Cabbage; I find your Lettuces so good that I never grow any other, and I hope the Cabbage will prove equally good."—A. Phillips, Windsor Cottage.

WHEELERS' TOM THUMB LETTUCE.

A small compact Lettuce, of fine flavour and of excellent quality; a capital variety for winter and early spring.

Large packet, 1s.; small packet, 6d., post free.

"I am going to try how your Tom Thumb Lettuce will stand the winter. As a summer Lettuce it is invaluable, and not to be approached by any in cultivation."—Chas. Brettingham, Goodwick.

"Please forward me two packets of your most excellent Tom Thumb Lettuce, the best Lettuce ever introduced into this country."—C. Thurnall, Whittlesford, near Cambridge.

"Your Tom Thumb Lettuce is the most tender and delicious of all Lettuces.—W. M. Thomas, Fanfield, Bedale, Yorkshire.

J. C. WHEELER & SON,

SEED GROWERS, GLOUCESTER, and 59, MARK LANE, LONDON, E.C.

THE LONDON MANURE COMPANY

(Established 1840)

Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY Limited).

MILDEW.

The best and most easily applied composition for the Prevention and Destruction of Mildew is

EWING'S INFALLIBLE COMPOSITION.

Can be had retail through all Seedsmen and Florists, in bottles holding about ¾ pint, sufficient to produce 8 gallons of fluid fit for use, at 1s. 6d. per bottle; or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, carriage paid to any Railway Station in the United Kingdom for 24 penny postage stamps.

HYACINTHS, TULIPS, AND OTHER BULBS.

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

NEW CATALOGUE OF HYACINTHS, TULIPS, AND OTHER BULBS,

CAMELLIAS, AZALEAS, &c.,

Is now ready, and will be sent post free on application.

BULBS FOR SPRING GARDENING.

HYACINTHS	21s. 0d.	per 100 and upwards.
TULIPS	4s. 0d.	" "
CROCUSES	1s. 6d.	" "

BULBS FOR POTS AND GLASSES.

HYACINTHS	6s. 0d.	per dozen, and upwards.
TULIPS	1s. 0d.	" "
NARCISSUS	3s. 0d.	" "
CROCUSES	1s. 6d.	" "

COLLECTIONS of BULBS from 10s. 6d. to 84s.

A Choice Collection of CAMELLIAS, 30s. per dozen and upwards.

AZALEAS, in fine variety, 30s. per dozen and upwards.

WILLIAM PAUL,

PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, HERTS.

Now Ready, Gratis and Post Free.

CARTER'S ILLUSTRATED CATALOGUE of BULBS for 1874.

IT CONTAINS FULL DESCRIPTIONS OF THE BEST KINDS OF

HYACINTHS, TULIPS, CROCUS, AND OTHER BULBS,

With full Directions for the Guidance of Amateurs desiring to be successful Cultivators of these beautiful Spring Flowers.

CARTER'S

THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

ROSES.

WILLIAM PAUL,

PAUL'S NURSERIES, WALTHAM CROSS, HERTS,

Is now sending out the following NEW ROSES, good Plants with Buds:—

* PEACH BLOSSOM (Wm. Paul), delicate peach, a new and desirable colour, large, full, and globular. 5s. each.

DIANNA (Wm. Paul), clear deep pink, large fine form, flowers freely and late. 5s. each.

* ST. GEORGE (Wm. Paul), blackish crimson, large, full form, and foliage perfect. 5s. each.

ROSES IN POTS, selected from the Exhibitors' point of view, for the size and shape of the flowers. 15s. per dozen, £5 per 100, and upwards.

ROSES IN POTS, selected for the habit, constitution, freedom of flowering, and size and shape of the flowers. 15s. per dozen, £5 per 100, and upwards.

ROSES IN POTS FOR FORCING, thousands of Hybrid Perpetuals and Tea Scented of extra size, in splendid condition. 24s. per dozen, £8 15s. per 100, and upwards.

Purchasers wanting Roses for Massing can be supplied with any quantity of suitable sorts, hardy, healthy plants, in or out of pots, at very reasonable rates, if ordered early.

* These two have been figured.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS' PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS' Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,

THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

GRAND HORTICULTURAL FRUIT and FLOWER SHOW, Royal Botanic Gardens, Belfast, August 20 and 21.—Great Sale of the splendid Collection of Plants belonging to Henry Hawkins, Esq., Kinedar, Strandtown, Belfast, August 22. Visitors to the above Show, and those attending the Sale, are respectfully informed that one of COWAN'S PATENT COMPENSATING HEATING APPARATUS has just been erected at the gardens of Henry Hawkins, Esq., and that he has kindly given the Dromore Heating Company permission to invite Gentlemen attending the above-named Show and Sale to see it in successful opperation. A competent person will be in attendance to give full explanation.

A Model will also be exhibited in the Botanic Gardens on each of the above days.

The Company's Illustrated Pamphlets can be had post-free on application. The perfect success of all Apparatus will be guaranteed.

The DROMORE HEATING COMPANY, 40, Lower Ormond Quay, Dublin.

JOHN COWAN, Manager.

CHRISTMAS QUINCEY'S IMPROVED STEEL POTATO FORK.—The Inventor can with confidence recommend this new Fork to his patrons and the public as the best and most efficient implement yet introduced for digging Potatos, bringing to the surface at one lift the whole of the root, even small tubers, thereby effecting an immense saving of labour. It will be also found invaluable for digging purposes generally, being easier to use than the ordinary spade.

Plain Steel Forks, 6*s.* 6*d.* each; polished do., 7*s.* each.

Remittances to accompany all orders. Wholesale prices on application.

CHRISTMAS QUINCEY, Seedsman, &c., Market Place, Peterborough.

Testimonial from Mr. GILBERT.

"Burghley Gardens, Stamford, August 5, 1874.

"Dear Sir,—We have given your Potato Fork a fair trial today, and consider it a gem. I know of no weed so bad in the spring as self-sowed Potatos. By using this Fork the whole of the root, big and little, must come to the surface. Please forward me two more.—I am, dear sir, yours faithfully,

"To Mr. C. Quincey. R. GILBERT."

Scott's Wasp Destroyer.

J. SCOTT, SEEDSMAN, Yeovil, offers his well-known preparation to Fruit Growers at 1*s.* 9*d.* and 2*s.* 9*d.* per bottle, post free, on receipt of stamps. No one who has fruit to preserve should be without it. It is also useful in the destruction of Flies, Cockroaches, and Crickets. See testimonials. None Genuine except the Corks bear "Scott, Seedsman Yeovil."

The Trade supplied. Prices on application.

SIMPSON'S RED SPIDER, THRIPS, and GREENFLY ANTIDOTE.—The following unsolicited Testimonials have been received among others regarding the *bona fide* character of this remedy:—

From Mr. DAVID THOMSON, *Gr. to the* Duke of Buccleuch.

"Dear Sir,—I consider your Antidote an invaluable remedy for Red Spider. Three washings have annihilated the pest on our Muscats, and the Vines look much more fresh and green since the application. No bad effects to the foliage whatever.

"Truly yours, D. THOMSON."

From Mr. SPREADBURY, *Gr. to the* Earl of Portsmouth.

"I like your Antidote better than any other insect destroyer I have used, being so very clean and efficacious."

In quarts, 6*s.* each. One quart diluted sufficient for 200 gallons of water as a preventive.

Supplied by JOHN KILNER, Wortley, Sheffield.

Sold by Seedsmen and Chemists.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes.

THE CHEAPEST AND MOST DURABLE

SHADING.

"FRIGI DOMO" CANVAS.

Two yards wide	1*s.* 10*d.* per yard run.
Three yards wide	3*s.* per yard.
Four yards wide	3*s.* 10*d.* per yard.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.

E. T. ARCHER, Stanstead and Brockley Roads, Forest Hill, London, S.E. All goods carriage free to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO. 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

COCOA-NUT FIBRE REFUSE, sifted and carefully prepared solely for Gardening purposes by JAMES STEVENS. Invaluable for Forcing and Plunging Plants in. Especially nutritious for Gardens in Summer, retaining its moisture under great heat, and imparting an agreeable colour. Price 9*d.* per bushel; 20 bushels at 5*d.* per bushel; 100 bushels at 4½*d.* per bushel.

JAMES STEVENS, Fibre Works, York Terrace, High Street, Battersea, London, S.W.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1*s.* per bushel, or 6*d.* per bushel for quantities of 20 bushels and over.

DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing, Second sized Archangel, 100*s.*; Petersburgh, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of

CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

The Royal Pottery, Weston-super-Mare.

UNDER ROYAL PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.

JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	3*s.* 4½*d.*
3-inch Pipe, per yard	2*s.* 8½*d.*
2-inch Pipe, per yard	1*s.* 8*d.*

Connections at proportionate prices.

Illustrated Price List free on application to

T. G. MESSENGER, Hot-water Engineer, Loughborough.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

NEW CHESHUNT ROSES OF 1874.

PAUL & SON,

THE "OLD" NURSERIES, CHESHUNT,

supplying Strong Plants, in pots, of NEW HYBRID PERPETUAL ROSES raised here.

V. WILSON SAUNDERS (PAUL & SON), a finely shaped reflexed flower of vivid crimson, most intense colour, and of the freest perpetual character of any Rose. 7*s.* 6*d.* each.

THE SHAH (PAUL & SON), a Seedling of Duke of Edinburgh, a fair-sized well-built flower, colour pure red: the brightest flower yet produced, a good free garden Rose. 5*s.* each.

Also, THE NOVELTIES OF 1873.

H.P. REYNOLDS HOLE and TEA CHESHUNT HYBRID. Good Plants in pots with buds, 3*s.* 6*d.* each.

All the above may now be seen, finely in bloom, at the "Old" Nurseries.

DUTCH FLOWER ROOTS.

OSBORN & SONS

BEG TO ANNOUNCE THAT THEIR

ANNUAL CATALOGUE OF THE ABOVE

IS NOW PUBLISHED, AND MAY BE HAD POST FREE ON APPLICATION.

It contains a Choice Selection of HYACINTHS, TULIPS, CROCUS, NARCISSUS, LILIUMS, and various other BULBS; also a SELECT LIST of VEGETABLE and FLOWER SEEDS for Autumn Sowing.

THE NURSERY, FULHAM, LONDON, S.W.

NEW PLANTS.

WILLIAM BULL, F.L.S.,

Begs to announce that he is now sending out the following Novelties, which are of unexceptionable merit :—

CROTON MAJESTICUM.

One of the finest of this now extensive and varied family of ornamental-leaved stove plants. It is of free-growing and bold habit, though the leaves are narrowish and elongate; when mature they are from 15 to 18 inches in length, including a petiole of about 2 inches long. They are linear in form, acute or sometimes bluntish, in the young growth deep green, with golden rib, and markings representing venation, but more or less confluent. In the older and more matured foliage the green takes on a deep olive hue, while the yellow portions change to deep crimson, the intermediate leaves being coloured in an intermediate manner. The regularly-drooping elongate leaves give the plant a very elegant character, which is very greatly enhanced by its rich tints of colour. This was imported from the South Sea Islands. It has received a First-class Certificate from the Royal Horticultural and Royal Botanic Societies. Two and Three Guineas.

CROTON SPIRALE.

This is a very distinct and effective variety, both on account of its form and colouring. The spiral twisting of the leaf blade, which has suggested its name, is very marked and very constant. The leaves are from 9 to 13 inches long, and about an inch wide, deep green, with a broad golden-yellow bar up the centre, the green margin twisting spirally around the golden bar, some leaves being partially spiral and partially undulate. The older leaves become a deep bronzy green, almost purple, and the mid-rib a deep crimson. One of the very best of the Crotons for ornamental purposes. It has been imported from the South Sea Islands, and has received a First-class Certificate from the Royal Horticultural and Royal Botanic Societies. Two and Three Guineas.

CROTON VOLUTUM.

A very distinct-looking and beautiful form of the multifarious Croton or Codiæum, the great peculiarity of which consists in the leaves being rolled up from the end in a volute, after the manner of the curving of a ram's horn. These leaves are 6 inches long, and an inch and a half or more in breadth, and beautifully coloured. The ground colour is a deep green, a golden bar a quarter of an inch wide runs down the centre, from which yellow veins diverge at about half-inch intervals, and meet near to, and so as to coalesce with, the golden margin, in which occurs irregularly-scattered green spots. The markings are very regular, a little pink sometimes appearing in the mid-rib; the curving of the leaf-blade is also very constant, causing the edges to be elevated so as to form a kind of channel. The bark of the young shoots is also variegated with yellow. This will prove one of the most beautiful and effective among the many fine Crotons which have come to us from the islands of the South Seas. It has received a First-class Certificate from the Royal Horticultural and Royal Botanic Societies. Three Guineas.

DIPLADENIA BREARLEYANA.

This splendid variety of Dipladenia will make one of the best exhibition plants extant. It is of free growth, and of the most floriferous character, in this respect greatly exceeding any other Dipladenia. It is an evergreen stove climber of the very first rank, and is furnished with opposite oblong-acute dark green leaves, which serve as a fine contrast for the superbly coloured flowers, which are of the largest size and of the richest crimson colour; they have, moreover, this peculiarity, that the colour increases in intensity with the age of the flowers. Beautiful as were the Dipladenias of some few years since, they have been quite eclipsed by the improved varieties which have been obtained, and amongst these D. Brearleyana is certainly the most distinct and beautiful. It has received a First-class Certificate from the Royal Horticultural and Royal Botanic Societies. Two and Three Guineas.

DRACÆNA ALBO-ROSEA.

This is a bold-habited stove shrub from the South Sea Islands, with erecto-patent leaves densely set upon the stems, from 16 to 18 inches long and upwards of 3 inches wide, with a stalk-like base 5 inches long, having a glaucous bloom and a rose coloured border. The mature leaves are of a deep green, with a bronzy tint, are edged with rose colour, the younger central ones being freely coloured with greenish white, changing to pale rose of varied intensity, the margin in the case of these younger leaves being whitish. Two Guineas.

MEDINILLA AMABILIS.

A remarkably showy stove plant, introduced from Java, and having the general habit of M. magnifica, but with erect pyramidal panicles of large rosy peach flowers. The stem is quadrangular, the angles being furnished with a narrow undulated wing; and the leaves are opposite, sessile, oblong-obovate, obtuse with a short acuminate point, a foot long, and 7 to 8 inches broad. The flowers grow in large panicles, which are erect and composed of 4-branched whorls, the branches each forming a cyme of numerous rosy pink flowers, which measure 2 inches across, the unexpanded buds being of the same delicate pink colour, and having a waxy appearance. A grand stove plant, of the flowering sub-division. Two Guineas.

SPATHIPHYLLUM PICTUM.

A grand stove plant, with something the aspect of a Dieffenbachia. Its large, half-leathery half-fleshy leaves have a broadly ovate-elliptic blade, which even in young plants is as much as 18 inches in length, and 8 inches in breadth, with a marginate stalk of 4 to 5 inches long. They have a glossy dark green surface, freely mottled along the course of the transverse veins with blotches of golden green, the mid-rib being prominent and of a pale green. It is a very effective plant, its bold leaves being very handsomely mottled. It has been introduced from South America. One and a half Guinea.

NEW PELARGONIUM, QUEEN VICTORIA.

This new Pelargonium is now being sent out. To say that it is handsome conveys but an inadequate idea of it, for it is the most marvellously beautiful and novel variety ever offered.

The flowers have peculiarly crispy petals; they are not really double, but from their fulness of form and the extra number of petals, they have the appearance of being so. The colour is a rich vermilion; all the petals broadly margined with pure white, and the upper ones blotched with maroon. The contrast of the broad white margin with the vermilion ground colour makes the flower extremely pleasing and attractive. Price One Guinea each.

One dozen handsome flowered Pelargoniums, including the beautiful Queen Victoria, for Three Guineas.

A drawing of Pelargonium Queen Victoria, by Macfarlane, can be had on application, price 2*s.* 6*d.*

TREE FERNS.

The Largest and Best Stock in Europe.

Prices Moderate.

An Inspection is invited.

CYCAS MEDIA.

MR. WILLIAM BULL intimates that he has just received from Australia the largest and finest importation of this beautiful Cycas that has ever reached Europe.

The trunks are of various sizes, 3 feet, 4 feet, 5 feet, 6 feet, 7 feet, 9 feet, 10 feet, and 14 feet high, symmetrial, straight, and in the finest condition possible.

These Cycas are admirably adapted for the decoration of Greenhouses and Conservatories.

N.B.—The Collection of Ornamental Cycadaceous Plants in Mr. William Bull's Establishment is the largest and finest extant.

An inspection is invited, or prices on application.

NEW HYBRID BEGONIAS.

The following New Begonias belong to the handsome-flowered tuberous-rooted section, and are most desirable acquisitions :—

	Each—*s.*	*d.*
ANACREON, bright deep crimson, a beautiful flower with very long petals	7	6
CAROLINE, deep rosy pink, with broad petals	5	0
CLIMAX, deep rich rosy carmine, the two outer petals extremely broad	5	0
CORSAIR, rosy salmon, profuse bloomer	5	0
ENSIGN, bright pink, a very elegant variety	5	0
GEM, bright cream colour, the reverse of the petals light pink	5	0
GLITTER, vivid orange-scarlet, extremely showy	7	6
LOTHAIR, deep rose, a fine flower, with short broad petals	7	6
MAGNET, beautiful light pink, the reverse of the petals deep pink	5	0
MAZEPPA, very light cream colour, the reverse of the petals tinted with orange-pink	5	0
SURPRISE, bright pink, a very pretty colour	5	0
TROJAN, light rosy pink, very distinct	5	0

Seed of the above New Begonias, each 2*s.* 6*d.* per packet; mixed, 3*s.* 6*d.* per packet.

DOUBLE FLOWERED CINERARIA.

This Novel Strain has received *a Silver Medal at the International Horticultural Exhibition at Florence;* First-class Certificate from the Royal Horticultural Society, Kensington. Packets of Seed, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Also

	Per packet—*s.*	*d.*
PRIZE PRIMULA SINENSIS, Red and White	each 2	6
PRIZE PRIMULA SINENSIS, Fern-leaved, Red and White	each 2	6
PRIZE PELARGONIUM, Gold and Bronze	2	6
PRIZE CINERARIA	2	6
PRIZE CALCEOLARIA	2	6
PRIZE GLOXINIA	2	6
PRIZE BEGONIA, handsome-flowered	2	6
PRIZE AURICULA, Alpine	2	6
PRIZE CARNATION	2	6
PRIZE COLEUS	2	6
PRIZE FUCHSIA	2	6
PRIZE PETUNIA	2	6
PRIZE CYCLAMEN	2	6

ORCHIDS.

SUCH LARGE IMPORTATIONS and Consignments of Orchids are constantly arriving at Mr. WILLIAM BULL's Establishment, that he is able to offer the following at the low prices annexed :—

	Each.—*s.*	*d.*		*s.*	*d.*
CATTLEYA TRIANÆ	7	6	and	10	6
„ DOWIANA				42	0
ODONTOGLOSSUM TRIUMPHANS	15	0	and	21	0
„ PESCATOREI	15	0	and	21	0
„ ANGUSTATUM, new and handsome	21	0	and	31	6
BROUGHTONIA SANGUINEA	7	6	and	10	6
ONCIDIUM MACRANTHUM	42	0	and	63	0
SACCOLABIUM AMPULLACEUM				31	6
„ FURCATUM				42	0
ONCIDIUM PHILIPSIANUM				15	0
DENDROBIUM BENSONIÆ	15	0	and	21	0
„ THYRSIFLORUM	42	0	and	63	0
„ AMŒNUM.—This pretty Dendrobium, the flowers of which are white tipped with pink, and scented like Violets, has lately received a First-class Certificate, both from the Royal Horticultural and Royal Botanic Societies	31	6	and	42	0
SACCOLABIUM VIOLACEUM	15	0	and	21	0
„ BLUMEI MAJUS	15	0	and	21	0
PERISTERIA BRUCHMULLERIANA	21	0	and	31	6
CYPRIPEDIUM NIVEUM	21	0	and	31	6
„ PARISHII	31	6	and	42	0
ANGULOA CLOWESII	10	6	and	15	0
AERIDES GOODYERA DAWSONIANA	10	6	and	15	0
„ CRISPUM	10	6	and	15	0
„ LINDLEYANUM	15	0	and	21	0
CATTLEYA EXONIENSIS		8	and	10	gs.
DENDROBIUM SENILE	21	0	and	31	6
CALANTHE VESTITA LUTEO-OCULATA	5	0	and	7	6
„ „ RUBRO-OCULATA	5	0	and	7	6
ODONTOGLOSSUM CITROSMUM	7	6	and	10	6
„ „ ROSEUM	10	6	and	15	0
BIFRENARIA AURANTIACA	15	0	and	21	0
PLEIONE MACULATA	15	0	and	21	0
„ REICHENBACHIANA	15	0	and	21	0
„ WALLICHII	7	6	and	10	6
PHALÆNOPSIS GRANDIFLORA	31	6	and	42	0
ONCIDIUM WELTONI	21	0	and	31	6
ODONTOGLOSSUM HASTILABIUM	21	0	[illegible]	31	[illegible]
„ GRANDE	7	6	and	[illegible]	[illegible]
LIMATODES ROSEA	5	0	[illegible]	[illegible]	[illegible]
LÆLIA PURPURATA	15	0	[illegible]	[illegible]	[illegible]
EPIDENDRUM DICHROMUM	10	6	[illegible]	[illegible]	[illegible]
DENDROBIUM PIERARDII	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
„ PARISHII	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
„ JAMESIANUM	15	0	a.	[illegible]	[illegible]
„ DEVONIANUM	7	6	and	[illegible]	[illegible]
VANDA LAMELLATA.—This scarce and beautiful Vanda has lately received a First-class Certificate both from the Royal Horticultural and Royal Botanic Societies	31	6	and	42	0
CYPRIPEDIUM LONGIFOLIUM	21	0	and	31	6
HOULLETIA LINDENIANA	10	6	and	15	0
ODONTOGLOSSUM LINDENI	21	0	and	31	6
ONCIDIUM CUCULLATUM	7	6	and	10	6
„ TRULLA	10	6	and	15	0
CATTLEYA CHOCOENSIS	15	0	and	21	0
PLEIONE LAGENARIA	15	0	and	21	0
ONCIDIUM KRAMERIANUM	15	0	and	21	0
VANDA BENSONIÆ	15	0	and	21	0
SCHLIMIA JASMINODORA	21	0	and	31	6
ODONTOGLOSSUM PHALÆNOPSIS	21	0	and	31	6
DENDROBIUM INFUNDIBULUM	15	0	and	21	0
„ CHRYSANTHUM	7	6	and	10	6
LYCASTE HARRISONÆ	10	6	and	15	0
ONCIDIUM SPHACELATUM	7	6	and	10	6
„ OPULENTUM, new and handsome	31	6	and	42	0

And quantities of other Orchids at equally low prices.

Choice Collections of Orchids made at 6, 9, and 12 gs. per dozen.

By sending names of those already possessed, different varieties can be given, and purchasers will have a good selection made for them.

The Ornamental Plants in Mr. William Bull's Winter Garden are many of them the handsomest in this country.

MR. WILLIAM BULL'S ILLUSTRATED CATALOGUE of NEW and RARE PLANTS for 1874, is now issued, and can be had on application. Price 1*s.*

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

B. MALLER, Lewisham, Lee, S.E., begs to inform his Customers and the Trade generally that he has a fine lot of HEATHS and other winter-blooming plants, STANDARD ROSES, VINES, &c., to offer this autumn, a portion of which will be Sold by Auction in September.

B. M. respectfully solicits an inspection of the above, at the Burnt Ash Nursery, adjoining Lee Station on the North Kent (Dartford loop) Line.

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.

Newton Nurseries, **Chester.**

SAXIFRAGA NEPALENSIS.—A beautiful hardy herbaceous plant, with a pyramidal-shaped spike of pure white flowers, about 2 feet high; admirably suited for decorative purposes. It was exhibited and greatly admired at the June Shows of the Royal Horticultural and Botanic Societies, where it had previously been awarded First-class Certificates. Strong plants, 42*s.*; second size, 18*s.* per doz.

T. JACKSON AND SON, The Nurseries, Kingston-on-Thames.

To the Trade only.

A. M. C. JONGKINDT CONINCK'S WHOLESALE LIST, including a fine stock of Maiden Apples, Pears and Plums, Moss Roses, Dwarf, Half-standard and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants, is now ready, and will be sent, post free, on application.

Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

DR. DENNY'S GERANIUMS.

SECOND SET.

JOHN COPELIN

Begs to announce that the Price of the above is now reduced to 10*s.* 6*d.* per set.

TYSSEN STREET NURSERIES, WEST HACKNEY, LONDON, N.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

NEW PLANT CATALOGUE 1874,

Gratis and Post Free.

B. S. WILLIAMS'

NEW PLANT AND GENERAL

CATALOGUE OF NURSERY STOCK

Is now ready, and will be forwarded to all applicants.

It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

Sutton & Sons

RECOMMEND THE FOLLOWING

CHOICE

ONION SEEDS

For Present Sowing.

The varieties, if sown at once, will come to a very large size next Spring and Summer.

NEW QUEEN.—The earliest of all Onions; if sown at once will be ready for use this Autumn. 1*s.* 6*d.* per packet.

NEW GIANT ROCCA.—Very large, mild flavour; can be grown 2 lb. to 3 lb. in weight. 1*s.* per ounce.

LARGE EARLY RED ITALIAN and LARGE EARLY WHITE ITALIAN.—Very large, hardy, and good keepers. Each 1*s.* per ounce.

GIANT LATE RED ITALIAN and GIANT LATE WHITE ITALIAN.—Coming in a fortnight after the preceding, very large. Each 1*s.* per ounce.

NEAPOLITAN MARZAGOLA.—Very quick growth. 1*s.* per packet.

☞ Postage 2*d.* per ounce extra.

Particulars of other Choice Vegetable and Flower Seeds for Present Sowing, Gratis on application.

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

SATURDAY, AUGUST 15, 1874.

TIME WORKS WONDERS.

THERE exists a book whose title-page describes it as "An Universal History of Arts and Sciences: or, a Comprehensive Illustration, Definition, and Description of All Sciences, Divine and Human; and of All Arts, Liberal and Mechanical. . . By the Chevalier Dennis de Coetlogon, Knt. of St. Lazare, M.D., and Member of the Royal Academy of Angers.—London: Printed and Sold by John Hart, in Popping's-Court, Fleet Street, MDCCXLV." So comprehensive and pretentious a work could not well avoid treating of botany, although not a few other important subjects are omitted. The article is lengthy, elaborate, and ambitious, the author declaring, "As I design to treat this subject both as a botanist and a philosopher, and it would not be answering the end I have propos'd to myself to give an imperfect and slight idea of things without tracing them as far as their first source and origin . . . I'll begin this treatise by its first rudiments, which is shewing what's meant by the soul of plants, and a vegetative life."

"We have not," he continues, "a more uncertain and vague notion of anything than that of soul and life. The life of spiritual substances seems to consist in the sole cogitation; and God, angels, and human understandings are said to live no otherwise than by cogitation. But what have the lives of plants, and of brutes, common with cogitation, or thinking? Those things have a vegetative life which are nourish'd, increase, and generate; for by vegetation this triple function is understood, viz., nutrition, increase, and generation; therefore, a triple faculty is commonly attributed to the vegetative soul, viz., nourishing, increasing, and generating. We'll begin by the generating faculty.

"We learn from Scripture, Gen. i. 11, that the earth has been endued from the beginning with a certain seminal virtue to produce plants and roots, which virtue, proceeding from God himself, was not confined to the first production of things, but extends likewise to all future consequences of times, for the Divine Word does not fall like the human voice, but is eternal, and always subsisting, as we'll show in our Treatise of Metaphysicks." Our author—who scrupulously spells his substantives with a capital letter—sets his face courageously against any idea of spontaneous generation. The schools may follow the opinion that the earth produces naturally all sorts of plants and herbs without the concurrence of seed, for the reason that earth dug up very deep, and put into pots, after a set time, or season, produces several sorts of herbs of itself, and without seed. "But though this opinion be approved by the generality, it has not, however, the least appearance of probability on its side; for who, considering with attention the progress of Nature, sees the marvellous mechanism of the organs of plants, could be persuaded to attribute it to a heavy and indigested mass of clay or earth? Unless he be pleased to attribute it to a miracle, which would be needless in this place; therefore, it is a great deal better to say that plants have their origin from seeds, which, being taken from the first plants, have propagated their species by the Creator's will, as far as our times, and will continue to do so to the end of the world.

"All plants have their origin from what contains them, actually or potentially, which must be the seed, since the first rudiments of a plant can be discovered nowhere else, nor by the naked eye, nor even by the help of a microscope; so that the seed contains not only the coarser matter of the plant, with its organical parts, which have the ratio of a body, but a certain spirit likewise, *i.e.*, an active, mobile, and vegetative substance, called soul, which although, in some manner, asleep in the grain or seed, is, nevertheless, excited to motion by the heat of the sun and the warmth of the earth, whereby it unfolds its parts, and pushes the plant forward."

All this may be familiar enough to modern readers; what follows will be less so, although the first sentence will consist of words whose meaning is not particularly clear:—"If I be asked the definition of this seminal or generative faculty, whereby plants are understood to be productive of other plants, I'll answer that this faculty is defined a power of the vegetative soul, by which it lives, and produces its likeness for the preservation of the species. . . . The pistil is a little upright part in the middle of the calix, or the leaves of flowers, and at length becomes the young fruit, which is sometimes hid in the calix, and sometimes quite out. This pistil is encompassed with the stamina, which are those fine threads, or capillaments, growing up within the flowers, called also chives, on the tops whereof grow those little capsules, or knobs, called apices, which M. Tournefort makes essential to the stamina, though M. Reaumur is of a contrary opinion. These stamina are a kind of stumbling-block to our botanists, for they cannot agree among themselves on their use. M. Tournefort is of opinion that the stamen is nothing else but an aggregation or assemblage of so many excretory canals for discharging the growing embryo of its redundant juices; and of the excrements he takes that farina or dust found in the apices to be formed. But Messrs. Geoffrey, Bradley, and others maintain the use of the stamina to be to secrete a juice which, being collected, hardened, and formed into a farina or dust, in the tips or apices, is thence, when the plant arrives at maturity, discharged by the bursting of the apices upon the top of the pistil, whence is a passage for it to descend to where it fecundifies the plant. Those gentlemen pretend that the disposition of the pistil and the apices about it is always such as that the farina may fall on its orifice. But what can be that farina, so often mentioned already, for to have so prolifick a virtue?

"The farina is a fine dust, formed and secreted in the apices or tops of stamina, where, when it becomes mature and copious enough, bursting its capsula, it is spilt on the head of the pistil, draws the nourishment from the other parts of the plant into the rudiments of the fruits, and makes them swell. The reality of this virtue, which Mr. Bradley calls magnetic, is argued from the same being found in wax, which is chiefly or wholly gathered hence by the bees. For the manner wherein the farina fecundifies, Mr. Geoffrey advances two opinions. 1. That the farina being of a sulphurous composition and full of subtil penetrating parts (as appears from its sprightly odour), falling on the pistils of the flowers, there resolves and excites a fermentation sufficient to open and unfold the young plant inclosed in the embryo of the seed. The second opinion is that the farina is the first germ or bud of the new plant, and needs nothing to unfold it and enable it to grow but the juice it finds prepared in the embryo of the seed.

"This system seems well enough adapted to those plants called hermaphrodites, and which

have both the farina and the pistil; but it is not so easily reconciled to a species of plants which bears flowers without fruits, and therefore distinguished into male and female; of which kind are the Palm tree, Poplar, Hemp, Hops, &c. For how should the farina, here, come to infructify the seed? Mr. Geoffrey is pleased to answer that the wind, doing the office of a vehicle, brings the farina of the plants which have it to those which have none. I must confess that Mr. Geoffrey does a great deal of honour to the wind, to invest it with so much knowledge, prudence, and discretion. For to effect this it must know when that transmigration is most proper to be made, as when the farina is disposed for use. It must know likewise the difference of the sexes of the plants, and the different species of those sexes, lest he should make some mistake and carry the farina of one species to the pistil of another species, and by such mistake occasion the production of monsters in the vegetable world. It must know likewise the situation of both sexes; for both sexes in the vegetable race are as often asunder as in the human race, and divorce and separation are as frequent among them as among us. Therefore, the wind must know all these tricks before it can be supposed qualified for a faithful Mercury, unless they be all as dexterous as the one mentioned by Jovianus Pontanus, who, sensible of a poor female Palm tree which had lived in a state of celibacy in the wood of Otrant, very much against her will, as might be supposed, brought her at last that precious jewel the flower of a male Palm tree cultivated at Brendisi, 15 leagues distant from Otranto. What's the more surprising to me is that Mr. Geoffrey seems to believe that monstrous romance and to make use of it to support his system. M. Tournefort, sensible, as I suppose, of the ridicule of it, imagines that without that mysterious farina, the fine filaments, tomentum, or down, always found on the fruits of the plants, may do the office of fertilisation.

"When I reflect seriously on these different sentiments, which, in other men, would be considered a piece of the greatest extravagance and folly, and deserving at least Bedlam or the Petites Maisons, I cannot but admire the ridiculous vanity of mankind in attempting not only to penetrate into the inmost secrets of Nature itself, but even to force her to act contrary to those irrevocable orders and regulations established from the beginning by the author of all things. Why should we search the principles of generation in vegetables anywhere else but where they are to be found? Why should we have the barbarity to lead our fellow creatures through so many intricate and difficult passes to attain to an end which, with the least reflection, is so easily obtained? Why should we make a distinction of sexes in the plants where there is none? To what end? For have not plants that principle of generation within themselves from that very moment the Creator commanded the earth 'to bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after its kind, whose seed is in itself upon the earth'? Is not this better understood and more agreeable to reason, than to have recourse to impossibilities for the generation of plants? Is it not more evident and easier to be demonstrated that the seed has in itself the first principle of the vegetable life, which lay dormant in the seed . . . . than to say that an insignificant excrement of the plant which we are pleased to dignify with some particular title, and whose effects we explain by some problematick terms which we do not so much as understand ourselves, has that faculty of fecundating the seed? The difference of sentiments of botanists on that subject, and even of the most learned amongst them, is sufficient to convince us that they speak of a thing which they know nothing of themselves; and that they would, if they could, render problematick what's apparent enough of itself, for in fact the seed, without the concurrence of any other causes, has its fecundity in itself, which wants no other assistance, for to unfold its first principles, than of a fermentation in the earth or in some other place fit to excite its activity."

And so Dennis de Coetlogon, Knt., triumphantly strangles Mr. Geoffrey his theory, and sends its author to a madhouse. But the attacks of critics are not always fatal. Time works wonders; Linnæus' reputation has survived this and worse, and it has seemed to us that the above extract might be read and reflected upon with profit.

New Garden Plants.

Lycaste xytriophora, *Lind.*, *Rchb. f.**

Nearly as strong a plant as Lycaste macrophylla, and exceedingly near L. Dowiana, Endr. and Rchb., but distinct in the bract, the callus of the lip, and the organs of vegetation. Like L. Dowiana it has a very fleshy shining flower, like some Pescatorea or Vanda. The flowers are smaller, like those of L. macrophylla; the sepals are chestnut-brown, sometimes with a violet hue; the tepals and lip are whitish-yellow; the petals are marked with purple at their base, and there are some purplish lines over the nerve of the lip. It is an exceedingly free flowerer, as we see in the Hamburgh Botanic Garden, where we have two plants. It has been represented in Saunders' *Refugium*, plate 131. It flowered first, I believe, in 1868, in Director Linden's establishment, then at Brussels, and it is an Ecuadorian discovery of Mr. Wallis. *H. G. Rchb. f.*

Lycaste Dowiana, *Endr.*, *Rchb. f.*†

Lycaste Dowiana was discovered in Costa Rica by the late lamented Warscewicz. The flowers, however, were not well preserved, so that I condemned them, as I did hundreds of other specimens, to wait till I could obtain better materials. The plant was also found, as I see now, by the late collector Zahn. It is but now, however, that I am able to describe it with full satisfaction, from two good living plants, obtained from Mr. Endres, and beginning to flower in the Hamburgh Botanic Garden. It is immediately distinguished from L. macrophylla, Lindl.! (L. plana, Lindl.!), by its very short bract, the latter having a long acuminate bract much exceeding the ovary. The narrow lip, with a little fold on each side, is also quite peculiar. The sepals are olive-green outside, brown inside; the petals and lip are yellowish white, the latter with some brown spots.

The plant is dedicated to Captain Dow, who was for many years a kind protector to all travellers who made use of the steamers under his command, and, moreover, a paternal friend, it seems, highly esteemed by Mr. Endres, the most persevering and the luckiest explorer of the Costa Rica Orchids. *H. G. Rchb. f.*

* Pedunculi vagina ampla cucullata acuminata, bractea æquali ovarium pedicellatum multum superante; mento parvulo retrorso; sepalis late ligulatis obtuse acutis; tepalis ovatis attenuatis obtusis; labello e cuneata basi expanso apice trifido; laciniis lateralibus obtusangulis, lacinia antica producta longiori anguste oblonga acuta, hinc denticulata, plica utroque latere medio laciniarum lateralium; callo lineari antice inter angulos laterales ascendente cochleariformi; columna clavata antice subpuberula.—Sepala brunnea violaceo-aspersa; tepala et labellum albidoflava; tepala basi purpureo-lavata; labelli nervi pallide purpurei.

† Pedunculo paucivaginato unifloro; bractea cucullata oblique acuta ampla ovario distincte breviori; mento retrorso bene evoluto; sepalo summo ligulato acuto, sepalis lateralibus latioribus ligulatis acutis; tepalis cuneato-oblongis acutis; labello cuneato dilatato antice trifido; laciniis lateralibus obtusangulis; lacinia media anguste oblonga serrulata, plica utrinque una media inter angulos et basin labelli; callo depresso lineari antice obtuso marginato in disco ab regione antebasilari ad basin laciniæ mediæ.—Habitus Lycastidis macrophyllæ, Lindl., sed omnibus partibus minor. Sepala extus olivacea, intus brunnea; tepala alboflavida; labellum albidoflavidum punctis brunneis supra callum et striis radiantibus a basi utrinque medium versus; striæ quædam atrobrunneæ in basi antica columnæ subcalvæ; anthera apice velutina.

VINE TRAINING IN ITALY.

The Vine is certainly one of the most accommodating of plants. Within certain climatal limits, now well ascertained, it thrives and produces fruit. As a general rule, it may be said that where the climate is relatively unfavourable, there the wine is best. This happens probably from the greater skill and care displayed, alike in the cultivation of the Vine and the manufacture of its produce. The Vines from which the best champagne is made grow furthest to the north, if we except the Chasselas de Fontainebleau, which hardly constitute an exception as they are used as table Grapes only. The Chasselas is grown near Fontainebleau on walls and on trellises of wire, espalier-wise.

As the traveller through France passes eastward, either on the Strasbourg or the Lyons lines, he soon comes into the Vine districts, at first meeting with the vineyards on the sunny slopes of the chalk downs; and it is not till he nears the Côte d'Or and Burgundy regions that the cultivation of the Vine on the flat is to be seen to any extent. Even here spring frosts cause enormous losses. During the present spring (May) large tracts of Vines might be seen near Dijon and Nuits blackened by the frost, though here and there attempts had been made to protect the Vines by straw mats and light planks of wood. It is evident that such measures can only be used on a small scale. Later on the hailstorms often do great damage, as in Horace's time, when as we read "grando contuderit vites." The Vines in this part of France are grown in rows, being planted in furrows, or sometimes in pits, the soil being for the most part limestone or reddish marl resting on chalk, and evidently hot and well drained. The Vine is only allowed to form a very short stem, being cut down every year after the ingathering of the crop (see fig. 41). A stake is used to support the stem, or, in some places, strands of galvanised wire are stretched from pole to pole, and the rods trained along them. This method permits the use of sheltering mats or canvas screens.

It is not till the traveller has passed into Italy through the Mont Cenis tunnel that he begins to see those varied modes of training the Vine of which we read so much. A French vineyard—and the same may be said of those

Fig. 41.—Vine stump.

on the Rhine, the Neckar, and the Moselle, and those of Vöslau and Baden in Austria—is decidedly not so pictural a sight as an English Hop garden, but in Italy the Vine is trained in a hundred different ways, and though the quality of the liquor is not good, no one can deny the beauty of the Vine. The illustrations which we give were taken from rough sketches made in the railway carriage on the road from Turin to Florence. One very striking arrangement is that shown in fig. 42 A, where the stock is allowed to form an unbranched stem, 4 to 5 feet in height, bearing at its summit a number of branches so disposed as to form a bowl or cup, just as in the Apples in the old orchard at Chiswick. The Vines are planted at a little distance one from another, and connected by festoons. Evidently considerable pains must be taken here in pruning and regulating the shoots so as to let in light and air and preserve the shape. Vines of this character form the boundaries of fields in which Maize, Lupins, and other crops are grown.

Leaving Turin the traveller sees on either hand the Alps, now distant enough to look etherial—a very different aspect to that which they present on a nearer view; and speeding along the level plains of Italy are soon reached, "humilemque videmus Italiam."

Here the wonderful variety in the training of the Vine first becomes apparent. A very common arrangement is that represented in figs. 43 D, 44 G, where the Vines are allowed to grow over a rough wooden framework 4—6 feet high, exactly as they did in Columella's time, that writer speaking of the "pedamenta," or poles on which the Vines rested, and of the "juga," which were the square frames

like those just mentioned. Near Asti this mode of growing the Vine is very frequently seen, and the district is noted for its wine. "Asti spumante" should be a sparkling wine, of some merit—at least it has such a reputation—but that which we had the luck to taste was scarcely equal to good ginger beer. In some places the Vines are grown on an arcade, consisting of stakes supporting arches, formed of a bent Willow wand, to which the Vine is trained as in fig. 44 F. In other cases the rods are not cut away after the Grapes have been gathered, but are tied up in bundles like Raspberry canes, and bent downwards, and covered with straw during the winter.

Still going in a southerly direction, through a wonderfully fertile country, with Arundo Donax by the sides of all the ditches, the traveller passes Piacenza. Hereabouts the most general mode of training was like that shown in fig. 42 B. This is a somewhat complicated arrangement, consisting of three or more short stakes, arranged in a central pyramid fashion, as soldiers pile their arms. On either side of the centre are two or more curved stakes, and the Vine is allowed to entwine itself around the whole. In this manner the Vines are grown in rows amid the Maize. Near Parma another mode prevails, which is shown in fig. 42 C. Here a pollarded Maple forms the centre, and from it radiate a number of stakes or laths, like the ribs of an umbrella. These are fixed to other sloping stakes, thrust into the ground, the whole recalling in shape a circular hayrick.

It is not till the traveller arrives near to Bologna that he sees the Vines affixed to the Elms. Fig. 43 E will, however, show that Virgil's expression, "Vitesque adjungere ulmis," is still applicable. The Elms are pollarded, and from tree to tree run festoons of Vines. Sometimes the pollards are so pruned as to be bifurcated at the top, like the letter Y, and then a double festoon is formed, one from each branch.

The plan of allowing the Vine to scramble at will to a considerable height up the trees is apparently not now practised in this part of Italy. It is difficult to see what advantage such a plan would have, and equally easy to see how much more convenient it is to keep the Vines more within easy access. In olden times, however, a different view prevailed, and Pliny states that the best wine was only produced from Vines allowed to twine round trees—"Nobilia vina non nisi in arbustis gigni." "Ulmi vitibus maritantur" says Columella, while Horace mentions the wedding of the Vine and the Poplar—"Adulta vitium propagine altas maritat populos;" and Virgil makes frequent allusion to the similar union between the Vine and the Elm.

It is very strange that neither in olden nor in modern times do the Italians seem to have used fruit trees for the purpose of training the Vine. They do not even, as a rule, make use of the white Mulberry, so commonly grown in the same places with the Vine, but this may be from the inconvenience the Vine would cause in stripping the pollard Mulberries of their leaves for the silkworms. Perhaps there may be a feeling that there would be a jealous antagonism between the two fruit trees, which would not tend to a fertile union. At any rate, Maples and Elms appear to be the trees commonly used for the purpose, and these being pollarded yield abundance of stakes—so useful, as we have seen, in other modes of training. Here and there the flowering Ash, Fraxinus Ornus, is used, and the feathery inflorescence of this tree, overtopping the young foliage of the Vine, is very beautiful.

In addition to these more formal modes of training the Vine in fields and vineyards proper, the inhabitants very naturally avail themselves of so beautiful a climber to cover their summer-houses and arbours, and specially to form their "pleached bowers," here called "pergolas," and which consist of straight walks with square stone pillars at intervals, and with a latticework roof of laths at the top, the whole covered by the rich foliage of the Vine. How delicious these shady walks must be in the fierce summer-heat needs no telling. Round Florence, and, indeed, wherever agricultural improvements are in course of introduction, these pictural methods of growing the Vine are giving place to the French method of culture, which, if less beautiful, is infinitely more satisfactory as regards the quality of the produce.

For the first day or two in Italy one succeeds fairly well in the attempt to like Barolo and Asti. At Florence Chianti is relished for a change, served as it is in what we should call oil-flasks, with a little oil in the neck floating on the wine and "corked" with a plug of cotton wool, which serves to suck up the oil when the wine is wanted. Montepulchiano is called for in remembrance of Redi's enthusiastic praise, as rendered by Leigh Hunt—"Montepulchiano's the

Fig. 42.—Vine training in Italy.

king of all wine." Recollections of Horace, too, crowd thickly upon one here, and one thinks of "repostum Cœcubum," and of Falernian and of Massic, of which he says "quocunque lectum nomine Massicum," reminding us of the "Wallsend" coals now obtained from anywhere but Wallsend. The ascetic Cato did not disdain the "languidiora vina," but kept himself in good humour by occasional draughts of the rosy wine. Again, Horace is our authority—

"et prisci Catonis
Sæpe mero caluisse virtus,

finding perhaps by experience the truth of that other Horatian saying—

Qui nunc Sulpitiis accubat horreis,
Spes donare novas largus amaraque,
Curarum eluere efficem.

But after a day or two, when the novelty has passed off, and one begins to find that no other beverage is attainable, and that somehow or other one's recollection of Horace's Odes is not quite so vivid as once it was, and when one begins to find, too, that one is not able to translate them to one's satisfaction, why then the Italian wines begin to taste nasty. Is it because one has forgotten one's Horace?—or is it because the Italian Vine growers do not take pains enough with the manufacture?

We rather incline to think the Vine grower is not entirely to blame, any more than Horace is to be made responsible for our never bright and now quite rusty latinity—a reflection which is quite in accordance with the spirit of Byron's valediction to Horace, with which we close these notes :—

"Then farewell Horace, whom I hated so,
Not for thy faults, but mine!"

CAMELLIA CULTIVATION.

THE Camellia is cultivated with so much care and success in France, that the following account of the method pursued there cannot fail to be of interest.

Since the plant was brought from Japan in 1739 by the Jesuit Father Camelli, it has continued to grow in public estimation, which has increased with the new varieties which have been produced by careful cultivation. The flower is grown with much care in the best nurseries in France and other countries; but as many growers adhere to the old routine, it is well to lay before our readers an account of the system at present considered in France as the best for obtaining vigorous plants and fine blossoms.

April.—About the end of this month, or when the blossoming is nearly finished, all the plants should be examined to see if they require to be repotted. The repotting should be performed with good peat-mould, pretty rich in vegetable humus, and containing sufficient sand to keep it open. It is very important not to break up the mould too much, but to leave a number of small lumps, which may decompose gradually according to the wants of the plant. At the bottom of the pots or tubs should be placed some roots of Heather, which are far better than the stones or broken potsherds generally employed. In the case of plants which do not require repotting, nothing more is needed than to replace the top earth by fresh soil. The Camellias should then be placed in a good glasshouse, well shaded by means of thin linen or branches, or the glass should be washed over with whiting and size, or simply with milk.

The plants should be kept at a regular temperature of 20° to 30° Centigrade [68°—86° Fahr.]. The sun will generally supply sufficient heat during the daytime, and during the night the house may be allowed to cool, only taking care to close it carefully. It is important to give the plants a little air every day, but great care must be taken to keep draughts from the plants. The syringe must be used on the leaves night and morning lightly, and the roots of the plants must be well watered. The watering is most important, for drought is extremely injurious to the Camellia.

This treatment must be continued from the beginning of May to the middle of July, without a day's omission, for free flowering and the vigour of the plant depend upon it. By the 15th or 30th of July the plants will have generally finished growing, and have formed their flower-buds. If the weather is fine—that is to say, if the temperature is that of summer—the Camellias may be set out-of-doors in an eastern exposure. The pots should be buried in the ground, and the plants syringed night and morning when the weather is warm.

If the season is very dry, the ground around should be well watered, as the evaporation produces a warm mist, which is of the greatest benefit to the plants.

If the weather is bad, the temperature irregular, and the nights cold, the Camellias are better left in the house, syringed and watered as above described, but giving them more air than in the spring.

September.—About the middle of September the syringing may be done only once a day, and the watering reduced gradually with the temperature, which now falls rapidly, while the humidity increases. If the plants have been taken out-of-doors, they must be taken in again about the end of this month.

October.—Syringe the leaves only now and then, and in the morning, when the sun is shining.

November.—During this month very little watering is required; the soil of the Camellias should then be kept almost dry.

December and January.—Still keep the mould almost dry, and maintain a low temperature in the house; if the thermometer range between 0° and 5° C. [32°—41° Fahr.] that will be sufficient. To bring Camellias forward early the plants must be placed in a hothouse and syringed and watered abundantly. Towards the end of January, however, the earth may be watered moderately if the weather is open, but the leaves must not then be syringed.

February.—If the weather is mild the watering may be increased, and a little air let into the house from time to time. The same remarks apply also to the months of March and April. From about the beginning of March the plants must be shaded, as mentioned above, till about the end of September, in order to prevent sun-strokes, which are extremely injurious to the Camellia.

The cultivation of Camellias in the ground under glass is strongly recommended, as demanding less attention, being more safe, and producing the finest flowers. They are sometimes arranged in large cases, but the mode recommended is to place them in beds with a background of shrubs, plots of Lycopodium, with rocks and basins, which are favourable for the plant and bring out its beauty in a striking manner.

The earth must be dug out to the depth of half a yard. At the bottom must be placed about 4 inches of white sand, and on this a layer of 4 inches of Heather roots slightly broken up. The mould must not be sifted, but left with small lumps in it as already stated, for if sifted or broken fine it decomposes immediately, and in about two years the plants will cease to flower, or in many cases, it may be feared, even to grow.

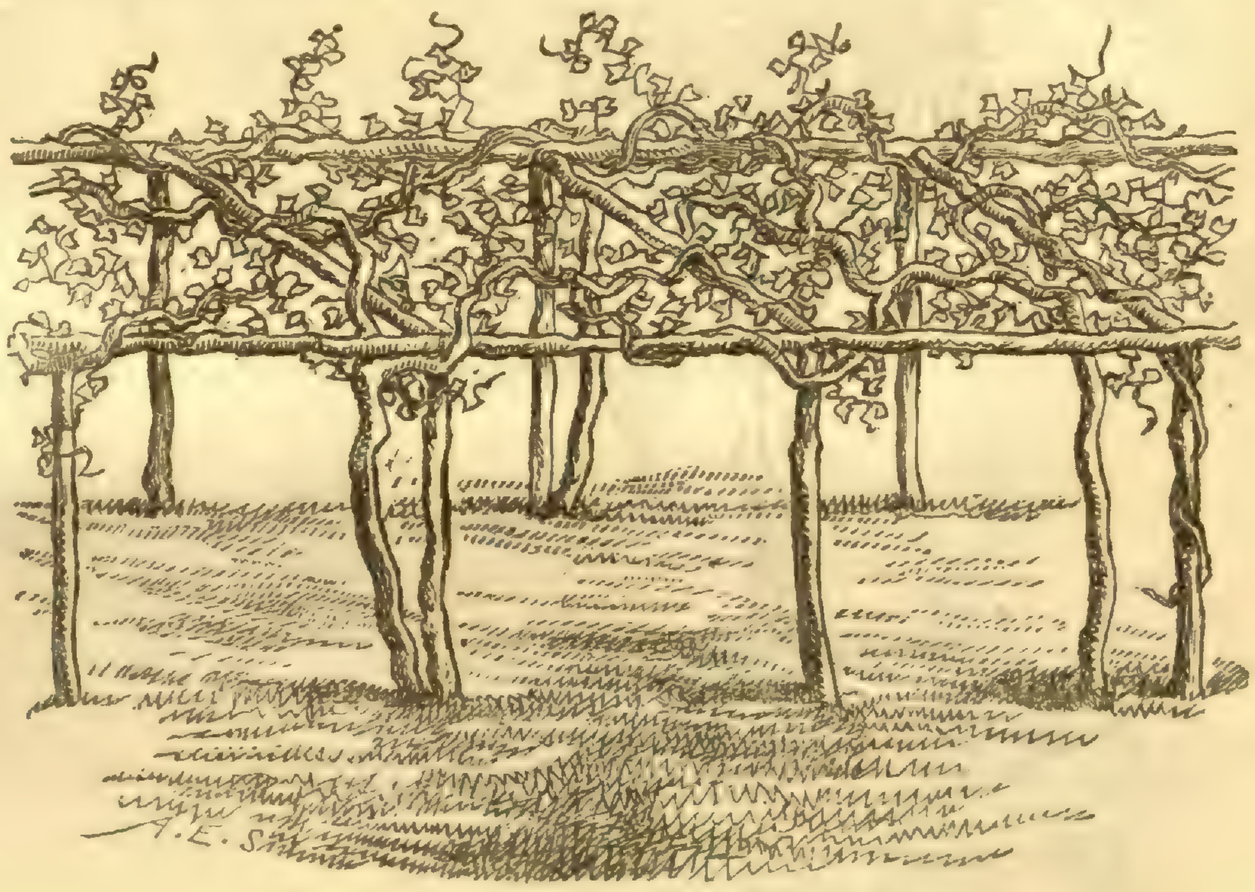
The beginning of May is generally the most favourable for planting, but it may be carried out without danger from the beginning of July to the end of December.

It is strongly recommended not to make the mould more than half a yard deep, for the Camellia loves to have its roots near the surface of the soil, when it grows most vigorously.

Every year, in the spring, the upper mould should be removed to the depth of four or more inches, as far as it has been affected by the watering, and replaced by very rich peat-mould. The new roots always tend towards the surface, where they get the atmospheric fluids which are necessary for them. With care Camellias may, on this system, be kept in full vigour for more than twenty years in the same earth without rotting.

Visitors to Paris will find a magnificent collection of Camellias cultivated in this manner in a large glass house in the garden of the city of Paris, at La Muette, on the edge of the Bois de Boulogne. The nucleus of this collection was that of the Empress Josephine, at Malmaison, and which was the wonder of its time. *Y.*

D



E

FIG. 43.—VINE TRAINING IN ITALY.

SCOTTISH ALPINE BOTANICAL CLUB.

The autumn meetings of this Club, which was instituted at Killin in 1870, were held during last week at Braemar, Aberdeenshire. The members started from Edinburgh on Monday, August 3, and proceeded by rail to Blairgowrie, Perthshire, where they remained over-night at the Queen's Hotel. Next day, accompanied by Dr. John S. Gowan, of Blairgowrie, they

drove to the Spittal of Glenshee, and thence to Braemar. In the evening a business meeting was held in the Fife Arms Hotel, at which there were present :—Professor Balfour (Edinburgh), Professor Alex. Dickson (Glasgow), Rev. R. F. Colvin, Drs. Wm. Craig, T. Balfour, H. M. Church, C. Stuart of Chirnside, J. E. Shaw, of Bristol ; Messrs. Boyd, of Ormiston ; Arch. Gibson, Glasgow ; Duthie, R. Lindsay, and J. Sadler, Edinburgh. Letters of apology were received from Dr. Walker, Dr. Leitch, Dr. Isaac Bayley, Balfour, Dr. Aitken, Mr. Maw, and Mr. Jenner.

The Secretary, Mr. Sadler, read a report of the spring meetings held at Clova, Forfarshire, in April last, and also gave a statement as to the present financial condition of the Club, which was approved of. The following office-bearers for 1875 were elected :—President, Dr. Balfour, Professor of Botany, University, Edinburgh ; Vice-President, Dr. A. Dickson, Professor of Botany, University, Glasgow ; Secretary and Treasurer, Mr. John Sadler, Lecturer on Botany, Royal High School, Edinburgh ; Chaplain, Rev. R. F. Colvin, Kirkpatrick-juxta ; Minstrel, Dr. A. P. Aitken, Assistant to Professor of Chemistry, University, Edinburgh.

On Wednesday Lochnagar was ascended amidst a storm of wind, rain, and dense mist, which interfered much with botanising ; nevertheless, many rare and interesting alpine plants were collected. Three of the members descended a steep gorge on the southern side of the mountain, where, on wet ledges about 3500 feet above the level of the sea, they gathered the alpine brook Saxifrage (Saxifraga rivularis), which is only to be found in one or two other spots in Scotland. In marshy places, near the summit of the mountain, the loose-flowered alpine Carex (C. rariflora) was seen growing in abundance, while lower down the trailing Azalea (A. procumbens), and the leafless Moss (Buxbaumia aphylla), were collected.

On Thursday, Canlochan, at the head of Glen Isla, and Glas Maol were visited. The last-named is a mountain 3500 feet above the sea, and on the summit of which meet the counties of Aberdeen, Perth, and Forfar. Among the plants collected in Canlochan corrie were the alpine Gentian (Gentiana nivalis), the blue Sow-Thistle (Mulgedium alpinum), the mountain Avena (Dryas octopetala), the alpine Fleabane (Erigeron alpinus), the Orange Cinquefoil (Potentilla salisburgensis), and the alpine Saussurea (S. alpina). By the sides of streams near the summit of Glas Maol the alpine Foxtail-grass (Alopecurus alpinus), and the alpine Cat's-tail-grass (Phleum alpinum) were abundant. The beautiful, large-fruited Bottle Moss (Splachnum vasculosum) was also met with on this mountain.

On Friday the Club formed two parties—one proceeding to Little Craigandal and Ben Avon, and the other to Glen Callater and Loch Chander (Cean-Mor). On Little Craigandal the alpine Milk Vetch (Astragalus alpinus) was found growing in the greatest profusion. This lovely little alpine was first discovered on this hill by Professor Balfour in 1847, and since then it has increased to a great extent, in some places forming almost the entire turf, and the deer are said to be exceedingly fond of it. There is only one other spot where the plant is found in Britain, viz., on Craig Maid in Glendole, Forfarshire.

Owing to the remarkable mildness of the last winter very little snow was observed during the excursions on the mountains, but on Ben Avon some of the party visited a large wreath filling up a deep ravine, and hollowed out below so as to form a long vaulted tunnel, on the floor of which several species of mosser and Liverworts were collected.

In Loch Callater, which is situated at an elevation of 1650 feet above the sea, the Water Lobelia (L. Dortmanna) was seen, and on rocks near the Breakneck Waterfall the Rock Carex (C. rupestris) was found in abundance. On the cliffs above Loch Chander, one of the most desolate, wierd-looking places in the whole of Scotland, several species of alpine Willows were gathered, including Salix lanata, Lapponum, and Myrsinites.

In the evening the concluding business meeting of the Club was held, when the President was instructed to write to the Earl of Airlie and also to Colonel Farquharson of Invercauld, and acquaint them of the results of the excursions over their respective properties, as these gentlemen had expressed their interest in the Club's proceedings. The Club then adjourned till the first week of August, 1875, and it was remitted to the office-bearers to make the necessary arrangements as to the localities to be then visited.

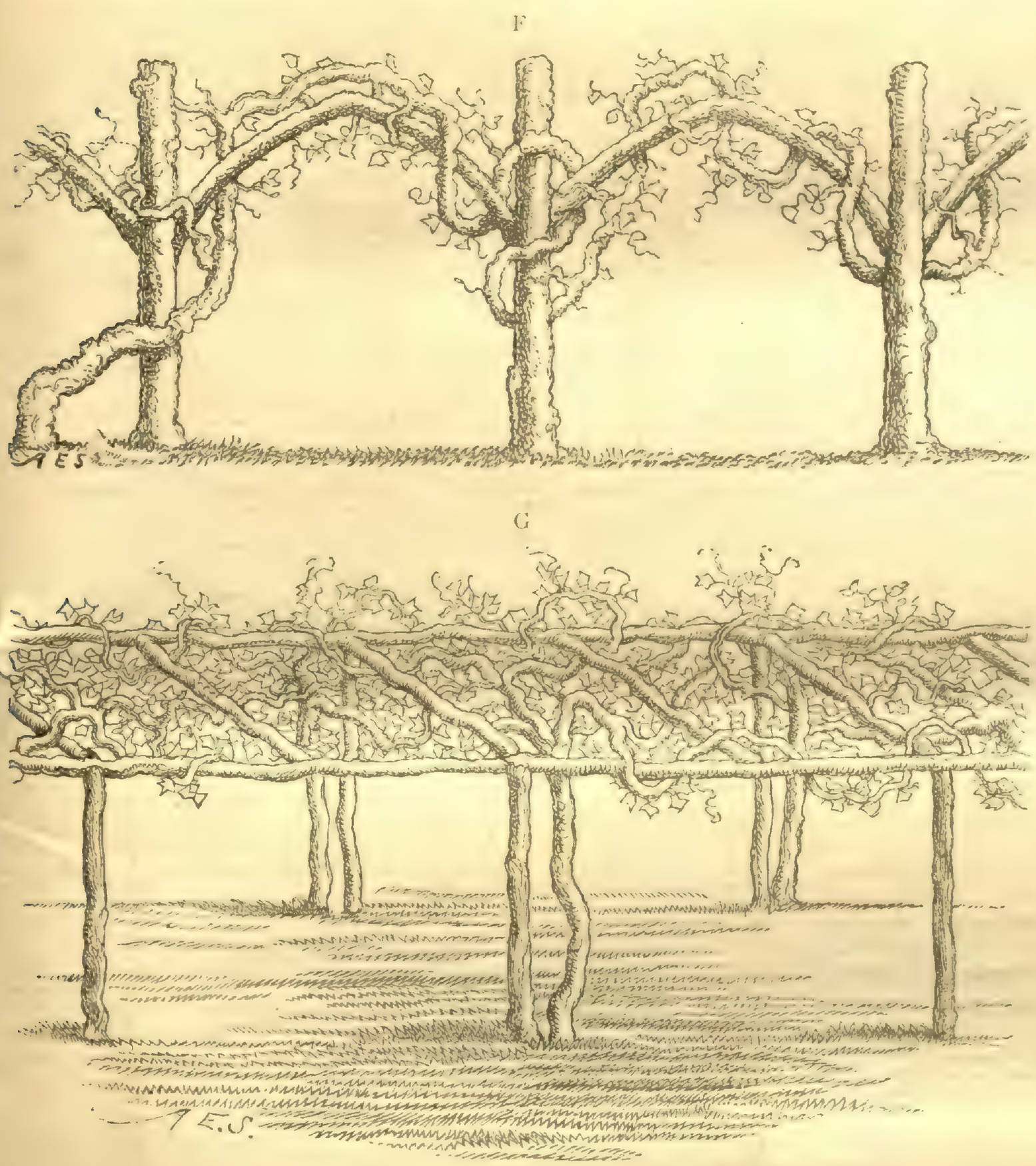


Fig. 44.—VINE TRAINING IN ITALY.

PLANT GOSSIP.

To residents in the south of England who seldom see the glorious Tropæolum speciosum doing well even in plant-houses, the sight of a mass of its rich scarlet flowers on the walls of sheltered cottages in various parts of Scotland is a treat indeed. There is a fine show of it on the cottage of Mr. Laing, gr. to the Duchess of Sutherland and Countess of Cromartie, at New Tarbet, in Ross-shire ; and we saw a nice patch of it on a garden wall so far north as Stirkoke, the residence of Major Horne, in Caithness. The plant, we were informed, covers the front of some of the hotels in Braemar, and when in full flower in August is "a sight for the gods."

—— There is such a demand for the flowers of the Maréchal Niel Rose in early spring, and the Maréchal is so chary of producing his lovely blossoms except under the conditions of vigorous growth, that we gladly welcome any device in its culture which can be generally adopted and depended upon to insure the latter. Mr. Dunn recently showed us at Dalkeith some plants growing in pots which have this season made quite a luxuriant growth, the secret of which is found in the fact that they are budded low on a seedling Brier, grown and used for this purpose by Mr. Dickson, nurseryman, of Newtownards, near Belfast. The plants at Dalkeith have made three times the growth of those on the ordinary Brier, and Mr. Dunn is convinced that this is the right way to grow it. We trust others will try this plan, and let our readers know the results, for who is not interested in the Maréchal's well-doing?

—— The dimensions are frequently given of fine plants of Wistaria chinensis, and to such information we may add that a grand example may be seen on the walls of Newbattle Abbey, the seat of the Marquis of Lothian, a few miles from Edinburgh. We cannot give exact measurements, but it covers a side of the mansion, excepting the space occupied by the windows, 100 feet long and 55 feet high—a noble plant, tenderly cared for and shown with just pride by his Lordship's gardener, Mr. McLeod. There are other noble trees at Newbattle, which we shall take another opporunity of alluding to.

—— A bed of the attractive hardy Chilian Salpiglossis, now in the full flush of its beauty at Chiswick, is an object of considerable interest to visitors at the present moment. The Salpiglossis is unquestionably in the front rank of the aristocracy of hardy annuals, and when one looks upon this bed of large, handsomely-marked, vari-coloured flowers, representing hues quite fantastic in character, they seem to be associated with a country "where gorgeous hues flaunt themselves in the light of day." It wants the full flood-tide of an unclouded meridian sun to show the superb flowers off to advantage, and then the varying tints are seen to perfection, from a creamy-white to a black-blue and purple. Mr. Barron does well to sow a large bed of a fine annual in this way ; by doing so he produces one of those pleasant floral surprises that always make a visit to Chiswick so enjoyable during the summer. The seed was sown in March in the open ground where the plants are now flowering, and all that is needed is a little thinning out where the plants are thick, and the pulling out of inferior types if they present themselves. It is now the custom with some flower-seed growers to save Salpiglossis in colours, and it would thus be possible to have a series of beds, each of one variety. As an invariable rule there is always present a tendency to vary, but, on the whole, selected colours come pretty true to character.

—— White flowers at Christmas time are a desideratum everywhere, and more than ever now that there is such a heavy demand for the decoration of churches. For this purpose tender forced flowers are not so lasting as those which can be brought into bloom naturally in cool houses. A plant which conforms to the latter treatment is the new white Phlox, Miss Robertson, sent out by Messrs. James Cocker & Sons, of Aberdeen. Cuttings put in in spring, and grown on vigorously in a cold frame until autumn, and then removed to a cold house, make plants from 12 to 18 inches high, in 6 or 8-inch pots, which come into flower freely. This variety is also very sweet-scented.

—— Messrs. J. and R. Thynne, nurserymen, Great Western Road, Glasgow, are in possession of a Violet-scented variety of Asplenium fragrans, which was found in America, and which will probably be sent out ere long.

—— In the Azalea-house at the Botanic Gardens, Glasgow, Mr. Bullen, the Curator, has, besides other fine specimens, a plant of the old Azalea indica alba which measures 7½ feet in height and 26 feet in circumference of the lowest part. Notwithstanding its age and size it is in a fine state of health.

REPORT ON THE CONDITION OF THE FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS, AUGUST, 1874.]

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
SCOTLAND.											
CAITHNESS ..	A fair crop of Moorpark and Breda	Good in places, in others light and small	A generally good crop	Very good in some places, light in others	Very good	A generally good crop	A few: all under glass	....	Very good in most places	Very light crop	John Sutherland, Langwell, Berriedale
SUTHERLAND	Very few	Generally thin crop	Late sorts under average, early sorts fair	Average	Very good	Under average	....	....	Heavy crops	Average	David Melville, Dunrobin Gardens
ABERDEEN ..	Good	Good	Fair	Good	Abundant	Good	Very few grown outdoors	....	Very abundant	....	George Donaldson, Keith Hall
	Abundant but not large	Very good	Excellent but in want of rain	Almost every sort seems abundant	Good, especially Sir Joseph and Elton Pine	Fair average crop	Too cold to grow them in the open air	The same as the Peaches and Nectarines	Gooseberries and Currants are very rich	Fair; not much grown	R. Farquhar, Fyvie Castle
FORFAR ..	Above average Shipley's and Moorpark are the hardiest and best here	Average crop on walls, very few on standards	Average crop of some kinds on walls very few on standards	Under average, excepting Victoria and Jefferson	Extra fine crop and excellent quality	Good crop	Thin outside, fine under glass	Few from outside, extra fine under glass	Red Currants abundant, Raspberries and black Currants thin, Gooseberries plentiful	Thin	George Johnston, Glamis Castle
PERTH	A good crop	Trees are only young	A scarce crop	Very scarce, except of Victoria	Abundant, but soon over	Morellos plentiful, others scarce	None in the open air	All under glass here	Abundant of all kinds	Under the average	J. Browning, The Gardens, Dupplin Castle
FIFE	None; they do not thrive here	An abundant crop	An average crop	Plentiful	Most abundant, and fine	Plentiful, especially the early sorts	None on open walls	Not grown out-of-doors	Abundant of all sorts	A scarce crop	Robert Adamson, Balcarres, Colinsburgh
STIRLING	Averge crop	Fair crop	Middling crop	Scarcely middling	Excellent crop	Very good	Middling	....	A fair crop	....	M. Fitzgerald, Dunmore Gardens
EAST LOTHIAN	Abundant	Very moderate	Moderate	Half a crop	Very abundant	Abundant	A few on walls	Not grown	Large crop, except of Gooseberries	....	Alexander Shearer Yester Garden
MIDLOTHIAN..	Fully an average crop	Moderate; fine in size and quality	Over average; fine fruit, and trees healthy	Good, and the fruit clean and good; Damsons, heavy crop	Moderate; early sorts suffered from dry weather in June	Good crop; Morellos very good	Not an average; trees suffered in spring	Very few grown out-of-doors	Abundant, and but poor in quality	Partial crop; not many grown	Malcolm Dunn, Dalkeith Gardens
BERWICK	Most abundant; better than for last two years	Very scarce; bloom destroyed with frost	Scarce; a few early varieties: late none	Most abundant crop	Very fine crop	Fair crop	Abundant under glass; none out-of-doors	None out-of-doors	Most abundant	Plentiful	Peter Loney, Marchmont, Dunse
AYRSHIRE	Crop generally few, poor	Partial: on the whole a good average	Thin crop	Thin crop, except Victorias, which are abundant	Good crop, good quality	Very thin	Very few	....	Abundant	....	John Gray, Eglinton Castle
DUMFRIES ...	Thin crop	Great crop	Average crop	Average crop	Great crop	Good crop	Thin crop	None cultivated outdoors	Unusually abundant and fine	Fair crop in the woods	D. Thomson, Drumlanrig
KIRKCUDBRIGHT	....	Good crop	Good crop	Very heavy crop	Light crop	Good crop	Variable	....	Abundant; Raspberries small	....	James Johnston, Terregles Gardens
WIGTOWN	....	Abundant	Average	Scarce	Good	Good	....	Scarce	Abundant	....	Archibald Fowler, Castle Kennedy
NORTHERN COUNTIES.											
NORTHUMBERLAND	A good crop, above the average	Partial, bloom cut with frost in May	A good crop on most of the trees	A fair crop on walls and orchard trees	A great quantity, fruit small	May Dukes plentiful; Morellos light	Abundant, trees clean and healthy	Few grown outdoors here	An abundance, but smaller than usual	Hazel Nuts plentiful, very few Walnuts	Alexander Ingram, The Gardens, Alnwick Castle
CUMBERLAND	But little grown in this district	Generally good in the district	Under average in the district	Abundant in places; generally below an average	Under average generally	Under an average	Very good under glass	None grown outside	Raspberries abundant; Currants below average; Gooseberries good	Few grown in this neighbourhood	Joseph Williamson, Castle Gardens, Whitehaven
	Below average	Average	Below average	Average	Below average	Generally below average	Below average	But few cultivated	Average	Below average	John Taylor, Isel Grange, Cockermouth
WESTMORELAND	Abundant crop	Some sorts fair, others thin	Good crop	Good crop	Good crop	Very few	None grown outside	None grown	Gooseberries plentiful; others scarce	....	W. Shand, Lowther
	Light	Average	Good	Average	Good	Very light	Average	Good	Average	Very light	Charles Chaplin, Belsfield Gardens
DURHAM	Good	Very few	Plenty	Very good	Generally not good	Early kinds good; Morellos scarce	Very good	Little grown in the open air	Generally very light crops	Not much grown	Richard Westcott, Raby Castle
	Not grown here	Under the average; Codlins are abundant	About an average: good sorts will not ripen here	Not grown; they never come to perfection	Abundant, especially of Black Prince, and Comte de Paris	Not grown to any extent	Never come to perfection in this locality	Not grown out-of-doors	Gooseberries, Currants, and Raspberries are good	....	R. Draper, Seaham Hall Gardens
YORKSHIRE ..	Very abundant in this neighbourhood	A light crop; some kinds good, others a failure	Very abundant; standard trees heavily laden	The Victoria is grown very extensively, and is a good crop	A fair average crop; the fruit smaller than usual	A good crop; trees much plagued with black-fly.	A fair crop; trees looking well	A god crop; trees protected in winter	A good crop, but red Currants smaller than usual	Filberts and Cobs good crops; Walnuts light	Michael Saul, The Gardens, Stourton, Knaresborough
	Average crop	Light crop	Good on some trees	Scarce	Plentiful	Good crop	Thin crop	....	Plentiful	Plentiful	James Fowler, The Gardens, Harwood
	In general a light crop	Variable: in heltered situations a good crop	Hardy kinds generally plentiful: average crop	Generally an average crop	Plentiful; fruit small, and very acid	Average crop	A failure where no protection was given	Very light crop	Plentiful; Gooseberries fine; Currants small	Fair crop, particularly Walnuts	Robert C. Kingston, Brantinghamthorpe
	Fair crop	The prospects not very promising	Ditto; good on walls	None	Very good	Good on walls	Heavy crop under glass	....	Good	....	J. Simpson, Wortley Hall Gardens, Sheffield
LANCASHIRE..	Very few	Good where they escaped the frost	Good	Scarcely any, except in sheltered places	Partial: good where they escaped the frost	Morellos good, others thin	About half a crop	....	Gooseberries good, Currants poor, Raspberries moderate	....	Edward Green, Bank Park, Warrington
	Fine crop	On bushes and low standards a nice crop, in orchards none	Promising well, especially Marie Louise	Scarcely any	A fine crop, but smaller than usual	A fine crop, black-fly has been troublesome	Moderate crop, rather irregular	Not grown out-of-doors	Good	....	F. Harrison, Knowsley Hall, Prescot
	....	Few and small	Half a crop	Few: trees covered with blight	Average crop	Scarcely any: infested with caterpillar	Not grown outdoors, good under glass	None outside	Gooseberries, red and white Currants fair, black Currants a failure	Very few	Andrew Jamieson, The Gardens, Haigh Hall, near Wigan
	Will not grow outside in this locality	None in the orchard or the garden	Half a crop on walls, none on standards	A partial crop, owing to spring frost	Good crop, very large fruit	Early sorts failure, partial crop of Morellos	None grown outside	....	Heavy crop	....	Henry Lindsey, Huntroyde Park, Gardens
	Do not succeed	Middling	Good crop generally, some trees very heavy	Poor	Remarkably good crop	Morellos very good	Crop fair; trees making better growth than for several years	None grown	Partial, on account of May frosts	....	W. B. Upjohn, Worsley Hall Gardens, near Manchester

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
MIDLAND COUNTIES.											
CHESHIRE	Average crop; trees protected when in bloom	Very scarce	Good crops	Average, Damsons below average	Moderate crop	Moderately good	Moderately good; abundant in houses	None out-of-doors at present	All kinds except black Currants very abundant	Very few	W. Whitaker, Crewe Hall, Crewe
	Heavy crop; fruit rather small	Poor crop; fruit small	Average crop	Good on walls, poor on standards	Heavy crop; fruit small	Small, and under average	Good under glass, thin on walls	Very few	Currants good, Gooseberries average, Raspberries plentiful	Walnuts a failure; Filberts and Cobs thin	John Malcolm, Cholmendeley, Nantwich
	Good crop generally	Light crop, especially late kinds	Thin; injured by frost	Fair crop on walls; few Damsons	Under average, owing to dry season	Very few, except of Morellos	A partial crop	Not grown out-of-doors	Very light crops; destroyed by frost	Below average	Alfred Joseph Grant, Withington Hall, Chilford
NOTTS	Good crop	Fair crop	Average crop	Very good crop	Plentiful; fruit small	Good crop	Average crop	None grown outside	Good crops	Light crops	S. A. Woods, Berry Hill, Mansfield
	Plentiful and fine	Keswick Codlin abundant; other sorts scarce	Scarce	Scarce	Abundant	Plentiful and fine	Abundant, some trees affected with mildew	....	Good, with the exception of Gooseberries	No crop	J. Miller, Clumber, Worksop
SALOP	Abundant in places; fair only in others	Very partial; fruit small	Abundant in places, and generally good	Fair; Damsons on light lands much shrivelled	Good crops	Fair, but small	....	Few grown; none here will ripen	Good crops; Raspberries soon over	Very few	Daniel Judd, Hawkstone
	Excellent, and early for the district	Much under average	Very good	Almost a failure	Abundant and fine; season short	Very good	Partial crop, owing to frost in March	....	Very good	....	James Fairweather, Halston Hall, Oswestry
	Very good	Good	Abundant	Very good	Good	Very good	Good	Good where grown	Very good	Good	Wm. H. Welch, Willey Hall Gardens
STAFFORD	Light crop, and small	Partial	Good crop, but small	Heavy crops, except of Damsons	Good	Half a crop	Very bad	....	Plentiful	Very few	Edwin Simpson, Wrottesley, Wolverhampton
	Medium crop; fruit finer than usual	Partial crop	Most abundant	Good average crop	Average crop	Abundant crop	....	....	A good crop, except of black Currants	Plentiful	Owen Thomas, Drayton Manor Gardens
	Very thin	Half crop	Good	Plenty	Abundant, but affected by drought	Plenty	Very good	Do not ripen out-of-doors here	Gooseberries and Currants thin, Raspberries good	Plentiful in sheltered places	Thos. Rabone, Alton Towers, Cheadle
	A light crop; fruit fine	A thin crop generally	Good on walls, average on standards	An average crop; Damsons thin	Very good crop, fair size and fine flavoured	Good average crop	Thin crop	Good here; not many grown out-of-doors	Generally excellent; scarce in low situations	A failure here, and thin in the district	Thos. Bannerman, Blithfield, Rugeley
LEICESTER	Light here but heavy in some parts	A very good crop	Very good on walls; fair on standards	Unusually heavy crops of all kinds	Plentiful, but suffered from the drought	A very good crop of all sorts	Both rather thin, but still a fair crop	Abundant, but dropping off through drought	Abundant, but small from want of rain	Very few indeed	Montgomery Henderson, Cole Orton Hall, Ashby-de-la-Zouch.
	Less than half a crop; trees at present healthy	Very partial, especially of the less hardy kinds	Much better on wall trees than standards	Satisfactory crops of Jefferson, Victoria, Golden Drop, on walls	Very abundant, but half the crop lost through drought	A very good show, but injured by the black-fly	Peaches a fair crop, and trees healthy	A good crop, due to the security of the bearing wood from frost	Gooseberries more abundant than usual; Currants and Raspberries abundant	Not very promising; leaves turning yellow from drought.	William Ingram, Belvoir Castle Gardens
	Good crop	Plentiful in the district	Abundant, but small, owing to drought	Plentiful	Average crop, but very small	Morellos plentiful, no other kinds grown	Heavy crop	Average crop	Very thin; destroyed by frost in spring	....	John Browne, Gopsall Hall, Atherstone
RUTLAND.....	Half a crop	Very scarce	Very scarce	Very few	Good heavy crop	Abundant, large and fine	Very poor crop	Poor crop	Splendid crop	Very good	J. Smith, Exton Park
WARWICK	Plentiful and good	Very fair	Very plentiful	Plentiful	Plentiful	Plentiful and good	Very good	Very good	Plentiful	Plentiful	Wm. Miller, Combe Abbey Gardens
	Abundant, and quality excellent	Scarce in neighbourhood	A good crop on some wall trees, heavy on standards	Abundant on walls and standards	Moderate as to crop and size	Scarce here, but good in some places	Thin generally	Plentiful	Abundant, and very fine	Walnuts scarce; Filberts and Nuts good in places	W. Gardiner, Lower Eatington Park, Stratford-on-Avon
NORTHAMPTON	Very fine crop	More than was expected	Middling	A fair crop	Very good; short season	Good	Few on open walls, excellent under glass	Plentiful, but very late	Excellent, viz., Raspberries, Currants, and Gooseberries	Thin crop of Filberts; Walnuts abundant	J. Worraker, Milton, Peterborough
	About half a crop	Variable; good crops here	Full crop	Full crop	Good crop, but soon over	Good crop	About half a crop	Not grown outdoors	Capital crops	Good	John Smith, Althorp Gardens
BEDS	Very thin, but fruit remarkably good	Variable; half a crop generally	Good on pyramids, good crops on walls; an average	Average crop, some trees overburdened	Heavy crops where attended to with water	Good crop, particularly of Morellos	A light crop; trees infested with aphides	A failure	Currants and Gooseberries heavy; Raspberries fair	Walnuts good crop, Filberts scarce	Alex. M'Kay, Woburn Abbey
	Plentiful, small in places from drought	Partial crop	Average crop on walls and standards	Very good on walls and standards	Medium, early blossom injured by frost	Fine crop of all sorts, especially Morellos	Good average crop; trees healthy	Fine under glass	Plentiful, except of Raspberries, which were injured by frost	Filberts and Nuts moderate; Walnuts partial	George Ford, Wrest Park
	Almost a failure; suffered from spring frosts	Abundant	Abundant on walls, also on pyramids	Medium	Abundant and good; soon over, on account of drought	Fair	Abundant	....	Abundant; Currants affected with fly	Fair	R. Budd, Luton Hoo Park
OXFORD	Average crop, but small	An average crop, but small	An average crop, but small	Plentiful	Good crop	Good, especially Morellos	....	A third of an average	Plenty	Filberts none; Cobs plentiful	Robert Fenn, Rectory, Woodstock
	Half a crop; fruit very fine	A few in sheltered situations only	Very good; fruit large	Most abundant everywhere	Plenty of fruit, but rather small	Good crop of fine fruit	Very light crop and late	Average crop	Very heavy crop, and remarkably fine	Filberts very thin; a few Walnuts	J. Watson, Nuneham Park Gardens, Abingdon
	Very few	A partial crop	Abundant	A great crop on walls and standards	Plentiful and fine	Morellos a fair crop	None grown outside	A fair crop	Great crops, except of Raspberries	Scarce	John Greenshields, Sarsden, Chipping Norton
BUCKS	A very inferior crop almost everywhere	A very heavy crop in most places	A fine crop everywhere	A very heavy crop, especially on walls	A good crop; fruit fine on heavy soil	A fine crop, but the fruit small	A very inferior crop in most places	All fallen off	A very abundant crop	A very short crop of Filberts and Walnuts	Philip Frost, Dropmore
	A good crop of fine fruit	Variable; in some places plentiful, in others very scarce	Abundant, but not large	Plentiful, and fine on the walls	An excellent crop, but smaller than usual	Sweet varieties generally abundant; Morellos an average crop	An average crop	A moderate crop	Currants and Gooseberries abundant and good; Raspberries, a fair crop	Nuts rather scarce; Walnuts variable	George Thos. Miles, Wycombe Abbey
HERTS	Abundant crop, large and clean	Failure	Plentiful and good	On wall trees fine; standards very bad	Never had better crops	Same as Plums	Plentiful and good	Not many grown	Never had better crops, but rather small	Very heavy and fine	Anthony Parsons, Danesbury, Welwyn
	A light crop	Scarce; in places a full crop	Plentiful on walls; standards partial	Heavy crop on walls; standards partial	Good crop	Good crop: Morellos heavy do.	Very plentiful	Good crop	Very plentiful	Partial	Edward Bennett, Hatfield House
	Scarce	Good crops	Good crops	Good on the hills	Abundant	Good crop	Abundant where protected	Not grown here	Abundant	....	William Paul, Waltham Cross
	Very good	Very poor here; good in high situations	Very good on walls	Heavy; many trees almost ruined with blight	Very good, but rather small owing to drought	Very good; trees affected with black-fly	Scarcely worth growing except in favoured situations	Poor crop	Very abundant, but much blighted	A light crop	George Sage, Ashridge Park Gardens

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
EASTERN COUNTIES.											
LINCOLN	Abundant where protected, otherwise poor	A complete failure; a few only in sheltered parts	Not an average crop	Fair on walls, a failure on standards	A good crop, but of short duration	A poor crop, injured by spring frosts	A fair crop where protected	A moderate crop	Gooseberries a fair crop; Currants poor	Walnuts and Filberts a poor crop	David Lumsden, Bloxholm Hall, Sleaford
	Fair crop	Moderate	Good on walls	Extraordinary crops on walls and standards	Good, but dried up from excessive drought	Moderate	Average crop	....	Half crop, and small; Raspberries dried up	Very small crop	William Hurst, Somerby Park, Gainsborough
NORFOLK.....	Very few; destroyed by frost when in bloom	Fair crop here, but very scarce in exposed situations	A good crop on walls, and fruit fine	Good on the wall, but trees much blighted	Good crop; fruit fine	Good crop	Moderate; fruit small; trees much blighted	Light; injured by the frost	Currants good; Gooseberries good; Raspberries fine crop	Filberts light crop; Walnuts half crop	William Smythe, The Gardens, Elmham Hall
	Abundant, but trees suffering from lack of moisture	Good here, but short in some localities	Fair on walls and espaliers, short on standards	Good on walls, but rather short on standards	Plentiful on good soils	Only moderate; Morellos worse	Fair; trees infested with insects and blight	Under a moderate crop	Good in some parts, bad in others	Filberts good, Walnuts bad	John Wighton, Cossey Park
	An abundant crop here; thin in some places	Medium here; excellent in sheltered places	A medium crop; better than last year	A good crop generally	Have had an abundance	A good crop generally	Medium here, but grand in the neighbourhood	Good crops on old-established trees	Very good, especially Gooseberries	Very few grown around here	Thomas Wynne, Hemsby Hall Gardens
SUFFOLK	A good crop, the fruit large and fine	Partial; some trees a full crop	Plentiful, both on walls and standards	Plentiful, especially in orchard-houses	Average; but fruit not large, and season soon over	About average; black-fly extremely troublesome	Fair on walls, plentiful in orchard-houses	Very few on walls; suffered from late frost	Most abundant	Average, both Walnuts and Filberts	Thomas Blair, Shrubland Park, Needham Market
	Heavy crops on some trees, Kaisha especially	Cordons and pyramids half a crop, larger trees thin	Thin on the Quince and on pyramids	Good crop on walls, none on standards	Early sorts thin, late sorts plentiful where well watered	Plentiful; have not had such a crop for years	Under glass copings full crops; unprotected trees thin	Plentiful; trees very healthy	Gooseberries tremendous crop; Currants a third of a crop	Walnuts thin; Nuts thin; Mulberries and Medlars full crops	D. T. Fish, Hardwicke, Bury St. Edmund's
	Heavy crop, and fruit of fine quality	Variable; fruits falling from want of rain	Good, but small, especially on Quince stocks	Heavy on walls; injured by frosts; swelling irregularly	Very fine crops, checked in swelling by cold dry weather	Splendid crop of dessert sorts; Morellos thin	Thin; trees suffered from low temperature and greenfly	Fair crop of dark kinds	Most abundant and fine	Thin, especially Walnuts	J. Sheppard, Wolverstone Park, Ipswich
ESSEX.....	An abundant crop of large fine fruit	Very good crop	Medium	Good medium	Fair	Heavy crops, especially on standard Morellos	Medium on all early and mid-early kinds	None below the the frost line on best kinds	Abundant	Medium	William Earley, Valentines, Ilford
	Plentiful and good	Culinary sorts a good crop	A very fair crop	A good crop on early kinds	Abundant and good	A good crop	Peaches thin; Nectarines a good crop	Thin	Abundant; rather small	Walnuts none; Filberts a good crop	Thomas Simpson, Broomfield Lodge, Chelmsford
SOUTHERN COUNTIES.											
BERKS	Good crop, and fruit very fine	About half a crop	Average; fruit small, and many deformed	A very light crop	Average crop, and very good quality	Average; Morellos abundant and very fine	Nectarines full average; Peaches very light	Average crop; fruit small	Currants and Raspberries average; Gooseberries above average	Walnuts very scarce; no others grown	Charles Ross, Welford Park, Newbury
	Fine crops of splendid fruit	Generally a thin crop: good here	Very fine in quantity and quality	Very heavy crops; trees in good condition	Good crops of fine fruit	Most kinds bear fine crops	Peaches thin; Nectarines fair crop	Plentiful, seem rather slow in swelling	Never knew a better year for bush fruit	Very good, though Walnuts were much hurt by frost	Alexander Galt, Aldermaston Court
MIDDLESEX ..	Very full where protection to the bloom was given	Very thin, few kinds having more than a sprinkling	Moderate on walls; standards and espaliers light	Thin in most places, best varieties a failure	Uncommonly good; abundant in quantity, large in size	Thin	Where protected plentiful, but will be small	....	Gooseberries, Raspberries, and Currants an average crop	....	T. Baines, Southgate
	Where sheltered a good crop; on exposed walls very thin	In some market orchards a heavy crop; generally light	Generally a good crop; in some gardens very heavy	About half a crop, but will probably be fine.	All the earliest bloom much cut, but a good crop followed	About half a crop of dessert kinds; Morellos fair	Generally a fair crop, but will not be a large sample	....	Raspberries and Gooseberries a good crop, Currants thin	Rather thin	Alexander Dean, Bedfont, Hounslow
	Very scarce	Scarce	Plentiful	Scarce	Small and few	Only Morellos grown; a fine crop	Blighted and scarce	....	Plentiful	Filberts plentiful, Walnuts very scarce	Richard D. Blackmore, Teddington
	Very free crop and fine	About one-third of a crop	Abundant of almost every sort; fruit small	Very poor; wonderful promise, but destroyed by frost	Very partial; fruit blooms destroyed by frost	Abundant	Fair	....	Fair average; Gooseberries abundant	Average	A. F. Barron, Royal Horticultural Society, Chiswick
	Very scarce	Heavy crop	Heavy crop, fruit large	Very scarce	Moderate crop, and soon over	Failure	Good crop and large	Scarce	Good average crop	Walnuts a failure	Robert Henderson, Fulham Palace
SURREY.....	Half crop, but clean and good	Very few	Good crop, fruit clean	Good on walls, very few on standards	Average crop	Good crop	Very good; best we have had for years	Half a crop	Plentiful and good	Good; Walnuts cut off by late frost	William Kemp, Albury Park, Guildford
	A partial crop	On espaliers excellent, on standards partial	Abundant on walls and standards; quality good	On wall trees a good average, abundant under glass	Have been abundant, and quality excellent	Moderate crop, trees sadly blighted	An average crop; trees much blighted	Outdoor very few	Abundant, and the quality excellent	A good crop	James Drewett, Gardens, Denbies, Dorking
	A very heavy crop	A few trees very full, others thin	Very plentiful both on walls and standards	Very abundant	A very heavy crop	About half a crop of Morellos	About half a crop; trees suffered in spring	All destroyed	All very abundant	Some trees very full, others thin	William Kidd, Tandridge Court, Godstone
KENT	Rather below an average crop	On the whole below the average	Abundant on standards, on walls only half a crop	Considerably over the average here	Abundant on high ground; half a crop on low grounds	A fair average; fruit small, owing to the drought	Very fair crop, but barely an average	To all appearance will be scarce in the open air	Currants very abundant; Gooseberries partial	Very scarce; Walnuts much cut up by late frosts	John Cox, Redleaf, Penshurst
	Light	Good	Various; generally good	Very good	Good	Moderate, excepting Morellos	Some good, others thin	Very fine	Enormous crops; heaviest I ever saw	Good; Filberts and Cobs	Thomas Woodford, Eastwell Park, Ashford
	Very few trees; under the average	Uneven, but, on the whole a fair crop	A variable crop	Very heavy in most places; fruit small	About an average; the season a short one	Plentiful; generally poor in quality	Thin crop on open wall; under glass good	Almost all the first crop gone	Red and white Currants middling; black Currants very bad	Poor crop; many trees without a Nut	John Robson, Linton Park, Maidstone
	Very few	A general failure	Very scarce	Most abundant of all, except Green Gages	A good crop, but soon over	A fair crop; Morellos plentiful	Good crop	Very few grown	Raspberries, Gooseberries, and Currants plentiful	Filberts very few; Walnuts destroyed by frost	William Edwards, High Elms, Farnborough
	A good crop and fine	Not good in this part	Good, both on walls and standards	A great crop both on walls and standards	Not good with me, and small	Good, both on walls and standards	A good crop, and fruit fine	Not a good crop	A great crop of all sorts and good	Not a great crop	William Folwell, Bramling House, Wingham
	On some trees an abundant crop	Partial; fruit small and blighted	An abundant crop on walls and standards	A good crop, but some trees blighted	A heavy crop, but of short duration	Generally good	Plenty of fruit; trees generally unhealthy	A fair crop	Plentiful of all kinds	Very fair crop	Thomas Newman, Torry Hill, Sittingbourne
	Half a crop, the fruit fine	A quarter of a crop	A partial crop	A great crop	Good crops	A fair crop, the fruit fine	Half a crop, the fruit poor	A failure	Gooseberries, Raspberries, and Currants good	Filberts a failure, Walnuts half crop	D. Coe, Chevening, Sevenoaks
SUSSEX	Very light, trees much blighted	Light, many early sorts a failure	Good, of all sorts	Average, trees much blighted	Plentiful here	Good, trees much blighted in spring	Light, trees much blighted in spring	Average	Gooseberries, Currants of sorts abundant	Light	Thos. Jack, Battle Abbey
	An abundant crop, trees had to be thinned	Good crop, trees thinned in some parts	An abundant crop	Very good	Good, but soon over	Good crop, particularly Morellos	A plentiful crop	Moderate	Abundant	Walnuts good, Filberts scarce	John Wilson, Castle Gardens, Arundel
	A good crop here, none in some parts	Large crop in this district and in the orchards	Heavy crop here and in the district	Good crop here, also in the district	Very good crop, but not so large as some years	A heavy crop of all kinds, Morellos very fine	In orchard-house good crop, outdoors all lost	Good crop on the standards and walls	Gooseberries, Currants, and Raspberries plentiful	Walnuts half a crop, Filberts none	S. Ford, Leonardslee, Horsham

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
SOUTHERN COUNTIES.											
HANTS	Good, generally very fine fruit	Partial, in some places none	Full crop, but will be small	Very abundant	Heavy crops of all kinds, especially President	Generally a full crop	Have not been so good for years	But few grown	Abundance of all kinds; free from blight	Poor crops, especially of Walnuts	W. Wildsmith, Heckfield Place
	Half a crop in some parts, thin in others	Not an average crop	Not average	Very heavy crop	Not very good; much burnt up	Very good	A great quantity, but very much blighted	Good, but not ripe yet	Great quantity; very good	Average	George Harnett, Cadlands Garden, Southampton
	Good crop on all trees	Under average, and partial	Abundant on walls and standards	Very good, both kitchen and dessert	Fair crop; soon over	Fair crop; Morellos good	Under average; trees much blighted	Good crop	Gooseberries, Currants, and Raspberries abundant	Under average, particularly Walnuts	George Jones, Mottisfont Abbey, Romsey
WILTS	Scarce	Average	Average	Plentiful	Blossoms damaged by frost on May 13	Average; Morellos scarce	Trees in very bad condition; fruit scarce	....	Abundant	Much under average	A. Johnson, Savernake Forest
	Not an average crop; trees in good health	Not good	Plentiful, but small	Fair crop	Later varieties plentiful, but small	Late varieties good	Partial; in some localities trees damaged by cold spring	Fair crop	Plentiful	Very few	William Scammell, Bowood
	Very few	About half a crop	About half a crop	Good	Abundant; soon over	Good, especially Morellos	Very few	Do not succeed well here	Abundant	Average	Wm. Taylor, Longleat Gardens, Warminster
DORSET	....	Abundant	Most abundant	Most abundant	Bad crop	Abundant	Very good for the season	....	Most abundant	....	W. F. Radclyffe, Okeford Fitzpaine
	Very few grown out-of-doors, good in orchard-houses	Dessert good crop, fair crop of cider fruit	Fair crop	Good crop, but much blighted	Abundant; early varieties small, later ones better	Average	Average crop; rather small, but good qualty	Average	Bush fruit very abundant, Gooseberries sadly stripped by caterpillar	Walnuts plentiful, hedge-nuts fair crop	Henry Munro, The Gardens, Clevelands, Lyme Regis
WESTERN COUNTIES.											
HEREFORD ..	A fair average crop	Very scarce	A thin crop on walls, standards a failure	Plentiful on walls, pyramids injured by May frosts	Crops below average; suffered much from drought	Plentiful, much injured by aphis	A good average crop; fly very troublesome	Not many grown on open walls	Plentiful and good; black Currants much blighted	A failure, Walnuts injured by spring frosts	William Coleman, Eastnor Castle, Ledbury
	Very thick, especially where protected	Under average, some orchards very scanty	Average crops; some cider fruits very thick	Extra good crop	Early sorts very good, late sorts scarcely any	Very good	Thin crop; the trees have been much blighted	....	Gooseberries and Currants very heavy crops; Raspberries none	....	Edward Jones, Perrystone, Ross
	Abundant crop	Very thin crop	Good crop	Abundant crop	Good crop	Good crop	Good crop	....	Good crops	Half a crop	A. Bye, Hampton Court Gardens
WORCESTER ..	Abundant and fine	Very thin; not half a crop	Good on walls, on orchard trees moderate	Good on walls, standards injured by frost	Late kinds good, and still in bearing	Good; Morellos fine	Very good here, but not general	A light crop, but fine	Gooseberries good, Currants a light crop	Walnuts none; Nuts very few	William Cox, Madresfield Court
	Moderate crop.	Very light on cider and garden sorts	Moderate on walls, good many in orchards	Good crops	Good crop considering the dry weather	Fair crop in orchards, good crop of Morellos	Fair crop for the season	Moderate crop	Moderate crop, ripe one month earlier than last year	....	John Wyke, Kyre House, Tenbury
	Nearly an average crop where protected from frost	Very light and partial, full crops on some trees	Somewhat partial, but withal an average crop	Very light crops in general	A full average crop here, but in general poor	Light crops, and inferior in quality	Average crop	Average crop	Black Currants very light; all other sorts full average crops	Filberts half a crop; Walnuts destroyed by frost	G. Westland, Witley Court
	Average crop	Scarce	Average crop	Partial	Middling crop	Partial	Scarce, much blighted	Scarce	Partial	Average crop	Samuel Mellor, Ombersley, Droitwich
GLOUCESTER	A complete failure; the flower scanty	In most cases abundant, but generally small	About a third of a crop; small	A third part of a crop	Abundant, but small	Half a crop	A moderate crop; trees healthy	A complete failure	Abundant, and excellent in quality	Half a crop	Alexander Cramb, Tortworth Court, Falfield
	A fair average crop	Under average	A good crop	Average	A light crop and small	A very fair crop	Very scarce	A fair crop where grown	A long way under average	A fair crop	W. Forbes, Kingscote, near Wotton-under-Edge
SOMERSET	Half a crop; trees cut by frost in spring	More than half a crop	Pears an average crop	A good crop	Scarce on account of the dry weather	A fair crop	Half a crop; trees suffered from aphis and drought	An average crop, but not ripe	Gooseberries and Currants good; Raspberries fair	Filberts and Cobs not half a crop; Walnuts good where sheltered	W. Hallet, Cossington Farm, Bridgwater
	Good in some places	Very good in most places and healthy	Generally abundant on large trees	Many sorts; a heavy crop	Fair, but gave over suddenly	Very heavy, especially May Dukes and Morellos	Not good in most places out-of-door; pretty good in houses	Near the sea-coast good; inland poor	Abundant	I think middling in the hedgerows, and plantations good	J. Scott, Merriott
DEVON	A fair crop, more than was expected	Very partial; cider Apples a good crop	Under average	A good crop in general	Fine crop of Keens' Seedling; other sorts a failure	Dessert kinds plentiful; Morellos scarce	Under average; some trees much blighted	Promise well for good crop	Generally good and plentiful	Filberts and Cobs abundant; Walnuts scarce	Alexander Ayson, Oxton House, Kenton
	Below average	Average; many having fallen owing to the drought	Average crop; some trees very heavy	Abundant; pyramids have to be supported	Average crop; season short	Very abundant	Moderate; some sorts good	Scarce	Gooseberries and Raspberries abundant; black Currants below average	Walnuts average; Nuts and Filberts heavy crops	J. Garland, The Gardens, Killerton
CORNWALL	Where grown the crop is tolerably good	A fair average crop; in some places abundant	A fair average crop; Marie Louise and Duchesse d'Angoulême abundant	Variable, but heavy in the best Plum growing districts	The promise was good, but the crop was a failure for want of rain	Fair average crop of Duke and Heart varieties; Morellos rather thin	A fair crop, but I fear the quality will not be fine	Below the average on all kinds	Abundant, but have to be protected from small birds	Very promising	J. Tyerman, Penlee House, Tregoney
	Very few grown in the county	Abundant on old trees, but fruit small	Average crop	An average crop of table kinds; preserving kinds thin	A good crop	Average crop; Morellos good	Below the average crop	Poor crop	Good crops	Poor crop	Henry Mills, Enys, Penrhyn
WALES.											
ANGLESEA	Thin crop	Good	Middling crop	No crop	Excellent crop	No crop	No crop	No crop	Good	Plentiful	Robt. Webster, Glyn Garth, Menai Bridge
DENBIGH	Excellent on sandstone, middling on limestone formations	Excellent on sandstone, fair on limestone	Very good, and swelling well; Quinces fair	Excellent on limestone, middling on sandstone	Excellent on sandstone, middling on limestone	Excellent crops of all sorts; on dry situations rather small	Excellent on limestone, middling on sandstone	Excellent on sandstone, middling on limestone	Very fine, and heavy crops	Excellent on limestone, poor on sandstone	P. Middleton, Wynnstay, Ruabon
MERIONETH ..	Very thin crop	Very good	Very good	Good	Excellent crop	Good average crop	A failure	None grown outside	All sorts plentiful	Abundant	James Bennett, Rhug Gardens, Corwen
MONTGOMERY	Almost an entire failure	Partial	Good	Very abundant	Very abundant	Very abundant	Abundant	Average	Very abundant	....	George Brown, The Gardens, Powis Castle
CARDIGAN	Blossoms all killed by the late frosts	Very heavy crop	Scarce, except a few varieties	None; trees half-killed with blight	None; all spoiled with blight	May Dukes very good, other sorts none	Very scarce	....	All very heavy crops, except black Currants	....	John Hutchinson, Abermaide Gardens, Aberystwyth
RADNOR	Shipley's good crop; Moorpark and Hemskirke very thin	Early sorts good crops; late kinds a failure	Good crops of all the kinds, especially Marie Louise	Very heavy crops of Plums of all kinds	Moderate crops, not so good as last season	Morellos very good crop	A very good crop of each kind	....	A complete failure with us, owing to the late frosts in May	....	—

CONDITION OF THE FRUIT CROPS—(*Continued*).

COUNTY.	APRICOTS.	APPLES.	PEARS.	PLUMS.	STRAWBERRIES.	CHERRIES.	PEACHES AND NECTARINES.	FIGS.	SMALL FRUITS.	NUTS.	NAME AND ADDRESS.
WALES.											
CARMARTHEN	....	Good crops; fruit fine	Good crops; fruit fine	Scarce	Heavy crops; some gardens a failure	....	Almost a failure everywhere	....	Good crops; quality good	Walnuts, a few	J. Ticehurst, Dynevor Castle
PEMBROKE ..	....	Heavy crop	Moderate	Good	Good	Very good	....	....	....	....	Thomas Young, Slebeck Park, Haverfordwest
IRELAND.											
ANTRIM.....	....	A good crop	Very few	A few on walls	Average	Good crop	None out-of-doors	Very few growing here	Abundant and very fine	A plentiful crop	D. Taylor, Glenarm Castle
DONEGAL.....	....	Middling	Poor	Early sorts very good	Not good	Middling	....	....	Gooseberries very bad; Currants good	Promise to be abundant	Armstrong Hanlon, Drumboe Castle
DERRY	Very thin outdoors	Good crop	Scarcely any, owing to May frost	Scarce, suffered also	Medium crop	Fair crop	None outdoors, good under glass	....	Rather a failure	Medium crop	W. Fleming, Palace Gardens, Derry
ARMAGH	Veryabundant, although in full flower and unprotected during severe frost and snow early in March	A splendid crop over the entire country	Very fine crop on standards in open ground, but scarce on walls	Very scarce, almost a total failure	Heavy crop of fine fruit, soon over owing to the extreme heat and dry weather	A fair average crop of early and late kinds	A medium crop, not so good as usual; trees looking well for another year	A very good crop, but little grown out-of-doors here	Raspberries a medium crop, Gooseberries a moderate crop, Currants very good	Very few	W. A., Brownlow, Gardens, Lurgan
CAVAN	Scarce	Abundant crops in general	Very fair crops	About an average crop	Scarcely an average crop	Very scarce	Not much above half a crop	Very scarce	Very fair crops in general	Pentiful in woods	——
MEATH	A heavy crop	Where sheltered from spring frosts a nice even crop	A thin crop on most trees, Jargonelles and Marie Louise over the average	A fair crop, more especially of the Gage varieties	A fine crop	A very good crop of Morellos; all others very poor	An abundant crop where protected, especially of Noblesse and Royal George	Thin crop	A full crop of Currants and Gooseberries; remarkably heavy crop of Raspberries	Thin crop	Robert Moulton, Somerville, Navan
DUBLIN.....	Full crop, and small in size	Thin crop	Thin crop	On walls, good crop; on standards thin	Abundant and good quality	Fair average	Plentiful, but scarcely average size	Middling	Abundant and good quality	Thin crop	D. Pressley, Knockmaroon Lodge
WATERFORD ..	A good crop	Half a crop; fruit fine and sound	A moderate crop	Half a crop; fruit very fine	A very fine crop	Very poor crop	An average crop where protected	A light crop	Abundant of all kinds	....	George Fairbairn, Curraghmore
CORK	Good average crop	Fine crop	Rather scarce in this neighbourhood	Victorias good, other varieties scarce	A good average crop	May Dukes very good	Very light crop	Middling	Abundant	Good	J. Fraser, Besborough
KERRY	....	Good, and of fine quality	Very scarce; destroyed by frost	None except Victorias	Bad; bloom destroyed by frost	Average crop, except Morellos	None; killed by frost in May	Very good under glass	Average crop	Half a crop	Frederick Bedford, The Gardens, Killarney House
CHANNEL ISLANDS.											
GUERNSEY	Moderate	Excellent	Excellent, but small	Average	Moderate	Below average	Moderate	Average	Above average	....	Thomas C. Bréhaut, Richmond House
JERSEY	Plentiful in some districts only	A moderate crop only in some parts	Generally a good crop, but smaller than usual	A moderate crop only	Rather an inferior crop, fruit smaller than usual	A plentiful crop	In some parts a plentiful crop	Plentiful on standards	Rather inferior in some parts	Very little cultivated	William Melville, The Royal Vineyard, St. Lawrence

REMARKS ON THE FRUIT CROPS.

The present season has been one of surprises and extremes; succeeding the cold wet season of 1873, the great quantity and the wonderfully fine appearance of the blossoms on all our fruit trees was very generally remarked. Nothing could have exceeded their beauty or have promised more fairly for a splendid crop. All was fair and promising until most of the fruits had set well, and were apparently out of danger, there being a considerable amount of foliage expanded enough to have been able to protect them and resist any ordinary frost; but little could withstand such severe weather as we were then for weeks together visited with, the thermometer sinking night after night 6°, 8°, and 10° below freezing. This cold weather not only destroyed the fruits, but very materially arrested the growth and development of the young shoots, especially in the case of Plums and Peaches, and left them as prey to one of the worst attacks of aphides that has ever been known. Many Plum trees have died from this cause, never having been able to develope a single leaf. Pears, through the protection afforded by the leaves, escaped the frost well, and are almost without exception a full crop, but small. Apples are but a very partial crop, the old Keswick Codlin proving a singular exception in nearly every one of the gardens round here. After examining several fruit gardens a day or so ago, I am enabled to make some corrections and additions to my report of fruit crops previously sent to you. Apples: Very partial crop; Keswick Codlin, Cellini, Hawthornden, producing good crops. Plums: Partial crop of most varieties; Gisborne's Pouparts, Mitchelson's, Prince Englebert, and Rivers' Prolific, bearing heavy crops. *A. F. Barron, Royal Horticultural Society, Chiswick, Middlesex.*

—— The sudden fluctuations in the temperature during the last three months, with persistent drought, has told most disastrously upon vegetation in general, and more particularly upon shallow sandy soils, aiding most materially in the diminution of our fruit supplies, encouraging a plague of aphides and other pests, which worked great havoc upon the foliage in general and more particularly upon Plums and black Currants, which suffered more from this cause than from actual frost. *Geo. Westland, Witley, Worcester.*

—— After the very trying and critical season we have had, it is satisfactory to find that, with the exception of Apples, there are fair crops of most other kinds of fruits in this neighbourhood—much better than could have been expected. The last autumn and winter were remarkably mild and dry, hence everything at the commencement of the year promised to be prematurely on the move; but fortunately the very seasonable little frost we had in February gave vegetation a salutary check, otherwise the consequence to our fruit crops would, in all probability, have been very disastrous. *M. Saul, Stourton, Yorkshire.*

—— The prospects for an abundant supply of all kinds of outdoor fruits were never known to have been better in this district than they were this spring. All trees, without exception, were covered with beautiful and healthy bloom, and on all sides you could hear the people congratulating one another upon the prospect of securing to themselves and families an abundant supply of fruit, especially of Apples and Damsons, which the people about here seem most to appreciate. But the frost, blight, and cold north-east winds which we experienced through the greater part of April and May have made sad shipwreck of most of the hopes and expectations entertained in the spring. On Saturday and Sunday morning, May 16 and 17, we had from 5° to 7° of frost, succeeded by very warm sunshiny days, the thermometer registering 70° and 72° respectively in the shade. The four next succeeding nights were most bitterly cold, with east winds and white frosts. Of course it was the bright hot sun next morning that did the mischief, especially in low-lying districts much surrounded by water, as we are here. *Owen Thomas, Drayton Manor, Tamworth, Stafford.*

—— Apples and Pears were well furnished with healthy blossom and a good crop set, but the frost on May 18, when the thermometer registered 25°, or 7° of frost, cut off most of the young fruit. It seems rather strange that a few varieties of Apples and Pears were not injured whilst other varieties which were in the same stage of growth were entirely cut off. Among Apples such sorts as Keswick Codlin, Gravenstein (this always produces good crops here), King of the Pippins, Hawthornden, and a few other varieties are a good crop; while such standard varieties as Blenheim Orange, Dumelow's Seedling, Ribston Pippin, Golden Pippin, Cockle Pippin, Cox's Orange Pippin, and many other varieties, are without a single fruit, and are all growing under the same conditions. There is a collection of Pears of about forty varieties grown here, some on walls, others as standards, and others again as pyramids; out of that number not more than ten or twelve varieties are at all satisfactory as to produce. *J. Smith, Exton Park, Rutland.*

—— After a mild and dry winter we had a very changeable spring, with bitterly cold east wind, which considerably thinned the fruit crop in exposed situations; still, we had no severe frost to injure fruit blossoms after March, so that in sheltered places the crop generally is fully an average. During June the weather was hot and very dry, and crops made little progress, aphides being extremely numerous, and doing much injury to Peaches, Plums, Cherries, Currants, and Gooseberries; but about the beginning of July we had abundant rains, which cleared the trees of insects, and saturated the soil, causing a luxuriant growth. *M. Dunn, Dalkeith, Midlothian.*

—— With a remarkably fine show of bloom on hardy fruit trees generally during the last spring, there appeared every probability of an extraordinary crop of fruit. The very severe frosts of the second week of May, however, definitely decided all hopes and anxieties on this matter, few standard or bush trees escaping more or less injury. *William Cox, Madresfield, Worcester.*

—— The crops as a whole are good in this locality, although the dry weather has favoured swarms of aphides in their attacks on many things: the Roses have been sadly injured by them. The Hollyhock disease (Puccinia malvacearum) has destroyed the Malvaceæ here, even the common Mallow is covered with the parasite. Kitchen garden crops are fair, Peas and Beans, however, have been short crops, having suffered from want of rain. *H. Munro, Clevelands, Dorset.*

—— Up to the beginning of May our fruit crops were very promising. Plums and Cherries set thickly, Strawberries and bush fruits were far advanced, when a succession of sharp frosts swept off the cream of our crops. Plums on walls are plentiful, but they are small, and the trees have been much injured by the greenfly. Pyramids, with the exception of Rivers' Prolific, which proves very hardy, are a failure. Apricots prove a better crop than was at one time anticipated, many of the late blossoms having set and

swelled after the early ones had been destroyed. Peaches where they were well managed last year are producing good crops of fruit, but unless mulching and watering have been well followed up the fruit will be small. Green and blackfly have been unusually troublesome on all stone fruit trees. Apples and Pears—an important crop in this county—may be pronounced a failure. *W. Coleman, Eastnor, Hereford.*

—— All late kinds of Peaches have not a solitary fruit upon them; and, singular as it may seem, there are in all instances exceptionally heavy crops of all kinds of early Apples, such as Juneating, Early Harvest, Quarrenden, &c., and of Codlins, Catsheads, &c. Pears, again, are more abundant upon such old sorts as Beurré Rance, Chaumontel, Catillac, &c. *William Earley, Valentines, Essex.*

—— The present is the worst season I ever knew. In spring our prospects were great; Pears, Apples, Plums, and Cherries, never looked better, and were covered with bloom, but the unusually severe frosts in April and May completely scorched the buds and blossoms of Apples, Cherries, and Plums, and on many trees that were covered with bloom not any fruit was set. Of Apricots, where protected, we have an abundant crop, but where not protected they are a failure. Peaches and Nectarines are a fair crop where protected, a failure where not protected. *D. Lumsden, Bloxholm Hall, Sleaford, Lincoln.*

—— I covered our Peach, Nectarine, and Apricot trees with old fishing-nets, in two thicknesses, as soon as they came into flower, which this year was upon March 10, on which day we had a very severe snow-storm. On the two following mornings the thermometer registered 12° and 10° of frost, and this when the trees were nearly in full bloom. Still we had a most prodigious set of Apricots. This is one of the, if not the, most serviceable of stone fruits, for in their young state they are very useful for tarts, and when ripe they are also good for the same purpose, besides being used for dessert as well as to preserve. In the garden of a neighbour, where old-established Peach trees cover the walls, the crop is very heavy indeed, fishing-nets having been used here also. *T. Wynne, Hemsby Hall Gardens, Norfolk.*

—— Whatever blossoms have had the hardihood to withstand the late spring frost have otherwise had an excellent season for their development. Since the middle of June the weather has been all that could be wished; we have had strong heat, but not of a droughty nature; fine dews at night and occasional showers, which keep things going on in the right direction. Kitchen-garden crops of all kinds are in a most satisfactory state. *G. Johnstone, Glamis Castle, Forfar.*

—— All fruit crops suffered in this part from early spring frosts and from late frosts in May and June. Peaches and Nectarines were very much cut by frost, and the trees much blighted owing to cold nights and hot days. All the first blossom on Apricots was destroyed by frost in March, but the trees are looking healthy and making good wood. *Wm. Smythe, Elmham Hall, Norfolk.*

—— Apricots are an average crop, though small to some extent, in consequence of the dryness of the season, and partly from the usual custom of always taking as many from the trees as are set. This is an Apricot neighbourhood; the fruit are mostly sold by the dozen, taking large and small as they hang, and a great many of the cottagers mainly depend upon their crop of "cots" to pay their rent. The sort generally grown is the old Shipley. Apples may also claim to be an average crop, though the drought has caused them to be permanently small. The Blenheim Orange Pippin is the most favoured sort grown in this its native place—"Kempster" it is here still commonly called—the name of the man who raised it at Old Woodstock. Twenty years ago the stump of the old original tree was in existence. I learnt of its being cut down, but I was too late to rescue a portion of its trunk as a memento. Strawberries I never had a better crop of, but then I am a house-sewage and dry earth closet applicant. The crops have been universally good hereabout, I believe, though smaller in berry than to permit the fact being passed without remark. Keens' Seedling, Rivers' Eliza, Dr. Hogg, Rev. W. F. Radclyffe, Cockscomb, and Frogmore Late Pine are my favourite sorts. I unfortunately gave up the Knight's Elton Pine, hoping that the Frogmore Late Pine would become a good substitute; I find that I must institute that discarded one again—the Frogmore Late Pine cannot displace it for tardiness or the preserve jar. Peaches and Nectarines are things of the past in these parts for out-of-door culture; a few stragglers may occasionally be met with with fruit upon them few and far between. Small fruits have been abundant, and no doubt would have been much heavier but for the "small birds' Act." No old fishing-nets will now serve to protect bud or fruit apparently, such daring cunning habits and fine eyes have the modern *feræ naturæ* got for the luscious morsels. Moral: a proportionate lot of caterpillars, aphis, and insects go the same way. Out-of-door Grapes are not mentioned in your "form," I make them chime in here for wine. My Esperiones are bearing a good crop, but my Muscadines are nearly a failure this year; 1860 and the present are the only two seasons I have failed in a crop from them. In 1860 my Esperiones were minus Grapes, and only that once in close upon a quarter of a century, thus beating the Muscadines by a head. Those of my neighbours who are become growers of the Grape on the open walls have got good crops. *R. Fenn, Woodstock, Oxon.*

—— The bloom on fruit trees of all kinds was very abundant, and gave every appearance of good crops, but the late spring frosts greatly damaged it, as well as the fruit after they were set. Plums are very scarce, Victoria being the only variety bearing a crop. The aphides have been specially trying on this class this season, but after many dressings with tobacco-water, &c., we have now got rid of them, and the trees are making a fair growth. *J. Browning, The Gardens, Dupplin Castle, Perth.*

—— In this part of the country gardeners have not experienced such a harassing season for many years past. Between cold nights, frosty mornings, drought, and oppressive sunshine, the greater part of our time has been consumed in keeping vegetation alive. The black aphis has visited us in legions; we have, however, managed to keep it in subjection on our Peach trees by a constant application of Pooley's tobacco powder. No season could possibly be more favourable for wasp-breeding, and they have certainly made the most of their opportunity. We have the record of many plans for destroying these troublesome creatures, all of which may be less or more effective; but I have found none so satisfactory as sending a dozen or fourteen men a nest-hunting during bright sunshine, and at night dosing the entire colony with a liberal supply of gas-tar. Where deep trenching or double-digging is a customary routine in gardens, its beneficial effect during this season is very evident, as the open texture allows our deep-rooting vegetables to penetrate beyond the stunting influence of drought. Without daily watering a constant succession of salad has been difficult. The same may be said of Turnips and Cauliflowers, for no sooner had the one peeped above ground than it was eaten off by the fly, and the other "bolted" as soon as planted. *Alexander Cramb, Tortworth, Gloucestershire.*

—— Relative to the Apple crop, it may be interesting to remark that I have a large tree each of Hawthornden and Keswick Codlin, most heavily cropped—even more so than I have known the same trees bear in any season during the last fifteen years, and they invariably have borne good crops. Some of the fruit of our Hawthorndens are of exceptionally high colour this season, and Ribston Pippins large and clear, but not a heavy crop. The same remarks apply to the majority of other varieties here; otherwise the bloom was most abundant and fine, but the frosts in May and June had a detrimental effect. *Wm. Gardiner, Lower Eatington Park, Stratford-on-Avon, Warwick.*

—— The best crops upon our walls this season are Peaches, Nectarines, Cherries, and Apricots; Pears and Plums are a very thin crop. All the old and unproductive fruit trees upon the walls are being rooted out, fresh borders made and replanted, with all the well-known and useful varieties of wall fruits. The borders round the kitchen garden are being lined with approved sorts of pyramid Pear trees on the Quince stock; the Pears planted upon the walls are upon the Pear stock. By-and-by we fully expect to be able to return you a full report of their success. As to the kitchen garden in general, it has been a trying season for successional crops, from the long-continued drought, and even some of the principal crops will be light. *J. Miller, Clumber, Notts.*

[The following returns reached us after the tables in another place were made up:—]

Roxburgh.—Apricots: excellent crop on south walls, none on west, which is owing to cold north-east winds; trees are very healthy and promising for another year; the Breda is the earliest, but the Moor Park is the most useful and *recherché*. Apples: a very partial crop; some sorts, such as Ecclinvale, Aitkin's No. 1, and Irish Peach, are good, but other trees are fruitless, or have next to none on them. Pears: a fair average crop for this district; we have Pears only on south and west walls, none on standards. Plums: good and plentiful. Strawberries: have been excellent and abundant. Cherries: preserving kinds good and plentiful. Small fruits: middling. Nuts: none. *H. Knight, Floors Gardens, Kelso.*

Lincoln.—Apricots: half a crop, of good size and flavour. Apples: half a crop, but good. Pears: a very good crop, best on standards. Plums: abundant, especially Green Gages. Strawberries: a fine promise, but not one half ripened, owing to drought. Peaches and Nectarines: a fair average crop. Figs: a failure. Small fruits: abundant. Nuts: very few. *R. Gilbert, Burghley Park Gardens, Stamford.*

Kent.—Apricots: an average crop. Apples: an average crop. Pears and Plums: very abundant. Peaches and Nectarines: a light crop. Currants, Gooseberries, Raspberries, and Strawberries: a very heavy crop. Figs and Nuts: almost a failure. *G. A. Sims, The Gardens, Holmewood.*

Notices of Books.

The current number of the *Geographical Magazine* contains a warm appeal on behalf of the Cameron Expedition in South Tropical Africa, and various other articles, including a summary of the voyage of the *Challenger* from the Cape de Verde Island westward to the Brazilian coast, and thence again eastward to the Cape, calling on the way at various little-known islands. At Inaccessible Island, a short distance from Tristan da Cunha, and about midway between the south-eastern coast of South America and the Cape of Good Hope, the *Challenger* found two Germans who had landed on the island and lived there in Robinson Crusoe fashion, the only human residents, for nearly two years, and who had in the meantime suffered much privation. A few goats and pigs, and at times vast quantities of penguins, furnished the exiles with animal food, and some Potatos and seeds which they had brought with them yielded vegetable diet. The hardships endured by these men were naturally great—on one occasion they had eaten their last Potato when the next day the female penguins arrived and commenced to lay their eggs, which afforded them a supply of food. The male penguin it appears arrives before the females and prepares the nests for the latter, who, on arrival, at once commence laying. Having embarked the two Germans and their little belongings, the *Challenger* proceeded to Nightingale Island, about 12 miles distant.

"From the sea the island appears to be covered with turf, and made the voyagers long for a run over it, but on landing their hopes were quickly dispersed, for the apparent turf proved to be nothing more than the long Tussock grass, 6—8 feet high. At the foot of the Tussock grass were innumerable penguins breeding, which were not seen by the explorers until they were fairly amongst them. Thinking to avoid them, they pushed through the long grass, but as they proceeded the penguins were so thick, sitting on their nests, that it was impossible to avoid treading on them, or otherwise disturbing them. This the penguins resented by attacking the invaders on all sides, pecking at their legs most unmercifully, and their beaks being sharp and strong, it required good boots to protect their legs from their repeated assaults, whilst the noise—which is described as between that of a pig being killed and a kid that had lost its dam—was deafening. The progress was slow, as at every few yards they had to stop to kick the birds. It was impossible to estimate the number of birds, as, looking down from the summit of one of the outlying islets, every square foot of ground seemed to have its penguin. There must have been millions of them. In the evening all returned to the ship thoroughly disgusted with their day's experience of penguin life."

—— The *Sixth Annual Report on the Noxious, Beneficial, and other Insects of the State of Missouri*, by Charles V. Riley, State Entomologist, is a document of very great value and interest, and one that reflects great honour on its compiler, and on the State by whom he is commissioned. The most important paper in the present number is that devoted to the Phylloxera of the Vine, and which is an exhaustive summary of all that is known on the subject. This paper is so valuable, that we regret that its length precludes our extracting it entire in the present issue. We shall, however, from time to time, give other portions of it—sufficient, we trust, to be of service to cultivators, and to show the immense benefit that a man of science can confer on his fellows by a thorough examination of a pest like this, the extirpation of which, could it be effected, would be cheap even if it had to be purchased by five milliards of francs—the amount of the indemnity paid by France to Germany after the late war.

—— The number of the *Journal of the Linnean Society* just issued (botanical section) contains two papers, one on a new African genus of Podostemaceæ, by H. A. Weddell, M.D.; and the other an important and valuable paper on the genera and species of Tulipeæ, by Mr. J. G. Baker. The six genera monographed are all of interest to horticulturists, and include Lilium, of which Mr. Baker has already given a synopsis in these columns; Fritillaria, Tulipa, Erythronium, Lloydia, and Calochortus. Fritillaria is divided into ten subgenera and fifty-two species. Tulipa into two subgenera and forty-eight species. The subdivisions of Tulipa depend, first of all, on the presence or absence of a distinct style, then on the woolliness or glabrous state of the bulbs, then on the pilose or glabrous filaments, &c. Calochortus is divided into four subgenera (including Cyclobothra) and twenty-one species. We shall probably take another opportunity of alluding to this memoir, meanwhile we congratulate Mr. Baker on having so successfully achieved a very difficult task, and trust that he may find some gratification from the assurance that his labours will be thoroughly appreciated both by botanists and horticulturists.

MR. JAMES FRASER, Horticultural and Agricultural Valuer and Auctioneer, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

PROTHEROE AND MORRIS, Horticultural and Market Garden Auctioneers and Valuers, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

RODERICK NICHOLSON, Advertising Agent and General Commission Agent, 112, Fleet Street, E.C.

Wood Engraving.

MR. W. G. SMITH, Artist and Engraver on Wood, 15, Mildmay Grove, London, N.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., Importers and Manufacturers. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

GOVERNMENT EMIGRATION to NEW SOUTH WALES.—Assisted Passages to Sydney, by the fine ship *Samuel Plimsoll*, 1440 tons register—to sail from Plymouth on September 15—may be obtained on application to the
Agent-General, 3, Westminster Chambers, S.W.

THE THAMES BANK IRON COMPANY
(Successors to Lynch White),
Old Barge Wharf, Upper Ground Street, London, S.E., ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

HENRY ORMSON,
Horticultural Builder and Hot-Water Apparatus Engineer,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

GREENHOUSES, VINERIES, ORCHARD HOUSES, &c., erected in any part of the Country. Every description of HOT-WATER WORK and PLANTHOUSE FITTINGS made and fixed. PLANT PRESERVERS, neat, useful, and portable. PLANS and ESTIMATES supplied without charge.—WILLIAM JAMES RIVETT, Horticultural Builder, Stratford, London, E.

GLASS for HORTICULTURAL PURPOSES is forwarded by Messrs. LOVELL AND CO. to any part of England at considerable reduced prices.
Estimates sent by return of post upon receipt of sizes and thickness. Dealers in all descriptions of Glass, White Lead, Oil Colours, and Varnish.
LOVELL AND CO., 53, Red Lion Street, Holborn, London.
Established over one hundred and fifty years.

TOTTENHAM LOCAL BOARD OF HEALTH.—SEWAGE MANURE.—The above Board are desirous of DISPOSING of an accumulation of SEWAGE MANURE at their Outfall Works on the River Lee Navigation, adjoining the Great Eastern Railway bridge at Tottenham; and are prepared to permit its removal, free of charge, on application to me at the Board's Office, Coombes Croft House, Tottenham.—By order, EDWARD CROWNE,
July 31, 1874. Clerk to the Board.

ON SALE, several Second-hand Single and Duplex BOILERS of Weeks's celebrated manufacture, for Hothouse use; all in capital condition, and only removed through the houses being dispensed with. Apply to
Mr. L. COOPER, 56, Windmill Street, Manchester.

FOR SALE, an AURICULA FRAME, Half Span-roof, with Lifting Ridge, Ventilation back, front, and ends, inside movable casing for the exclusion of frost, forming a complete protection against damp, and securing ample ventilation. May be seen at
Mr. ROWLAND'S, Rowleigh, Prestwich, near Manchester.

SEED DRAWERS, &c.—For Sale, a very handsome set of Solid Oak Seed Drawers, most elegantly made and finished; almost entirely new. They are 18 by 8½ feet, and contain 363 Vegetable and Flower Seed Drawers. They are fitted into a close Nest, also admirably made. Also a New Voucher Press, fitted with Pigeon-Holes, and a large Safe, 36 by 26½ by 24 inches. Offers will be received by
JAMES DICKSON AND SONS, 19, Upper Sackville Street, Dublin.

TO BE LET, with immediate possession, a capital NURSERY GROUND, at White Hart Lane, Tottenham, not far from the White Hart Lane station, with five large GLASSHOUSES or PITS, covering nearly three-fourths of an acre; also a HOUSE to LET, adjoining the above. For particulars and cards to view apply to
Messrs. LANDER AND BEDELLS, Surveyors, 6, John Street, Bedford Row, W.C.

To Gardeners and Others.

TO BE LET, for a term of years, with immediate possession, within five minutes' walk of the Railway Station, very productive KITCHEN GARDENS, Stocked with choice Fruit Trees in full bearing—forty-eight Wall, fifty-eight Standard and Pyramid. Between 600 and 700 feet of Wall, from 7 to 12 feet in height. House and more Ground can be had, if required. Soil gravel. Apply on the Premises,
The Rectory, Ardleigh, near Colchester, Essex.

To Nurserymen and Others.

TO BE SOLD, or LET on LEASE, an old-established NURSERY, in an increasing and populous neighbourhood, containing the usual Nursery Stock of the most healthy and best description. The Greenhouses are substantial, and admirably arranged with all modern appliances for carrying on an extensive and lucrative business. Within ten miles of Covent Garden Market. For particulars apply to
Messrs. FRASER AND BENTON, Horticultural Valuers, &c., Romford, Essex.

To Nurserymen, Florists, &c.

TO BE SOLD, or LET, with immediate possession (in consequence of the death of the Proprietor), an Old-established and well-stocked NURSERY, in full working condition, with excellent Cottages, Glass-houses, and Buildings requisite for carrying on the same, and situate in a good locality. The Stock to be taken at a Valuation. If Sold a considerable part of the Purchase Money may remain on Mortgage, if required. Address
BOX 57, 41, Wellington Street, Covent Garden, W.C.

To Nurserymen, Florists, and Market Gardeners.

TO BE SOLD, or LET, a well Stocked NURSERY, containing about 4 Acres, planted with a choice variety of Fruit Trees, Roses, Stocks, Shrubs, &c.; the land has a good supply of Water, and adjoins the road from Narborough to Enderby. Also a newly-erected and well-built DWELLING-HOUSE, with Stabling for Two Horses, Loft, Cart Shed, Two Greenhouses (each about 100 feet in length by 14½ feet wide), large Water-cistern, and other requisite conveniences, situate in the village of Narborough, and distant three minutes' walk from the Station of the London and North-Western Railway, from which place there is a good service of trains.

Narborough is 5 miles from the important town of Leicester, and 8 miles from Hinckley.

Part of the Purchase Money may remain on Mortgage, if required.

To view, and to treat for same, apply to Messrs. J. AND T. BOTTRILL, Southgate Street, Leicester; or to Messrs. H. AND F. TARRATT, Auctioneers, Leicester.

Important to Fruiterers, Greengrocers, Seedsmen, and FLORISTS. (Fol. 1926.)

TO BE DISPOSED OF, a first-class and very extensive BUSINESS in the above line, situate in one of the most flourishing Watering-places on the South Coast, and in the principal thoroughfare. It has been most successfully carried on for upwards of forty years, and is the oldest establishment in the Town. The returns exceed £10,000 per annum.

Further particulars, and Cards to view, may be obtained of PROTHEROE AND MORRIS, Auctioneers and Estate Agents, 98, Gracechurch Street, City, E.C.; and at Leytonstone, E.

To Nurserymen, Florists, and Others.

MESSRS. PROTHEROE AND MORRIS have the pleasure to announce that the land known as the PERSEVERANCE NURSERY, New Barnet, was sold by auction on Thursday last. The GREENHOUSES, HOT-WATER PIPES, FRAMES, &c., may now be purchased immediately very cheaply. They comprise about 4000 feet of Glass, 600 feet of Piping, Brickwork, Staging, &c. No reasonable offer will be refused for the same, as they must be cleared immediately. Particulars at 98, Gracechurch Street, City, or Leytonstone, E.

SALES BY AUCTION.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, August 22, at half-past 12 o'Clock precisely, 600 lots of HYACINTHS, TULIPS, CROCUSES, and other BULBS, just arrived from Holland, in lots to suit the trade and private buyers.
On view the morning of Sale, and Catalogues had.

Orchids, Tree Ferns, and Greenhouse Plants.

MR. J. C. STEVEN'S will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, August 19, at half-past 12 o'Clock precisely, several importations of TREE FERNS from New Zealand and other parts; specimen STOVE and GREENHOUSE PLANTS, several small collections of ORCHIDS; a consignment of Plants from Ghent; also the entire stock of COLEUS, Duchess of Edinburgh, consisting of two boxes of young plants containing about 55 each, and about 50 or 60 separate plants. See *Gardeners' Chronicle* of June 20.
On view the morning of Sale, and Catalogues had.

Important Sale of Stove and Greenhouse Exhibition PLANTS.

MR. CRANSTON will SELL by AUCTION, in the Royal Botanic Gardens, Belfast, on SATURDAY, August 22, at 12 o'Clock precisely, the entire Collection of EXHIBITION PLANTS, the property of Henry Hawkins, Esq., of Kin-Edar, Strandtown, Belfast.

Catalogues may be had on application from the Auctioneer, at his Mart, 10, Waring Street, Belfast.

Important Sale of Very Choice Greenhouse and Other PLANTS.

MESSRS. LYTHALL AND CLARKE are instructed by the Executors of the late John S. Jerome Esq., of Holland House, Sutton Coldfield, to SELL by AUCTION, at the Repository, Birmingham, on FRIDAY, August 28, commencing at 1 o'Clock, a very valuable COLLECTION of PLANTS, selected with great judgment and regardless of cost by the late Mr. Jerome, and successfully exhibited on many occasions; comprising in part 20 very beautifully trained specimen Azaleas, 25 large specimen Camellias, of the very choicest varieties; Dracænas and Palms; also fine Marantas, Lapageria rosea, Caladiums, &c., together with some magnificent specimen FERNS, comprising Adiantum formosum, cuneatum, &c., Neottopteris Nidus, Phlebodium aureum; and a few good PEACHES and APRICOTS in pots, all of the best sorts: some rare ORCHIDS, &c., two very fine variegated American ALOES, 7 feet across, obtained from Sir John Hartopp's collection; 12 RHODODENDRONS, &c. Also two LAWN MOWERS, ten Tree Training Hurdles, and about 50 lots of Miscellaneous Plants, the whole described in Catalogues, to be obtained from the Auctioneers.

The Auctioneers invite especial attention to this Sale, as it is well known that the collection of Plants of the late Proprietor is second to none in the Midland Counties, and the whole are in perfect health and vigour, and fit for exhibition purposes.

READING HORTICULTURAL SOCIETY.—The AUTUMN SHOW will be held on THURSDAY, August 20 (by permission of the Mayor), in the Abbey Ruins, Reading.

The Band of the 3d Battalion Rifle Brigade (by kind permission of Lieut.-Col. Nixon and Officers of the Regiment) will attend.

The Show will be open to the holders of Subscribers' Tickets at 1 o'clock, and to the Public at 4 o'clock on payment of 1s.

Tickets may be obtained of Messrs. SUTTON AND SONS, Market Place; Mr. LOVEJOY, London Street; and of
B. SIMONDS, Bridge Street,
F. PETTY, Wilberforce Place, } Hon. Secs.

THE GREAT INTERNATIONAL FLOWER SHOW, AUGUST, 1874.—The Directors of the Royal Botanic Gardens, Belfast, having united with the North of Ireland Horticultural Society to hold the Great International Show of Plants, Flowers, and Fruits in August next, the above mentioned Show will be held in the Royal Botanic Gardens, Belfast, on THURSDAY and FRIDAY, August 20 and 21, and Schedules of the Prizes offered, with all other information relating to the Show, can be obtained of any of the Honorary Secretaries.
R. ATKINSON,
J. TAYLOR,
C. D. YONGE, } Hon. Secs.

WORCESTERSHIRE AGRICULTURAL SOCIETY.
MEETING at DUDLEY, on AUGUST 25, 26, and 27.
President—The Right Hon. the Earl of Dudley.

A GRAND HORTICULTURAL EXHIBITION, in connection with the above, will be held in the SHOW GROUND, at Dudley, when Prizes to the amount of nearly £200 will be offered.

Prizes are also offered for competition to all Cottagers residing in Worcestershire and within 12 miles of Dudley. Entries close August 18.

For Schedule of Prizes and Rules, &c., apply to ALBERT BUCK, Secretary, Worcester; or to J. S. HAYWOOD, Nurseryman and Seed Merchant, 26, Broad Street, Worcester, Hon. Sec. to Horticultural Show.

BANBURY HORTICULTURAL SOCIETY.—TWENTY-EIGHTH ANNUAL SHOW, in the Pleasure Ground of W. Manton, Esq., TUESDAY, August 25, 1874. Open Prizes. Entrance fee, 2s. 6d.:—1. Stove or Greenhouse Plants, either in flower or ornamental, but not Achimenes, Fuchsias, Geraniums, or Annuals, six varieties, to be grown in not less than 8-inch pots, 1st prize, £5; 2d, £2. 2. Twenty-four Dahlias, twenty-four varieties, 1st prize, £2; 2d, £1. 3. Twenty-four Roses, not less than twelve varieties, 1st prize, £1 10s.; 2d, 15s. 4. Eighteen Hollyhocks, two blooms of each, 1st prize, £1 10s.; 2d, 15s. 5. Gladiolus, single spikes, twelve varieties, 1st prize, £1; 2d, 10s.

The Judges may withhold any prize if the productions exhibited be not considered worthy.

Roses may be shown singly, or with such buds and leaves as are on the same stalk.

Intending Exhibitors must give notice to the Secretary on or before Saturday, August 22.

The Society will, if requested, convey the productions from and to the Railways.

The Band of the Coldstream Guards will attend.
E. J. HARTLEY, Secretary.

TESTIMONIAL to Mr. JOHN GIBSON.
Committee:—
Chairman—Geo. F. Wilson, F.R.S., Heatherbank, Weybridge.
Treasurer—Thomas Moore, Botanic Gardens, Chelsea.
Hon. Secretary—Harry J. Veitch, Royal Exotic Nursery, King's Road, Chelsea.

Dr. Hogg, F.L.S.	Fisher, Holmes & Co.	J. Shaw
G. Eyles	J. W. Thomson	P. Grieve
A. Roger	M. Temple	Arch. Henderson
W. Bull, F.L.S.	F. Dewsberry	J. Matthews
C. Edmonds	Wm. H. Baxter	J. Wills
J. Lee	Hooper & Co.	Right Hon. W. Cowper-Temple, M.P.
A. Henderson	J. Chapman	W. P. Warner
J. Drewitt	J. Richards	P. Barr
R. Budd	H. Hepburn	Col. Stuart Wortley, Private Secretary to the late First Commissioner of Works.
W. Robinson, F.L.S.	Osborn & Sons	
Dr. Masters, F.R.S.	Rev. Reynolds Hole	
W. Paul	R. Parker	
T. S. Ware	Wm. Smythe	
J. Fleming		

It is proposed to present a Testimonial to Mr. John Gibson, whose name is so familiar among horticulturists as the originator of that style of garden embellishment which is called Subtropical Gardening, and for which Battersea Park, while under his superintendence, became so widely famed; and who also throughout his career has, both as a Landscape Gardener and Designer, and in early life as a Collector of Plants in India, done much for the advancement of gardening.

Mr. Gibson has for some months past been suffering from a severe attack of paralysis, and it has been thought by some of his friends that a presentation of the kind now contemplated would both cheer him in the midst of his sufferings, by assuring him of their sympathetic regard, and also in some degree meet the manifold expenses which are incidental to a prolonged illness.

A Committee, as above named, with power to add to their number, has been formed to give effect to the proposal to offer this mark of esteem to a most worthy man, whose personal qualities, in addition to his public services, have won for him universal regard.

Contributions to the fund may be sent either to the Treasurer or to the Secretary at the above addresses.

The following Subscriptions have been promised in addition to those already advertised:—

	£	s.	d.		£	s.	d.
Anderson, J. T. ..	1	1	0	Low, Hugh, & Co...	3	3	0
Bray, W.	2	2	0	Mangles, J. H. ..	1	0	0
Brown, W.	0	10	0	Mead, Wm.	10	10	0
Bindes, Thos. ..	1	0	0	Osborn & Son ..	2	2	0
Cannell, H.	1	0	0	Pain, Edwd... ..	5	5	0
Cunningham, Fraser, & Co.	1	1	0	Physician, A ..	1	1	0
Dean, A. A.	2	2	0	Pulham, J.	2	2	0
Fennings, R., L., & J.	5	5	0	Pyper, T.	1	1	0
"Friend"	0	4	0	Shanks, A., & Sons .	5	5	0
Gardeners' Magazine Proprietors ..	2	2	0	Simpson & Co. ..	2	2	0
Green & Son ..	5	5	0	Smeed, G.	5	0	0
Greenhill, Jos. ..	2	2	0	Smith, T., & Co. ..	0	10	0
Henderson, E. G. ..	5	5	0	Spurgeon, Rev. C. H.	2	2	0
Hibberd, Shirley ..	1	1	0	Steel, Geo.	2	2	0
Hubbard, Egerton, M.P.	2	2	0	Thomson, Wm. ..	1	0	0
Ingram, W.	1	0	0	Thornton, Thos. ..	2	2	0
Kennard, J.	1	1	0	Turnbull, And. ..	1	1	0
Knight, Hy. ..	1	1	0	Turner, C.	2	2	0
				Warner, R.	2	2	0
				Waterer, Anthony ..	10	10	0
				Wells, J. Spencer ..	10	10	0

Noteworthy Horticulturists and Botanists.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6*d.* each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.	JAMES BATEMAN, F.R.S.
W. WILSON SAUNDERS, F.R.S.	BERTHOLD SEEMANN, Ph.D.
Rev. M. J. BERKELEY, F.L.S.	ARCHIBALD F. BARRON.
M. DECAISNE.	Hon. MARSHALL P. WILDER.
G. F. WILSON, F.R.S.	JOHN GIBSON.
Dr. MOORE, of Glasnevin.	Professor ASA GRAY.
Professor REICHENBACH.	I. ANDERSON-HENRY.
Rev. S. R. HOLE, M.A.	Professor KARL KOCH.
E. J. LOWE, F.R.S.	Baron VON MUELLER.
JAMES MCNAB.	JOHN SMITH (Kew).
ROBERT HOGG, LL.D.	Professor WESTWOOD.
Dr. REGEL.	Dr. THWAITES.
	Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5*s.* 11½*d.* | Six Months .. 11*s.* 11*d.*
Twelve Months .. £1 3*s.* 10*d.*

FOREIGN SUBSCRIPTION.

£1 6*s.* *for* 12 *months, including postage to*—

AUSTRALIA	CANADA	JAMAICA	WEST INDIES
BELGIUM	FRANCE	NEW ZEALAND	UNITED STATES

£1 10*s.* 4*d.* *for* 12 *months, including postage to*—

AUSTRIA	HOLLAND	PORTUGAL	SPAIN
CHINA	INDIA	PRUSSIA	SWITZERLAND

£1 14*s.* 8*d.* *for* 12 *months, including postage to*—

RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, AUGUST 15, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Aug. 17—	Hunslet Great Floral Show.
TUESDAY,	Aug. 18—	Ryhope Horticultural Society's Show.
WEDNESDAY,	Aug. 19	Royal Horticultural Society: Meeting of Fruit and Floral Committee, at 11 A.M. General Meeting, at 3 P.M.
		Keevil (Wilts) Horticultural Society's Show.
		Eckington Horticultural Society's Show.
		Glamorganshire Horticultural Society's Exhibition.
		Sale of Tree Ferns, Orchids, and Stove and Greenhouse Plants, at Stevens' Rooms.
THURSDAY,	Aug. 20	International Flower and Fruit Show, at Belfast (two days).
		Deal and Walmer Horticultural Society's Show.
		Haverfordwest Horticultural Society's Show.
		Reading Horticultural Society's Show.
FRIDAY,	Aug. 21	Keighley Horticultural Society's Show (two days).
		Eastbourne Horticultural Society's Show.
		Sale of several Collections of Natural History Specimens, at Stevens' Rooms.
SATURDAY,	Aug. 22	Todmorden Horticultural Society's Show.
		Shotley Bridge Horticultural Society's Show.
		Wakefield Horticultural Society's Show.
		Sale of 600 Lots of Dutch Bulbs, at Stevens' Rooms.

WE have again to thank our correspondents for the information they have afforded us as to the condition and prospects of the FRUIT CROPS in their respective districts. The details with which they furnish us may safely be taken to fairly represent the fruit harvest of the current year. In general terms the result may be thus summed up :—Apricots have yielded generally an average crop, though the fruit has been small ; Apples have furnished a moderate and partial crop, good in sheltered places ; Pears are, generally speaking, plentiful ; Plums have yielded a good average crop ; Strawberries were plentiful, but owing to the hot weather which prevailed at the time they were in season they were soon over. Cherries furnished an average supply, and Morellos were plentiful. Peaches and Nectarines, speaking generally, have ripened fairly well, and in places are abundant. Figs are generally scanty. Small fruits, including Raspberries and white and red Currants, have been plentiful ; but black Currants have been deficient, and the bushes have suffered severely from insects. Nuts of all kinds are below the average. Looking back to the character of the weather in the past spring, it is not difficult to co-relate it with the present condition of the fruit crops. The cold weather in March was followed by a period of unwonted heat, during which fruit trees made great progress. In May, and even in June, late frosts occurred, which did much damage to some things, but which left others unaffected, probably because the fruit was well set before it occurred. We had no monopoly of these late frosts, for in the middle of May, in the Vine growing districts of Burgundy, the Vines were seriously injured, and the Walnut trees completely blackened. In Italy, even as far south as Ancona and Rimini, the Vines suffered, and especially the white Mulberry, there grown for the sake of the leaves, used as food for silkworms. Later on in the season, the drought that prevailed generally throughout the country effected much mischief. On the whole, the fruit harvest may be pronounced decidedly over average. It is, however, much to be regretted that fruit culture is not more extensively carried out in this country, where numberless waste spots might be turned to good account in this way. The scarcity and high price of fruit in towns is really a reflection upon our cultivators, though it is probable they are not so much to blame in the matter as the salesmen and the dealers. In any case we must to a large extent be dependent on the Continent for our supplies, and this leads us to comment on the want of system shown in their transport to this country. It happened to us this season to watch the loading of the trucks in the South of France with small wooden baskets of Cherries, to travel with them to Paris, and thence *viâ* Boulogne to London. How many times the baskets were tossed about from hand to hand in their several changes of carriage we should not like to say. What we saw on Boulogne quay may serve as a sample. On arriving at the station the baskets were transferred singly or in pairs from hand to hand from the railway trucks on to a trolly, by which they were conveyed to the quay. Here they were pitched into the vessel one at a time, a few only comparatively being sent sliding down the inclined plane on to the deck. The next morning, sitting in our office, we saw the same packages piled up on a railway waggon on their road to Covent Garden. How the fruit sustains such rough treatment on so long a journey is matter for surprise ; and that much of it is quite unnecessary is shown by the abundance of crates and cranes which might have been utilised, but were not.

Of the kinds most generally adapted for cultivation in different localities, information, for which we cannot find space in the present number, will be given in our next issue.

THE POTATO CROP, of which, through the courtesy of our correspondents throughout the length and breadth of the kingdom, we are enabled to furnish a detailed report, affords matter for congratulation. There appears to be a good average crop, and very little disease. The tubers are often small, and in some cases are "grown out or super-tuberated," but taken as a whole the crop is a good one, especially in Ireland. Some of our correspondents kindly furnish us with their opinions as to the most suitable varieties for their respective localities—information which, we are sure, will be read with interest.

—— WE learn that Lord HATHERLEY, the referee who kindly undertook to arbitrate in the matters lately in dispute at the LINNEAN SOCIETY, has decided entirely in favour of the action taken by the late President (Mr. BENTHAM) and the Council, and which was so sharply contested by a certain number of the Fellows at the time.

—— The approaching resignation of Dr. J. E. GRAY of his office of the Keeper of the zoological department of the British Museum is announced. It is difficult to over-estimate the value and number of the services rendered by this gentleman alike to botanical and zoological science.

—— According to a note in the *Geographical Magazine*, Mr. CROSS, whose letters in these columns when collecting Cinchona seeds in New Grenada for Mr. MARKHAM will be remembered by many of our readers, has returned from a fifth visit to South America, and is about to publish an account of his wanderings.

—— Mr. RILEY, in his report for the year 1874, as State Entomologist of Missouri, elsewhere referred to, completes the history of the YUCCA MOTH (Pronuba yuccasella). At one time Mr. RILEY considered that the insect deposited its egg on the stigmatic tissue "following most probably the course of the pollen-tubes." Now, however, Mr. RILEY has ascertained that the insect punctures the young fruit, and conveys her eggs into it from its side. The Yucca flowers are fully opened and perfect during a single evening and night only, and it is during this, the first night of blooming, that eggs are consigned to the somewhat prismatic pistil. The moth, in her visits to the flowers for the purpose of depositing her eggs, removes the pollen from the anthers, and so fertilises the ovules. Mr. RILEY satisfied himself by experiment that no other insect but the Pronuba effects the fertilisation, and when access of other insects is prevented no fruit is produced.

—— We learn that the entries for the Great International Fruit and Flower show, to be held on Thursday and Friday next in the Botanic Gardens, Belfast, more than equal the anticipations of its supporters, and the exhibition promises to be such a one as has never been seen in Ireland before. The QUEEN will send fruit from the Royal garden, and exhibits are expected from every part of the United Kingdom, including new plants from several of our leading London nurserymen. The entries exceed 900 in number, and represent above 1300 plants, mostly of the largest size, eighty-nine dozen Roses, and Grapes enough to go round the sides of the largest tent, if all that are entered put in an appearance. To furnish sufficient accommodation, the managers, in addition to holding the large exhibition ground in the Botanic Gardens which the North of Ireland Horticultural Society has hitherto found sufficient for its shows, have obtained the tents of the Newtownards, the Downpatrick, the Belmont, and the Lisburn Societies. Instead of the price of admission on the first day being fixed at half-a-guinea, as was the case in other places where such exhibitions had been held, the managers have wisely brought down the amount to 5*s.* if bought on the day, 3*s.* 6*d.* if purchased before Tuesday night next. Fine weather only seems to be now required to make the show—what we hope it will be—a success.

—— We are informed that Mr. ANDERSON, the "Bateman Medallist" and well-known Orchid-grower, has taken a lease of MEADOWBANK, near Uddingston, and intends to establish a nursery business, devoting special attention to Orchids, Amaryllis, ornamental trees, and cut flowers. With Mr. ANDERSON'S experience and the means at his disposal at Meadowbank, success ought to attend his efforts. It is to be hoped the claims of business will not entirely prevent him from continuing to fulfil the office of teacher in the matter of Orchid culture, &c.

—— We suspect there are so few of our readers who flower the beautiful ORCHIS MACULATA under cultivation, even in its ordinary season of blooming, that were we to ask "Have any of our readers tried to force it?" we should probably get ridiculed for our pains. Nevertheless, we understand that the plant is amenable to such treatment, and that Messrs JAMES COCKER & SONS, of Aberdeen, force batches of it annually. This firm annually obtains fair-sized samples of its tuberous roots from Holland, and pots them as soon as they arrive—generally about New Year's Day. When potted, they are put under the stage of a cool greenhouse, where they remain until growth commences—the subsequent treatment being in all respects the same as for Hyacinths—and they are said to grow and flower quite as freely.

—— Some experiments of an interesting nature were (says the *Daily News*) made on Saturday last at Godstone with the Rev. Dr. JONES' patent for rendering WOOD INCOMBUSTIBLE. Dr. JONES renders wood uninflammable, and also impervious to dry rot and decay, by subjecting it to a "pickling" process in a solution of tungstate of soda and water, of the specific gravity of 1.2. It should be stated that the tungstate is made by the addition of tungstate of lime to hydrochloric acid and salt, and it produces in the process as much chloride of lime as will pay all working expenses. The invention claims to be superior to all the old methods of preserving

wood, as they only render it more liable to fire. As instances of the inflammable nature of preserved wood may be mentioned the landing-stage at Liverpool recently burnt down, and Sir Joseph Gabriel's preserved wood warehouse, which was destroyed by fire. The tungstate of soda, from experiments that have been made publicly and privately during the last three years, is proved to render soft woods, such as white and yellow Pine, as hard as Oak or Teak, and it will also restore wood that has been affected by dry rot to the original condition of durability. The visitors on Saturday were shown a piece of restored Oak taken from the *Lord Clyde*, an ironclad that was built some years ago of unseasoned timber, and which had become soft and useless. Having been treated with Dr. Jones' patent, it is now as hard and durable as ever. The experiments made were three in number, and the tests were undoubtedly very severe. Two small pyramids of sticks were made, one of prepared and the other of unprepared wood. These were then well saturated with paraffin, and ignited. In the case of the prepared wood the paraffin soon burnt itself out without communicating the flames to the wood, which was only slightly charred. The other heap burnt fiercely, and in half-an-hour was reduced to ashes. The next experiment was made with two wooden huts, one of which had been prepared, while the other, built of ordinary Scotch Fir, had not. A strong fire sufficient to ignite the houses was burnt in each, and the effect was about the same as in the preceding experiment. A chest containing a parchment document had been treated by the process, and was thrown into the flames when at their height, and was taken out some time afterwards, charred indeed as to the outside, but practically uninjured in any other respect. The inside was quite cool, and the wax seals upon the document were intact. Perhaps the most important trial was that which took place with gunpowder. A Government gunpowder keg which had been rendered fireproof was used for this experiment. A paper packet containing about 2 ounces of gunpowder was put in the bottom of the keg, and a sheet of brown paper impregnated with the tungstate was pasted over it, and dried. The keg, which was open at the top, was turned upside down, and surrounded by shavings, which were lighted. A fire of petroleum and shavings was kept burning on the top for about a quarter of an hour, without producing the slightest effect on the keg. To make the trial still more complete the keg was reversed again, and lighted shavings were thrown in upon the gunpowder, protected only by a sheet of brown paper. The paper stood the test admirably, and the solution rejected the fire so thoroughly that the paper did not even show a sign of charring. The gunpowder was then taken out and exploded. The properties of his invention, Dr. Jones states, will render to the Navy the advantage of being always sound in hull and free from any danger of fire, whether from accident or shot and shell. It would also be a great saving to the nation in preventing the necessity of continually docking and repairing ships. An extract from some Government statistics was read on Saturday, which stated that the cost of the renewal of telegraph poles was £240,000 per annum, and this, it was said, would be saved by the use of Dr. Jones' process.

—— We saw Cowan's System of Limekiln Heating at work the other day in the plant-growing establishment of Messrs. J. & R. Thynne, Great Western Road, Glasgow. At present it is heating twelve houses, each 60 feet long, and doing the work well. The limestone has to be brought from Ireland, nevertheless we understand that the sale of lime covers all expenses attending the working of the kiln, and leaves something over. The kiln is intended eventually to heat sixteen houses of the same length, besides pits. Another gentleman in the neighbourhood of Glasgow has adopted the system, and, we are informed, has further adapted it to the manufacture of sufficient gas for the supply of his establishment. We learn that the prospectus of the company which has been formed to develope this mode of heating is now before the public.

—— We are requested to state that the business carried on by Messrs. J. Morgan & Sons at the Torbay Nursery, Torquay, has been purchased by Mr. W. James Veitch, and that it will in future be conducted by him.

—— The East London Amateur Floricultural Society will hold its ninth summer exhibition in the grammar school grounds, Tredegar Square, Bow, on August 24, 25 and 26.

—— A schedule of prizes has just been issued for an Exhibition of Fruit and Gladioli, to be held at the Crystal Palace on September 8, 9, and 10. There are twenty classes for fruit, which includes Pines, Grapes, Peaches and Nectarines, Melons, Figs, Cherries, Plums, Apples, Pears, Vines in pots, &c.; six classes for vegetables, and four for Gladioli. Intending exhibitors should make a note of the new rule which has been made to facilitate the labours of the judges, who "will proceed to make their awards at half past 9 A.M., before which hour all arrangement of specimens must be completed." The superintendent of this department is Mr. F. W. Wilson, from whom schedules may be obtained.

—— The *New York Tribune* remarks that the Secretary of the Maine (U.S.A.) Board of Agriculture, in his late report, mentions an Apple Tree at York that was brought from England over 200 years ago in a tub, and was still bearing fruit in 1870; another, near Wicasset Bay, that was an old tree in 1805, but is still fruitful; another, in the town of Bristol, known to be over 200 years old, still bearing fruit, and other trees that yield occasionally from 25 to 65 bushels of fruit each. He, however, charges the pilfering boys, who steal the choicest fruit, with being the chief obstacle in the way of profitable and improved Apple growing.

—— On the 5th inst. the *employés* of the Royal Berkshire Seed Establishment, Reading, accompanied by their wives and relations, went for their annual excursion—the cost of the journey being defrayed by Messrs. Sutton, who also presented each one with a sum for recreation and refreshment. Hastings was the place chosen this year; and at 7 A.M. a special fast train on the South-Eastern Railway, with more than 200 of the *employés* and their friends, and accompanied by some of the members of the firm, left Reading; reached their destination in good time, and enjoyed a pleasant day.

—— The 35th anniversary meeting of the Royal Botanic Society was held on Monday last at the Society's House, Inner Circle, Regent's Park, Sir Walter Stirling, Bart., in the chair. The Secretary announced the receipt since the last meeting of various seeds, &c., and, thanks having been returned to the donors, proceeded to read the 35th annual report, from which it appeared that the number of new subscribers who had joined the Society during the year was in excess of those of last year, and also much above the average, and the numerical strength had been fully maintained. The names of several persons of distinction had also been added to the list of Fellows. The exhibition of flowers, &c., and the evening *fête* were highly successful. The new range of greenhouses for the preservation of plants relating to the arts, manufactures, and domestic economy, commenced last year, had been completed at a considerable cost, and thus extended facilities had been afforded to the teachers, students, and others seeking practical information relating to the vegetable kingdom. Free admissions to study had been issued to twenty-six artists and 318 professors and students, and 31,500 cut specimens had been distributed to them. Several improvements had been made in the gardens, and many new and interesting plants added to the collections, those of a more general or public interest being placed in the collection relating to domestic economy, such as new medicinal plants, trees affording india-rubber and other gums, new varieties of Tea, edible Nuts, &c. The report was adopted.

—— Mr. Dunn has under cultivation, in the gardens of the Duke of Buccleuch, at Dalkeith, a remarkably fine strain of White Balsams, the seeds of which he obtained from Richmond, Virginia (U.S.A.), where this particular variety is, we understand, largely grown for market. The plant is a strong grower, and produces fine spikes of pure white double flowers, almost of the size and substance of the Camellia. Balsam growers would do well to look after this.

—— A cool greenhouse plant, held in high favour by Mr. Dunn, at Dalkeith, is the pretty pink-flowered Laurustinus-like Rogiera gratissima. It is a plant of easy culture, and produces its large terminal corymbs of deliciously sweet-scented flowers both summer and winter if desired and suitably treated.

—— We learn from *Nature* that at a recent meeting of the trustees of the "Gilchrist Educational Trust," they decided to appropriate a sum not exceeding £1000 to the promotion of scientific research, with the prospect of repeating this grant annually if it should bear adequate fruit. The plan proposed is to ask the Council of the Royal Society to make recommendations to the trustees, stating in each case the object of the research, the qualifications of the individual by whom it is to be conducted, and the sum they propose to be assigned to him; the purpose of the grant being to assist men of science who have shown themselves capable of advancing science, and who may feel themselves precluded from devoting their time to unremunerated work, by freeing them from the necessity of giving up investigations of great promise for the sake of mere bread-earning. We believe that this important movement is due to the representations of Dr. Carpenter, the Secretary to the trustees, that they would be in this mode worthily applying about a fourth part of their income in meeting a great national want, and in promoting the second of the objects as to which they have an uncontrolled discretion under the will of the founder—"the benefit, advancement, and propagation of learning in every part of the world." The Council of the Royal Society has, we understand, appointed a committee to consider the conditions under which the Council may most fittingly undertake the responsibility of advising the Gilchrist trustees as to the appropriation of their grants.

—— According to a paper now before us the number of pupils attending Prof. Balfour's botanical class in the University of Edinburgh was 354. Of these 308 were medical students, 9 science students, 4 pharmaceutical students, and 33 general students. Students of first year, 225; advanced students, 129. Pupils of the class of vegetable histology, 51. Numbers of lectures and examinations, 60; practical demonstrations, 30; histological demonstrations, 20; competitive examinations, 3; excursions, 12. The following were the excursions:—1. Gorebridge and Arniston; 2. Kinghorn and Burntisland; 3. Currie and Slateford; 4. Dirleton and North Berwick; 5. Broomlee and Dolphinton; 6. Linlithgow; 7. Beattock and Moffat; 8. Springfield and Ladybank; 9. East Linton and Tynninghame; 10. Bridge of Allan and Stirling; 11. Murthly; 12. Inverarnan, Ben Voirlich, Loch Lomond. Number of species of plants collected during the excursions:—Phanerogamous plants, 635: Ferns and their allies, 41; other Cryptogams, 64; total, 740. Number of miles travelled by railway, steamboat, and walking, 961. The number of students who attended the excursions was 228; and the number at each excursion varied from 15 to 132. Total expense of the trips, £4 7s. We are glad to see among the prizes to be offered in the summer session (1875) is one for the best and approved essay on any subject in vegetable physiology. The author is expected to make original observations and experiments. These may be conducted in the Botanic Gardens. To be given in on July 15, 1875. This department of science stands greatly in need of encouragement in this country.

—— The *Irish Farmers' Gazette* gives the following description of a very curious instance of Double Parasitism—Mistleto growing on Mistleto:—

"On inspecting a fine specimen of Mistleto growing, near Bray, on an old Apple-tree in the garden, and laden with its translucent pearly berries, many bird-sown seeds of itself were observed to be attached to the parasite. Several of these had germinated, and had apparently firmly attached themselves by means of the sucker or rooting end to the branchlets of the mother plant; but in no case then noticed had the plumule ascending portion taken a vertical direction or developed further growth. Being much struck with the fact, then patent, of the young Mistleto plant rooting (if one may so term the process) in the parent tissue, we determined to keep the matter in view, and at a future day see what further progress, if any, was made by these partially developed little embryos. With this object mainly in prospect, we called at old Conna in the early part of the present month, and our attention was directed to what appeared to be a sturdy young Mistleto growing on one of the internodes of the parent plant. Closer inspection left no doubt about the fact. Here was a stout young plant, firmly established, which counted two or more years since it raised its little head aloft, and was then about making its third set of leaves. After admiring this tiny but, to us at the time, exceedingly interesting object, we proceeded to examine more closely the thicker or inner ramifications of the plant, and were rewarded by finding growing midway on one of the thickest and smoothest internodes, a sturdy young plant three times the size of the preceding, full of health and vigour, with two principal bifurcations, four secondary branches, and five sets of its twin leaves, counting its age probably by some half-dozen or more years. Here, then, we found established beyond cavil the interesting and, as far as we know, hitherto unnoticed, or at all events unrecorded, fact of the double parasitism."

—— At Marlborough Street Police Court, on Tuesday last, Thomas Johnston was charged before Mr. Newton with wilfully damaging fifty-five Pelargoniums, the property of the Commissioners of Works. Police-constable Watson, C 157, was on duty in Hyde Park on Monday evening, when he saw the prisoner on a flower-bed pulling up flowers as fast as he could with both hands. He took the prisoner, who was drunk, into custody, and, on examining the bed, found that fifty-five plants had been pulled up. The prisoner said he was drunk, and did not know what he did. Mr. Cole, one of the foremen, said the worst part was that the flower-bed was ruined for the season. Recently a great many of the choicest plants had been missed. Mr. Newton said, with the view of deterring other mischievous persons from acting in a similar manner, he would inflict such a fine as would make the prisoner remember it for some time to come. He hoped it would go forth to the public that in future he should inflict imprisonment, without a fine, as it was intolerable that flowers, which cost a considerable sum, and formed a great source of enjoyment to the public, should be wantonly destroyed in such a way. The prisoner would have to pay £4, or be imprisoned for two months.

Fig. 45.—Ruscus androgynus from the garden of Prince Demidoff.

THE SPECIES OF RUSCUS.

The good qualities of the species of this genus are rather apt to be overlooked. There are not many of them in cultivation, but they are all good in their way. First there is the Butcher's Broom, R. aculeatus, a sturdy little fellow which in our experience will thrive anywhere and is quite independent as regards frost. Its dwarf shrubby habit, Holly-like leaves, or rather leaf-like branches, its scarlet berries, and capacity of making itself at home anywhere are great recommendations. Almost equally accommodating is R. Hypophyllum, with broad green pseudo-leaves bearing flowers on the under surface. This is a good plant to grow under the shade of trees. R. Hypoglossum is similar, its flowers are borne on the upper surface of the pseudo-leaves.

R. racemosus, the Alexandrian Laurel, is rather more tender, it has narrower lanceolate leaves, with flowers in clusters at the end of the branches.

All these are hardy, evergreen low-growing shrubs. R. androgynus is a greenhouse or conservatory climber, with broad bright green foliage like that of R. Hypophyllum, but with flowers produced in clusters from the margin of the leaf-like branches. It is surprising that so ornamental a plant is not more frequently grown, as its culture is of the easiest. There is a fine plant of it in the temperate-house at Kew, climbing up the girders supporting the staircase. The roots and young shoots are very like those of the common Asparagus.

Our illustration (fig. 45) is taken from a noble specimen grown in a tub in the gardens of Prince Demidoff, at

San Donato, near Florence. It formed one of the most striking objects at the recent Florence Exhibition, where its great size and its elegance attracted universal admiration.

The true leaves in these plants are reduced to mere scales, the branches or cladodes assuming the form and the duties of leaves.

THE POTATO CROP.

ENGLAND.

Beds.—The Potato crops in this neighbourhood look very healthy, and there is scarcely any sign of disease as yet. Early kinds, where not severely weakened by frost, turn out well, though not so large and mealy as usual. Late kinds are small, and the tubers are growing again in some situations. *Alex. McKay, Woburn Abbey.*

—— Our Potato crops show no symptoms of disease at present. The tubers are numerous and good in quality, but very small, owing to the long drought we have had in this part. *R. Budd, Luton Hoo Park.*

Berks.—The Potato crop is light, but I am glad to say we have not seen a single diseased tuber yet. We grow more than thirty varieties here. *Charles Ross, Welford Park, Newbury.*

—— Early sorts on good ground yield a good clean crop. Late varieties have, in many instances, begun to grow out, so that their yield will be uncertain. *Alexander Galt, Aldermaston Court, Reading.*

Bucks.—The Potato crop at present is mostly free from disease. Where the land is heavy the crop is good, and of excellent quality; on gravel the crop is small and very inferior, owing to the want of rain. *Philip Frost, Dropmore.*

—— Our crops of early Potatos are very fine both in quality and quantity, and at the present time no disease has appeared. This remark applies to the crop generally in the valleys. The late ones also look very promising. The crops which are situate on higher grounds may be considered an average one, rather small in places, but no disease. Late varieties are also looking well, and no symptoms of disease are visible. Our Potato ground is on the hill above the gardens, the substratum being chalk; we obtain from them Potatos of the finest quality, but not very large. Very fine sorts of choice kidneys do not thrive satisfactorily there. We plant extensively the white and red Regents and similar kinds. *Geo. Thos. Miles, Wycombe Abbey.*

Cheshire.—Early Potatos were much injured by frosts at the end of April and beyond the middle of May. On May 16 the thermometer showed 6°, and on June 13, 1° of frost. From this cause, and the extreme dryness, early Potatos were small in quantity and size, but free from disease. At present late Potatos look very strong and healthy; and should the remainder of the season be favourable, it may reasonably be hoped that there will be a good crop, and free from disease. *Wm. Whitaker, Crewe Hall.*

—— Early sorts are rather small but very good, a few show symptons of disease. Late varieties look well, and give promise of a heavy crop. *J. Malcolm, Cholmondeley, Nantwich.*

—— Early kinds have been rather small, but good. Late sorts look well, and in all probability will produce a good crop. No diseased tubers have been found yet. *Alfred J. Grant, Withington Hall, Chelford.*

Cornwall.—The Potato crops in the fields are looking remarkably well. In gardens the early crops are very good, both in yield and quality, but the haulms show signs of disease. Early kinds, as Ashleaf and Early Rose, mostly ripen in this county before disease sets in, and are best adapted for garden culture. For main crops, Scotch and Yorkshire Regents are good, but varieties known as Rocks and Cups are in general cultivation, being less liable to disease; they are, however, not good in quality, having very deep eyes and being of irregular shape. *J. Tyerman, Penlee House, Tregoney.*

—— The early Potatos were not a heavy crop, but are free from disease in the tuber and good in quality. The later sorts look well, and, with few exceptions, little disease is seen as yet even in the haulm. We expect a good yield of moderate-sized tubers, of good quality. In rich low situations are good-sized tubers, but, generally speaking, they will be smaller than usual. They have greatly improved in appearance since the rain, but a few complaints have been heard of a second growth taking place. *H. Mills, Enys, Penrhyn.*

Cumberland.—The early Potato crops, notwithstanding a severe check from frost, are generally abundant and good in quality, and are being harvested without any sign of disease; later sorts also promise well. *John Taylor, Isel Grange, Cockermouth.*

Devonshire.—The Potato crops are looking remarkably well, and as yet are perfectly free from disease. We have already stored Myatt's Improved Kidney, a splendid crop, of enormous size. Fortyfolds also very fine. Most of the early sorts are quite ripe and ready for storing, so that I trust this season the effects of our enemy will be but slightly, if at all felt. *A. Ayson, Oxton House, Kenton.*

—— The earlier sorts are chiefly ripened off and fit to take up. The late sorts, Regents and Lapstones, are growing out rapidly, and the disease has spread very fast in the Lapstones during the last week. I have taken up all I grew of this sort, and am lifting the Regents, owing to their being grown out. The latter are quite free from disease. I consider the Lapstone the best kidney and York Regent the best late round Potato. The seed of the latter must be changed occasionally, but the Lapstone I have grown for 16 years and always got very heavy crops. York Regents grown by the side of Paterson's Victoria produced by far the heaviest crop last year. I think Potatos generally are of good quality this season. *J. Garland, Killerton.*

Dorset.—The early varieties were very small, but the second early and later sorts are remarkably good. Those in fields, too, are abundant and good, although the murrain has in a few places made its appearance. *H. Munro, Clevelands, Lyme Regis.*

—— I planted all mine (beginning October 24) at the fall. The crop is abundant, but, owing to the drought, many are small. I began digging early sorts July 25, and am now going to dig all, as they show symptoms of growing out. The haulm is still very green, but the tubers are ripe; the skin adheres firmly to the tuber. They will be all up by August 7, which is my usual day of commencing. There is not a trace of disease either in the haulm or tubers. *W. F. Radclyffe.*

Durham.—Potatos look well, but the early varieties (kidneys) show a little disease. It is well worthy of remark that the first appearance is seen, not in the tubers or leaf, but on the stem, about an inch below the surface of the ground. I have often years ago observed this first symptom. *R. Draper, Seaham Hall Gardens, Sunderland.*

—— The Potato crop is excellent, both in quantity and quality, but rather small from the long drought. Within the last few days I have heard of the disease making its appearance in several places, but I have seen one, and only one, plot infected. I shall make all speed in getting them out of the ground, as I believe, with the heat in the soil, that on the first change to moisture the disease will spread wholesale. *Richard Westcott, Raby Castle.*

Essex.—There are no signs of disease at present, and I have heard of only one or two being found in the neighbourhood. The tubers are not over-large, but the quality is all that can be desired. The bulk is perhaps a little below the average, but this deficiency is doubly compensated for by the immunity from disease. I have given up growing late Potatos, and now confine myself to such kinds as will come off early, and enable me to obtain a second crop from the Potato ground. Early Rose, Dalmahoy, and Coldstream, keep well till spring. *Thos. Simpson, Broomfield.*

—— The Potato crop is remarkably promising up to the present time. *William Earley, Valentines, Ilford.*

Gloucester.—Early Potatos on good garden soil are a very fair crop. On light soils the case is different, owing to such a long continuation of dry weather, and, I am sorry to say, the prospects are not very promising. *William Forbes, Kingscote, near Wotton-under-Edge.*

—— Early Potatos are a heavy crop and excellent in quality, but in cases where they have been once or twice cut down by frost they are hardly worth digging. Late sorts promise well, but I am sorry to find in several instances that they have begun to make a second growth, which will damage the crop. No disease has as yet made its appearance, nor is it likely to do so, so long as the weather continues dry and warm. *Alexander Cramb, Tortworth.*

Hants.—All the early kinds of Potatos in this neighbourhood are good, of first-rate quality, and quite free from disease, and they have nearly all been gathered in. The later kinds it is feared will be poor, as none of them are more than half-grown, and having been so long at a standstill for want of moisture, most of them are ripening prematurely, and if rain comes supertuberation is certain to set in, to the injury of the crop. *W. Wildsmith, Heckfield.*

—— Potatos are an average crop, and very good. We have no disease as yet. Early Peas a good crop. Late varieties very much mildewed on light soils. *G. Harnett, Cadland Gardens, Southampton.*

—— Good crops of all early sorts of Potatos. Late varieties are fast growing out. *G. Jones, Mottisfont Abbey, Romsey.*

Herefordshire.—Potatos fall below the average in bulk, but they are free from disease and excellent in quality. *W. Coleman, Eastnor Castle, Ledbury.*

—— Early Potatos are a good crop, nearly ripe, and quite free from disease. Late varieties look very healthy, and give promise of a good crop. *A. Bye, Hampton Court Gardens.*

—— Our early Potatos are very good, fair in size, and well ripened. Late varieties promise well. *Edward Jones, Perrystone, Ross.*

Herts.—Potatos yield well, and the crop is perfectly sound. *Edward Bennett, Hatfield.*

—— The crop here is as good as possibly can be, clean and free from disease. *Anthony Parsons, Danesbury.*

Kent.—Up to the present time the prospects have been very encouraging. All our early sorts, such as Coldstream, Rivers', Veitch' Improved, and Myatt's Ashleafs, have been excellent. We are now using very excellent samples of Lapstone, Prince of Wales, and Carter's Giant King. We have another Giant King, but it is a month or six weeks later than Carter's, but is apparently a very fine Potato. Later sorts look very healthy, and we have not yet found one diseased tuber. *John Cox, Redleaf, Penshurst.*

—— I am informed that the disease has made its appearance on the moorlands in this neighbourhood, and the tubers are very much decayed, but generally the crop is looking well. A small patch of the disease has made its appearance here, and I immediately had the tops cut off, which I consider a good practice. *D. Coe, Chevening Place.*

—— The crop is only a poor one, owing to the dry weather, but up to the time I write (July 31) there is very little disease, but fears are entertained that heavy rain will bring it. This is not exactly a Potato district, not many being grown. *John Robson, Linton Park, Maidstone.*

—— Early kinds are very small, but good. These suffered very much by frost in May and June. The late kinds are looking well at present. *William Edwards, High Elms, Farnborough.*

—— Potatos are good, but small, owing to the dry weather. We have only had one shower in six weeks. *William Folwell, Brambling House, Wingham.*

—— Potatos are as yet free from disease, but the crop is light and the tubers small, owing to the excessively dry weather. *Thos. Woodford, Eastwell Park, Ashford.*

Lancashire.—On very light mossy land the crop will be poor indeed, they having been cut down twice by late frosts, and injured by drought as well; but on stronger land the crop seems less susceptible to injury, and will, we hope, turn out well; they must all be got up this month if possible, or the disease will have them. New sorts, or at least such sorts as are new to the district, seem to do best here. Most of the noted old ones, such as Dalmahoy, Early Oxford, Fluke, Mona's Pride, &c., curl in the top in June, and grow but little afterwards. *F. H., Knowsley.*

—— The Potato crop is good, no disease appearing till the 27th of last month; heavy rains have now set in, which, I fear, will cause it to spread rapidly. Our soil is stiff, on a subsoil of blue clay, upon the coal measures: elevation 404 feet above sea-level. *[illegible] Lindsey, Huntroyde Park Gardens.*

—— The Potato crop promises to be a good one. There are no symptoms of the disease at present. *Andrew Jamieson, The Gardens, Haigh Hall, Wigan.*

—— Early sorts were cut down by the late frosts, but the crops are very good, and late varieties look exceedingly well. There are no complaints about the murrain at present. *Edward Green, Bank Park, Warrington.*

Leicester.—The prospects of a Potato crop are by no means encouraging. The drought and heat combined matured the early kinds prematurely; the insufficiency of moisture has resulted in small tubers, of a quality inferior to that generally afforded by such kinds as Ashleaf, Racehorse, Myatt's Prolific, Coldstream; very many tubers are found to be hollow. The later crops have made much less growth than common, and have produced numerous small tubers or a few larger ones from which small growths have sprung. Rain, which has fallen to-day, will stimulate the Potato plant to renewed growth, and further crops of tubers will result, which will not be sufficiently matured for quality, and probably disease will occur. Hitherto no signs of it have been apparent. *W. Ingram, Belvoir Castle Gardens.*

—— The early crops were light and smaller than usual, but very good in quality. There have been very few instances of disease, and only a few tubers. I am sorry to say, however, that the late crops are supertuberating. *Montgomery Henderson, Cole Orton Hall, Ashby-de-la-Zouch.*

—— The early and second early kinds we never had better, so far as quality goes, although a little below the average size. Up to the present no sign of disease has been observed. The sorts I find do best are Lee's Hammersmith Kidney, an excellent variety, as early as the Ashleaf, and very prolific; Myatt's Early Prolific, always good; Mona's Pride, a second early and very good. Late Potatos we do not grow, but I hear sad complaints from many quarters in this neighbourhood of the tubers starting to grow, which no doubt will to some extent deteriorate their quality. *J. Brown, Gopsall Hall, Atherstone.*

Lincoln.—The crops in this neighbourhood will not be up to the usual mark. Early varieties that were planted early are a good crop, of excellent quality, and free of disease. Late varieties that were planty early are very promising, and will turn out a

fair crop, not quite so large as last year. Late planted Potatos will turn out poor and small. We have no traces of the disease at present. *David Lumsden, Bloxholm Hall Gardens, Sleaford.*

—— Very good crops of early varieties, and free from disease. Late sorts look well, considering the long-continued dry weather. *William Hurst, Somerby Park, Gainsborough.*

Middlesex.—Potatos at first suffered much through having the haulm cut down night after night by frost, this, combined with the excessive dryness of the season, renders the crop small—small in tubers, but of good quality, the American varieties, through their natural tendency to produce large tubers, and enjoying a dry season, telling to most advantage. There is at present no appearance of disease. *A. F. Barron, Chiswick.*

—— There is very little disease, but the crop will be light on account of the extremely dry state of the soil, neither is the quality so good as usual, being soapy and deficient in starch, evidently through the growth being stopped before the tubers were fully developed. In many that I have examined the eyes are just starting, about the size of pin-heads, and as soon as we get sufficient rain to moisten the soil they will push a second growth—to avoid which I should strongly recommend their being taken up as soon as rain comes in sufficient quantity to excite second growth. *T. Baines, Southgate.*

—— I think, should the drought continue for a few weeks longer, the Potato crop will be a good one, as, although samples may be small, yet they will be thoroughly matured and sound, and we shall not have to throw away one-half of the best tubers as rotten or useless. On the whole to Potato growers the dry summer has been rather a cause for congratulation than otherwise, and it is earnestly to be desired that the public may have cause to feel likewise. *Alex. Dean, Bedfont.*

—— I find Potatos are a good average crop, and entirely free from disease. *R. Henderson, Fulham Palace.*

Norfolk.—Potato crops uncertain; early ones were prematurely ripened by heat and drought. Some of the late kinds were injured in exposed situations by frost at midsummer, and, though recovered, are still weak, while in general the late crops are looking well, but suffering from drought and showing symptoms of second growth in the tubers, especially on light soil. To make the case worse the "blight" or disease has appeared. *J. Wighton, Cossey Park.*

—— The Potato crop promises to be successful this one season, all looking remarkably well. Very little disease has shown itself up to the present time, but in confined places, where trees or buildings shelter them, they appear to be "going off" fast, and cast a disagreeable odour around them. The yield of all early varieties has been very fine and the quality good. *T. Wynne, Hemsby Hall Gardens, near Great Yarmouth.*

—— Potatos are a fair crop, tubers small but free from disease at present; late sorts are looking well. My experience is to take all early and second early ones up as soon as possible, before rain sets in. Take all up and store them in dark dry bins, and put fine fresh lime on the tubers, which prevents them getting the disease. This plan I find from many years' experience to be the best and surest. *Wm. Smythe, Elmham Hall.*

Northampton.—Myatt's Improved Ashleaf is the greatest favourite here for early use; this year they are small, but of good quality; for late use, Paterson's Victoria and Wellington are the best this year. I fear they will begin to grow if we get a soaking rain. We have not had enough rain here to go into the ground an inch since the late Potatos were planted. Should they not grow again they will be good in quality, but small. At the present time the late crops look well. *John Smith, Althorp Gardens.*

—— The crop here, up to the present time, is very good; but, from want of rain, the late sorts will be very small. *J. Worraker, Milton, Peterborough.*

Northumberland.—Vegetables of all sorts are holding out well. Late Peas, so far, are very promising. At the present time Potatos are looking well, and there is no disease as far as I have seen. The tubers are smaller than usual, but mostly clean and dry. *Alex. Ingram, The Gardens, Alnwick Castle.*

Notts.—The Potato crop looks well. I have about thirty sorts planted out, and nothing could be more promising. From the continued dry weather the foliage of some of the earliest sorts is beginning to ripen off, but late sorts on similar ground are still green and vigorous. *J. Miller, Clumber.*

Oxford.—Potatos are small and sound, except on specially cultivated ground. I have not seen or heard of any disease up to this period. I am growing this year, besides 121 kinds of my seedlings under probation, American sorts, namely, Extra Early Vermont, Brownell's Vermont Beauty, Snowflake, Late Rose, and Willard's Seedling.—*Robert Fenn, Rectory, Woodstock.*

—— The Potato crop about here will be much under average. The early sorts taken up are not half a crop, and if what I hear from holders of allotments is correct, the late ones will be worse; they have already begun to grow out, but as yet no disease has appeared. *John Greenshields, Sarsden, Chipping Norton.*

Rutland.—The Potato crop in this district is good, so far as the garden crops are concerned, but it is too early to form an opinion as to the state of the field crops; at present appearance is against a good crop. In digging early sorts no unsound Potatos have been found here. Our two best varieties here this season are Bresee's Prolific and King of the Earlies; among new varieties Extra Early Vermont looks well at present. *J. Smith, Exton Park, Rutland.*

Salop.—On good land the early crop is very fair, but on light heath soil in the neighbourhood, where they were cut down by spring frosts, they are small. My own are fair size, but many are black in the middle; tops nearly all dead. Some Americans show spots very similar to disease, if not the real thing. Late crops look green and healthy so far. *Daniel Judd, Hawkstone.*

—— Our Potato crop is very good and free from disease, the tubers of an average size; late ones looking very promising. Although no rain has fallen here until yesterday for ten weeks we are not suffering to the extent one might imagine. *W. H. Welch, Willey Hall Gardens.*

Somerset.—I have examined with care every field that has come in my way, over a large extent of country, and have made extensive inquiries amongst growers, also examined the roots sent into the various markets. In all cases the result is the same—no disease. On June 29 we had a thunderstorm which did a little damage in two or three small gardens, in close shaded places, to which the sun and wind had not free access; for all open places it is as I have said above. Since June we have had some thunder, but not accompanied by much electrical disturbance, and always followed by bright sunshine and strong healthy breezes of wind, that have rapidly dried up all moisture from the surface. As the season is now so advanced I do not expect that we shall have our usual visitation of disease; the atmosphere is getting cooler, and there is less danger. P.S.—August 1, 12 o'clock: I have just been into Weymouth to make further inquiries of the dealers, and the invariable answer is—no disease known; and the supply of Potatos is good and of fine quality, the great bulk being Cornish kidneys, a favourite in the west. *J. Scott, Merriott.*

—— In some places the Potato crop is bad, especially on high ground. Those planted the latter part of March and beginning of April did not come up till after the June rains. In low-lying districts, as far as I can judge from what I have seen, I should say there would be a fair crop. There was a hard frost about the beginning of June, which severely cut those Potatos which were up in the low grounds. *W. Hallett, Cossington Farm, Bridgewater.*

Stafford.—We have fine crops of Rivers' Royal Ashleaf, and late sorts look very promising. *Thos. Bannerman, Blithfield, Rugeley.*

—— Potatos, both late and early sorts, never looked better. *T. Rabone, Alton Towers.*

—— On well cultivated rich ground the crops of early Potatos have been good and abundant, but quite three weeks later than usual, owing to the frosts. I have taken up and stored a good crop of fine Potatos. Late Potatos, I am afraid, will not be a good crop, owing to the long-continued drought. The tubers are small, and have ripened prematurely, and, in consequence, they are rapidly making a second growth. From several inquiries that I have made, I am pleased to say that, so far, no disease has made its appearance in this district. *Owen Thomas, The Gardens, Drayton Manor.*

Suffolk.—Crop light, tubers numerous but small, and of fine quality. I have not seen a diseased one this season. The ground is dry as dust, and the water supply very short, many of the wells in the neighbourhood being dry. Late Potatos are not likely to be a good crop, and should wet weather set in disease may be expected. *Thomas Blair, Shrubland Park.*

—— Potatos are of good quality, though small in size; the wonder is, not that they are so small, but that they are so good, for most of them were frosted to the ground three times, the last being so late as the middle of June; they recovered with amazing rapidity, and many of the crops are now approaching maturity; the skins are set and tops at a standstill. All in this state I intend to harvest at once, lest the recent showers, and others likely to follow, should excite a second growth, or develope the disease, which has not yet appeared. Safely stored, the disease has no power; but over-ripe Potatos are best in the ground. *D. T. Fish.*

—— The Potato crop in this district will be a very light one, as they are now too far advanced for rain to be of much benefit, except to those planted late and still growing. If we get much rain I fear the young tubers will start into growth instead of swelling. It is satisfactory to note that the crop is entirely free from disease so far, and although the tubers are small they are very clean and good. It will be of the greatest importance, if we are to have a continuance of such dry seasons, to plant largely of such kinds as form their tubers early and are full grown by the end of July, and such kinds will have a better chance of escaping disease. Bresee's Peerless is a Potato of great promise in this way, but if some of your correspondents would give their experience as to suitable kinds it would, I think, be of great service. *J. Sheppard, Woolverstone.*

Surrey.—The Potato crop is very good both in quantity and quality, no appearance of disease at present. Early crop just gathered in good condition, such as Covent Garden Prolific, Fox's Seedling, Early Ashleaf, Moss Kidney, Red Ashleaf, Early Fortyfold, Jackson's Improved Ashleaf, Victoria Kidney, Early King, and Early Rose. *William Kemp, Albury Park, Guildford.*

—— Potato crop excellent. Disease has shown itself on the haulm slightly, but the tubers are still healthy. *James Drewett, The Denbies, Dorking.*

—— Early varieties are very good, and the late sorts are looking very well. *William Kidd, Tandridge Court, Godstone.*

Sussex.—Potatos are better here than they have been for some years. I have taken all my sorts up, and have not found one bad one; in some very few cases the Potato blight has been found in this district. All the very late kinds are looking well and fast growing, but making new tubers at the expense of those formed before the rains we have been getting of late. *S. Ford, Leonardslee.*

—— I am sorry to say that Potatos are very bad in this neighbourhood. *John Wilson, Castle Gardens, Arundel.*

—— I hear very little of the Potato blight in this neighbourhood. *Thos. Jack, Battle Abbey.*

Warwickshire.—I regret to have report somewhat unfavourably of the later planted and late varieties, which it is to be feared will prove scanty both in size and quantity; they are, however, in most cases healthy and vigorous in growth but have begun to supertuberate to a great degree. *William Gardiner, Lower Eatington.*

Westmoreland.—Potatos are plentiful but small, owing to the drought. There is no sign of the disease as yet. *William Shand, Lowther.*

Wilts.—Potatos are abundant and excellent, all but latest planted ones are nearly fit for storing. Among the best sorts are the old Ashleaf, Myatt's Prolific, Coldstream, Fortyfold, and Regents. There is no disease at present. *Wm. Taylor, Longleat Gardens, Warminster.*

—— Up to the present time the Potato disease has not made its appearance. Through the want of rain in June and July the crops will be very light; should heavy rain set in shortly we may expect the disease soon to follow. *W. Scammell, Bowood.*

Worcester.—Early sorts upon heavy soils are a good crop, and fine in quality; upon light soils a poor crop and small in size, the earliest planted being the best. Late planted sorts in this district are suffering from drought, and fears are entertained of a second growth should we have much rain. I have not seen or heard of a single diseased tuber. *G. Westland, Witley Court.*

—— Potatos are, as yet, healthy, the earlier kinds quite ripe and of excellent quality; crop moderate. *William Cox, Madresfield Court.*

—— Early Potatos small, but good. Late sorts look green and well, but some of them are making a second growth from the first tubers—apparently free from disease. *Samuel Mellor, Ombersley, Droitwich.*

Yorkshire.—The Potato crop has been much checked in some places by the cold weather in June, but generally the crop promises to be fair and sound. Late varieties look very well. Everything suffering from drought, only about 2½ inches of rain having fallen during the last three months. *J. Simpson, Wortley Hall Gardens.*

—— Potatos look very promising. The crop will be good. At this late period of the season there is not much danger of their suffering from disease to any great extent. *M. Saul, Stourton, Knaresborough.*

—— Early Potatos are good in quantity and quality. Late varieties are looking healthy all round this neighbourhood. *James Fowler, The Gardens, Harewood, Leeds.*

SCOTLAND.

Aberdeenshire.—The crop in the fields looks very promising, and in the garden here they never looked better; but I am sorry to say that I found symptons of the disease on August 1, and it seems to progress rapidly as the different varieties come to maturity. The sorts affected are Handsworths, Early Round, Extra Early Vermont, and Sandringham Ashleaf. *R. Farquhar, Gr., Fyvie Castle.*

—— The Potato crop throughout the country has a very promising appearance at present, with the exception of the Victoria (in some places), which has come up very irregularly, and may be

accounted for by cutting small Potatos, for when planted whole the Victorias seldom put up more than one stem. I am sorry to say that the disease has already commenced its work of destruction in our neighbourhood. It has confined itself for a fortnight to a plot of round white Ashleaf and American Rose Potatos in a crofter's garden, high up on an exposed brae-side, to the north-east of us. We hopefully expected to escape scot-free this season, the ground being so warm and very dry—the best preventive of the disease that we know of. Large selections of Potatos are grown in these districts, both in garden and field, to meet the requirements of some very good local exhibitions, and the principal root show in Scotland, which is held here. *George Donaldson, Keith Hall, Inverury.*

Ayrshire.—The Potato crop in many districts was badly cut down with the frost of June 11, but on the whole it is many years since they looked so healthy at this season (August 3). The lifting of early ones for market purposes is carried on to a good extent along the coast. The yield this season is generally not very heavy but the quality is good. Our garden crop is extra heavy and good; on this point I may have something to write, should you desire it. Disease showed slightly on a few Myatt's Kidneys on July 31, but is not spreading. *John Gray, Eglinton Castle, Irvine.*

Berwick.—Potatos in gardens and fields are looking well, and as yet there is no appearance of disease. *Peter Loney, Marchmont House, Dunse.*

Caithness.—Potatos are looking fine and fresh. Some patches are affected with a little blight, but nothing to speak of. If it does not extend further, we shall have an excellent crop. *John Sutherland, Langwell, Berriedale.*

Dumfries.—The Potato crop has not looked so promising for many years. The hot dry summer we have had accounts for this. *D. Thomson, Drumlanrig.*

East Lothian.—Potatos are looking well, though on June 12 we had 2° of frost, which killed them to the ground, where the sun caught them early. They have, however, recovered, and the effects of the frost are not observable. We have only had a rainfall of 11.49 inches since January 1. *Alex. Shearer, Yester Gardens.*

Fife.—The Potato crop is very promising. The early varieties are of excellent quality, and I have not heard of the disease being discovered in this locality. *R. Adamson, Balcarres, Colinsburgh.*

Forfar.—The Potato crop never looked more promising, and there are no signs of disease in this quarter as yet. *Geo. Johnstone, Glamis Castle.*

Mid-Lothian.—The Potato crop is looking first-rate, being strong and healthy, with no appearance of disease. The early sorts are a fine crop, and of excellent quality. Late sorts promise to be equally good. The grincipal sorts grown are Smith's or Coldstream, early; Dalmahoy, second early; Regents and Rocks for late. *M. Dunn, Dalkeith.*

Perth.—The Potato crop in general is looking very well. In this neighbourhood they are covering the ground well, and very little rain will suffice for them now. There is a good prospect of our harvesting a good crop. *J. Browning, Dupplin Castle Gardens.*

Stirling.—Potatos are looking well, and there are no signs of the disease yet. Weather in general very fine. *M. Fitzgerald, Dunmore Gardens.*

Sutherland.—Potatos are of excellent quality, and a good crop, and no disease has as yet appeared among the tubers, nor has blight made its appearance in the haulm; so that although the spring was unfavourable, yet at the present time the prospects of the Potato crop are good. The rainfall here for May was 1.60 inch; June, 1.40; July, 1.10. *D. Melville, Dunrobin Gardens.*

Wigton.—To-day (August 3) the Potato disease is quite apparent, the black spot being everywhere visible on a strong growing brake of late Potatos, where the tubers are not more than half grown. The early varieties have, as yet, escaped, and, as they are nearly ripe, are not likely to suffer much from it. I have not heard of Potato disease appearing in any other part of Wigtownshire this season; and, as the Potato crop is fast approaching maturity, the probability is that not much injury will be done by the disease. *Archibald Fowler, Castle Kennedy.*

IRELAND.

Antrim.—In this district, situate on the Antrim coast, the weather this season has been most favourable for all sorts of crops, especially hardy fruits and vegetables. Potatos are a plentiful crop and very good in quality, quite free from disease as yet. *D. Taylor, Glenarm Castle.*

Armagh.—The Potato crop over the entire county could not be better. *W. A., Brownlow Gardens, Lurgan.*

Cavan. The Potato crop is more promising than has been the case for a number of years back. There is very little sign of blight, especially upon the late sorts. *W. J.*

Cork.—A better crop than for the last twenty years. *J. Fraser, Besborough.*

Derry.—There has not been better prospects of a Potato crop for the last twenty years. *W. Fleming, The Palace Gardens, Derry.*

Donegal. — The Potato crop in this district promises to be very good. *Armstrong Hanlon, Drumboe Castle.*

Dublin.—Potatos are abundant, large in size, and excellent in quality. *D. Pressley, Knockmaroon Lodge.*

Kerry.—Potatos are better than they have been for many years in this part of Ireland. The disease is only now making its appearance. *F. Bedford, Killarney House, Killarney.*

Meath.—The Potato crop is looking remarkably well, and early varieties are turning out very prolific and dry, and came into use very early; we had them in fine condition in the open borders the third week in May, and so far no disease has appeared. The general crops in the fields look very healthy, and will be heavy. We find Scotch Downs and Paterson's White Seedling Rock the best for field culture. *Robert Moulton, Somerville, Navan.*

Waterford.—Potatos are a very promising crop, looking healthy and strong, with a very slight appearance of blight. *G. Fairbairn, Curraghmore.*

WALES.

Anglesea.—Kidney Potatos are rather a light crop, but excellent in quality and quite free from disease. Field Potatos look well at present date. *Robert Webster, Glyngarth, Menai Bridge.*

Cardigan.—Early Potatos are extra fine both in quantity and quality. Late sorts look well and promise a heavy crop. There is no sign of disease as yet. The sorts I find to do best here are Smith's Seedling, Rivers' Royal Ashleaf, and Mona's Pride. *John Hutchison, Abermaide Gardens, Aberystwith.*

Carmarthen.—Potatos in gardens, both crop and quality, are good. In the fields the haulm is strong and healthy, but I do not think the crop will be heavy. There is no appearance of the disease in the haulm. *J. Ticehurst, Dynevor Castle, Llandilo.*

Denbighshire.—Potatos have done well, and there are no signs of disease, their only fault has been deficient size. The Ashleafs have all done well, but here, where we have large first, second, and third tables to supply, my constant friend, wet or dry, has been Early Rose. Paterson's Albert has done me good service this season, also Fortyfold; Racehorse and Berkshire Kidney, although prolific, are small. Victorias are now doing us good service, and Flourballs for third table are large and very fine tubers, although not quite ripe. Various other sorts are ripening fast and show no signs of disease, and in a fortnight hence we shall harvest all our sorts which supply our tables until the middle of October, when the farm Victorias, Regents, and Flourballs take their place for the winter consumption. *P. Middleton, Wynnstay, Ruabon.*

Merioneth.—The Potato crop in this neighbourhood is very good this season. Early varieties both in garden and field are a heavy crop, and no appearance of disease at present. All vegetables have done well here this season. *James Bennett, Rhug Gardens, Corwen.*

Radnorshire.—The early Potato crops around us are very good, with no symptoms of disease at the present time; late kinds in the fields are looking healthy, and promise good crops. *C. T.*

CHANNEL ISLANDS.

Guernsey.—The Potato crop is very good this season, and exports have been large from the Channel Islands. *Thomas C. Bréhaut, Richmond House, Guernsey.*

Jersey.—Early Potatos, which are the staple and most lucrative crop amongst the small farmers, have not been so fine as usual. Owing to the long continued dry weather, the tubers have not filled the measure so quickly as in previous years. *Wm. Melville, The Royal Vineyard, St. Lawrence.*

THE GRAPE PHYLLOXERA.

The genus Phylloxera is characterised by having three-jointed antennæ, the third or terminal much the longest, and by carrying its wings overlapping flat on the back instead of roof-fashion. It belongs to the whole-winged bugs (Homoptera), and osculates between two great families of that sub-order, the plant-lice (Aphididæ) on the one hand, and the bark lice (Coccidæ) on the other. In the one-jointed tarsus of the larva, or newly-hatched louse, and in being always oviparous, it shows its affinities with the latter family; but in the two-jointed tarsus of the more mature individuals, and in all other characters, it is essentially aphidian. "In every department of natural history a species is occasionally found which forms the connecting link between the two genera, rendering it doubtful under which genus in should properly be arranged. Under such circumstances the naturalist is obliged to ascertain, by careful examination, the various predominating characteristics, and finally place it under the genus to which it bears the closest affinity in all its details." So wrote Audubon and Bachman twenty-eight years ago; and what is true of genera is equally true of species, families, and of still higher groups. In the deepest sense all Nature is a whole, and all her multitudinous forms of animal and vegetal life are so closely interlinked, and graduate into each other so insensibly, that in founding divisions on too trivial differences we subvert the objects of classification. Thus, instead of founding a new family for this insect, as Dr. Shimer did, and as there seems a tendency on the part of others to do, it it is both more consonant with previous custom, and more sensible in every way, to retain it among the Aphididæ.

Biological. — Different forms which the insect assumes.—Not the least interesting feature in the economy of our Phylloxera are the different phases or forms under which it presents itself. Among these forms are two constant types, which have led many to suppose that we have to do with two species. The one type, which I have, for convenience, called Gallæcola, lives in galls on the leaves; the other, which I have called Radicicola, on swellings of the roots.

Type Gallæcola or Gall-inhabiting. — The gall or excresence produced by this insect is simply a fleshy swelling of the under-side of the leaf, more or less wrinkled and hairy, with a corresponding depression of the upper side, the margin of the cup being fuzzy, and drawn together so as to form a fimbriated mouth. It is usually cup-shaped, but sometimes greatly elongated or purse-shaped.

Soon after the first Vine-leaves that put out in the spring have fully expanded, a few scattered galls may be found, mostly on the lower leaves, nearest the ground. These vernal galls are usually large (of the size of an ordinary Pea), and the normal green is often blushed with rose where exposed to the light of the sun. On carefully opening one of them we shall find the mother-louse diligently at work surrounding herself with pale yellow eggs of an elongate oval form, scarcely .01 inch long, and not quite half as thick. She is about .04 inch long, generally spherical in shape, of a dull orange colour, and looks not unlike an immature seed of the common Purslane. At times, by the elongation of the abdomen, the shape assumes, more or less perfectly, the pyriform. Her members are all dusky, and so short compared to her swollen body, that she appears very clumsy, and undoubtedly would be outside of her gall, which she never has occasion to quit, and which serves her alike as dwelling-house and coffin. More carefully examined, her skin is seen to be shagreened or minutely granulated and furnished with rows of minute hairs, which will be more particularly referred to in the appendix. The eggs begin to hatch when six or eight days old, into active little oval, hairy beings, which differ from their mother in their brighter yellow colour and more perfect legs and antennæ, the tarsi being furnished with long, pliant hairs, terminating in a more or less distinct globule. These hairs were called digitali by Dr. Shimer, and they lose their globular tips, and become more or less worn with age. In hatching, the egg splits longitudinally from the anterior end, and the young louse, whose pale yellow is in strong contrast with the more dusky colour of the egg-shell, escapes in the course of two minutes. Issuing from the mouth of the gall, these young lice scatter over the Vine, most of them finding their way to the tender terminal leaves, where they settle in the downy bed which the tomentose nature of these leaves affords, and commence pumping up and appropriating the sap. The tongue-sheath is blunt and heavy, but the tongue proper—consisting of three brown, elastic, and wiry filaments, which, united, make so fine a thread as scarcely to be visible with the strongest microscope—is sharp, and easily run under the parenchyma of the leaf. Its puncture causes a curious change in the tissues of the leaf, the growth being so stimulated that the under-side bulges and thickens, while the down on the upper side increases in a circle around the louse, and finally hides and covers it as it recedes more and more within the deepening cavity. Sometimes the lice are so crowded that two occupy the same gall. If, from the premature death of the louse, or other cause, the gall becomes abortive before being completed, then the circle of thickened down or fuzz enlarges with the expansion of the leaf, and remains to tell the tale of the futile effort. Otherwise, in a few days the gall is formed, and the inheld louse, which, while eating its way into house and home, was also growing apace, begins a parthenogenetic maternity by the deposition of fertile eggs, as her immediate parent had done before. She increases in bulk with pregnancy, and one egg follows another in quick succession, until the gall is crowded. The mother dies and shrivels, and the young, as they hatch, issue and found new galls. This process continues during the summer until the fifth or sixth generation. Every egg brings forth a fertile female, which soon becomes wonderfully prolific. The number of eggs found in a single gall averages about 200; yet

it will sometimes reach as many as 500, and, if Dr. Shimer's observations can be relied on, it may even reach 5000.* Small as the animal is, the product of a single year, even at this low estimate, would encircle the earth over thirty times if placed in a continuous line, each individual touching the end of another. Usually, however, the natural enemies of the louse seriously reduce its numbers by the time the Vine ceases its growth in the fall, and the few remaining lice, finding no more succulent and suitable leaves, seek the roots. Thus by the end of September the galls are mostly deserted, and those which are left are almost always infested with mildew (Botrytis viticola, Berkeley), and eventually turn brown and decay. On the roots, the young lice attach themselves singly or in little groups, and thus hibernate. The male gall-louse has never been seen, and there is every reason to believe that he has no existence. Nor does the female ever acquire wings. Indeed, I cannot lay too much stress on the fact that Gallæcola occurs only as an agamic and apterous female form. It is but a transient summer state, not at all essential to the perpetuation of the species, and does, compared with the other type, but trifling damage. Thus, while legions of the root-inhabiting type (Radicicola) are over-running and devastating the vineyards of France, this Gallæcola is almost unknown there, except on such American varieties as it infests with us. Similarly, there are many varieties, especially of Labrusca, which, in this country, suffer in the roots, and never show a gall on the leaves.

I was formerly inclined to believe that Gallæcola was a necessary phase in the annual cycle of the insect's mutations; in other words, that it was essential to the continuance of the species, and was probably the product of the egg laid by the winged and impregnated female. On this hypothesis I imagined that Gallæcola was probably the invariable precursor of Radicicola in an uninfested vineyard, and that, if galls were not allowed to develope in such a vineyard, it would not suffer from root-lice. More extensive experience has satisfied me that the hypothesis is essentially erroneous, and that, while the first galls may sometimes be produced by lice hatched from the few eggs deposited above-ground by the winged female, they are more often formed by young lice hatched on the roots, and which, wandering away from their earthy recesses, are fortunate enough to find suitable leaf conditions. It is barely possible that under certain circumstances, as, for instance, on our wild Vines, where the soil around the roots is hard and compact, Gallæcola may become more persistent, and pass through all the phases belonging to the species without descending to the roots—the eggs wintering on the ground, or the young under the loose bark, or upon the canes. For a somewhat similar state of things actually takes place with another plant-louse (Eriosoma pyri, Fitch), which in the western United States normally inhabits the roots of our Apple trees, and only exceptionally the branches; while in the moister Atlantic States, and in England and moister parts of Europe, where it was introduced from this country, it normally infests the branches, and more exceptionally the roots. But there are no facts yet known to prove such to be the case with the Grape Phylloxera, even on our wild Vines, and I do not believe that it ever is the case in our cultivated vineyards.

As already indicated, the autumnal individuals of Gallæcola descend to the roots, and there hibernate. There is every reason to believe also that, throughout the summer, some of the young lice hatched in the galls are passing on to the roots; as, considering their size, they are great travellers, and show a strong predisposition to drop, their natural lightness, as in the case of the young Cicada, and of other insects which hatch above but live under-ground, enabling them thus to reach the earth with ease and safety. At all events, I know, from experiment, that the young Gallæcola, if confined to Vines on which they do not normally, and perhaps cannot, form galls, will, in the middle of summer, make themselves perfectly at home on the roots. *From C. V. Riley's Sixth Report on the Insects of Missouri.*

(*To be continued.*)

* *Practical Entomologist*, vol. i., p. 17.

Home Correspondence.

Eryngium maritimum.—On the sands of Chesil Beach (chesil, Saxon for pebble), the beautiful Eryngium maritimum is now in great perfection, and there are two varieties of it, the bright blue and the mauve coloured. So pretty a plant should be oftener seen than it is in our flower borders, especially where sandy soils exist. Intermixed in the same blowing sand with the Eryngium is the pretty and very rare Euphorbia Portlandica; in its habit and general appearance it resembles E. Cyparisias, but the leaves are broader. I may also note the pretty Silene maritima, a plant that grows amongst the pebbles where no other plant will exist; however, Glaucium luteum follows hard upon its heels, and establishes itself where the Silene may have left a little vegetable mould by the decay of its leaves and branches. The next most persevering little gem is Poa rigida, which again follows in the wake of the other two. It is interesting to note the gradual expansion of the sea-side flora from the few plants that can brave all difficulties, and get a living, I may say, out of the very stones to the luxuriant herbage of the neighbouring swamps and ditches, where Iris, Forget-me-not, Juncus, Aster, and Poa rival each other in health, stature, and beauty. *J. Scott.*

Maize in Ancient Palestine.—On p. 75 (July 18, 1874) Mr. Forsyth says that "there is little doubt that the corn of Scripture is frequently Maize." You very properly remark on this somewhat adventurous statement that the Zea Mays is a New World plant, unknown in Scriptural times; and on p. 146 (Aug. 1) Mr. Bruce Mackay adds that it was unknown to the Greek and Roman writers, and is not mentioned by early Oriental travellers. These counter statements I quite approve, but it is right to add that in the opinion of Fraas, the Maize plant must have been the βοσπορον of Strabo, lib. xv.; and that certain of the commentators have supposed it to be intended by Theophrastus, viii. 4, in his account of a wonderful kind of corn produced in Bactria, which account is taken up by Pliny, lib. xviii. cap. 13. *G.*

French Ringing Tongs.—This simple though very useful instrument (fig. 46) is not so generally used as it deserves to be. As is well known, ringing is generally practised on Vines in France, in order to

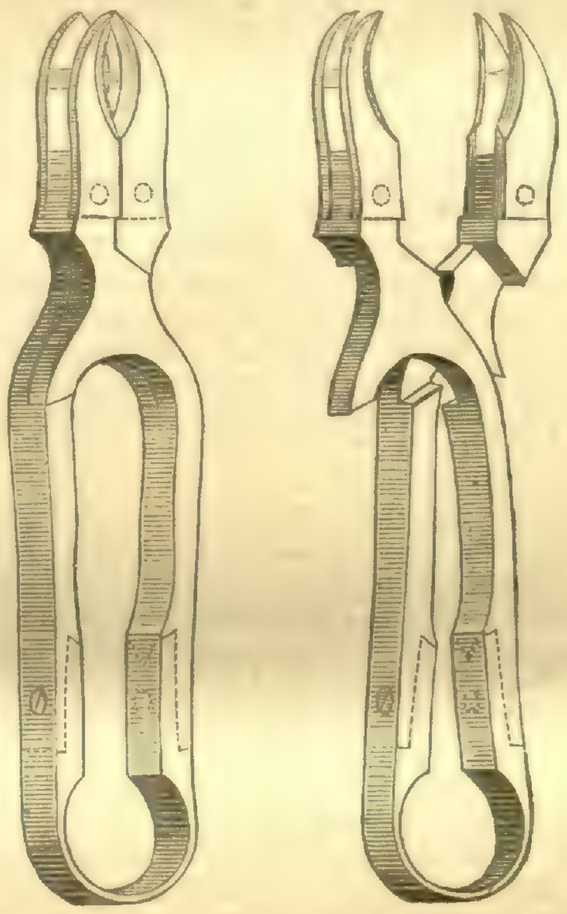


Fig. 46.—RINGING TONGS.

get larger and better Grapes. With the above French ringing tongs the operation is a very easy one, as you have only to apply the top of the instrument underneath a bunch of Grapes, and, by turning round, a small piece of bark is taken away by the knives, which are opened and then firmly pressed together by the spring. The same instrument is also used for Apple and Pear trees. *A. M. C. Jongkindt Coninck, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.*

In re Zonal Pelargoniums and their Raisers.—Please grant me space in the columns of your journal of this week (for time is an object) to say a few words upon the subjects commented upon by Mr. Pearson in your impression of the 8th inst. With regard to the value of the Zonal Pelargonium for conservatory decoration and bedding purposes I need add nothing to the eulogies already passed. Moreover, I consider this family of plants has, thanks to Mr. Pearson and others, attained a state of perfection, not only as regards its decorative properties, but as a florists' flower, which will enable it to hold its own, it consequently needs no trumpeter. I quite agree with Mr. Pearson that the improver of Nature's beauties has as much right to recognition, and to have his labours acknowledged, as the artist or sculptor, who, after all, is but a mere copyist. Most certainly we, who at a great expense of study and thought, as well as of time and money, work out vast improvements, or, it may be said, do really originate novel beauties, "living pictures," are as justly entitled as the compilers of pictures on canvas to the honours that accrue to our productions. I would remark that not only do exhibitors at the shows fail to append the raiser's names to exhibits of new flowers, but it is a practice with nurserymen to obtain novelties raised by amateurs; and if they do not positively claim them as their own—which is not unfrequently the case—they fail to acknowledge their originators—attempt, in fact, to sail under false colours, which neither does honour to themselves nor to their sense of justice. As to the power of the Council of the Royal Horticultural Society to remedy the injustice complained of by Mr. Pearson, I am not certain. It could, I suppose, be made a condition that upon each variety exhibited should be appended a ticket bearing the raiser's name. The present Council has, I would remind Mr. Pearson, made a move in this direction by inserting a clause in the rules of their schedule to the effect that, "where practicable, plants and flowers exhibited should contain their raisers' names." (*Vide* Rule vii.) Next, as regards the allusion Mr. Pearson makes to the special prizes previously offered by him and myself, I would remark that I discontinued mine because, upon reflection, I considered the offering of prizes exclusively for one's own productions to be open to objection. But I am quite willing to join Mr. Pearson in subscribing towards a fund for offering prizes open to all varieties, but upon the condition that each variety has the name of its raiser conspicuously written or printed upon the card that contains the name of the variety. If the raisers, lovers, and introducers of novelties in the Pelargonium genus, together with the nurserymen generally, would but join us in a moderate subscription, a sufficient sum might easily be raised to offer special prizes, which, in addition to those given by the Council, would ensure the Pelargonium show being a thorough success in every respect. I should like to see six special prizes offered; three of the respective values of £10 for 1st, £7, 2d, and £5, 3d, for twelve or eighteen distinct varieties, florists' class; and the same for twelve or eighteen varieties of the nosegay (or decorative) class, to be staged under the above specified conditions of each variety containing its raiser's name. I should be most happy to contribute £5 towards such a fund, provided others will join, so as to admit of carrying out the object in view liberally. *John Denny, Stoke Newington.*

Size of Peaches and Nectarines.—After reading your correspondent's remarks on the size of the above fruit at p. 146, and on examining a late Nectarine tree in one of our early Peach-houses, with a good crop upon it — one can at once see that the fruit is above the average size—ten days ago I measured the fruit of them; it was 8½ inches in circumference, most of them being 7 or 8 inches, and now the best of them measures 9 inches; but the Peaches are all ripe and gathered some time ago. The crop was good, although the individual fruit was not large in proportion to the size of the Nectarines. *J. Miller, Clumber.*

Honey-dew.—I am inclined to agree with the views of Dr. Hooker, as expressed in his letter to you, published last year (p. 920) in your columns, that the production of honey-dew is a natural function of the plant, and which occurs unstimulated by insect agency, and also in the views of Mr. William Earley, more recently published in the *Gardeners' Chronicle*, that certain atmospheric conditions, with which we are at present imperfectly acquainted, tend to the almost sudden production of this secretion. Limes are abundant about here (North London), and, like other observers, I am well acquainted with the sudden deposit of honey-dew on the leaves of this and other plants, and the presence or non-presence of aphides at the same time. The difficulty always is to know the proper time to isolate the plants for observation, the deposit of honey-dew being altogether erratic. I have recently had some branches of Citrus japonica under my notice, sent to me in a flowering and fruiting state by Mr. J. Sherratt, of Knypersley. These branches were perfectly free from both aphis and honey-dew when I received them, and Mr. Sherratt writes me to say he does not remember ever having seen honey-dew or aphis on this plant. Wishing to keep the branches fresh I placed them by themselves for that purpose under a large propagating glass, perfectly free from aphis. At the end of the second day the leaves were thickly dotted and smeared on their upper surfaces with honey-dew. On removing the glass the deposition ceased and the honey-dew dried in a shiny film, but on reinstating the branches under the glass the deposition recommenced, and continued till the leaves perished. *W. G. Smith.*

Agave americana Hardy at Weymouth.—I think it may be interesting to some of your readers to know that the Agave americana is quite hardy at Weymouth. As I was passing a villa on Greenhill, I observed in the garden a splendid specimen of the above beautiful plant; it stood back from high water-mark about 10 yards, and was elevated above the sea level about 10 to 12 feet. I have never seen so perfect and healthy a specimen. I calculated its height to be about 8 to 9 feet, and as much in diameter; the leaves are about 8 to 9 inches broad, a little incurved at the edges, and of the most beautiful sea-green, or rather what the ladies would call Sage green, now a fashionable colour in this lovely watering-place. *J. Scott.*

Rose Shows.—In a former letter I promised, if you desired it, to send you particulars of an idea as to Rose shows, discussed at a pleasant assembly of rosarians at Exeter. Before doing so may I be allowed to express my regret that anything in my former letter should have appeared to Mr. W. Paul as in any way deprecatory of his efforts on the occasion alluded to? It certainly was not so intended. The selection of Mr. W. Paul to fill the beds so prettily designed, as I understand, by Mr. Gibson, jun., does not affect the subject under discussion, *i. e.*, whether such designs are desirable, and if so, practicable at future Rose shows. In my opinion, limited to this question, they certainly hardly deserved so laudatory an article as yours, so hearty an endorsement of your praises by himself, nor so lengthy a defence of Mr. Sowerby's "happy thought." One statement alone of Mr. W. Paul's demands a serious answer. To put it in plain words, he wishes the public to believe that those growers who, whether from a desire to avoid the necessary labour and expense, and a certain amount of risk of being beaten, or from other causes, do not compete, produce as good—nay, does he not insinuate better?—plants than those who exhibit for competition. Surely this is misleading the public. The merest tyro in Rose growing will endorse my positive assertion that the culture necessary to produce fine flowers produces fine plants. Good culture, *i. e.*, good tilthy ground, frequent hoeings, good food, attention to cleanliness, are necessary to produce fine healthy plants, and these alone are the means used to obtain exhibition blooms. Such plants we exhibitors grow and sell to our customers, and a fourteen years' experience (speaking now personally) tells me such well-grown plants are appreciated. Appended is a list of the finest garden Roses [This will be inserted next week], as they are also our best show Roses. It sufficiently answers the assertion "that the standard of size and shape does not prevent our finest garden Roses being shown." I am amused at the prominent putting forward of my relationship to the writer. Is it intended to make me feel and appear as David Copperfield felt in Mr. Littimer's presence—as "so very young"? "D. of Deal's" letter in support of existing arrangements seems too conservative. Whilst fully accepting these arrangements as the outcome of past practical experience, surely some improvements of details can be effected. Our conversation at Exeter bore on this point—the same idea which seems to have struck Mr. W. Paul occurring to us, viz., the great gain in freshness and brilliancy of colour, and in showing the true form of the varieties, which would be obtained by exhibiting Roses the same day they are cut. I happened to mention the remark of one of our leading amateur exhibitors when looking at some Roses cut and staged, between 4 and 8 o'clock, at which hour he saw them. He remarked, "If only the Roses could be shown like this!" And the possibility of carrying out a large general show with this object in view was discussed, and, if I recollect rightly, was considered by those present as feasible. It was suggested that the show should open from 3 to 5 o'clock, and continue through the evening (wicked "D. of Deal," to insinuate that any rubbish looks well by candle-light!), and be open part of the next day. Could the exhibitors who now hail from, say, Hereford, Salisbury, Newark, Exeter, Stamford, and other places, reach London in time after cutting the same morning? Could we of London, Slough, Colchester, and the home counties, reach the country shows, at many of which already an extension of time for the admission of cut flowers coming from a distance is allowed? A consultation of *Bradshaw* shows it to be, in many cases, possible. We should all have to take new lessons in prompt, decisive selection of the best blooms. Where we have many large tracts to cut over we should have to divide our cutting-parties, and, by better organisation, save time in getting up. It was asked—Would the necessary travelling in the heat of the morning not try the flowers too much? This point is worth discussion. My own opinion is, that, being fresher, they would withstand the extra exposure. On the other hand, flowers which, under existing arrangements, are cut in the morning previous to the show, and kept in cool places, though appearing to lose colour in the afternoon, seemingly regain it during the night. With regard to the convenience of the exhibitors, it was thought indifferent whether they travelled all night, as is often the case now, with the flowers, or slept at the town of exhibition, and the show closing in time for the afternoon or evening return trains next day. The part of the exhibitors seems to me the bringing flowers in their most perfect beauty before the public; the part of the authorities, making the best arrangement for the display of the beautiful material thus brought to them. Cannot the managers of flower shows help us with their opinion? Mr. Badger, of Birmingham, once had a thought of trying at their Rose shows the provision of special stands by the Society. I don't know if the subject was really considered. In conclusion, in my unfortunate P.S. about York Minster your printer made me say, "naturally suggested itself," instead of "mutually suggested itself," thus altering the sense; and then it aroused the churchwarden-like indignation of your correspondent. It was but the record of a passing thought. There is plenty of work proper for our churches. *George Paul, Cheshunt.*

—— I write a few lines as an addendum to "D. of Deal," in regard to Rose shows. All attempts to arrange Roses in artistic or quasi-artistic groups are altogether fatal to having a correct judgment formed with regard to the merit of the different stands or collections of Roses. Judges have by no means an easy task at present, when, as at Birmingham, ten competitors enter for 72's or thirty for 12's, &c. What would be the difficulty if there were no limits as to numbers, or if, suppose the numbers were limited, the judges had to go here and there about the tents, to inspect mossy banks dotted at intervals with Roses? It seems to me the main object of a Rose show is to enable growers and amateurs, by personal close inspection of flowers grown in different soils and different aspects, to judge what are the best Roses in form, colour, size, &c.; and though long lines of boxes filled with flowers may to some eyes not seem very artistic, yet I know of no other way in which flowers can be submitted to such close and accurate inspection. I was at a Rose show last September at Brie Comte Robert, where groups of Roses were shown at the sides of the tents in beds, great quantities of the same sorts being massed together. In one bank there were 10,000 Roses staged, but the effect was anything but satisfactory; and though I suppose there were little short of 100,000 Roses shown, I hardly saw ten blooms that I would have selected to exhibit at a first-class English show. Although one of my main objects was to compare new and old varieties together, I came away but little wiser than I went. The object seemed to be to fill the tent with Roses, but quality was quite overlooked. For instance, in one separate bed there were 700 Rose de Roi in the centre, then 250 Gloire de Dijon as an edging, and about the same number of Souvenir de la Reine d'Angleterre round that. I do not wish to say anything against the attempt of grouping for effect for evening parties, ball-rooms, &c., but I hope the time may be far distant before I, acting as judge, have to decide quality and quantity together, and I do not think that the present plan can well be improved on. *C. P. P.*

American Blight.—I can sympathise with Mr. Davison in his trouble with the American blight. The espalier Apple trees here are more or less covered with it this year; last year there were but two or three cases. Some of the trees are, I fear, past redemption. I am inclined to favour your correspondent's opinion, viz., that the dry season has had a great deal to do with it. But then how does it happen that, while nearly all my espalier and wall trees are infested with it, the standards are with one exception free? I have an idea that, in this case, the pruning has something to do with it, as trained trees are spurred in year after year, while the standards are allowed pretty much their own way. The rain-gauge here has registered 8.70 inches during the past five months. Outdoor Peach and Nectarine trees are in a wretched state from blight and mildew, some of the trees having scarcely a leaf on. *E. Bayman, Holmbury, Dorking.*

—— It may comfort your correspondent, Mr. Davison, White Cross Nurseries, Hereford, to know that others are suffering like himself. We have never been troubled with American blight as we have this year. It attacks small as well as large trees—in fact, a drift of Crab stocks planted last autumn are suffering as much as any. We dress them with "Lightfoot's Lubricating Oil," third quality, which is a thick green paraffin oil. *J. Cheal & Sons, Lowfield Nurseries, Crawley, Sussex.* [Dressing with machine oil seems to be a perfect remedy, and does no injury to the bark. Eds.]

The Pear Beurré de l'Assomption.—Can you or any of your readers give their experience in the fruiting of the Pear Beurré de l'Assomption? It came to me with a great flourish of trumpets; but although I have had it five or six years, I have not had a fruit from it—indeed, it won't ripen its wood out-of-doors. The Souvenir du Congrès I find first-rate, and deserving all that has been said in its praise. *T. G.*

Myosotis dissitiflora.—I have to thank my neighbour, Mr. Douglas, and Mr. Alexander Dean, for their remarks on Myosotis dissitiflora, at p. 181. As the latter seems to have caught the spirit of my query, I will say at once that my plants have been chiefly autumn-struck cuttings, though occasionally I have used the more frequently recommended summer-sown seedlings, and with only a little more success. As to the growing of it, I have always thought it grew too well, and have store patches at this moment which a leveret might safely hide in. It is as to the flowering of this plant which I inquire about: does it ever produce heads, or a multiplicity of bloom-heads level as a table, and such as you may almost trundle a ball across, as do the older varieties? Or is it more commonly found to be, as mine are, free growing as Lamb's Lettuce, only larger, and as shy blooming as Cynoglossum omphalodes, or the old blue Navelwort of such infinite beauty? Facts are stubborn things, and I say that I have seen this species in many places, but always under anything but happy circumstances as compared with the glowing accounts I have read about it. *William Earley.*

Lilium auratum.—I have at present in pots several of these bulbs, a few of them being second year's roots. In one pot which has been standing the whole year in a cool greenhouse with a dry atmosphere, three or four roots sent up shoots which have been full grown for the last two months without any appearance of flower. About a week ago small bulbs made their appearance at the extremities of two of these shoots, where the flowers should be, and are still thriving. Can any one inform me of the reason of the above, if of frequent occurrence, and are these roots worth propagating? *Archibald Walker, Auchtermuchty, Fife.*

Glycyrrhiza glabra.—The Glycyrrhiza glabra (Liquorice plant) was never known to bloom in Scotland until about ten years ago, when it flowered in my garden, and also at the same time in the Royal Botanic Gardens, Edinburgh. For the second time it is now in fine flower in my garden. Perhaps some of your readers will kindly inform me if the plant flowers often in England or elsewhere. *Alex Paterson, M.D.* [We have frequently seen it in bloom in the South. At Chelsea it rarely fails to flower. Eds.]

Reports of Societies.

Manchester Botanical and Horticultural: The National Carnation Society: *August* 7—8.—An extra meeting was held in the gardens at Old Trafford on the above-mentioned days, mainly for the purpose of giving opportunity for a reunion of the members of the National Carnation Society, which, though it has been somewhat in abeyance for the last few years, seems now likely to revive, and to regain its old celebrity, chiefly through the active exertions of the Rev. F. D. Wonner, of Kirkby Malzeard—*facile princeps*, it would seem, in regard to the present flower, as well as to the Auricula. Lancashire and Yorkshire have always been strongholds of Carnation culture. The invitation to the present gathering would appear to have been addressed chiefly, if not exclusively, to residents in those two counties, and hence we find the exhibitors belonging to [illegible]. The leaders among them were Mr. B. Simonite, Sheffield, who has done more, as a practical man, for the Carnation than probably any living grower, at all events in the North of England; Mr. Joseph Chadwick, Dukinfield; Mr. John Beswick, Middleton; Mr. Thos. Barlow, Bradford; Mr. Jonathan Booth, Failsworth; Mr. John Whittaker, Royton, near Oldham; Mr. R. Gorton, Eccles; Mr. Robert Lord, Todmorden; and the indefatigable and reverend secretary himself. About 500 blooms were staged, and, in its way, certainly nothing could be more beautiful than the exhibition, the flowers being, in every instance, of high absolute merit, and presenting the most charming and *recherché* diversities of colour. There was a large predominance of the white-ground Picotee, but examples of yellow grounds did not appear to have been brought forward. A considerable number of prizes were given for sets respectively of twelve, six, and three, in the various classes of the schedule, the premier honours falling to Mr. Simonite, Mr. Booth, Mr. Lord, and Mr. Barlow. To the connoisseur, though the intrinsic merit of everything that was exhibited was unimpeachable, the absence of yellow-ground Picotees could not but suggest a mental inquiry as to why they should receive relatively so small an amount of attention at the hands of cultivators. It would seem, from what could be learned on inquiry, that immense progress has been made with white grounds by former growers, attention having been concentrated upon them, to the very needless, not to say unwise, neglect of the yellows. The objection to the latter, that they are more tender, and, in unfavourable seasons, somewhat late and shy in blooming, scarcely appears to be valid. With thorough and faithful-hearted gardeners, as with other men of spirit, a difficulty should not be a thing to repel and discourage, but one to be fought with until triumphed over. We apprehend that the comparative neglect of the yellow grounds is to be referred rather to the natural proneness of all men who fall in love with a given art or study, no matter whether it be floricultural or constructive, to imitate their predecessors, instead of seeking "fresh fields and pastures new." As we have said in another place, a glorious future assuredly awaits those who, without forsaking the whites, will address themselves zealously and manfully to the yellows. What wealth of shade and tint they have at command! White is only white, but yellow means everything, from straw

and primrose up to gold. To achieve excellence in yellows will, of course, not begin and end therein; the honour attending it will be twofold, since the success in point of ground-colour will be over and above the preservation of the good qualities which all flowers of the kind, whether Carnations, Pinks, or Picotees, are presumed, when meritorious, to possess —perfect evenness of border and outline, fulness and richness of general substance, and graceful proportion and symmetry in the forms and markings of the individual or constituent petals. Such is the function the Society has before it in the new era now, we hope, happily commencing. Who that loves Carnations will not strive to vindicate it as far as in him lies—

"Leaving that beautiful which always was,
And making that which was not?"

Though of late, as an organic unity, the Society has not achieved any confederated work, that is no reason why in future there should not be some sort of understanding as to the objects to be aimed at, each man pledging himself to a special department, though working simultaneously in all departments. All being well, it is intended that in 1875 there shall be in Manchester an exhibition on a very much larger scale, the Society hoping then to claim the position which the activity of its members for many years past really entitles it to, but which they do not claim at present. The meeting held last week they regard, with becoming modesty, only as tentative and experimental. That there is every reason to anticipate good results seems assured by the earnest way in which everything was done, and we cannot but wish them success.

While the connoisseur was pleased with the flowers, there may be a doubt whether the public, who look at things from more points of view than one, were gratified with the mode in which they were displayed. It is to be presumed that the exigencies of the case, as with cut Pansies, cut blooms of Hollyhocks, Tulips, Ranunculuses, and certain other flowers, require that they should be set out in rows, stiff and straight, upon boards, looking for all the world like deified pattern cards of fancy buttons. We find no fault with the arrangement, since we have nothing explicit to propose in the way of improvement; and it may turn out after all that for accurate judging and fair display and comparison, no other method is available. But the fancy-button method seems nevertheless to belong to a bygone age—to the time when Azaleas were crucified against horrible flat scaffolds; and that effort should be directed towards a more natural disposition. Mr. Wm. Paul set a good example the other day in regard to cut Roses, as described in p. 109 of this journal, associating buds and foliage with the flowers, and thus reminding us that the objects we were so charmed with were veritable productions of Nature, instead of devices in silk or wax from the deft fingers of some ingenious craftswoman in the art of artificial flower-making, such as many kinds of cut flowers might positively be mistaken for when displayed in the accustomed prosaic and mechanical manner. We hope the day is not far distant when Carnations, Picotees, Pansies, and all other such cut flowers will be in some way made to jut from little edifices of moss, or anything that will supply a picturesque soil to the colours and to the purity of the white—anything that will keep our thoughts abreast of pure Nature and sustain the original relation of the flower and the leaf, as sung of by old Daniel Chaucer. A poet's phrase, though undesigned to be so, is very often the key-note to a bit of sound and practical wisdom of action on the part of a gardener, and in the present instance the glorious old fellow unquestionably hit the nail upon the head. The revived Carnation Society, in a word, deserves the kindly support of all whose proclivities tend in any degree towards the beautiful flower of which it is a champion, and we hope a year hence to be able to describe a thorough resuscitation, not only as regards the North of England, but wherever the flower has votaries.

In order to give *éclat* to the visit of the Carnation Society, invitations were issued to the local nurserymen, and to amateurs who are in the habit of exhibiting, and the result was very pleasing. Many of the best and most desirable plants introduced of late years were laid out to view, Mr. John Shaw, of Bowden, taking the lead. There were also some very handsome displays of first-class stove and greenhouse plants—Crotons, Palms, Dracænas, Yuccas, Ferns, &c. —from Mr. Rylands and Mr. Broome, with special contributions of tender Ferns—a very good lot indeed —from Messrs. W. & J. Birkenhead, of Sale, and Messrs. Stansfield & Sons, of Todmorden. The large round baskets in which the last-named firm showed their specimens had the ground very prettily embellished with pots of the gay little Nertera depressa, a plant that seems a patch of Anagallis tenella sprinkled all over with scarlet beads: it is certainly one of the best things to introduce under such circumstances; and very interesting, moreover, from being a member of the Cinchonaceæ—that magnificent order which we are accustomed to think of only from the introduction given to it by the Ixoras, the Bouvardias, the Gardenias, the Luculias, and other suffruticose forms, but which, as illustrated in this diminutive Nertera, can assume likewise the habit almost of a moss. Contemplating it, and remembering what the Cinchona-trees are on the Andes of Peru, one cannot but think of the famous old genie in the *Arabian Nights*, who could make himself tall as a Douglas Fir, and yet allow of being shut up in a box that should come to land among the haul of a fisherman's net. Singular is it that both extremes of the order, as to dimensions of the species, should belong to the same continent—the Nertera, which is the most southerly of the Cinchonaceæ, belonging to the neighbourhood of the Straits of Magellan. That it is rightly placed in this order, any one may soon satisfy himself by examination of the little green blossoms. Miscellaneous cut flowers, Antirrhinums, &c., were shown by Messrs. Cibran & Sons; cut Roses by Messrs. Dickson and other firms; Pansies by Mr. Leggie; and a very interesting lot of Ericas, about thirty in all, by Messrs. Cole & Sons. Chief among the latter were Lindleyana, Marnockiana, rosea, and tricolor Eppsii. Orchids, considering the season, of course were but few in number, but these few were very interesting. Mr. Broome showed, among others, Cattleya Pinelli, Miltonia virginalis (full of flower), and the very rare and curious Cattleya velutina. The flowers of this, which Mr. Broome has had for three years in succession, are produced in a raceme of about six, and are principally of a peculiar speckled tawny yellow, one of the absolutely indescribable Orchid colours, the lip presenting a flush of pink with delicate pencilling. In the same class of plants Mr. Shaw exhibited the new Odontoglossum Roezlii, a pure white variety, with yellow centre, and another of this genus, not yet named; while Mr. R. S. Yates brought to the front that grand and astonishing plant, the Cattleya Dowiana, received ten years ago from Costa Rica. Only one blossom was open, but this was several inches across, in colour a peculiar delicate nankeen; the lip exquisitely curled and crisped, resembling dark purple-crimson velvet, and provided with radiating golden threads, that diverge like the veins in a leaflet of Maidenhair Fern. Of fruit there was not much, but the examples, such as arrived, were excellent. A First-class Cultural Certificate was awarded in this department to Mr. S. Mendel, who, celebrated as he rendered himself in Orchids, is evidently going to equal himself in Grapes, &c. Specially remarkable was the high finish of a splendid bunch of Madresfield Court. The Society will hold no other meeting for the exhibition of plants and flowers until November, when it is intended to have a show of Chrysanthemums, this last meeting of the year to take place in the Town Hall. *G.*

Padiham Floral and Horticultural: *August* 1. —This Society held its annual exhibition of plants, cut flowers, and vegetables in tents on the field adjoining the proposed station, and the exhibits were in almost every class of a very superior kind. The vegetables astonished the judges as well as general growers, the season having been one of the driest for several years. The Society was favoured with Queen's weather, which had the effect of largely increasing the finances. The show has now become thoroughly established, and the inhabitants of the town and neighbourhood look forward to its recurrence as one of the events of the year, and the committee spare no exertions to keep up the character of the exhibition, and believe that they have given a great impetus to floral cultivation generally, there being upwards of forty exhibitors in the amateur and cottagers' section alone. In the gentlemen's section there was keen competition in stove plants, tricolor Pelargoniums (which were never shown better at any exhibition), Grapes, black and white, and the collection of fruit. The judges were Mr. Michael Baynes, Leeds; Mr. Hepburn, Scarisbrick Hall; and Mr. Kifford, Latham House; whose judgments gave entire satisfaction. Mr. Henry Walton, Edge End, Briarfield, and Mr. Nuttall, of Nelson, showed splendid collections of plants, but not for competition. *J. C. A.*

Leicester Carnation and Picotee: *July* 26.—The annual exhibition of this Society, probably one of the best supported and most successful of the purely florists' societies in existence, was held in a field in King Richard's Road, Leicester, on the above date. As an exhibition it fell short of what was seen last year, for the thrips, no doubt nursed by the unfavourable weather, had played sad havoc with the flowers; notwithstanding some fine blooms were staged. The leading exhibitors comprised some of the best amateur cultivators of these beautiful flowers, such as Mr. B. H. Simonds of Sheffield, and the veteran J. D. Hextall of Ashby-de-la-Zouch, who were respectively 1st and 2d in the class for the best twelve Carnations and twelve Picotees; Mr. Wardle, Burton-on Trent; S. A. Marris of Leicester, who had the best stand of twelve Picotees; H. Stroud, Leicester; W. Mitchell, Leicester; B. Simonite, Sheffield, and others.

In the class for crimson bizarres, Eccentric Jack and the old Lord Milton were especial favourites, being finely shown; in scarlet bizarres, Admiral Curzon was decidedly the premier flower, and stands at the head of this division; of scarlet flakes, Sportsman, Annihilator, and Mr. Battersby, were the finest and best marked flowers; of purple flakes, J. C. Niven (Marris) is unquestionably very fine, but shows a tendency to run from its colour occasionally; the style of marking is very fine. Dr. Foster and Mayor of Nottingham fully maintain their high-class character. Among rose flakes, John Keats is very fine, quite A 1 in point of quality; Ely's Lovely Ann, Rose of Stapleford, and Merriman, were also fine.

In the division for heavy red-edged Picotees special mention must be made of John Smith, a perfect gem, extra fine in quality, and Lord Valentia. Princess of Wales is also a fine flower, but has an unpleasant tendency to become barred. Among light purple-edged flowers, Simonds' Mary was very fine; Mr. Tutton, though only medium-sized, is good; and Mr. Niven, in the heavy purple-edged class, is of superior quality, but as yet very scarce. Of rose-edged flowers, Niven's Fanny Helen is a beautiful heavy edged flower; and Turner's Juliana was also very fine.

THE FARM.

The Season.—Four weeks ago we pointed out that unless rain in large quantities fell in the end of summer or early in autumn, the drought would assume the aspect of a national calamity; and now the rain has come in sufficient quantities to avert much of the mischief that seemed to be threatened, though it is now likely to produce evil results of another kind by interfering with harvest operations. The season bears considerable resemblance to the very hot and dry summer of 1868, but in this part of the country the rain began to come at least three weeks earlier than it did in that year. In 1868 the drought was broken up by a thunderstorm about August 4, and on the 6th there was a persistent fall of rain during most of the day, which was the beginning of rainy and somewhat stormy weather, lasting all through the early weeks of autumn. This year the rain began before the middle of July, and though the showers were partial they visited nearly every part of the country before the beginning of August. On the 2d of the month the south and west of Scotland were visited by a gale from the west, of unusual violence for the time of year, and which made serious havoc of the fruit on standard trees. A great deal of unripe Apples and Pears have been blown down, and have gone to waste. One consequence of the rain falling on the heated soil has been a remarkable tendency to rapid vegetation. After the rain came in 1868 the soil, formerly dry and parched, almost like brick, developed in a few days innumerable small spikes of grass, and weeds of all kinds came up like Mushrooms. In a less degree the same thing is apparent now, but the diminished temperature has somewhat retarded the progress of this abnormal vegetation. In 1868 there appeared the curious phenomenon of supertuberation of Potatos—that is, the growth of young tubers on the ripe but unlifted crop. That season was at least a fortnight earlier than the present, and before the rain came Potatos in general had prematurely ripened, and had ceased from growing. A new growth was immediately developed to a great extent, and when the crop was lifted it turned out to be of almost no value. The danger is less this year in our northern latitude, but those who have early sorts of Potatos fit for lifting should make all haste, especially as we observe that the second growth has begun in the South. The crop in the Border counties is uncommonly good, but already there are signs of disease, and should the wet and sultry weather continue we fear the result will not be beneficial. The drought is probably now at a close, and on the 8th of this month the Tweed and Teviot were in flood for the first time since April, but the rise was only about 6 inches, and was caused solely by partial but copious thunder-showers. The drought has been serious, but not so calamitous as it was in 1868, nor worse than in many other seasons that could be mentioned. The year 1870 was at least equally dry; and in the south-east of England the months of April, May, and June that year were said to have witnessed the most prolonged drought that had been experienced in the corresponding period for 133 years, with the exception of 1844. The year 1869 was likewise a very dry season. Not a few theorists labour under the impression that these dry seasons result from thorough draining, or some climatic changes, and possibly there is something in what they say; but as a handful of facts are worth a cart-load of arguments we may adduce an instance of a season with some points of resemblance to the present, and which occurred long before drainage opera-

tions had begun. One peculiarity of last winter was unseasonable thunder and lightning, accompanied with snow showers; the same peculiarity was observed in Edinburgh in the winter of 1787-8. The past season has been remarkable for the appearance of a comet, accompanied by uncommon drought; the year 1788 was similarly noted, but the drought extended into the autumn and winter, and some remarkable phenomena were observed. On October 14 a bird's nest with eggs was found on the farm of Netherhouse in the parish of Old Monkland, in Lanarkshire. A newspaper of the day, under date November 7, 1788, has the following:—"So great has been the drought for some time past that they are in many parts of the country in the utmost distress for want of water for their cattle; wells are now dry which have not been known to be so for above twenty years before;" and it is added, "it is the opinion of our most eminent astronomers that our present fine warm weather is owing to the approach of the comet towards the earth, which is hourly expected to be visible." A week later it is said: "Such is the clemency of the season, that at Tannachside, in the parish of Bothwell, and shire of Lanark, there are young crows and also full-blown Roses." On November 27 it is said, with reference to Edinburgh, "the present scarcity of water in this city has given rise to a new species of smuggling. Several watermen have been detected in secreting quantities of that necessary of life in various cellars, during the time the public wells were running, with a view, no doubt, of getting an advanced price for it when the wells were locked up." Extremes are always dangerous, and, as a remarkable counterpart to the foregoing extracts, we take from the same paper the following note a year afterwards, viz., on November 27, 1789:—"A correspondent from Donside informs us that in the year 1774, which was the wettest season most people remember—when it rained almost every day, and it was said the clouds had grown old, and could no longer contain the rain—in that season, though the River Don often filled the banks, it overflowed the haughs only eight times from the seed-time till the end of harvest; but in this season (1789), besides filling the banks, the Don has eleven times overflowed the haughs during harvest, between September 1 and November 9. The last flood carried down a great quantity of corn." Thus it appears there were periods of great drought, as well as heavy falls of rain, at a time long prior to the date of modern improvements. *I., Roxburghshire.*

The Villa Garden.

A VILLA GARDEN without CARNATIONS, CLOVES, PICOTEES, or PINKS appears to be as incapable of realisation as a garden without Roses, or a grass plot, or any popular flower whatever. The fine full flowers, their brilliancy of hue and their exquisite fragrance, make them always acceptable; a bloom of a Carnation or Picotee is much-esteemed as a buttonhole, or as the prime ingredient in a posy. And in the ordinary flower-border, what can compare with the grand old crimson Clove, or the scarlet variety, the fine rosy-purple Lord Lyon Pink, the delicately edged Picotee, and a fine showy bizarre Carnation? They all come well under the denomination of sweet-scented flowers, and as such should be in every garden where there is convenience and space for growing them. And yet how often is the question asked, Where can I obtain the fine old crimson Clove I used to see years ago? And when it is found that a neighbour is in possession of a plant or two, many an application is made to him for a cutting or a rooted shoot.

Now is the season of the year when Carnations, Cloves, and Picotees are propagated by layering. It may be stated at the outset that pipings of Pinks should be put in at the end of June and the beginning of July. It is fully late to do it now, but if it has not already been done, let the cultivator not delay a day longer. One well-known cultivator of Pinks strikes his cuttings in a very homely fashion, but his method proves as successful as the most elaborate process of an accomplished florist. In the midst of some Gooseberry bushes in a shady part of his garden, he makes little beds of a light sandy soil, pricks into them his Pink pipings, and puts an old-fashioned square hand-glass over them. Here they root readily enough. There is one disadvantage attending this mode, that the earth-worms are very apt to work amid them, and upheave the pipings.

If the work has not yet been done, it would be well to thoroughly drain with crocks, *i.e.*, broken pieces of pots, place some moss over the crocks, and fill up with a sandy soil; next put in the Pink cuttings, in 32-sized pots, pressing them pretty firmly into the soil, and then plunge the pots (after well sprinkling them with water) in a bed of cinder ashes, up to their rims, and cover with a hand-glass or an old garden light. A good number would no doubt strike root, though not so many in all probability as would have become rooted in June, or even three weeks ago. Pipings of Carnations and Picotees may be treated in the same way. Supposing that layering cannot be done, or that there are so many shoots (as is frequently the case) that all cannot be layered, then it is well to make cuttings of some of them.

The work of layering Carnations and Picotees that are growing in borders is a process beset with some degree of difficulty, being often a very awkward occupation. In nurseries, where these plants are grown in pots, the work is rendered much more easy, because the pots can be lifted up on to a plank or form, and the operator can work under easy circumstances; but when the plants are growing on the open border, layering is more difficult, and it is often done with some difficulty. First of all the soil should be drawn away round the plant to the depth of 3 or 4 inches, and the place supplied with some light rich compost made up of loam, leaf-mould, and plenty of silver sand. Then, by means of a pair of scissors, cut away all the leaves on the shoot to be layered up to the third or fourth joint, counting from the point of the shoot. Every dead leaf should also be cut away from the base of the plant, so as to clear it entirely of decaying foliage. Then the operator should take the layer firmly between the left forefinger and thumb, and thrust the point of the layering knife through the second or third joint, according as he may see it to be most matured, drawing it downwards through the joint, and to about a quarter of an inch below it, gradually drawing the knife from the centre to the side of the stem of the shoot till it comes out of it. Then with a horizontal cut, cutting from the inside outwardly, remove the nib of the cut, as one would that of a quill pen, just below the joint cut through, and thus an important stage of the process is reached. The shoot is now half severed from the plant by means of a cut along the centre of it for a short distance, and with a kind of heel just below the joint. The cut should be made decisively and quickly, but the adroitness required to make a good clean cut, thus doing the work effectively and well, can only come from practice. A skilled hand can prepare the layers with considerable rapidity.

The old plan in layering used to be to cut the shoot through from the outside to the middle, just below a joint—in fact to make the horizontal cut first, and then by a skilful movement, to cut the shoot upward as far as it was desired to do so. It is, however, considered much safer to prepare the layer in the method given above. This done, the layer should be gently pressed into the freshly added soil, and fastened down into it by means of a peg of some kind. Fern pegs are generally employed where a large number are required; but where only a few are wanted, they may be cut away from the thin tops of peasticks, old birch brooms, or anything else of a suitable character. The pegs should be from 4 to 5 inches in length, and with care they will last two years.

Sometimes it will happen that the growth from which the layers are made is so high up the plant that they cannot be bent down and pegged into the earth without great danger of breaking them away altogether. In that case the layers must be built up to, by raising the soil to their level. But how can that best be done? A good plan is to take a piece of zinc band the width required, and bend it round the base of the plant, and so form a hoop, taking care that it cannot fly open again after the layering is done. To prevent this it must be fastened securely. In the case of plants grown in pots it is often found necessary to add the zinc hoop. When the layering is done, they should be watered lightly through a fine-rosed pot, and then left to the tender mercies of Mother Nature. The largest will throw out their roots from the joint where the nib was cut away. Some root very quickly, others delay rooting for a considerable time. No doubt much depends upon the maturity of the wood at the time the layering is done.

Those who are in the habit of layering a quantity every year keep a knife for the purpose, generally a sharp two-edged pointed blade, about 3 inches in length, inserted in a handle, and kept in a sheath for that process only. An ordinary propagating knife will also answer the purpose, but it should be very sharp, so as to make a clean cut.

By the first week in October the layers should be all nicely rooted, and then they should be first of all severed from the parent plant, and afterwards lifted and planted out where they are required to flower. A bed formed wholly of Carnations and Picotees is a very attractive sight, and proves extremely useful to cut from. Some loam and well-rotted manure is an excellent soil in which to grow Carnations and Picotees, using three parts of the loam to one of the manure, and if it could be mixed together and fully exposed for one winter before using it will sweeten it, and do it much good. When it is placed in the beds add some coarse sand. In such a soil the plants will do well and produce fine flowers. One great enemy to the Carnation is the wireworm. This troublesome pest will feed on the roots of the plants till they are utterly destroyed, and the soil should be looked over to see if there are any in it before being placed in the bed.

Erratum.—In the last sentence of the article, p. 147, for "avoid re-potting" read "avoid over-potting."

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, AUGUST 12, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
Aug.	In.	In.	°	°	°	°	°	°			In.
6	29.71	−0.04	73.5	53.0	20.5	61.9	− 0.2	47.6	60	WNW: WSW	0.00
7	29.63	−0.12	71.3	52.7	18.6	61.7	− 0.3	58.1	88	S.W.	0.00
8	29.49	−0.26	74.9	52.5	22.4	61.2	− 0.8	51.0	69	S.W.: WSW	0.08
9	29.61	−0.14	69.3	51.7	17.6	58.4	− 3.7	49.6	73	WSW W.	0.04
10	29.39	−0.37	68.5	54.3	14.2	57.6	− 4.5	52.9	84	WSW	0.41
11	29.56	−0.20	68.5	50.8	17.7	58.4	− 3.7	47.3	67	WSW: W.	0.00
12	29.58	−0.18	69.5	47.8	21.7	57.6	− 4.4	49.9	76	W: SW	0.11

Aug. 6.—A fine day. Light clouds generally prevailed.
— 7.—Overcast, with slight exceptions.
— 8.—Variable. Occasional showers of rain.
— 9.—Fine, with variable amounts of cloud till afternoon; overcast, and rain fell in the evening.
— 10.—Generally cloudy; frequent heavy showers of rain with thunder and lightning in afternoon and evening.
— 11.—Light clouds were present till about 5 P.M.; generally cloudless afterwards.
— 12.—Rain between 4 A.M. and 5 A.M. Fine till afternoon; overcast, with frequent rain afterwards.

—— In the neighbourhood of London the reading of the barometer at the level of the sea decreased from 29.95 inches at the beginning of the week to 29.78 inches by the evening of the 2d, increased to 30.[illegible] inches by 9 P.M. on the 3d, decreased to 20.76 inches by the same hour on the 4th, increased to 29.86 inches by the morning of the following day, decreased rapidly to 29.61 inches by the evening of the 5th, increased to 29.95 inches by the evening of the 6th, decreased to 29.54 inches by the morning of the 8th, and was 29.76 inches at the end of the week. The mean reading for the week was 29.82 inches, being 0.01 inch lower than the average of the preceding week, and 0.11 inch lower than the average of the corresponding period, as deduced from eighteen years' observations.

The highest temperatures of the air at 4 feet above the ground ranged from 62½° on the 5th to 79½° on the 2d, with a mean for the week of 71°. The lowest temperatures at night at the same height varied from 49¾° on the 4th to 59¾° on the 2d, the mean value being 52¾°. The mean daily range of temperature was 18¼°.

The mean daily temperatures of the air were below their averages on every day except the 2d, when the value was 67°.1, being 4°.7 in excess of the mean reading for the same day; the daily temperatures on the other days were respectively as follows:—3d, 60°.6; 4th, 55°.7; 5th, 55°.9; 6th, 61°.9; 7th, 61°.7; 8th, 61°.2; and their departures in defect of their respective averages, 1°.8, 6°.6, 6°.3, 0°.2, 0°.3, and 0°.8.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 135° on the 3d and 6th, and 142° on the 8th. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 41° on the 3d, and 38½° on the 4th.

The prevailing directions of the wind were W.S.W. and S.W., and its strength was generally brisk, the average daily horizontal movement of the air being nearly 350 miles.

On the 4th, 5th, and 7th, the sky was generally overcast, and at other times large amounts of cloud were frequently prevalent.

Rain fell on two days; the amount measured was rather more than one-tenth of an inch.

In England the extreme high day temperatures ranged from 79½° at Blackheath to 68° at Liverpool, with a general average over the country of 74½°. The extreme low night temperatures varied from 50¾° at Liverpool to 41¾° at Nottingham and Eccles, the general average being 46¼°. The mean range of temperature in the week from all stations was 28¼°. The mean high day temperatures ranged between 71°

at Blackheath and 63¼° at Newcastle-on-Tyne, with an average value of 67½°. The mean low night temperatures varied from 53° at Birmingham to 48½° at Nottingham, with a general average of 51°. The mean daily range of temperature in the week was 16½°, varying from 21½° at Nottingham to 11¾° at Liverpool. The mean temperature for the week was 57½°, the highest being at Blackheath, 60½°, and the lowest at Newcastle-on-Tyne, 54¾°. The amounts of rain measured during the week at the several stations varied from 1½ inch, at Manchester at Eccles, to one-tenth of an inch at Blackheath, the average fall over the country was ¾ inch nearly. The weather during the week has been dull, cloudy, and rain has fallen frequently.

In Scotland the highest temperatures varied from 71½° at Aberdeen to 66° at Greenock; the lowest temperatures ranged from 47½° at Greenock to 42° at Perth, their averages being 68¾° and 45¼° respectively. The mean temperature for the week was 56¾°, the highest being at Dundee, 57½°, and the lowest at Glasgow, 55¾°. The fall of rain ranged from 1½ inch at Dundee and Greenock, to four-tenths of an inch at Leith; the average fall was one inch.

At Dublin the highest temperature was 71½°, the lowest 45°, the mean 58°, and rainfall 0.61 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

Plant Stove.—Specimen stove plants that have flowered late, and are now beginning to push young growth, should be encouraged as much as possible to make and mature their wood before the short autumn days arrive. The plants should be elevated as near the glass as possible, and no more shade given than will keep the young leaves from suffering. Those most useful winter-blooming plants, the *Celosias*, should now be encouraged to make as much growth as possible; the quantity of flower they are enabled to produce is dependent upon the strength of the plants, but these and similar things that are grown up in a single season should never be put in large pots, as in such they are not near so handy nor look so well. Six or 8 inches are large enough, but if the plants are large and the pots more than ordinarily full of roots, they must be well and regularly assisted with manure-water, given weak, clear, and often. These plants are subject to red-spider, for which a continuous look-out has to be kept, as if allowed to infest them for even a very few days, the bottom leaves will perish. The earliest flowered *Ixoras* that some time back were advised to be placed in the warmest end of the stove, so as to induce them to push another growth and flower again during the autumn, should be encouraged by keeping the end of the house they occupy the closest, and assisting them with manure-water. Keep them as near the light as possible; this will induce their more quickly showing flower, and the blooms so produced will last much longer either upon the plant or in a cut state. *Bougainvilleas* that are now going out of flower may be treated similarly, as they push again and come into bloom more quickly than most plants; they also ripen their wood quicker, consequently there is yet time for their producing another crop of flowers before winter, but where this is attempted they must not be grown on the starving system, either as to sufficient nutriment at the roots or in the temperature kept up. The last batch of *Cockscombs* and *Globe Amaranthus* should be pushed on so as to get them fit for cool house or conservatory decoration in time to make them of use, as if too late, when the weather gets cold, their beauty is short-lived. *Æchmea fulgens discolor* and *A. fulgens* come in very useful at the present season, and for some time yet; the coral-like spikes, even after the flowers are closed, are little inferior to what they are when fully open: these plants also suffer less by being removed to a lower temperature for weeks than most other stove subjects do. Plants of these *Æchmeas* that flowered early may now be increased; this can be done either by allowing the suckers which they produce after blooming to grow large enough for taking off, and then slipping them out and inserting them in small pots, where they will root similar to Pines; or the crowns, immediately after flowering, may be cut off an inch or two below the leaves, a few of which should then be stripped off, and the shoots treated as recommended for the suckers; the old stools should then be removed into heat, not giving more water than just sufficient to keep the soil slightly damp. Here they will break a number of the back eyes, which should remain until the spring, when, if the plants are not too old and the soil exhausted, they may be allowed to flower; or they may be slipped off, as directed for the first lot of suckers, and rooted similarly. These fine old, yet somewhat neglected, plants can either be grown as large specimens, with a score of crowns, producing as many spikes, or they can be done in 6-inch pots with single crowns. For general decoration the smaller size will be found the most useful. Another advantage they possess is this, that when in flower, they may for weeks be placed partially under, and more crowded with, other plants, so as to produce a better general effect than subjects that always require to be stood thinly, without their suffering to any serious extent, if during their season of growth they are allowed a good light situation. A plant of similar habit, but slower increase, is *Nidularium fulgens*. This is even more effective than the *Æchmeas*, from the rich colouring of the interior leaves that are produced at the time of flowering. It increases and is propagated in a similar way to the *Æchmeas*. Both will grow well in good fibrous peat, with a liberal sprinkling of sand added, and about one-sixth of fine crocks. The roots of these plants, especially the *Nidularium*, require an open material to grow them well, as in regard to their requirements they are nearly like the epiphytal *Tillandsias*. Prolong by all necessary attention the flowering of stove plants that are in bloom. Where climbers are trained to the rafters they improve the appearance of the house, but they do serious injury to the plants under them, especially if allowed to get too large, so as to exclude the necessary light; this should always be avoided by frequent use of the knife, but even where this necessary training is carried out the amount of flower produced by the plants underneath is comparatively small as compared with positions where there is no obstruction to the full light.

Ferns.—Where valuable plants, such as *Gleichenias*, are affected with scale, nothing in the shape of dressing with insecticide during their season of growth can be done with them; but diligent and frequent hand-cleaning with a sponge and brush must be resorted to, or they will soon get so infested as to be seriously injured, independent of the increased labour involved by such neglect. Few plants are better adapted for room decoration than greenhouse or hardy varieties of Ferns, provided they are gradually inured to such situations, and are not subjected to the injurious effects of gas. Many varieties that are placed in fern-cases will do equally as well fully exposed in a room if they get well attended to, or in other words are under the care of those who grow plants for their own sakes. In such hands it is surprising how different they appear from the unfortunate starvelings that are often met with. Ferns in close cases require little attention in the matter of water, from the fact that the moisture in the soil, instead of escaping, condenses on the inside of the glass, and, running down again into the soil, is not lost; but when Ferns or other water-loving plants are grown exposed to the dry atmosphere of a room they must be well attended to with water, or they quickly assume anything but an inviting appearance. The common Hart's Tongue, or *Scolopendrium* makes a first-rate window-plant; so does *Asplenium marinum* and most of the dwarfer-growing *Polypodiums*, as also the Hare's-foot Fern, *Davallia canariensis*. All they require is plenty of drainage, sufficient water, with an occasional syringing overhead to remove dust; the windows near where they are placed should be opened only very little at the bottom, otherwise the air rushing in has too drying an effect upon the fronds. With attention to the above comparatively trifling matters these plants will continue in health much longer than nine-tenths of the flowering subjects that are usually introduced to rooms. *T. Baines, Southgate, N.*

FLOWER GARDEN, &c.

Ornamental Trees and Shrubs.—Plant evergreens towards the end of the month, or earlier or later, according to the state of the growth and the weather. If the summer growth is tolerably hard and the weather moist, proceed at once with what there is to do, otherwise defer till these conditions are satisfactory. Mulch, water, and stake as the operations proceed, so that checks and accidents may be guarded against. Propagation, by cuttings, may be commenced as soon as the young growth is sufficiently hard; an early start is of the utmost importance to success with many evergreens, but the wood and foliage should be so hard that they will not readily shrivel. Those sorts that are best propagated by layers should be attended to, if not already done. Continue budding, if necessary, so long as the state of growth is favourable. Examine those budded early with the view of preventing injury by over-tight or loose bandages. Prune evergreens, and also deciduous trees and shrubs. *Wm. Sutherland.*

FRUIT HOUSES.

Peaches and Nectarines.—Some of the foliage of the trees in the earliest forced house will now be beginning to change and drop off. This should be assisted by gently brushing over the trees with a soft broom at times until the ripened leaves are gradually dislodged. As soon as the young wood is well ripened the inside borders may be kept drier by putting on the lights, it they have been removed, but giving all the air possible by the ventilators. To help to ripen the wood in the late succession houses, the trees should be looked over after the fruit is gathered, and all the shoots where too crowded thinned out. The Peach scale sometimes attacks the trees at this period, and the effects of its appearance will soon be known by the quantities of flies and wasps feeding on the honey-dew on the leaves. A good strong solution of Gishurst, or soft soap, mixed with a little tobacco juice, will after two or three applications with the syringe soon clear the trees. After all the fruit is gathered the garden engine must be put into requisition to give the trees a good washing, for the syringe is not powerful enough to eradicate the red-spider, if it has gained a footing during the ripening of the fruit. *William Tillery.*

Melons.—Bestow all possible attention upon the last batch of plants just got out, and encourage them by every available means to make a strong and quick growth. Much of the success of this batch depends upon the foundation laid. A minimum temperature of summer heat, and a maximum of 90° to 95°, maintaining a moist atmosphere and shading as little as possible, are the means calculated to secure the above ends. Encourage one stem only, and allow it to advance well up the trellis before stopping; at the same time pinch out all lateral growths that start between the trellis and the bed directly they are seen, and be careful only to reserve as much wood as will maintain a nice equilibrium between roots and head. Continue to support heavy fruits, which are hanging beneath a trellis, by means of tables or nets, and be sparing in the supply of moisture directly they begin to ripen, but do not permit severe flagging. Earth up those plants which have just set their fruit, previously placing a little lime round the collar. Late crops in pits and frames should have a nice steady bottom-heat; examine the bed, therefore, and, if necessary, apply a good lining, and afterwards beware of rank steam. Keep a sharp look-out for canker, both at the collar and in the old growths, and apply the remedy before suggested. *Thos. Simpson, Broomfield.*

Vines.—To insure Muscats, Lady Downe's, and other late Grapes keeping fresh and plump through the winter they should be ripe and well finished by the middle of next month. To this end a little fire-heat will be necessary to keep up a maximum temperature of 85° and a minimum temperature of 70°, with a steady circulation of air by night and day. Under this treatment, assuming that the roots were well supplied with water throughout the swelling process, healthy Vines will be sure to yield a satisfactory return, but where liberal waterings were neglected through the hot weather, heavy crops of Grapes will be very liable to shank above the average. All laterals must now be kept well stopped, and although Muscats cannot stand against the direct rays of the sun through 21-oz. glass, they must have plenty of light to lay on the golden finish. Wage incessant war with red-spider, which is unusually troublesome, and keep a sharp look-out for mildew; already it has made its appearance in several places in this district, and where late Vines were not well ripened off last year, and firing has not been carefully attended to through this season of extremes of scorching days and frosty nights, this parasite may be expected to put in an appearance. Should such be the case, a plentiful supply of sulphur must be placed on the pipes: put on sharp fires, and maintain a high dry temperature, with a free circulation of air. It will also be necessary to examine the borders inside and out, and if at all dry they should be well soaked with tepid water until every particle of the soil is brought into a healthy growing state. *W. Coleman, Eastnor Castle.*

FORESTRY.

Continue to advance all work preparatory for winter planting, as formerly advised. In addition to having the fencing made of strained wire, or formed of Quicks, Beech, and Hornbeams, it is a practice on some estates, where the soil is light, and partaking of a moorland character, to have a dyke or embankment thrown up, so as partly to form a fence of itself, and then to grow Furze on the top of it. This not only proves a formidable fence, but is of good service to young plantations by way of shelter. The plant bears switching well, and grows into a close and dense mass. It is, however, necessary to prune in spring, and allow the summer growth to remain on in winter, as it is occasionally killed or much injured by frosts of great severity. A double-faced dyke should be 3 feet high, 2 feet wide at the top, and 6 feet at the base, and sunk below the surface 1 foot. A single-faced one is the sort, however, generally adopted for plantations, and is more sloped at the back, being 7 feet wide at the base. The cost in making is 1*s.* 9*d.* and 1*s.* 6*d.* per rood of 6 yards

respectively. What is meant by facings is turf taken from the surface in breaking the ground, and beat into the fresh-made bank. Of Furze seed ¾ lb. is sufficient for 100 yards of two rows, and costs 1*s.* 6*d.* per lb. Hedges made in this way are self-protecting in four years. Proceed with hedge-pruning, and keep the surface clear of weeds. Clear off gross weeds from drives and shooting or hunting rides, and foreshorten branches encroaching on the sides. Plant Hollies: this is the most suitable season to ensure success. Water copiously when planted. Thin young plantations of Scotch Fir and Larch. Remove any timber left in game preserves that could not be got out in spring. *J. Webster, Gordon Castle.*

Variorum.

Clearing Ground of Trees.—On the estate of Grangemuir, near Anstruther, a new system of clearing ground of trees has been recently introduced by Mr. A. Gilchrist, Carvennour. Mr. Gilchrist is local manager in Fifeshire for the Scottish Steam Cultivation Company. Some three or four years ago he rooted out an old hedge which encumbered his farm by attaching chains to the stumps and drawing them out by means of the steam drum commonly used for plough traction. Finding that a great deal of time and trouble was thus saved he applied the same method to the removal of trees, and with results equally satisfactory. The system has since, we believe, been tried in various places—among others, on the property of Mr. Gordon, of Cluny, and on the northern estates of the Duke of Sutherland. As exhibited lately, it was applied to the removal of a strip of plantation, consisting of Oak, Beech, and Plane trees, said to be about a hundred years old. The engine, a machine of 12-horse power, used for steam-ploughing by the wire-rope system, was placed in an adjoining field, near the trees to be operated upon. A chain being hitched round a tree at such distance from the ground as might be deemed advisable, the wire rope of the engine was attached, when, with a turn or two of the drum, the roots were wrenched up bodily with a large ball of earth adhering. The work went on apace, about 300 trees, varying from 6 inches to 12 inches in diameter, being rooted up in a few hours. Considerably larger timber was next operated on. The experiments seemed to show that, with a sufficient power applied at the proper height, any tree of ordinary dimensions could be wrenched from its bed. It was equally evident, however, that for trees of large size, which required to be laid hold of at no great height, considerable engine-power and thoroughly reliable tackle would be necessary. In new Colonial settlements clearing the land might be greatly facilitated in this way. *Builder.*

To Cook Rice.—The following is the method recommended by the French Academy for cooking Rice during the siege of Paris. Take one cup of Rice and one-fourth of a cup of water in a saucepan, cover and place over a good fire; after an hour the water will be evaporated, and the Rice cooked tender, but dry, and with the grains distinct—not in a paste. Sufficient salt should be added in the first place, and care should be taken not to disturb the Rice whilst cooking. By adding a little butter, and allowing the Rice to dry a little more over a gentle fire, a more delicate dish is prepared. The *Boston Medical and Surgical Journal* says that Rice cooked in this manner, which is the same as that employed in the East Indies, bears the same relation to the indigestible paste of the New England kitchen as does bread to boiled flour.

Notices to Correspondents.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. Letters relating to advertisements should be addressed to the Publisher.

Balsams: *C. Osman.* Your Balsams are much too poor for illustration in this journal.

Climbing Cacti suitable for a Balcony: *H. W. C., Nice.* The following are the best: *Cereus Macdonaldiæ, flowers creamy white; C. grandiflora, flowers creamy white; *C. triangularis, flowers white; C. speciosissimus, flowers purple; *C. Schrankii, flowers rose (very good); *C. Mallissonii, flowers red (very good); C. flagelliformis, flowers rose. All the above are very good. If only three or four are required, those marked * are the best. *J. Croucher.*

Cucumber: *R. G.* Fine specimen of Daniel's Duke of Edinburgh, which is certainly distinct from Marquis of Lorne. Both are fine Cucumbers to look at, especially the Marquis, but for table purposes there are many far better.

Exhibiting Fruit and Flowers: *Quin Vil.* If there is a close competition it is not advisable to show two varieties of black Grapes in a "collection of six fruits." Foliage plants may be shown in a miscellaneous collection of plants, if not used in undue proportion, but their effect then will depend on their quality.

Ferneries: The woodcuts at pp. 164, 165, which were taken from photographs, represent two ferneries constructed by Messrs. Veitch for G. Trollope, Esq., Elmfield, Streatham, and are not, as we had supposed from the photographs being sent us by Messrs. Veitch, in their nursery at Chelsea, though constructed by them after the pattern of one existing in their establishment.

Fungus: *T. D. M., Farnham.* Your plant is not edible; it is the young condition of a very offensive fungus, known as the "Stinking Polecat" (Phallus impudicus). It should be dug out, and exterminated if possible.

Grapes, Spotted: *John R. Grove.* We believe the "spot" affection on the berries of your Grapes to be partly constitutional. It is difficult to trace any cause, or suggest a remedy. The only way to avoid it, is to secure plenty of vigour and healthy action in the plant.

Insects: We must ask the indulgence of those of our correspondents who have sent us insects to name, as Prof. Westwood is at present on the Continent.

Names of Fruit: *J. P., Surrey.* Your Pear is correctly named Citron des Carmes.

Names of Plants: *Student.* All communications except those relating to advertisements should be sent to the Editors. 1, Eupatorium cannabinum; 2, Solidago virgaurea (Golden Rod); 3, Angelica sylvestris; 4, Valeriana officinalis; 5, Scrophularia nodosa; 6, Senecio Jacobæa.—*K. M. P.* "Queen Anne's Needlework" is Saxifraga umbrosa, or "London Pride;" "Harvest Bells," Gentiana Pneumonanthe; "Scotch Bonnets," the Champignon (Marasmius oreades); and "Cowslip of Jerusalem," the Lungwort (Pulmonaria officinalis).—*H. K.* Your specimen has been mislaid.—*E. H. B.* Erica Ewerana.—*N. M.* 1, Specimen insufficient; 2 and 3, next week; 4, Panicum capulare; 5, Ceanothus azureus.—*D. L. & L.* 1, Browallia viscosa; 2, Impatiens flaccida, var.—*C. H. M.* Poa trivialis, and Agrostis sp.; specimen insufficient. — *Constant Subscriber.* Pyrethrum fruticosum.—*J. Cocker.* Lilium tigrinum flore-pleno.—*Mac.* Adiantum Cunninghamii.—*J. P. Macmorland.* Summer Savory (Satureia hortensis). Other questions next week.—*J. Fryer.* 1, A Pavia; 2 and 3, Fraxinus sp.; specimens insufficient.—*J. W. D.* Asclepius curassavica; Adiantum pedatum, apparently, but the specimen is too fragmentary.

Proliferous Pears: *R. G. W.* These are not very uncommon, but we shall be glad to see your specimen.

Seedling Picotee: *Clark, Bros.* Pretty, but many better.

Vine Roots: *Holmbury.* There seems to be nothing very unusual in the appearance of your Vine roots. They are always more or less subject to decay in this manner at or about the time the plant begins to ripen, and it is this in excess which causes shanking, &c. Gross-growing plants having fleshy roots suffer the most.

Catalogues Received. — Downie, Laird & Laing (Stanstead Park, Forest Hill, S.E., and Edinburgh), Descriptive Catalogue of Bulbous Flower Roots and Spring Flowering Plants.—William Paul (Waltham Cross, N.), Bulb Catalogue.—Dickson & Robinson (23, Market Place, Manchester), Catalogue of Hyacinths, and all other Flowering Bulbs and Roots.—Austin & M'Aslan (16, Buchanan Street, Glasgow), Catalogue of Dutch Flower Roots, Gladioli, &c.

Communications Received. — W. J. (enclosure).—Dr. Cleghorn (enclosure).—C. Darwin. — R. B. (thanks). — W. E. B. —T. F. Buist.—W. W.—W. E.—G. T. M.—G. B. T.—X. Z.—B. H.—A. D.—L. H. G. — D. R. & Co.—E. McN. —H. K.—J. H. Krelage (forwarded as requested).—E. S. —T. G.—W. Hills.—B. M.

Markets.

COVENT GARDEN, *August* 13.

The markets are very well supplied, and a good attendance prevails. Large quantities of Apples, Pears, and Plums are now being sent to the north of England and Scotland. The last cargo of West India Pines for this season are now in the market. Good English Pines are rather more in request, but no advance has been obtained this week. Dessert Cherries are now over; Morellos are still good. *Thos. Taylor, Wholesale Apple Market.*

Fruit.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Melons, each	2 0– 5 0
Apricots, per doz.	2 0– 4 0	Nectarines, per doz.	6 0–12 0
Cherries, p. lb.	0 6– 2 0	Nuts, Cob, p. lb.	1 0– 1 6
Currants, p. ½-sieve	4 0– ..	Oranges, p. 100	16 0–20 0
— black, do.	5 0– ..	Peaches, p. doz.	8 0–18 0
Figs, per doz.	2 0– 4 0	Pears, p. doz.	2 0– 3 0
Filberts, per lb.	1 0– 1 6	Pine-apples, p lb.	3 0– 6 0
Gooseberries, p. qrt.	0 4– 0 9	Plums, ½-sieve	3 0– 4 0
Grapes, English, p. lb.	2 0– 6 0	Raspberries, p. lb.	0 6– 0 9
— finest, do.	8 0– ..	Strawberries, p. lb.	..
— Muscats, do.	3 6– 8 0	Walnuts, p. bush.	16 0– ..
Lemons, per 100	12 0–16 0		

Vegetables.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Aubergines, per doz.	6 0– ..	Mint (green), p. bun.	0 6– ..
Beans, Broad, English, per bush.	3 0– 3 6	Mushrooms, per pott.	1 0– 2 6
— French, per lb.	0 6– ..	Onions, young, bun.	0 4– 0 6
Beet, per doz.	1 0– 2 0	Parsley, per bunch	0 4– 0 6
Broccoli, p. bundle	0 9– 1 6	Parsnips, p. doz.	0 9– 1 0
Cabbages, per doz.	2 0– 3 0	Peas, per quart	1 0– 2 0
Carrots, new, p. bun.	0 9– ..	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	— black, Turnip, do.	– 0 6
Celery, per bundle	2 0– 3 0	Rhubarb, p. bundle	0 4– 1 0
Cucumbers, each	0 6– 1 0	Shallots, per lb.	0 3– ..
Endive, per doz.	1 0– 2 0	Salsify, per bundle	1 6– ..
Herbs, per bunch	0 2– 0 4	Spinach, per bush.	2 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Tomatos, per doz.	1 0– 3 0
Leeks, per bunch	0 2– 0 4	Turnips, per bundle	0 3– 0 4
		Veg. Marrows, doz.	1 6– 2 0

New Potatos: — Round, 5*s.* to 7*s.* per cwt.; Kidneys, 6*s.* to 8*s.* per cwt. Supplies large, and trade bad.

Cut Flowers.

	s. d. s. d.		s. d. s. d.
Carnations, per doz. bunches	3 0– 6 0	Pelargoniums, per 12 sprays	0 6– 1 0
Corn-flower, p. doz. bunches	2 0– 6 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Eucharis, per doz.	4 0– 9 0	Pinks, mixed do.	2 0– 4 0
Escholtzia, p. 12 bun.	2 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Gardenias, p. doz.	3 0– 9 0	— Outdoor, do.	0 4– 1 0
Gladiolus, doz. sprays	0 9– 2 0	Spiræa, per 12 sprays	1 0– 2 6
Heliotropes, per doz. sprays	– 0 6	Stephanotis, 12 sprays	3 0– 9 0
Mignonette, 12 bun.	2 0– 6 0	Sweet Peas, 12 bun.	3 0– 6 0

Plants in Pots.

	s. d. s. d.		s. d. s. d.
Balsams, p. doz.	3 0– 9 0	Geraniums, dbl., doz.	4 0– 9 0
Begonias, do.	6 0–12 0	Heaths, in var., do.	12 0–30 0
Bouvardias do.	9 0–18 0	Hydrangea .. do.	9 0–18 0
Calceolarias, shrubby	6 0–18 0	Liliums, in var., each	1 0– 3 6
Coleus, p. doz.	3 0– 9 0	Mignonette, per doz.	4 0– 6 0
Cyperus .. do.	6 0–12 0	Myrtles .. do.	3 0– 9 0
Dracæna terminalis	12 0–30 0	Pelargoniums .. do.	6 0–18 0
,, viridis .. doz.	12 0–24 0	do, Scarlet .. do.	3 0– 9 0
Fuchsia .. do.	4 0–12 0	Rhodanthe .. do.	6 0–12 0

SEEDS.

London: *August* 13.—The recent rains have created a good demand for seeds required for present sowing. In White Mustard seed particularly there has been a lively business passing at improved rates. Fine samples are scarce. New Trifolium now comes forward somewhat more freely from France, the late drought in that country having temporarily slackened the consumptive demand. In sowing Rapeseed there is no change to report. New English winter Tares do not yet offer very freely, for yearling there is a free sale. Sowing Rye is in fair request. New imported Italian keeps firm in value. In Canary seed a further advance of 1*s.* to 2*s.* per quarter must be noted, the supply being very limited. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday business was quiet, and the value of Wheat remained without improvment, in spite of the less settled weather. The show of new Wheat was fair, but its quality and weight were variable, and the highest price asked did not exceed 60*s.* per qr. Barley was steady, Malt difficult to move, and about the same in price; Oats were in moderate demand, and the better descriptions realised very full quotations. Maize was dull, and inclined to give way in price. Beans and Peas supported quietly the rates of Friday last. The flour trade was inactive, and the price of town-made was reduced 4*s.* per sack, or to 50*s.*—At Wednesday's market trade was quiet, and the quotations for old Wheat underwent no important change from Monday. The samples of new produce offering were more numerous, and 62*s.* was the highest price asked. Barley was rather dull, as also was Malt; and very little inquiry prevailed for either Oats, Maize, Beans, or Peas, but the values were moderately firm. Flour was neglected, and inclined to recede in price.—The average prices of corn last week were—Wheat, 58*s.* 6*d.*; Barley, 39*s.* 1*d.*; Oats, 30*s.* 8*d.* per qr. For the corresponding week last year—Wheat, 59*s.* 11*d.*; Barley, 34*s.* 11*d.*; Oats, 27*s.* 5*d.*

CATTLE.

At the Metropolitan Market on Monday choicest qualities of beasts were scarce, and made high prices. Trade in sheep was not active, yet late prices were freely given, and in a few instances exceeded. Calves were difficult of sale at late rates. The quotations were:—Beasts, 4*s.* to 6*s.* 4*d.*; calves, 4*s.* to 5*s.* 6*d.*; sheep, 4*s.* 6*d.* to 5*s.* 8*d.*; and lambs, 5*s.* 4*d.* to 6*s.* 6*d.* per stone of 8 lb.—At Thursday's market, trade in beasts was not so good, and prices gave way a little. Sheep remained unaltered, but for lambs and calves business was very heavy. For milch cows trade still continues bad.

HAY.

From Whitechapel market we learn that there has been more fodder offering, but trade remains rather active, at improving prices. Prime old Clover changed hands at from 100*s.* to 125*s.*; inferior do., 75*s.* to 85*s.*; prime meadow hay, 90*s.* to 114*s.*; inferior do., 55*s.* to 75*s.*; and straw, 33*s.* to 42*s.* per load.—Cumberland market quotations are:—Superior old meadow hay, 114*s.* to 120*s.*; inferior do., 90*s.* to 100*s.*; new hay, 95*s.* to 115*s.*; superior old Clover, 120*s.* to 130*s.*; inferior do., 100*s.* to 110*s.*; new Clover, 110*s.* to 120*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

At the Borough and Spitalfields Markets a moderate supply of home-grown Potatos has been on sale; but the arrivals of foreign produce are unimportant, only 1750 packages having been imported into London during the week. The trade was steady, at the subjoined currency:—Regents, 100*s.* to 130*s.*; Shaws, 80*s.* to 100*s.*; and Kidneys, 110*s.* to 140*s.* per ton.

COALS.

Business in the market is reported quiet, at the following quotations:—Bebside West Hartley, 22*s.* 3*d.*; Hastings Hartley, 22*s.* 3*d.*; Holywell Main, 22*s.* 3*d.*; Walls End—Haswell, 24*s.*; Hetton, 24*s.*; Hetton Lyons, 21*s.* 3*d.*; Lambton, 23*s.* 6*d.*; Kelloe, 21*s.* 3*d.*; Original Hartlepool, 24*s.*

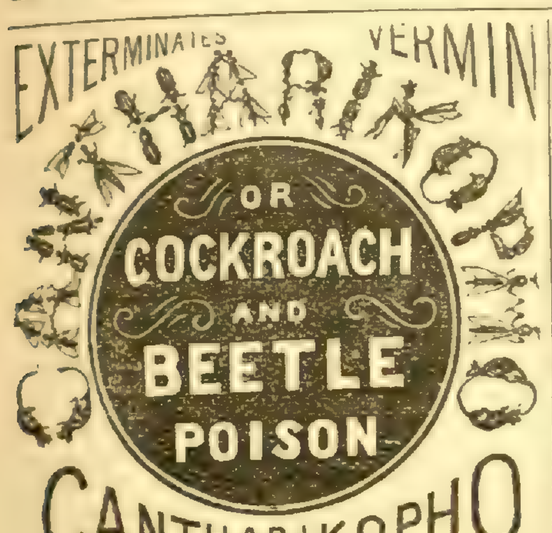
DAVIS' IMPROVED WASP DESTROYER.

Price 1s. 6d. and 2s. 6d. per bottle (Post Free 1s. 8d. and 2s. 9d. in stamps), with full Directions.

"It has completely cleared my Vineries, &c., of Wasps and Flies."

For Testimonials see Circulars, free on application.

B. R. DAVIS, Yeovil.



Is indispensable to Nurserymen, Gardeners, and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1s. and 1s. 6d., and sent post free with directions, for 1s. 3d. and 1s. 10d., by the Proprietors—

WILLIAM ROLLISSON AND SONS,
Tooting, London, S.W.

SYRINGES & GARDEN ENGINES.

G. & W. PURSER'S

List of Engravings for this Season

Is now ready, and may be had, post free, on application.

Sole Makers of the Jet d'Eau.

WORKS: WARWICK STREET, BIRMINGHAM.

The Improved Imperishable Labels !!!

IMPORTANT NOTICE.

J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.

J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose.

All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

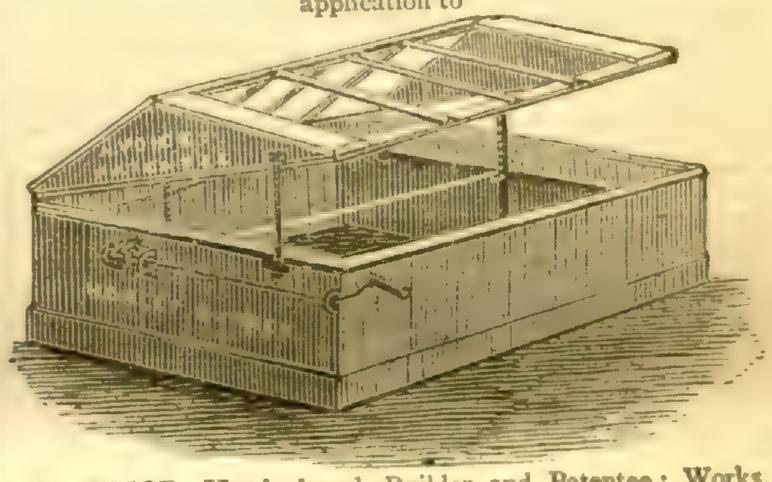
References to the Nobility, Gentry, and Trade in most of the Counties in England.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to

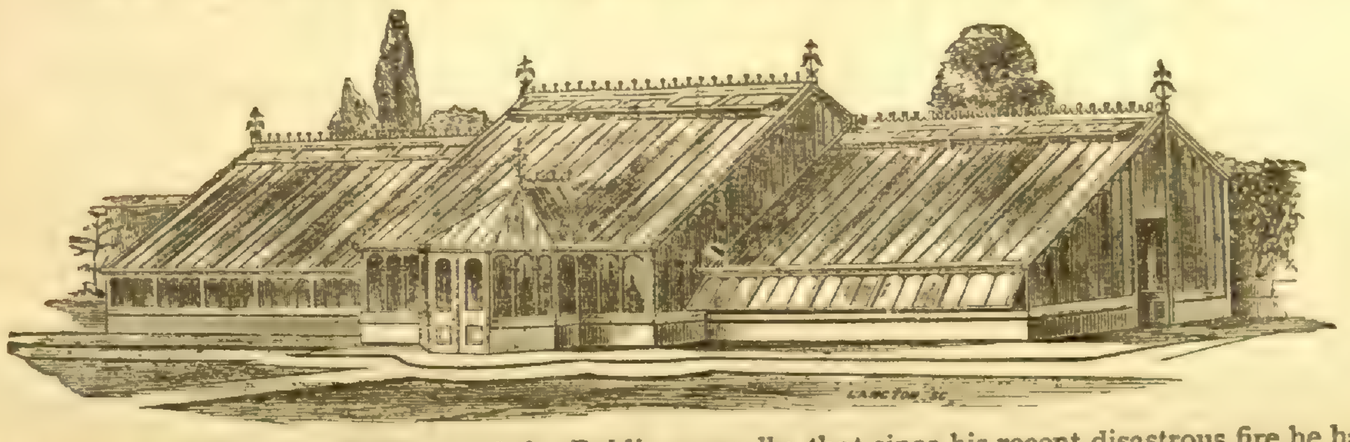


N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

T. G. MESSENGER,

CONTRACTOR, MIDLAND HORTICULTURAL BUILDING AND HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH,



Begs to inform his numerous Patrons and the Public generally, that since his recent disastrous fire he has erected new, more extensive, and commodious works, fitted with the best steam-power machinery, for the construction of Horticultural Buildings in wood or iron, plain or ornamental, of any required dimensions. T. G. MESSENGER is now, therefore, in a position, from his great facilities and experience, to carry out with dispatch and in the best manner, at moderate cost, the orders with which he may be entrusted. Glasshouses erected on Messenger's Patent principles are, owing to mechanical arrangements, very strong, *most durable*, light, *elegant; perfect efficiency* for purpose intended is *guaranteed;* are economical in cost and maintenance. Hot-water engineering in all its branches. Messenger's Patent Hot-water Boilers, Flexible Jointed Hot-water Pipes and Valves, are now in use in many thousands of instances, with the greatest success. Particulars on application.

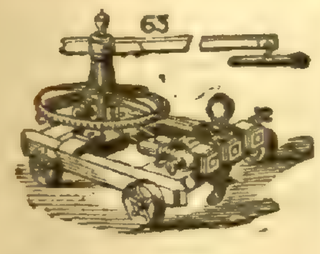
Plans and Estimates forwarded. Ladies and Gentlemen waited upon. The Plans of Architects and others carried out.

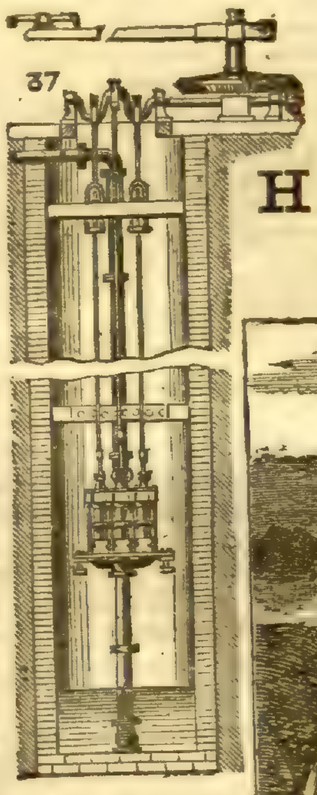
A richly Illustrated CATALOGUE forwarded Post Free on receipt of 33 Stamps.

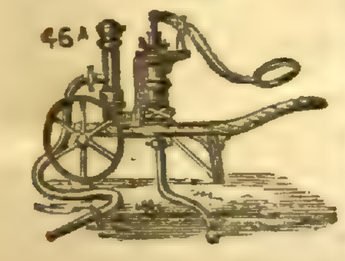
S. OWENS & CO.,

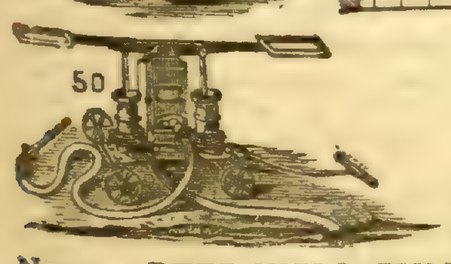
HYDRAULIC ENGINEERS,

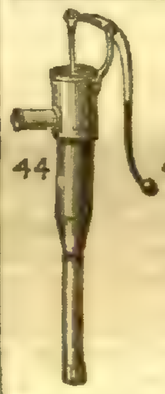
WHITEFRIARS STREET, LONDON, E.C.

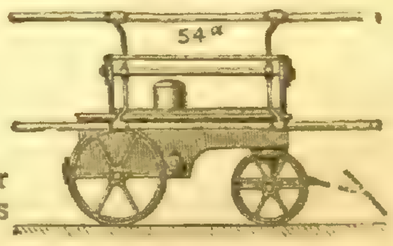












THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
No. 63. PORTABLE IRRIGATORS with Double or Treble Barrels for Horse or Steam Power.
No. 46a. IMPROVED DOUBLE ACTION PUMPS on BARROW for Watering [Gardens, &c.
No. 49a. GALVANISED SWING WATER CARRIERS, for Garden use.
No. 50 and 54a. FARM and MANSION FIRE ENGINES of every description.
No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.
No. 49. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.
No. 54b. THE CASSIOBURY FIRE EXTINGUISHER, as designed for the Right Hon. the Earl of Essex.
No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.
No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.
No. 39b. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution. FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.
HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

AGRICULTURAL LOCOMOTIVES,

STEAM PLOUGHING MACHINERY,
ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES,
STEAM ROAD ROLLERS.

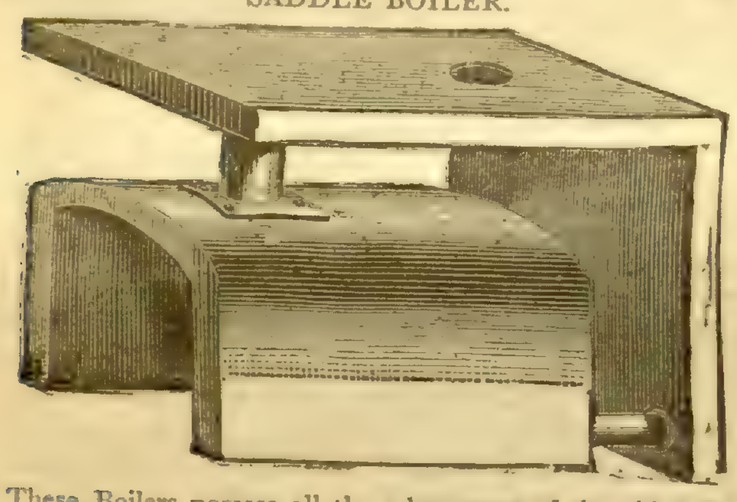
For Prices, Description, and Reports of Working, apply to the Manufacturers,

AVELING & PORTER,

ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0
30 ,,	30 ,,	72 ,,	2,600	35	0	0
36 ,,	36 ,,	96 ,,	4,500	50	0	0
48 ,,	48 ,,	108 ,,	7,000	75	0	0
48 ,,	48 ,,	144 ,,	10,000	100	0	0

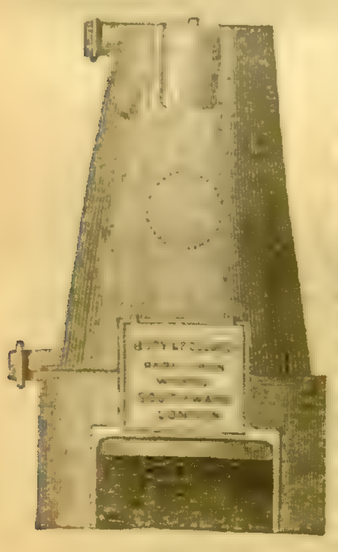
And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

Heating by Hot Water.

PUBLIC and PRIVATE BUILDINGS, MANUFACTORIES, CONSERVATORIES, &c., heated on the most improved system, combined with perfect ventilation.



These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

POLLARD AND CO. (late Bury & Pollard, Successors to John R. Peill, late Stephenson & Peill), Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Fixed at seats of Duke of Newcastle, Lord Belper, Lord Middleton, &c. At Viscount Sydney's replaced, after being twenty years in constant use. Foreign orders promptly executed. The Prince Salm Salm, the Duke de Croy, &c., recently supplied.

PRICE LISTS free by post.

Bear Garden, New Park Street, Southwark, London, S.E.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

Just Published, imperial 8vo, on fine toned paper, with eleven Illustrative Plates,

THE NATURAL PRINCIPLES of LANDSCAPE GARDENING. By JOS. FORSYTH JOHNSON (Landscape Gardener), Curator, Royal Botanic Gardens, Belfast.

Price 7*s.* 6*d.*, post free 7*s.* 9*d.*, from the Author.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE COTTAGER'S CALENDAR of GARDEN OPERATIONS. By the late Sir JOSEPH PAXTON, M.P.

Reprinted from the *Gardeners' Chronicle*, with Additions.

Price 3*d.* each, or 5*s.* for 25 Copies for distribution amongst Cottage Tenantry.

Delivered anywhere in London on receipt of a Post Office Order, payable to WM. RICHARDS, at the King Street Office, Covent Garden.

Published at the Office of the *Gardeners' Chronicle*, 41, Wellington Street, Covent Garden, London, W.C.

Dr. Lindley's Theory of Horticulture.

In 8vo, with 98 Woodcuts, price 21*s.* cloth,

THE THEORY and PRACTICE of HORTICULTURE; or, an Attempt to Explain the Chief Operations of Gardening upon Physiological Grounds: being the Second Edition of the *Theory of Horticulture*, much enlarged. By JOHN LINDLEY, Ph.D., F.R.S.

"The first edition of this valuable work was issued in 1840, since which time it has had an extensive circulation, and has been translated into the German, Dutch, and even Russian languages. Being more particularly restricted to principles, however, the author at length resolved to render the work more generally interesting and useful by a more frequent reference to practical operations. He has thus greatly extended the matter by supporting the physiological doctrines with an appeal to facts familiar to cultivators, or which ought to be; and the result is a still more interesting and popular compendium of the principles and practice, or the science and art, of horticulture."—*Builder.*

"This is a second edition of the *Theory of Horticulture*, with the addition of a large quantity of practical matter, introduced to show how entirely scientific principles and good cultivation correspond. The volume contains about four times as much matter as the first edition. . . . Although very large additions are made to every chapter, while many passages in the first edition have been wholly struck out, it may be proper to say that the greatest changes are those which relate to vitality, climate, domestication, ventilation, propagation, pruning, resting, and soils and manures; such being the subjects in which practical men are most interested. The whole work has, indeed, assumed such a form as to make it evident that the great object of the author has been, not to produce a work suited to men of science, but one which every well-informed person may understand and apply. As the volume concludes with a very copious index of matter, there is no difficulty in finding where any given subject is treated of."—*Gardeners' Chronicle.*

London: LONGMANS, GREEN, AND CO., Paternoster Row.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL AND NEW SOUTH WALES ADVERTISER.

CONTENTS:—
INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

THE AGRICULTURAL GAZETTE, SATURDAY, August 15, 1874,

Contains—

Original Articles on Judging of Cattle by Points—Rustic Labourers—The Impediment to Agricultural Progress—Grouse Shooting—Agricultuaal Machinery (Illustrated)—Tenant-Right—The Agricultural Lock-Out—Value of Land in Virginia—Cricket—A Flock Farm on the South Downs—Agricultural Progress Abroad — Steam Cultivation at Blunsden House Farm, &c.

Portrait and Memoir of

Mr. GEORGE TURNER.

Home and Foreign Correspondence on The Swine Awards at Inverness—The Maintenance of Turnpike Roads—Mr. Wilkins and Mr. Smith—Reaping Machine Knives—Morecambe Bay—The Blunsden Farm—Horse Breeding in Hungary—The Principles of Cattle and Sheep Breeding in Germany—Farm Notes, &c.

REPORTS OF AGRICULTURAL SHOWS.

Also—

The Veterinarian — The Poultry Yard — The Weather—The Household — Notes of the Week — Notices of Books — Ram Sales, &c.

Price 4*d.*; post free, 4½*d.* Published by William Richards, at the Office, 7, Catherine Street, Strand, W.C.

Works on Botany, by Dr. Lindley.

THE VEGETABLE KINGDOM; or, The Structure, Classification, and Uses of Plants. Illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25*s.*, with upwards of 500 Illustrations.

Extract from the Author's Preface.

"The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be taught by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects."

London: BRADBURY, AGNEW and CO., Bouverie Street, E.C.

To the Seed Trade.

WANTED a REPRESENTATIVE.—The Advertisers are in want of a thoroughly competent Man, with good manners and address, who understands the Nursery, Vegetable, Flower, and Agricultural Seed Trade. Must have great experience in each department. To a thoroughly qualified person liberal encouragement will be given. Also an UNDER SHOPMAN, of good Counter experience.—Address, A. B. C., care of Mr. Robert Cooper, Fleet Street, London, E.C.

WANTED, a HEAD GARDENER, in the County of Middlesex, to undertake the entire Management of Gardens and Grounds of about 3 acres in extent, with Conservatories, Orchard-house, two Vineries, Stoves, Greenhouse, Frames, &c. He would have the entire control of three Men under him, and the use of a new cottage in the Gardens. Must be married (without children preferred), be able to write well, and undertake the Management of Bees. Applicants must state age, wages expected, and if competent in all respects. A personal reference to last employer is indispensable, and very strict inquiries will be made as to character on every point. As it is hoped that the situation would be a permanent one, none but competent and respectable persons need answer.—Apply, by letter in the first instance, stating capabilities very fully, and answering all other points named in this advertisement, to J. B., 5, Warrior Crescent, Cliftonville, Margate.

WANTED, a HEAD GARDENER, who thoroughly understands the Management of Kitchen Gardens, Lawns, and Shrubberies. No Houses.—R. P. D., Bockleton, Tenbury.

WANTED, a GARDENER (good Single-handed).—Wages 25*s.*, no house.—X. X., *Press* Office, Barnet, N.

WANTED, a good WORKING FOREMAN and PLANTSMAN, in a Small Nursery. Must be thoroughly trustworthy and industrious. A married man without family preferred. Wages 20*s.* per week, rent free and garden.—State age, class of experience, &c., to W. B. SMALE, 89, Lower Union Street, Torquay.

Gardener.

WANTED, in Warwickshire, a married MAN. Must understand Wall Fruit, Kitchen Gardening, &c.; also take charge of a Horse and Drive occasionally.—Address, with reference as to character and ability, stating age and number of family, A. B., Mr. Stevens, The Nurseries, Coventry.

WANTED, a PROPAGATOR (Second); must have been used to the Propagation of Conifers, Rhododendrons, and other Hardy Plants. Good testimonials required. Wages 21*s.* per week.—MAURICE YOUNG, Milford Nurseries, near Godalming, Surrey.

WANTED, a first-rate INDOOR PROPAGATOR of Hardy Trees, Shrubs, Conifers, and Roses. To a thoroughly efficient, energetic, and persevering Man liberal wages will be given.—State experience, when applying, to Mr. RICHARD SMITH, Nurseryman, Worcester.

WANTED, a TRAVELLER, thoroughly acquainted with the Value of General Nursery Stock both indoors and out.—THOMAS CRIPPS and SON, The Nurseries, Tunbridge Wells, Kent.

WANTED, as HEAD SHOPMAN, an energetic steady Man, having a thorough knowledge of the Seed Trade in its various branches, to take the general Management of a Seed Shop and Warehouse.—Apply, stating references, to DICKSON and ROBINSON, Seed Merchants, Manchester.

Seed Trade.

WANTED, a steady respectable MAN, for the Warehouse Department.—Must have held a similar situation and be well recommended.—Apply, with all particulars as to age, salary, references, &c., to JAMES DICKSON and SONS, 108, Eastgate Street, Chester.

Seed Trade.

WANTED, JUNIOR SHOPMEN—thoroughly active, good counter hands, and of good address.—DICKSON and ROBINSON, Seed Merchants, Manchester.

MESSRS. BARR and SUGDEN, 12, King Street, Covent Garden, REQUIRE a PACKER; he must be a steady, respectable Man, and a good general Packer. Wages 25*s.* per week.

WANT PLACES.

To Gardeners in Want of Situations,

Whose characters will bear strict investigation.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (Head), where more are kept.—Age 45, married, no encumbrance; has for 19 years with credit Managed the Gardens here. Is leaving at his own request. Testimonials first-rate.—JOHN ALLISTON, The Gardens, Laverstoke House, near Micheldever, Hants.

GARDENER (Head), where one or two are kept.—Married, one child. Excellent character. Has just left a situation as above. Single-handed place not objected to.—FOSTER, Gardener, Lancaster Road, New Barnet, N.

GARDENER (Head), where one or more are kept.—Thoroughly understands the profession. First-class character from last and previous situations.—W. O., 30, Spital Street, Guildford, Surrey.

GARDENER (Head).—Age 28, single; has served four years in present situation as Foreman, at Wycombe Abbey Gardens, Bucks. Can be highly recommended.—EDWARD WILLMET, Wycombe Abbey Gardens, High Wycombe, Bucks.

GARDENER (Head), age 37, married.—Robert Sowerby, Jun., for the last nine years Head Gardener to Sir George Otley Wombwell, Bart., Newburgh Park, Uppleby, Easingwold, Yorkshire, is at liberty to engage in a good establishment. Twenty-three years' experience. First-class references.—Address as above.

GARDENER (Head).—Married, one child (six years); thoroughly understands the Cultivation of Stove and Greenhouse Plants, Ferns, Orchids, Vines, Melons, Cucumbers, and Forcing in all departments, Early and Late, having had 16 years' experience in good Establishments. No part objected to. Highest references from late and previous employers.—R., Gardener, Post Office, Newton Abbot, Devon.

GARDENER (Head, Working), where one or more are kept.—Age 34, married; understands the profession in all branches. Good character.—G. W., Post Office, Grosvenor Street, London, W.

GARDENER (Head, Working).—Age 31, married; eighteen years' experience in Plant and Fruit Growing, also Forcing (both indoors and out), and with a thorough knowledge of Kitchen Garden duties.—T. D., Post Office, Sevenoaks.

GARDENER (Head, Working), to any Nobleman or Gentleman requiring the services of a Man thoroughly practical in all branches of the profession.—Age 33, married; understands Land and Stock. Eighteen years' experience in first-class establishments. Good references.—W. I., 5, Stratford Street, Tunbridge Wells, Kent.

GARDENER (Head, Working).—Age 44, married, one child (9 years); thoroughly experienced in Early and Late Forcing, Stove Orchids, Greenhouse Ferns, and the general routine of Flower and Kitchen Gardening. Is a thoroughly practical Gardener in all branches.—W. C., Post Office, Winchmore Hill, N.

GARDENER (Head, Working).—Age 37; thoroughly acquainted with Early and Late Forcing, Fruits, Flowers, and Vegetables, Flower and Kitchen Gardening, Stove and Greenhouse Plants; would not object to Land and Stock. Five years' good character. Now disengaged.—State wages, &c., B. C., Cossington, Bridgewater.

GARDENER (Head, Working), married, with family.—George Bailey, Gardener to the late Sir W. H. Bodkin, of West Hill, Highgate, seeks a re-engagement as above, through that Gentleman's decease. Five years nine months' character, which will bear strict investigation as to trustworthiness, ability, honesty, and industry, &c.—Address as above, stating particulars as to wages, &c.

GARDENER (Journeyman) in the Houses.—Age 21; has a good knowledge of Fruit and Plant Growing. Good references.—C. W. H., Andover Road, Highclere, Newbury, Berks.

GARDENER (Second, or Single-handed).—Age 24; single.—A. B., 7, Blantyre Street, King's Road, Chelsea, S.W.

GARDENER (Second).—Age 24. Eight years' experience. Two years' excellent character.—A. C., Post Office, Lower Tooting, S.W.

GARDENER (Under), in a Nobleman's or Gentleman's Garden, where Plant Growing is well carried out.—Age 21. Can be highly recommended.—H. U., Post Office, Brereton, Rugeley, Staffordshire.

GARDENER (Under).—Age 21. Six years' experience and references.—Address, stating particulars, H. TAYLOR, 100, Waverley Street, Hull.

GARDENER (Under.)—Age 20; well up in Stove and Greenhouse Plants, Cucumbers, and Melons.—F. W., Breinton, near Hereford.

NURSERY FOREMAN.—Age 28; good general Propagator. Twelve years' references.—W. B., 2, Salisbury Road, Upper Holloway, N.

To the Trade.

PROPAGATOR, SALESMAN, &c.—A Man of twenty-five years' practical experience in the Propagation and Culture of Plants and general Nursery Stock, a first-class Salesman, and of good address, is open to an engagement.—MANAGER, Rose Hill Nursery, Norton, Stockton-on-Tees.

PROPAGATOR and GRAFTER of the choicest Conifers, Roses, Clematis, &c. Five years' in present situation.—F. O. M., Post Office, Cottingham, Hull.

PROPAGATOR (Indoor) of Hardy Trees, Shrubs, Coniferæ, Clematis, Roses, &c.—A. C. E., Pine-apple Nursery Company, Maida Vale, London, W.

PROPAGATOR (Second), in a first-class Establishment, where spirit and energy are required. Seven years' experience with Clematis, Roses, Rhododendrons, Coniferæ, &c. Has been the whole time with present employer. Liberal and progressive wages expected.—T. C. FINNER, Sunningdale Nursery, Bagshot.

To the Seed Trade.

SHOPMAN (Head).—Age 35. Salary £150.—H. S., *Gardeners' Chronicle* Office, W.C.

SHOPMAN (Second), or COUNTERMAN.—Age 25. Eight years in the Trade. First-class references.—C. A., Post Office, Stanley Bridge, Fulham, S.W.

TRAVELLER or SHOPMAN.—Age 36, married; has for several years represented a large house.—M. D., *Gardeners' Chronicle* Office, W.C.

TRAVELLER, or CLERK and TRAVELLER.—A young man of good address, and thoroughly qualified to fill either position.—A. E., R. S. Mason, Esq., Solicitor, 30, Newgate Street, E.C.

To Noblemen and Gentlemen.

FARM BAILIFF, or GENERAL MANAGER.—Age 42, married, no family; has a thoroughly practical knowledge of Farming in all its branches, both heavy and light soils, all kinds of Live Stock, Marketing, Draining of Land, Steam Cultivation, Measurements of Land, Timber, and Book-keeping, &c.; also understands Plantations, Farm Buildings and Repairs, and general Gardening. Testimonials, &c., unexceptionable.—L. S. D., 43, Uttoxeter Old Road, Derby.

FARM BAILIFF.—Married; can keep Accounts, and will make himself generally useful. Wife can take the Management of Dairy if required. Terms moderate. Can produce the highest testimonials.—X. O., Post Office, Lower Tooting, S.W.

KINAHAN'S . LL . WHISKY.

This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.

Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA, BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*

Manufacture of Cocoa.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*

Made simply with boiling water or milk.

Sold by Grocers, only in packets, labelled

JAMES EPPS and CO., HOMŒOPATHIC CHEMISTS, 48, Threadneedle Street, and 170, Piccadilly, W.

Works:—Euston Road, and Camden Town, N.W.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD and CO., 172, New Bond Street, London, W., and of all Chemists throughout the World.

PURE AERATED WATERS—ELLIS'S RUTHIN WATERS—Soda, Potass, Seltzer, Lemonade, Lithia, and for GOUT, Lithia and Potass.

Corks Branded "R. ELLIS and SON, RUTHIN," and every label bears their trade mark. Sold everywhere, and Wholesale of R. Ellis and Son, Ruthin, North Wales.

LONDON AGENTS:—W. BEST and SONS, Henrietta Street, Cavendish Square.

NEW APPLE—"LADY HENNIKER."

Raised by Mr. John Perkins, Gardener to Lord Henniker, Thornham Hall, Eye, Suffolk.

Obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, 12th November, 1873.

The following description is taken from the *Journal of Horticulture*, for January 8, 1874.

The fruit is very large, roundish, narrowing a little towards the apex, and with blunt angles on the sides, which terminate in prominent ridges round the eye. Skin yellow on the shaded side, with a faint blush of red, which is covered with broken streaks of crimson on the side next the sun. Eye large and open, with short segments, and set in a very deep and angular basin. Stalk very short, set in a very deep, wide russety cavity. Flesh very tender in the grain, well flavoured, and with a pleasant perfume.

A first-rate Apple, chiefly valuable as a cooking variety, but useful also in the dessert. Season from October to February.

EWING & CO., THE ROYAL NORFOLK NURSERIES, NORWICH,

Have much pleasure in introducing this splendid novelty, for which they are now booking orders. Having purchased the entire stock of it from Mr. Perkins, they purpose distributing maiden plants on and after the 1st of November next. The price will be as follows :—

Strong Maidens, 7s. 6d. each. **Three ditto, 20s.** **The usual Discount to the Trade.**

A circular with full particulars will be forwarded gratis and post free to applicants. A list of those Nurserymen who have ordered a supply, and who will consequently have Plants to offer next autumn, will be advertised shortly.

THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

Incorporated under the Companies' Acts, 1862 and 1867.

Capital £60,000, in 12,000 Shares of £5 each. **Deposit £1 per Share on application.**

Payment on Allotment £2 per Share. The remaining £2 per Share will be called up as required, on 21 days' notice, in amounts of £1 each, but at intervals of not less than three months.

Directors :—

MAJOR-GENERAL HUYSHE, 45, Onslow Square, S.W.
EDWARD HYDE HEWETT, Esq., 36, Oakley Street, S.W.
R. J. MAHONY, Esq., Dromore Castle, County Kerry.
MAJOR-GENERAL R. N. RAIKES, Swanmore, Bishops Waltham, Hants.

Managing Director—Mr. JOHN COWAN.

Bankers—LONDON AND COUNTY BANK (Lambeth Branch) and Branches.

Solicitors—Messrs. COPE, ROSE, and PEARSON, 26, Great George Street, Westminster, S.W.

Auditors—Messrs. COOPER BROS., and CO., 14, George Street, Mansion House, E.C.

Secretary—CUTHBERT DRUITT, Esq.

OFFICES (Temporary)—8, SAINT MARTIN'S CHAMBERS, TRAFALGAR SQUARE, W.C.

This Company has been formed to purchase the Patent Rights of the Dromore Patent Heating Company, Limited, in the United Kingdom, the Channel Islands, and the Isle of Man, and for the purpose of largely extending the work carried on by them; also for carrying out the other objects mentioned in the Memorandum of Association of the Company, a copy of which is set out in the fold hereof. The business which this Company will engage in will be as follows :—

1. The application of the Cowan Compensating System to Buildings of all kinds.
2. The Erection and Heating of Horticultural and other Buildings upon that or any other system.
3. The carrying out generally of the objects mentioned in the Memorandum of Association.

Mr. JOHN COWAN'S SYSTEM of HEATING all kinds of Buildings by Hot Water and a small Limekiln has been proved to be most invaluable by all who have adopted it, and its advantages are as follows :—

1. In most Cases it Saves the Entire Cost of Fuel, and in many cases produces a Profit.
2. It maintains the heat more steadily than any other System.
3. It requires no night attendance.
4. It produces no Smoke or unpleasant Smell.

It consists in the combination of a Limekiln and a Hot-water Apparatus by which the necessary heat is obtained, and Lime, a valuable and saleable article, produced.

PROSPECTUSES and FORMS of APPLICATION may be obtained at the Offices of the Company, the London and County Bank and Branches, and of the Solicitors and Auditors.

THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

CLOSING OF LISTS.

NOTICE IS HEREBY GIVEN, that the Lists of Application for Shares will be closed, for Town and Country, on SATURDAY, the 22d instant.

8, St. Martin's Chambers, London, W.C., August 14, 1874.

By Order, CUTHBERT DRUITT, *Secretary.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, August 15, 1874.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 34.—Vol. II. {New Series.} SATURDAY, AUGUST 22, 1874. {Registered at the General Post Office as a Newspaper.} Price 5d. Post Free, 5½d.

CONTENTS.

Æcidium Scrophulariæ (with cut) 238
American blight 244
Apiary 233
Apples for different localities 230
Balearic Isles 233
Books, notices of .. 234
British Association .. 239
Cheshunt, a Rose garden at 242
Cycas revoluta 243
Cyclamen persicum (with cut) 238
Emblematic plants .. 226
Farm, the 234
Fruit culture 237
Garden operations .. 246
Grape Phylloxera, the .. 226
Helianthus orgyalis .. 238
Hollyhock disease, the . 243
Home correspondence .. 241
Kew, the Succulent-house at 242
Lancashire garden, notes from a 230
Lilium avenaceum (with cut) 231
Natural history 234
Obituary 248
Orange trees 243
Paper manufacture in Japan 241
Passiflora sanguinolenta (with cut) 226
Pescatorea Dayana .. 226
Phlox Miss Robertson .. 243
Plant gossip 232
Plants, new garden .. 226
Plants, on the respiration of 238
Plums for different localities 228
Potatos, berry-bearing .. 241
Rat-trap, a permanent (with cut) 243
Roses, the best 238
Roses and Rose shows .. 242
Scripture botany .. 240
Societies:—
People's Garden, Willesden 245
Royal Horticultural .. 244
Weston-super-Mare Horticultural .. 244
St. Petersburg, letter from 233
Sweet Flag, the 229
Town window gardening 225
Victoria Park (with cuts) 227
Villa garden 245
Wasps as house pets .. 234
Weather, the . .. 248
West Indian fruits .. 231
Willow and the Poplar .. 240

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION *to the* GARDENERS' CHRONICLE, *including postage to the United States, is £1 6s.*

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth, 16s.*
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

BISHOP AUCKLAND FLOWER SHOW.—This, the largest and most successful fête in the North of England, is fixed for FRIDAY, August 28, in the renowned Auckland Park. Schedules of Prizes to be had of
Mr. HENDY, Secretary, Bishop Auckland.

PRESTON HORTICULTURAL SOCIETY.—The GREAT AUTUMN SHOW, SEPTEMBER 9 and 10. Ten Stove and Greenhouse Plants, £20; Six Foliage Plants, £10; and numerous other valuable Prizes for Plants, Cut Flowers, Fruits, and Vegetables. For Schedules, and full particulars, apply to
W. TROUGHTON, Hon. Sec., 4, Church Street, Preston.

WARWICKSHIRE AGRICULTURAL SOCIETY'S EXHIBITION, at Knowle, near Birmingham, SEPTEMBER 15 and 16 next.—A GRAND HORTICULTURAL SHOW will be held in connection with the above. Entries close August 31. Schedule of Prizes on application to JOHN MOORE, Sec., Warwick.

GIBSON TESTIMONIAL.
For full particulars, see *Gardeners' Chronicle*, p. 204.
Amount already promised, £326 3s. 6d.
Subscriptions are received by
Mr. THOMAS MOORE, Treasurer, Botanic Gardens, Chelsea, S.W.; or,
Mr. HARRY J. VEITCH, Hon. Sec., Royal Exotic Nursery, King's Road, Chelsea, S.W.

LILY of the VALLEY (Convallaria majalis).—Widow G. CLAESSANS VAN HOOREBEECK, Nursery and Seed Establishment, Termonde, Belgium, offers 15,000 plants of the above, at £4; and 100,000 do., at £24.

LILY of the VALLEY.—Strong 3-yr. old clumps for forcing, 6s. per dozen, or 40s. per 100; variegated do., 6s. per dozen.
ANTHONY WATERER, Knap Hill, Woking, Surrey.

Large Conservatory Plants for Sale.

E. COOLING has some large CAMELLIAS, AZALEAS, LEMONS, PALMS, &c., to dispose of. LIST, with prices, on application.
Mile Ash, Derby.

CONVALLARIA MAJALIS, strong clumps for forcing, £2 6s. per 100. SPIRÆA (HOTEIA) JAPONICA, strong clumps, £1 6s. per 100, larger quantities less. D. JACOBSON, Haarlem, Holland.

CENTAUREA RAGUSINA CANDIDISSIMA (the best variety), in packets, for thirteen stamps and upwards. Price to the Trade as usual.
CHARLES YOUNG, The Nurseries, Balham Hill, and Upper Tooting Park, S.W.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20s. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

To the Trade.

HYACINTHS, early white Roman, 27s. per 100; do., picked bulbs, 30s. per 100. NARCISSUS, early Paper-white, 14s. per 100; Early Double Roman do., 11s. per 100. Large consignments of the above to hand in splendid condition. Terms cash.
GEO. POULTON, Seed and Bulb Merchant, Angel Road, Edmonton, London, N.

ROMAN HYACINTHS.
The Trade should apply to
HOOPER AND CO., Covent Garden, London, W.C.

Now ready, gratis and post-free,
CARTER'S Illustrated CATALOGUE of BULBS for 1874. It contains full descriptions of the best kinds of Hyacinths, Tulips, Crocus, and other Bulbs, with full directions for the guidance of amateurs desiring to be successful cultivators of these beautiful spring flowers.
CARTER'S, the Royal Seedsmen, High Holborn, London, W.C.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete every published.
Hale Farm Nurseries, Tottenham, London, N.

New August Catalogue.

PAUL AND SON, The "Old" Nurseries, Cheshunt, have now ready their new LIST of DUTCH BULBS, SPECIALITIES for FORCING, including Azaleas and Camellias, Strawberries and Vines.

Standard Tea Roses from Paris.

LEVEQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer for next autumn a splendid and large stock of TEA ROSES, comprising all the best sorts, Maréchal Niel, per hundred. The price will be £5 per 100. LIST of sorts on application.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

To the Trade, &c.—Roses! Roses! Roses!

EWING AND CO. are offering very fine plants of the best varieties in cultivation. Twelve new varieties of 1874, in fine well-established plants, sent, carriage and package paid, to any Railway Station in the United Kingdom, on receipt of Post Office Order for 31s. 6d.
Descriptive and Priced CATALOGUES, and further information, gratis and post free on application.
The Royal Norfolk Nurseries, Norwich.

The New American Potatos.

SNOWFLAKE, BROWNELL'S BEAUTY, EXTRA EARLY VERMONT, COMPTON'S SURPRISE.
HOOPER AND CO. are large holders of these very choice sorts, and can give special advantages to buyers in the trade during the autumn. Prices on application.
HOOPER AND CO., Covent Garden, London, W.C.

New Turnip Seeds for Present Sowing.

H. AND F. SHARPE are now harvesting TURNIP SEEDS of 1874 growth, and are prepared to execute Orders from the Trade at very moderate prices, and on receipt of Letter or Telegram.
Seed Growing Establishment, Wisbech.

Seeds for Present Sowing.

JAMES DICKSON AND SONS can supply, of best quality, all SEEDS, including Turnip, Rape, Mustard, Trifolium, Cabbage, Vetches, Italian Rye-grass; mixed Grasses and Clovers for permanent pasture; also all other Farm Seeds, as well as Garden and Flower Seeds of all sorts.
108, Eastgate Street, Chester.

WANTED, PRIMULA SINENSIS—young plants. State price to
E. COOLING, Mile Ash, Derby.

WANTED, Two or Three PLANTS of each of the following:—Calanthe veratrifolia, Dendrobium nobile, Oncidium flexuosum, and Eucharis amazonica. Gentlemen or Nurserymen having the above to dispose of should communicate size and price to
T. PRIOR, Esq., 7, Tokenhouse Yard, Lothbury, London, E.C.

WANTED, Three Thousand GERANIUM CUTTINGS—Mrs. Pollock, Lady Cullum, and Sophia Dumaresque, equal quantities. Price per thousand.
G. D., 6, Maiden Lane, Club Moor, Liverpool.

WANTED, ROSE TREES.—State price per Hundred for Baronne de Maynard, dwarf, also quantity to dispose of, to
E. P. CHARLWOOD, Lower Common, Putney, S.W.

WANTED, Foreign or Dutch BULB LISTS for the Trade. Address,
G. E. ELLIOTT, Seedsman, 139, Bradford Road, Huddersfield.

Strawberries.

CHARLES TURNER can now supply strong Plants of all the leading varieties; the new kind, "LA GROSSE SUCRÉE" is highly recommended for early forcing. CATALOGUE on application.
The Royal Nurseries, Slough.

NEW STRAWBERRIES, Exquisite and Traveller (First-class Certificate).—The best for flavour and transmission. See advertisement in *Gardeners' Chronicle* of the 8th inst. Strong plants now ready. Particulars post free from W. AND J. BROWN, Stamford.

Strawberries.

PAUL AND SON have now ready strong NEW transplanted RUNNERS, of leading sorts. Descriptive LIST post free.
"Old" Nurseries, Cheshunt.

LARGE AUCUBAS, about 50, from 4 to 6 feet high; EUONYMUS, and other large EVERGREENS, to be Sold cheap. Apply to
Mr. CALF, Nurseryman, Adelaide Road, N.W.

British Fern Catalogue.

ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

To the Trade.

HOLLIES, 1-yr. Seedling.—A sample 1000 sent on receipt of 4s. August is the best month to plant them. Also THUJA GIGANTEA (Libocedrus decurrens), transplanted autumn 1873, extra fine plants, from seed, 3 to 3½ feet, 20s. per dozen, 3½ to 4 feet, 30s. per dozen; a few extra fine specimens, 6 to 7 feet and 7 to 8 feet, 5s. to 7s. 6d. each. Apply to
C. WHITEHOUSE, Brereton Nurseries, Rugeley, Staffs.

NEW SEEDS of CYCLAMEN.—New Seed of Mr. Kopsel's choice varieties of Cyclamen persicum and europæum can now be supplied by the pound or ounce. Lowest trade prices on application to
ALBERT KOPSEL, The Nurseries, Cothen, Germany.

Spring Flowers.

THOMAS S. WARE'S NEW BULB CATALOGUE contains a selection of all the best spring flowering Perennials in cultivation. A section requiring to be planted in the autumn to ensure a good display the following spring. Hale Farm Nurseries, Tottenham, London, N.

Choice Flower Seeds.

CHARLES TURNER is now offering NEW SEED of the following:—

AURICULA, stage and alpine	CYCLAMEN PERSICUM
CALCEOLARIA	PANSY, English and Belgian
CARNATION, tree	PELARGONIUM, show, fancy, and zonal
CINERARIA	

PRIMULA, in distinct colours.
The Royal Nurseries, Slough.

Cineraria, Primula, Calceolaria, and Cyclamen.

WM. CUTBUSH AND SON very highly recommend their choice strain of the above, which always gives satisfaction. In packets, 2s. 6d., 3s. 6d., and 5s., post free. Highgate Nurseries, London, N.

Splendid Herbaceous Calceolaria.

LUCOMBE, PINCE, AND CO., can offer good packets of their superb strain at 2s 6d., 3s. 6d. and 5s. each; also their celebrated strains of CINERARIA, PRIMULA and CYCLAMEN, at 2s. 6d., 3s. 6d. and 5s. each. PRIMULA JAPONICA, new seed, 1s. 6d., 2s. 6d., 3s. 6d. and 5s. per packet. Exeter Nurseries, Exeter.

Herbaceous Calceolaria.—To the Trade.

WOOD AND INGRAM have just harvested their crop of the above (from Neill's superb strain), and beg to offer it in quantities from one-eighth of an ounce. Price on application. The Nurseries, Huntingdon.

Asclepias tuberosa.

E. H. KRELAGE AND SON, NURSERYMEN, SEEDSMEN, and FLORISTS, Haarlem, the Netherlands, will have to offer next autumn an immense stock of the above named beautiful orange-flowered herbaceous plant, in flowering tubers, as well as in stronger plants. Price per 100 and per 1000 on application. Large quantities of flowering tubers can be supplied at very moderate terms, orders for which are now being booked.

New Double Dwarf Sweet William
(DIANTHUS BARBATUS MAGNIFICUS).

THOMAS S. WARE is now prepared to send out the above new and distinct Dianthus, which has been so highly spoken of by the Horticultural Press. For description and figure of this charming novelty see my NEW BULB CATALOGUE, which can be had free on application.
Hale Farm Nurseries, Tottenham, London, N.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

Sutton & Sons

RECOMMEND THE FOLLOWING

CHOICE

ONION SEEDS

For Present Sowing.

The varieties, if sown at once, will come to a very large size next Spring and Summer.

NEW QUEEN.—The earliest of all Onions; if sown at once will be ready for use this Autumn. 1*s.* 6*d.* per packet.

NEW GIANT ROCCA.—Very large, mild flavour; can be grown 2 lb. to 3 lb. in weight. 1*s.* per ounce.

LARGE EARLY RED ITALIAN and LARGE EARLY WHITE ITALIAN.—Very large, hardy, and good keepers. Each 1*s.* per ounce.

GIANT LATE RED ITALIAN and GIANT LATE WHITE ITALIAN.—Coming in a fortnight after the preceding, very large. Each 1*s.* per ounce.

NEAPOLITAN MARZAGOLA.—Very quick growth. 1*s.* per packet.

☞ Postage 2*d.* per ounce extra.

Particulars of other Choice Vegetable and Flower Seeds for Present Sowing, Gratis on application.

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

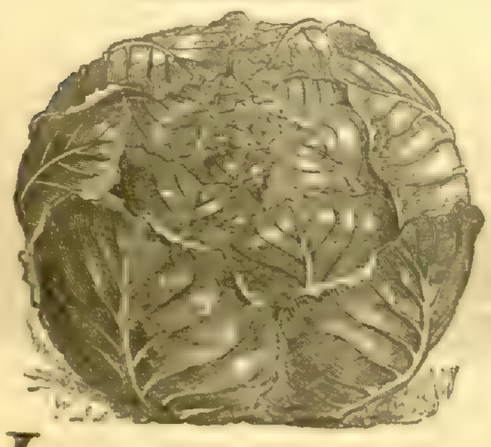
Now ready, Gratis and Post-free,

Beautifully Illustrated, and containing complete Cultural Instructions.

SUTTON AND SONS, The Queen's Seedsmen, READING.

WHEELERS'
CHOICE SEEDS
FOR PRESENT SOWING.
POST FREE.

TOM THUMB LETTUCE.



TOM THUMB LETTUCE.

WHEELERS'
TOM THUMB LETTUCE.

A small compact Lettuce, of fine flavour and excellent quality; a capital variety for winter and early spring.

Large packet, 1*s.*; *small packet,* 6*d.*

"I am going to try how your Tom Thumb Lettuce will stand the winter. As a summer Lettuce it is invaluable, and not to be approached by any in cultivation."—CHAS. BRETTINGHAM, Goodwick.

"Please forward me two packets of your most excellent Tom Thumb Lettuce, the best Lettuce ever introduced into this country."—C. THURNALL, Whittlesford, near Cambridge.

"Your Tom Thumb Lettuce is the most tender and delicious of all Lettuces.—W. M. THOMAS, Fanfield, Bedale, Yorkshire.

"Having heard the fame of your Tom Thumb Lettuce I intend to make a trial of it, if you will kindly send me a packet by return of post."—JOHN CARLL, Streatham Common.

"Wheelers' Tom Thumb Lettuce is a capital variety for winter and early spring."—THOMAS RIVERS, Sawbridgeworth.

J. C. WHEELER & SON,
SEED GROWERS, GLOUCESTER, and 59, MARK LANE, LONDON, E.C.

B. S. WILLIAMS,
VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY,
LONDON, N.,

Will be prepared to distribute the undermentioned First-class Novelties in September next, all of which can with confidence be recommended:—

ADIANTUM GRACILLIMUM (Moore).

The genus Adiantum has probably contributed more beautiful plants to our Fern-houses than any other belonging to the order, and the species now offered for the first time is a sufficient proof that its stores of beauty are not yet exhausted. In the well-known A. Farleyense we have a mass of grandeur found in no other species, and in A. gracillimum we have the most elegant and graceful form yet introduced, so that wherever these plants are grown these two extreme forms will assuredly become great favourites. The fronds are about a foot long, and from eight to nine inches across; they are very distinctly five times pinnate, the ultimate pinnules standing wide apart on their rachis, and having a distinct stalk, while they measure from about one-sixteenth to one-eighth of an inch in length, very few, indeed, being larger; these and a few of the longer ones being generally cut into about two or three shallow lobes; many of them, however, are not lobed, but have at the top a slit or sinus, at the base of which the orbicular indusium is situated, so that the sinus is completely filled out; the texture of the frond is very thin and fragile, and its colour is a very pale yellow-tinted olive-green. The multiplicity of minute pinnules, and the almost invisible ramifications of the rachis give the plant a peculiarly charming appearance; its light and graceful fronds will render it simply invaluable to the bouquetist, while its hardiness will commend it to all Fern growers for decorative purposes.

Price, 21*s.* *to* 42*s.* *each.*

AMARYLLIS (HIPPEASTRUM) VIRGINALIS.

To the improvement of this beautiful genus of plants we have for many years given special attention, and have obtained from time to time numerous superb forms. None have, however, afforded so much pleasure as this variety, which is now offered for the first time. It is a very free blooming variety, the scape usually bearing from four to five large flowers, which are thick in substance, of fine form, and pure white in colour. It is without doubt the most chastely beautiful of the family.

Price, 63*s.* *to* 105*s.* *each.*

DIPLADENIA WILLIAMSII.

A splendid garden hybrid, an intermediate form between D. amabilis and D. splendens, partaking of the free-blooming qualities of the former, and the great substance and boldness of flowers possessed by the latter, which render it a great acquisition to this superb genus of stove plants. In habit, both of growth and flower, it is very profuse; leaves oblong-acuminate, some six inches long by about an inch in breadth at the widest part, dark green in colour and stout in texture; flowers produced in large clusters, the raceme continuing to grow and produce a succession of blooms—this indeed is a marked and desirable character in this variety; individual blooms large and of good substance, upwards of four inches in diameter; the lobes of the limb are round and full, delicate soft pink in colour, whilst the throat is deep warm rose, a combination found in no other species or variety.

Its free habit of growth and prolific blooming qualities will render it most desirable either for home decoration or exhibition purposes.

Price, 21*s.* *to* 42*s.* *each.*

HABROTHAMNUS ELEGANS ARGENTEA.

In this we have one of the most beautifully variegated greenhouse plants ever offered. It may be grown as an ornamental shrub or used for covering a wall or pillar in the greenhouse or conservatory, in the latter situation it is especially ornamental: the leaves are alternate, entire, oblong-lanceolate in shape, and acuminate, about six inches in length by one inch in breadth; nearly the whole of the surface is soft creamy white, beautifully tinged with rose and relieved by irregular blotches of light green; the flowers are produced in dense racemes, tubular, about an inch in length, and deep reddish purple in colour, affording a splendid contrast to the delicate white of the foliage.

It has been exhibited under the name of H. Hawkshawianus and was awarded a First-class Certificate.

Price, 21*s.* *each.*

B. S. WILLIAMS also begs to announce that ANTHURIUM WILLIAMSII will not be sent out this season (as previously advertised), in consequence of the Plants not being sufficiently strong to give satisfaction; Orders, however, will continue to be booked, and the time of its distribution duly announced.

VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED THEIR

ANNUAL SUPPLY OF HYACINTHS AND OTHER BULBOUS ROOTS

from Holland, and are pleased to say that they are in splendid condition.

J. V. & Sons were awarded the following Prizes for Hyacinths, &c., at the Spring Exhibitions:

1st Prize for 50 Hyacinths, distincts sorts, Royal Horticultural Society, March 18.
1st ,, 18 ,, ,, ,, ,, ,,
1st ,, 6 ,, new varieties ,, ,, ,,
1st ,, 12 pots Tulips, in 6 varieties ,, ,, ,,
1st ,, Collection of Crocus ,, ,, ,,
Extra Prize for Group of Hyacinths, Narciss, and Tulips ,, ,,
1st Prize for 12 Hyacinths, distinct sorts, Royal Botanic Society, March 25.
1st ,, 12 pots Tulips, in variety ,, ,, ,,
Extra Prize for Collection of Hyacinths ,, ,, ,,
Extra ,, Group of Hyacinths, Tulips and Narciss, Liverpool Horticultural Society.
Cultural Certificate for Group of Hyacinths, Tulips, and Narciss, Manchester Botanical Society.

In addition to the above 26 First and Extra Prizes for Hyacinths and Tulips were awarded to J. VEITCH & SONS at the Metropolitan Spring Exhibitions of 1871, '72, and '73.

JAMES VEITCH & SONS have also had the pleasure of supplying to the Commissioners of Her Majesty's Works the Hyacinths, Tulips, and Crocuses for the decoration of Hyde Park during the last four seasons.

Catalogues, Illustrated with upwards of Sixty Woodcuts, are now ready, and will be forwarded, Post Free, on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

CARTER'S

FIRST CONSIGNMENT of HYACINTHS, TULIPS, and OTHER BULBS

Has arrived, in splendid condition. Before ordering send for

CARTER'S ILLUSTRATED AUTUMN CATALOGUE for 1874,

Gratis and Post Free.

THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

LONDON. *Now Ready, Gratis and Post Free,* VIENNA.

DICK RADCLYFFE & CO.'S

ILLUSTRATED

AUTUMN CATALOGUE

OF

HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.,

FRUIT TREES, & HORTICULTURAL ELEGANCIES.

COLLECTIONS OF DUTCH BULBS, 10s. 6d. to 63s. each.

For DETAILED LIST see D. R. & CO.'s ILLUSTRATED CATALOGUE.

DICK RADCLYFFE AND CO., 129, HIGH HOLBORN, LONDON, W.C.

DUTCH FLOWER ROOTS.

B. S. WILLIAMS

BEGS TO ANNOUNCE THAT HIS

ANNUAL CATALOGUE OF DUTCH FLOWER ROOTS,

CONTAINING A DESCRIPTIVE LIST OF CHOICE HYACINTHS, TULIPS, NARCISSUS, CROCUS, &c.;

Also a Select List of Fruit Trees, Roses, Vines, &c.,

Is now ready, post-free to all applicants.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

Have the largest and most complete Stock in the Trade of

HOT-WATER BOILERS,	PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

They are thus enabled to offer these Goods at Low Prices, notwithstanding the very great increase in the cost of all kinds of Iron.

NEW PATENT CLIMAX BOILER (1874).

GOLD MEDAL BOILER (Birmingham, 1872).
PATENT EXCELSIOR BOILER (1871).

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

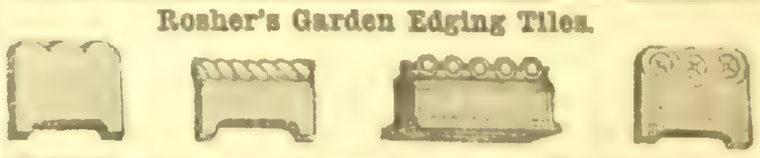
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants. See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

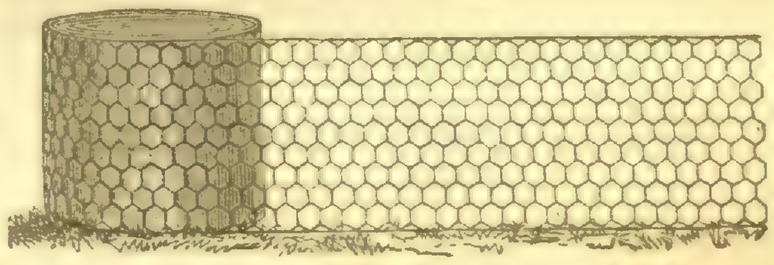
THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

Messrs. J. B. Brown & Co.'s VIENNA PRIZE WIRE NETTING.

THE MEDAL FOR MERIT At the Vienna Universal Exhibition, 1873,

Was awarded to Messrs. J. B. Brown & Co., for "excellence and perfection in material and workmanship, large extent of production, and cheapness of produce."



Prices per Lineal Yard, 24 *inches high* :—

Size of Mesh.	Mostly used or	Gauge.	Or Light Quality.		Gauge.	Or Medium Quality.		Gauge.	Or Strong Quality.	
			s.	d.		s.	d.		s.	d.
2 in.	Dogs or Poultry .	19	0	3¾	18	0	4½	17	0	5¾
1⅝ in.	Small Rabbits, &c.	19	0	4¼	18	0	5¼	17	0	6¼
1½ in.	Smallest Rabbits	19	0	5¼	18	0	6¼	17	0	8

Price Lists of Fencing Wire, Iron Fencing, Hurdles, Fruit Espaliers, &c., on application.

J. B. BROWN & CO.,
Offices—90, CANNON STREET, LONDON.

SPECIAL PRIZES FOR NEW PLANTS.

WILLIAM BULL, F.L.S.,

HAVING OFFERED THROUGH THE ROYAL HORTICULTURAL SOCIETY

ONE THOUSAND POUNDS

FOR NEW PLANTS OF HIS OWN INTRODUCTIONS, ANNOUNCES THAT THE THIRD ANNUAL SERIES OF PRIZES, AMOUNTING TO £260, WILL BE DISTRIBUTED IN SILVER CUPS NEXT YEAR, AS FOLLOWS :—

FOR AMATEURS.

1st Prize, a Silver Cup, value £15 15 0
2d Prize, a Silver Cup, value £10 10 0
3d Prize, a Silver Cup, value £ 6 6 0

FOR HORTICULTURISTS.

1st Prize, a Silver Cup, value £15 15 0
2d Prize, a Silver Cup, value £10 10 0
3d Prize, a Silver Cup, value £ 6 6 0

The above Six Silver Cups will be given at the principal Show, to be held at Kensington in 1875.

At the Provincial Show of the Royal Horticultural Society in 1875, the following Silver Cups will also be given—

FOR AMATEURS.

1st Prize, a Silver Cup, value £15 15 0
2d Prize, a Silver Cup, value £10 10 0
3d Prize, a Silver Cup, value £ 6 6 0

FOR HORTICULTURISTS.

1st Prize, a Silver Cup, value £15 15 0
2d Prize, a Silver Cup, value £10 10 0
3d Prize, a Silver Cup, value £ 6 6 0

In each and all cases the above Prizes to be offered for Twelve New Plants of Mr. W. Bull's introductions, and sent out for the first time since the commencement of 1872. The Plants available for the Prizes to comprise those announced in Mr. W. Bull's Catalogue, as sent out by him for the first time. The Catalogue can easily be referred to, or a List of the Plants had on application.

In each and every entry the names of the Twelve Plants to be exhibited must be sent with the entry.

PRIZE CUP.
Specially designed by Messrs. Elkington & Co., to be awarded for Mr. William Bull's New Introductions.

A SERIES OF SILVER CUPS

as follows, will be given to those not having previously won any of

MR. WM. BULL'S SILVER CUPS:

FOR AMATEURS.

1st Prize, a Silver Cup, value £15 15 0
2d Prize, a Silver Cup, value £10 10 0
3d Prize, a Silver Cup, value £ 6 6 0

FOR HORTICULTURISTS.

1st Prize, a Silver Cup, value £15 15 0
2d Prize, a Silver Cup, value £10 10 0
3d Prize, a Silver Cup, value £ 6 6 0

The above Six Silver Cups will be given at the principal Show, to be held at Kensington in 1875.

At the Provincial Show of the Royal Horticultural Society in 1875, the following Silver Cups will also be given :—

FOR AMATEURS.

1st Prize, a Silver Cup, value £15 15 0
2d Prize, a Silver Cup, value £10 10 0
3d Prize, a Silver Cup, value £ 6 6 0

FOR HORTICULTURISTS.

1st Prize, a Silver Cup, value £15 15 0
2d Prize, a Silver Cup, value £10 10 0
3d Prize, a Silver Cup, value £ 6 6 0

In each and all cases the above Prizes to be offered for Twelve New Plants of Mr. W. Bull's introductions, and sent out for the first time since the commencement of 1872. The Plants available for the Prizes to comprise those announced in Mr. W. Bull's Catalogue, as sent out by him for the first time. The Catalogue can easily be referred to, or a List of the Plants had on application.

In each and every entry the names of the Twelve Plants to be exhibited must be sent with the entry.

Mr. William Bull will also give the following Prizes next year, for 12 New Plants of his introduction since the commencement of 1872:—

FOR PRIVATE GROWERS.

Manchester, Silver Cup, value £10 10 0
Manchester, Silver Cup, value £6 6 0
Blackburn, Silver Cup, value £10 10 0
Blackburn, Silver Cup, value £6 6 0
The above Prizes are confined to growers in Lancashire.

Leeds .... Silver Cup, value £6 6 0
York ..... Silver Cup, value £6 6 0
The above Prizes are confined to growers in Yorkshire.

Taunton....Silver Cup, value £6 6 0
The above Prize is confined to growers in Devon, Somerset, and Dorset.

Glasgow .. Silver Cup, value £10 10 0
Glasgow .. Silver Cup, value £6 6 0
The above Prizes are confined to growers in Scotland.

Dublin .... Silver Cup, value £10 10 0
Dublin .... Silver Cup, value £6 6 0
Belfast .... Silver Cup, value £6 6 0
The above Prizes are confined to growers in Ireland.

FOR NURSERYMEN.

Manchester, Silver Cup, value £10 10 0
Manchester, Silver Cup, value £6 6 0
The above Prizes are confined to growers in Lancashire.

Leeds .... Silver Cup, value £6 6 0
York ..... Silver Cup, value £6 6 0
The above Prizes are confined to growers in Yorkshire.

Taunton....Silver Cup, value £6 6 0
The above Prize is confined to growers in Devon, Somerset, and Dorset.

Glasgow .. Silver Cup, value £10 10 0
Glasgow .. Silver Cup, value £6 6 0
The above Prizes are confined to growers in Scotland.

Dublin .... Silver Cup, value £6 6 0
Belfast .... Silver Cup, value £6 6 0
The above Prizes are confined to growers in Ireland.

In each and all cases the above Prizes to be offered for Twelve New Plants of Mr. W. Bull's introductions, and sent out for the first time since the commencement of 1872. The Plants available for the Prizes to comprise those announced in Mr. W. Bull's Catalogue as sent out by him for the first time. The Catalogue can easily be referred to, or a List of the Plants had on application. In each and every entry, the names of the Twelve Plants to be exhibited must be sent with the entry.

ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

Choice Seeds of Prize Flowers (Post free).
SOW NOW.

MR. WILLIAM BULL recommends the following :—

	Per packet.—s. d.
PRIZE PRIMULA SINENSIS, Red and White.. each	2 6
PRIZE PRIMULA SINENSIS, Fern-leaved, Red and White .. each	2 6
PRIZE PELARGONIUM, Gold and Bronze ..	2 6
PRIZE CINERARIA ..	2 6
PRIZE CALCEOLARIA ..	2 6
PRIZE GLOXINIA..	2 6
PRIZE BEGONIA, handsome-flowered..	3 6
PRIZE AURICULA, Alpine ..	2 6
PRIZE CARNATION ..	2 6
PRIZE COLEUS ..	2 6
PRIZE FUCHSIA ..	2 6
PRIZE PETUNIA ..	2 6

Establishment for Choice Seeds and New and Rare Plants, King's Road, Chelsea, London, S.W.

JOHN WALLER begs to call the attention of the Trade to his unsurpassed stock of winter-flowering HEATHS, which are in the finest possible condition; SOLANUM CAPSICASTRUM, unusually well berried; a fine lot of double white PRIMULA, BOUVARDIA of sorts, ACACIAS, CYCLAMENS, ADIANTUM CUNEATUM and FARLEYENSE, with a quantity of other popular plants; which will be SOLD by AUCTION by Messrs. PROTHEROE AND MORRIS, early in SEPTEMBER, at the Brunswick Nursery, Tottenham. Trains run every fifteen minutes from Bishopsgate to White Hart Lane. Station adjoins the Nursery.

DR. DENNY'S GERANIUMS.
SECOND SET.

JOHN COPELIN
Begs to announce that the Price of the above is now reduced to 10*s.* 6*d.* per set.

TYSSEN STREET NURSERIES, WEST HACKNEY, LONDON, N.

To Gardeners.
Gardeners are most respectfully Invited to Visit
THE PINE-APPLE NURSERY,
MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.
JOHN BESTER, Manager.

NEW PLANT CATALOGUE 1874,
Gratis and Post Free.

B. S. WILLIAMS'
NEW PLANT AND GENERAL
CATALOGUE OF NURSERY STOCK
Is now ready, and will be forwarded to all applicants.
It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPOT,
QUEEN VICTORIA STREET,
CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH
Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the
Flower, Vegetable, and Agricultural Seed Business
will be carried on and made a special object.
The very extensive Stock is, this season, in splendid condition. It includes every species of
ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),
FRUIT TREES, ROSES, RHODODENDRONS, &c.
Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to
THOMAS THORNTON,
Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

SATURDAY, AUGUST 22, 1874.

TOWN WINDOW GARDENING.

WE are so thoroughly convinced of the value of encouraging the dwellers in towns to do their utmost in the way of plant cultivation, however humble their endeavours may be, that we gladly transfer to our columns the following article on the subject, from our contemporary, the *Midland Counties Herald*, published at Birmingham, the more particularly as the suggestions and recommendations it contains are equally adapted to most of our large towns, and probably to not a few of the smaller ones :—

"Almost every human being has an inborn love of flowers. No one familiar with the habits of "the people" can fail to be aware that even in our most crowded and closest streets there is a constant struggle to gratify this love, and efforts are always being made to grow some plant or other. A Geranium or a Fuchsia, a Musk plant or a Myrtle is, perhaps, the object of the loving attentions of these cultivators under difficulties. Not unfrequently a good deal of success rewards the labours thus bestowed, which it may always be assumed are 'labours of love.' In London and elsewhere societies have been formed to encourage such efforts, and wherever the beneficial influence of such societies has been exerted they have done much good. Many a dingy home has been made all the brighter by the plants grown in them, under the fostering influence and encouragement of such societies. Nor has it been essential to the happiness of the owners that a high standard of plant cultivation should have been set up. If only a plant will live, preserve its leaves green, and occasionally gladden its owner's eyes with a flower, then the causes for supreme satisfaction are quite ample. Now and again it is possible to meet with really well-grown plants in the homes of the very poor, and we well remember on one occasion to have seen in the window of a small house in one of our back streets nearly a dozen healthy vigorous trees which would not have been discreditable in any cottage window in the country. This by way of encouragement.

"There are many plants which will thrive excellently well even in the smoke of large towns, provided they receive a few extra attentions. For instance: the soil in which they are planted should be fresh and sweet, and should be renewed at least annually; the dust and dirt which will be certain to accumulate on the leaves day by day should be occasionally removed—the oftener the better—by sponging or the rougher and readier method of sprinkling, or the more simple one of exposure to gentle rains when they fall. Then, again, plants should, on the one hand, never be over-watered, so as to convert the soil into mud, nor kept without water too long, so as to convert the soil into dust. With such means most of the more robust plants which commonly adorn cottage windows will grow and do well in those of towns. Evergreens of many varieties are well adapted for permanent occupancy of such positions, for, owing to the harder and oftentimes glossy surface of the leaves, they are hardier than most soft-wooded plants. The Cactus family, again, and many of the succulents, will for a long time bear up against rough usage and neglect, and the other adverse circumstances attendant upon town gardening; and their uncommon styles of growth, and flowers quaint and strange in appearance, invariably produce unflagging interest. Bulbs of many sorts, too, are particularly suitable to fill creditably a prominent place in a town window.

"A step in the right direction would be the preparation and general publication of brief, accurate directions how to grow plants, stated in such plain every-day language as would be readily understood by all who can read; and to this might be appended a list of such plants as are most likely to flourish in town windows.

"We should like to know that window gardening societies were established in all our populous towns. They would accomplish a really good work, and would encourage many who are now inert to become cultivators. The duties of the committees of management would not be arduous. They might well undertake the printing and distribution of such a code of instructions as we have referred to, and which we shall have pleasure in getting prepared by a competent hand, if such a society is started in Birmingham. They might purchase and distribute, at the lowest possible price, suitable plants, bulbs, &c., properly potted; and we are authorised to state that a townsman will annually make a present of a large number of Pelargoniums, &c., to such a society. They should arrange for the holding of two exhibitions every year—one early in spring, when bulbs should be shown; the other some time in the summer, for plants generally. They might also arrange for the occasional delivery of simple but instructive addresses on plant life and plant growing in various parts of the town. They would also have to collect funds, in order to cover necessary expenses and provide prizes, which might be in money, plants, books, or useful domestic articles. As a start, we can already promise them subscriptions from several friends interested in the movement.

"To make the society as powerful as possible, it would, perhaps, be advisable to arrange for the organisation of two bodies—the one central, the other local. The local sub-committees should, perhaps, be as numerous as the ecclesiastical parishes or the municipal wards. They should be chosen by the residents in their respective districts. The central committee might consist of representative members of the local ones, one or two selected from each, with the addition of perhaps a few other persons chosen by these local representatives. The work of the central committee would be to raise the necessary funds, to settle the rules, to fix the exhibition days, and to award the prizes; while the local committees would have to work up their several districts, diffuse information respecting the objects of the society, put themselves in personal connection with the class in which the exhibitors would be found, and in other ways help on the work of the organisation. By such a dual arrangement an immense amount of work might be done, while no one person's share need be overwhelming. The connection between the localities, each being represented in the central committee, would be mutually helpful, and if well managed the society would prove all-powerful in carrying out its objects.

"Here, then, we venture to submit, is a plan capable of yielding admirable results, and which all classes of the community can assist either by subscription or personal work, or both. Cannot such an organisation be started in Birmingham forthwith [and, we may add incidentally, in other large towns.] No one need be frightened at the labours involved or the amount of money to be raised. One hundred pounds per annum would do the work magnifi-

cently; half the amount might possibly be sufficient to start with and to do it fairly well.

"The writer of this article was, not very long ago, in some degree instrumental in setting on foot in one of the largest towns in Lancashire a small but successful show of the kind suggested, where the exhibitors were the children attending a Sunday school in a poor district. A teacher in that school applied to him for information as to what could be done to induce the children to attempt plant growing. He suggested that they should be supplied with bulbs, properly potted in suitable soil, for which they should pay a nominal sum. This was done; a considerable number of the children invested their pence. Simple directions what to do were given to each purchaser, and a few months after the juvenile cultivators were invited to assemble on a stated day, and bring their plants with them. These were then arranged in order of merit, and prizes—consisting chiefly of books—were distributed among the children. Not only did the children bring the plants, but their friends, all poor people, came too; and a happier gathering was perhaps never brought together. This effort, commenced quietly and unostentatiously, but carried on with intelligent perseverance, has already yielded good fruits, and its refining influence is growing greater and wider every year. The plan has been tried in many other towns, and nowhere without success." Surely this, and more, may be done in other towns.

New Garden Plants.

Pescatorea Dayana, *supra* (1873, 575).

There are four varieties. That which first flowered had green tips to the sepals. I obtained lately from Messrs. Veitch the var. rhodacra, having purplish rose tips to the sepals and petals, and at the same time the var. candidula, having sepals and petals quite white. The same variety was also sent by Mr. Bull. The var. splendens, with dark violet blotches at the tip of the sepals and petals, and a deep violet lip, has already been described. A group of all these varieties would be delightful. *H. G. Rchb. f.*

Passiflora sanguinolenta, *Mast.** (Fig. 47.)

This species was originally described in these pages from specimens forwarded by M. Linden, who received the plant from Columbia through M. Wallis. Quite recently we have had the opportunity of seeing other flowers in the nursery of Messrs. Rollisson, and, as they differ in some particulars from those previously described, we have deemed it desirable to allude to the plant again, and to subjoin a figure. The surface in Messrs. Rollisson's plant is rather pubescent than pilose, but the most striking difference is in the colour of the flower. Those first examined were of a reddish-violet colour—a tint, indeed, which suggested the name applied to it—but in Messrs. Rollisson's specimen the colour is of a rosy pink. The flower-tube is dilated and distinctly five-lobed at the base, the lobing, however, does not extend up the whole length of the tube, as shown by error in the figure. The sepals are markedly 3-nerved. The coronal threads near the base of the flower-tube (fig. 47 c), above the membranous corona, are more slender than previously described and figured, and the membranous corona itself is slightly crumpled, more so than is shown in the cut at c. The ovary is somewhat ribbed. In the *Flora Brasiliensis* the leaf is by a misprint described as tri- not bilobed. Structurally this species is very peculiar, so that it is difficult to assign it to its proper place in the order. It is, however, nearly allied to P. reflexiflora, Cav. As an ornamental plant it does not rank so high as many others, but its free-flowering habit and pretty pink flowers are nevertheless great recommendations. The pollen-grains as represented in Mr. Worthington Smith's drawings are unlike those of other plants of the order examined by us. *M. T. M.*

EMBLEMATIC PLANTS.

The use of plants as emblems of States or of parties in States is of very ancient date. The Rose of England, the Thistle of Scotland, the Shamrock of Ireland, and the Leek of Wales are "familiar in our mouths as household words;" and hardly less so are the Lilies of France. It is, indeed, in France that this kind of "language of flowers" is most general. We have quite recently seen a revival of that enthusiasm for the Violet among the Bonapartist party, which was first manifested when the great Napoleon was a prisoner in Elba; and we now learn that the wild Thyme has been adopted as the emblem of the Republican worshippers of "Marianne." The *Daily News* of August 13 has an interesting letter upon the *pays rouge* of Southern France, in which this circumstance is thus alluded to:—

"[The] votaries [of Marianne] wear tufts of Thyme in their hatbands or buttonholes. The Thyme, which is to the highlands of the 'Red Country' what short sweet grass is to the English downs, has become the symbol of advanced Republicanism. A mayor near Bollena has just been dismissed for wearing a sprig at a municipal council. At the chambrées (or Republican clubs) held on the evenings of market-days in the towns between the Alps and the Rhône, wild Thyme or Ferigoule is used to festoon the whitewashed walls. The altars which the Republican farmers erect in their fields to the statue with the Phrygian cap are built of sods green and fragrant with this plant. The excitement a Marianne celebration at an altar of this kind calls forth amounts to positive frenzy. To keep within the letter of the law, a light shed or kiosk is thrown up over the statuette, and sprigs of Thyme, with invitations written on whitey-brown paper, sent round the Department for an inaugural service."

The same letter contains a note upon the use of Reeds in protecting the gardens and fields from the effects of the "mistral," a violent, drying, north-west wind which prevails in spring along the coast of Provence, and up the Rhône as far as Valence. It overthrows, at times, even the largest trees, it is sufficient to blow a man from his horse, and vessels are often prevented from putting out to sea in the teeth of it.

"The mistral which had been blowing for three days had literally shaved the face of the country, there being no barrier against it, unless what is afforded by land shelter. Owners of small plots of ground cannot afford to plant protecting hedges, much less belts of wood which would bring in no return for twenty years. They have recourse to makeshift shelters of matted Reeds tied to stakes for their gardens. But a high wind, like the one of which I speak, sends these defences flying as it would a pack of cards. In the alluvial bottoms it was common before railways brought this part of France into proximity with Lyons, Marseilles, and other large towns, to set apart, on the windward side, a strip of ground known as *le dime du diable*, which was given over to the vigorous Reeds of South-Eastern France. They brought in no money, but they protected the tender plants from the mistral—when it did not rise to the violence of a hurricane; and, living much upon carbonic acid gas, did not take much out of the soil. Since then the products of the market gardens have more than doubled in price. Since the extension of railways the *diable* is not paid his tithes, and in a stormy year the wind has its wicked will of everything. Where the mistral does not ravage in sheltered vales the Phylloxera and other vermin devastate unhindered. The Olive tree alone resists the destructive efforts of the insects. In Olive plantations which are not exposed to the mistral, the harvest this year will be abundant."

THE GRAPE PHYLLOXERA.

(*Continued from p.* 211.)

Type Radicicola, or Root-inhabiting.—We have seen that, in all probability, Gallæcola exists only in the apterous, shagreened, non-tubercled, fecund female form. Radicicola, however, presents itself in two principal forms. The newly-hatched larvæ of this type are undistinguishable, in all essential characters, from those hatched in the galls; but in due time they shed the smooth larval skin, and acquire raised warts or tubercles, which at once distinguish them from Gallæcola. In the development from this point the two forms are separable with sufficient ease: one, of a more greenish yellow, with more swollen fore-body and more tapering abdomen; the other, of a brighter yellow, with the lateral outline more perfectly oval, and with the abdomen more truncated at tip.

The first, or mother form, is the analogue of Gallæcolla as it never acquires wings, and is occupied, from adolescence till death, with the laying of eggs, which are less numerous and somewhat larger than those found in the galls. I have counted in the spring as many as 265 eggs in a cluster, and all evidently from one mother, who was yet very plump and still occupied in laying. As a rule, however, they are less numerous. With pregnancy this form becomes quite humid and more or less pyriform, and is content to remain with scarcely any motion in the more secluded parts of the roots, such as the creases, sutures, and depressions, which the knots afford. The skin is distinctly shagreened, as in Gallæcola. The warts, though usually quite visible with a good lens, are at other times more or less obsolete, especially on the abdomen. The eyes, which were quite perfect in the larva, become more simple with each moult, until they consist, as in Gallæcolla, of but triple eyelets, and, in the general structure, this form becomes more degraded with maturity, wherein it shows the affinity of the species to the Coccidæ, the females of which, as they mature, generally lose all trace of the members they possessed when born.

The second or more oval form is destined to become winged. Its tubercles, when once acquired, are always conspicuous; it is more active than the other, and its eyes increase rather than diminish in complexity with age. From the time it is one-third grown the little dusky wing pads may be discovered, though less conspicuous than in the pupa state, which is soon after assumed. The pupæ are still more active, and, after feeding a short time, they make their way to the light of day, crawl over the ground and over the Vines, and finally shed their last skin and assume the winged state. In this last moult the tubercled skin splits on the back, and is soon worked off, the body in the winged insect having neither tubercles nor granulations.

In the great majority of insects the wings in the pupa are simply compressed and thickened without being folded, and in the imago they expand without material change in form. Those of our Phylloxera are rolled up both from the sides and the end, and, in expanding, they unroll in the manner designated, the whole operation requiring but about five minutes. At first, and for a time after the moult, the colour of the body of the new-fledged Phylloxera is of a uniform bright deep yellow, with the wings white and rather opaque, and the eyes brown. The dark thoracic band and more diaphanous and smoky nature of the wings are gradually acquired in the course of a day. The wings, when highly magnified, are seen to be thickly covered with minute hooks.

These winged insects are most abundant in August and September, but may be found as early as July 1, and until the Vines cease growing in the fall. The majority of them are females, with the abdomen large, and more or less elongate. The veins of the front wing are not connected, and, by virtue of the large abdomen, the body appears somewhat constricted behind the thorax. From two to five eggs may invariably be found in the abdomen of these, and are easily seen when the insect is held between the light, or mounted in balsam or glycerine. A certain proportion have an entirely different shaped and smaller body, the abdomen being short, contracted, and terminating in a fleshy and dusky penis-like protuberance; the limbs stouter, and the wings proportionately larger and stouter, with their veins connecting. This shorter form never has eggs in the abdomen, but, instead, a number of vesicles containing granulations in sacs. These granulations have much the appearance of spermatozoa, and seem to have a Brownian movement, but are without tails.

This form has been looked upon as the male by myself, Planchon, Lichtenstein, and others. Yet I have never succeeded in witnessing it performing the functions of a male, nor has any one else that I am aware of. The males in all plant-lice are quite rare, and, in the great majority of species, unknown. Where known, this sex bears about the same relation to the female as the shorter and smaller Phylloxera just described does to the larger. These same differences observed in the winged insects obtain in the other species of the genus that are known, and have always been looked upon as sexual. Signoret, an authority on these insects, once so looked upon them, but has lately declared the shorter form to be a female emptied of her eggs. If this be so, then the eggs must be laid before the insect arrives at maturity (a highly improbable circumstance); for the characteristics which distinguish it are to be noticed in the pupa, which is almost as broad as long, with very large wing pads and strong limbs; while the winged insect does not, as we have seen, carry any eggs. But, whatever the true nature and functions of these problematic or gynandrous individuals, it would seem, from some exceedingly interesting observations lately made by Balbiani,* that they cannot be males, if there be any such thing as unity of habit and character among the species of the genus. Balbiani has made the curious discovery, in the annual development of Phylloxera quercus, that the winged individuals, which appear in August, fly off to new leaves and deposit their unimpregnated eggs, to the number of five to eight. These eggs are of two different sizes, the smaller being readily separated from the larger. They hatch in about a dozen days, the smaller giving birth to males, and the larger to females, which have neither mouth-parts nor digestive organs, and neither grow nor moult after birth. The sole aim of their existence is the reproduction of the species, and they crawl actively about and gather in little multitudes in the crevices and interstices which are afforded them. The male, except in size, seems to differ from the female only in having a small conical tubercle, which serves as a sexual organ. Coitus lasts but a few minutes, and the same male may serve several females. Four or five days after birth the female lays a solitary egg, which, increasing somewhat after impregnation, had caused her abdo-

* Mast. in *Gard. Chron.* 1868, p. 1162, et in *Flora Brasiliensis* (Passifloraceæ), p. 559, tab. 128, f. 3.

* *Comptes Rendus de l'Académie des Sciences*, Paris, 1873, p. 884.

men to swell and enlarge a little prior to oviposition. Two or three days after this operation the mother dies, but the males live as long again.

This solitary egg, which Balbiani calls the winter egg, soon takes on a dark colour, which indicates its fecundity and distinguishes it from parthenogenetic eggs of both the winged and wingless females. It is surmised that this egg passes the winter to give birth in spring to the form destined to recommence the cycle of development belonging to the species.

These discoveries are truly remarkable, and appear to me all the more so since Balbiani* likewise found that the individuals which never become winged attain maturity without laying eggs on the leaves on which they were born, but crawl on to the branches and in the interstices of the old scales at the base of the new year's growth. There they lay a number of eggs, which are absolutely like those deposited by the winged females, and, like them, produce the sexual individuals, *i.e.*, both males and females. Now, this does not correspond with what I have seen myself of the species, or with what has been described by others; for the apterous individuals of P. quercus surround themselves with eggs on the leaves where they are born.

M. Maxime Cornu has already announced having found a sexual individual, without mouth-parts, of the Grape Phylloxera; and it is quite likely, now that Balbiani has paved the way, that we shall next year have its natural history complete. But whether the Grape Phylloxera produces this fecundated and solitary egg or not, such an egg is neither essential to its winter life, nor to that of an American species (Phylloxera Rileyi, Lichtenstein), which will be described further on, and which is, in every respect, very closely allied to the European P. quercus.

While, therefore, there is yet much to learn in the life-history of our Grape Phylloxera, the facts of which I have already unequivocally stated, as well as those which I shall now proceed to give, remain indisputable, and do not seem fully to accord with Balbiani's discoveries.

As fall advances the winged individuals become more and more scarce, and as winter sets in only eggs, newly-hatched larvæ, and a few apterous egg-bearing mothers, are seen. These last die and disappear during the winter, which is mostly passed in the larva state, with here and there a few eggs. The larvæ thus hibernating become dingy, with the body and limbs more shagreened, and the claws and *digituli* less perfect than when first hatched; and, of thousands examined, all bear the same appearance, and all are furnished with strong suckers. As soon as the ground thaws and the sap starts in the spring, these young lice work off their winter coat, and, growing apace, commence to deposit eggs. All, without exception, so far as I have seen,* become mothers, and assume the degraded form already described.

At this season of the year, with the exuberant juices of the plant, the swellings on the roots are large and succulent, and the lice plump to repletion. One generation of the mother form follows another—fertility increasing with the increasing heat and luxuriance of summer—until at least the third or fourth has been reached before the winged form makes its appearance in the latter part of June or early in July.

Since I proved, in 1870, the absolute identity of these two types, by showing that the gall-lice become root-lice, the fact has been repeatedly substantiated by different observers. Yet, strange to say, no one has heretofore succeeded in making gall-lice of the young hatched on the roots, though I formerly supposed that Signoret had done so. It is, therefore, with much satisfaction that I record the fact of having succeeded this winter in obtaining galls on a young Clinton Vine from young Radicicola, and of thus establishing beyond peradventure the specific interrelation and identity of the two types. I make this announcement with all the more pleasure, that for three years past, both on Vines growing outdoors and in pots indoors, I had in vain attempted to obtain the same result. *From Riley's Report on the Insects of Missouri.*

(*To be continued.*)

* *Auctore* Dr. Fr. Cazalis, as reported in the *Messager du Midi*, November 16, 1873.

* I have examined thousands in the vineyard in early spring, and other thousands reared artificially in a warm room in winter.

Fig. 47.—Passiflora sanguinolenta.

A, B, Flower and leaf, natural size; C, Section, twice natural size; D, Two views of pollen-grain, showing a pollen tube; P, Petal; S, Sepal.

VICTORIA PARK.

With the huge metropolis, stretching miles away to the south-west, from whence come smoke and smuts, instead of "soft and balmy" air, with the populous district of Hoxton to the northward, and the only piece of clear country, so to speak (Hackney Marshes), lying away due east, it cannot be said that Victoria Park is so favourably situated as other metropolitan parks. Nevertheless, good and effective gardening—gardening under great difficulties—is carried out there in a style that may well claim it for a place amongst the "parks," and gives it a character well worthy the name it bears.

The conformation of the grounds is really good, and the park is known to possess perhaps the best collection of flowering trees and shrubs to be found so near to the great heart of London. The artificial "steppes" and vales have many of these massed upon their slopes, and peeping forth from their miniature defiles in the most effective natural manner. Here, in luxuriant juxtaposition, are Planes, Poplars, and Primroses. Pyruses and flowering Peaches are prominently placed above; breaking off, on the slopes, are Birches, Betulas, Bladder-sennas, Buckthorns, and the taller forms of Buxus or Box, whilst Lilacs, Laburnums and Limes already grow thickly together in the semi-valleys between and below. More prominent still, Cotoneasters and Cytisus (which do so well here) climb up or hang down over grass or projecting boulders, these abrupt projections being upheld by imitation rocks in places which are all but entirely clothed with Ivies, Periwinkles, and Stonecrops, &c. The foregrounds are occupied with Weeping Birch, the Weeping Kilmarnock and American Willows, the Æsculus parviflora (a beautiful plant, now in bloom), and Salix Forbyana, of which there is here a remarkable specimen. On the other side is the sheet of artificial water and the island, where there is a plant of the Weeping Willow known as Salix babylonica, a native of China, and large specimens of those beautiful, though little known, varieties of Alder, of the Alnus laciniata type, &c. The artificially made views and glimpses of the distance formed around this water—at one end of which is a cascade half hidden in Ivy—are excellent, and reflect no small credit upon those originally engaged in laying out the grounds; indeed, one can scarcely realise the fact that we are at the very doors of Bethnal Green, excepting from the influx of visitors, which is great towards evening. An attempt is being made to form a permanent display here with Hollies, and so far with the most hopeful success, as there are already established some very excellent small specimen plants. There is also a very complete collection of Thorns, than which few kinds of flowering trees are more interesting.

The bedding-out here is admirably conceived and executed, particularly the so-called carpet-bedding; indeed, this is equal to the best of its kind I have ever seen.

I shall attempt to give a slight description of these beds, and such other objects as strike me as being worthy of remark, and will ask the reader to enter the park at the Llanover Gate and turn to the right. Almost at once we are in what is known as the "carpet-bedding" division. The plan adopted is that of many beds cut upon the green sward formed upon an irregular oblong piece of ground, having a shrubbery at the back, which in effect forms a bay beyond the beds, and which is set off by having a border fronting it, appropriated to annuals and more permanent herbaceous plants. This same piece of sward is divided from the roadway by a neatly clipped dwarf Privet hedge. The central or chief bed in this plan is an illustration of the beauty of circular outlines, as opposed to straight lines and acute angles, and is what is called a "scroll bed." A sketch of this bed is seen at fig. 48, B. With a view to being accurate, and for the purpose of describing the bed at all, I must refer the reader to the plan opposite and its reference numbers, adding only that

above 10,000 plants are planted therein, and that it is, in a word, a most perfect piece of artistic workmanship. Every line and curve is as exact and as faithfully delineated, singly, and in keeping with its counterpart as it is possible to be, the patterns equalling a Brussels or Paisley shawl in correctness.

This bed has been planted so exactly as to admit of plants of such a stiff circular outline as Sempervivum tabulæforme being used singly for centres to some of the pannelling, in which position they are effective and telling. Around the outer edges of this large scroll-bed, as represented in fig. 48 B upon the scroll-plan, two rows of Echeveria secunda glauca are planted together, and extremely effective they prove when planted in duplicate. That which proves so very telling as regards them, however, is the exact distances at which they are planted. I believe it would puzzle the most hypercritical visitor to detect more than a hair's-breadth variation in the distances or divergence in the angles which each are supposed to faithfully represent. Within this outer edge it will be observed Alternanthera magnifica forms the groundwork of the bed, having one outer edge all around of Alternanthera amœna. Then if the eye be cast on the pannels represented, it will be readily seen what a powerful effect these two have in bringing out the actual outlines, within which it will be seen that the newer Coleus Verschaffeltii Improved occupy ten distinct central positions as regards the whole plan. The colour of this variety is admirable at this place. Then at the four outer ends, as shown, good stiff dwarf plants of Echeveria glauca metallica give character, whilst the miniature tree-like Sempervivum arboreum, dotted around with much taste, affords contrast. But one other feature I need refer to—leaving the reader to study the place beyond this for himself—and that is the effect which the old Coleus Verschaffeltii has in the circular ovals, not forgetting that they are planted alternately, and in contrast with the newer variety above referred to.

The next most striking and beautiful pattern is shown by the circular one; see fig. 48 D. Commencing with the centre, we have here again the old favourite, Coleus Verschaffeltii, around which is a well-balanced "set off" of Golden Feverfew, which in turn is backed up by Alternanthera amœna spectabilis, which for the sake of balance assumes a circle of equal width, and there breaks away into panels at acute angles, and is met all around with Echeveria secunda glauca. Again, Golden Feverfew in extremely well-balanced triangles of Alternanthera amœna, and within a wall of the latter, is again met by a band of Alternanthera magnifica, all being "walled in," with the aforesaid Echeveria. The materials used, it will be seen, are very simple, yet how remarkable is the effect!

Then another bed in this group, or rather a pair of them, which for simplicity of arrangement and the common materials employed are truly a great success. This is also a circular bed, surrounded with half circles, just about half the diameter of itself; see fig. 48 C. Here we see a width of Coleus Verschaffeltii, comprising the whole of the inner circle, excepting about a fifth its own diameter around its outer circumference, which consists of a band of Cerastium tomentosum, backed up, in the half-circle swells around, with pannellings of Lobelia pumila grandiflora, and an outer edging of Mesembryanthemum cordifolium, giving it a very neat and effective finish. Next to the scroll-bed (fig. 48 B) there is another, which I give at fig. 48 A, of a more intricate style of planting, though the material employed is extremely telling. By referring to the sketch it will be seen that the centres consist of Alternanthera amœna spectabilis, next to which is a narrow strip of Golden Feverfew, again backed with Alternanthera paronychyoides major associated with A. amœna, and again edged with Echeverias, the centre of each width being filled with Cerastium.

I have long advocated neutral colours as being most telling for prominent and even central positions, and the display afforded by this simple arrangement fully confirms this opinion.

Two other beds are deserving of notice amongst this division: I refer to a pattern foliage, "Arms of Brunswick," and to a pattern foliage "Maltese Cross." As the latter is doubtless the best of the two, I give it the prominence of a sketch also (see fig. 48 E). Here the three outer bands consist of Echeveria secunda glauca, Alternanthera paronychyoides major, and variegated Mesembryanthemum—the groundwork of the cross, &c., being Alternanthera amœna spectabilis, within which the cross itself is formed, and of Cerastium; and it is not too much to say that a more mathematically precise example it were not possible to conceive than was this at the time of my visit—pannellings being filled in with Golden Feverfew, as seen at fig. 48 E, forming a most effective contrast. Though these beds had doubtless all been kept well clipped in or "sheared" back, this had been done so well as really to leave no marks behind. Is the fact known, by the way, that the Golden Feverfew may be clipped in with impunity yet leaves no dead edges to the leaves so cut in two, as they do not appear to die back from the wounds made, as other plants do?

Passing on we note in our progress through the Park such beds as the following, the exact position of each of which it is not necessary to explain. Of foliage-beds there are great variety. One bed 12 feet across, and filled with Castor-oil plants, is carpeted beneath with the old Tradescantia discolor, or T. zebrina as some call it. The latter was making a good growth, and seemed quite at home in this shaded position. This bed was edged with an excellent line of the variegated Coltsfoot. Near to it was a bed of Acacia lophantha, with an edging of Euonymus radicans variegata and a charming bed it makes, though at the time of my visit, which occurred as the shades of evening began to lengthen apace, the former was assuming that remarkable closing together of the leaves by some designated the sleep of vegetation! Near by is a long circular fronted bed of Cannas, planted somewhat at an elevation, and edged with the Chamæpeuce Casabonæ, these affording a fine contrast. Not far distant, another of Canna violacea, edged with Golden Feather Pyrethrum and Alternantheras. By way of contrast, the distinctly variegated Veronica Andersoni variegata was bedded, having Alternantheras for an edging. The beds of Amaranthus salicifolius, which certainly seems to colour better here in town than I ever remember to have seen it do in more country places, had also Echeverias for an edging. Two pieces of rockwork, certainly not very large, appeared to be good; they were carpeted over chiefly with Sedum acre glaucum (*syn.* Andersoni) [probably hispanicum. EDS], the variegated form of the same being dotted irregularly about, here and there, with good effect, aided by such surroundings as Fortune's Palm, the Screw Palm, Variegated Maize, &c., in the background, with the usual associates, such as Sempervivums and the old Creeping Jenny in the background and in admixture. Some beds of Ficuses, Cannas, and Solanums, &c., occupied spaces well adapted to them; each effort as it appeared aimed at giving the greatest amount of variety possible within this restricted area. Near here, and fenced in upon the right of the road leading past the front lodge and over the bridge is an extensive piece of what may be not inappropriately called mass-bedding. The forms of the beds, in so far as a geometrical plan can partake, appear to be founded also on the assumed beauty afforded by circular lines. The "bedding" here is most excellent. I can but refer to two or three of the most striking beds, by way of giving an insight into the combinations that are employed. None, then, are more effective than—(1) A circular one formed of Queen of Queens Pelargonium, intermixed freely with Viola cornuta Blue Perfection, around these being a neat and effective band of Iresine Lindeni, about 10 inches across, with another band of Mesembryanthemum cordifolium variegatum, about 6 inches wide, for an outer edging; (2) Centaurea candidissima, having Verbena venusta intermixed, and edged with bands of Amaranthus melancholicus ruber and Golden Feather Pyrethrum respectively; and (3) Crystal Palace Gem Pelargonium edged with Amaranthus melancholicus ruber and Echeveria glauca respectively as given.

Turning westward we come upon what I may term the "Holly mound," as it is a large elevated circular mound, the centre of which is filled with neat upright Hollies, some 8 to 10 feet high, in variety. These form a kind of background to the piece of circular bedding fronting it all around, and which is planted out in carpet-bed fashion. There exists one feature here, however, and indeed in different places about the Park, which I have purposely not referred to previously, and it is that around this mound and elsewhere a comparatively new bedding plant, the golden-leaved Stitchwort, Stellaria aurea, occupies a most prominent position, forming as it does a band some 9 inches wide around the outer circle. As a plant for front edgings, especially where these are elevated as they are in a very general way in and near the metropolis, &c., at this period, this beats the Golden Feverfew. It is more dwarf, compact, and possesses a more elegant foliage, and certainly in some cases I considered the yellow of the Stellaria deeper in colour. I have not seen it so good or growing so freely elsewhere, I am open to confess. I nevertheless predict for it a useful place amidst kindred plants, even as the Golden Feather Pyrethrum which has become so extremely common, displacing it in a great measure in the future.

The glass structures for use in the preparation of all this mass of summer plants is extremely meagre, and hence, taken all in all, we must, as impartial chroniclers, tender to Mr. McIntyre his due, and proclaim him deserving of all praise for the great advance he has made in high-class gardening in so little time and under such adverse circumstances. *William Earley.*

REFERENCES to Fig. 48.—A.—1, Echeveria secunda glauca, followed inwards by lines of Alternanthera amœna, A. paronychyoides major, Cerastium tomentosum, Golden Feverfew, and, 6, Alternanthera amœna spectabilis; 7, Mesembryanthemum cordifolium variegatum, edged with Echeveria secunda glauca.

B.—1, centre of Echeveria glauca metallica, surrounded by Amaranthus melancholicus ruber, and an outer line of Mesembryanthemum cordifolium variegatum; 2, an oval bed of Coleus Verschaffeltii in a groundwork of Golden Feverfew, with the diamonds at each end of Alternanthera amœna spectabilis, and the four circles of Sempervivum tabulæforme edged with Mesembryanthemum cordifolium variegatum; 3, an oval bed of Coleus Verschaffeltii Improved, edged with the last-named Mesembryanthemum; 4, centre, Coleus Verschaffeltii in a groundwork of Golden Feverfew, and the diamonds at either end filled with Alternanthera amœna spectabilis; 5, Coleus Verschaffeltii Improved, with a margin of Golden Feverfew, the small circles on either side being Sempervivum tabulæforme, with an edging of Mesembryanthemum cordifolium variegatum. The small circles between the larger groups are of Sempervivum arboreum, and the groundwork of the whole bed is of Alternanthera magnifica, with an outer line of A. amœna, and a margin of Echeveria secunda glauca.

C.—1, Coleus Verschaffeltii; 2, Cerastium tomentosum; 3, Lobelia pumila grandiflora; 4, Mesembryanthemum cordifolium variegatum.

D.—1, Echeveria secunda glauca; 2, Alternanthera magnifica; 3, A. amœna; 4, Golden Feverfew; 5, Echeveria secunda glauca; 6, Alternanthera amœna spectabilis; 7, Golden Feverfew; 8, Coleus Verschaffeltii.

E.—1, Echeveria secunda glauca; 2, Alternanthera paronychyoides major; 3, Mesembryanthemum cordifolium variegatum; 4, Alternanthera amœna spectabilis; 5, Golden Feverfew; 6, Cerastium tomentosum.

PLUMS.

[The following notes are intended as guides to show which varieties of fruits are most generally serviceable, and which are best adapted for special localities. EDS]

ABERDEEN. — Kirke's, Jefferson, Coe's Golden Drop, Washington, and Victoria are the best. The Gages and Damsons never carry half a crop here. *G. Donaldson, Keith Hall.*

ARMAGH.—The only trustworthy variety here is the Victoria, which always gives a fine crop. *W. A., Brownlow Gardens, Largan.*

AYRSHIRE.—The Victoria is the only variety worthy of planting here as a standard. It seldom fails, to carry a crop. *J. Gray, Eglinton Castle, Irvine.*

BERWICK.—Green Gage, Kirke's, Jefferson, and Coe's Golden Drop all do well here. *Peter Lonty, Marchmont, Dunse.*

BUCKS.—Blue Gage, Green Gage, Victoria, Jefferson, Washington, Ickworth Impèratrice, Orleans, Coe's Golden Drop, red and white Magnum Bonum, Kirke's, Reine Claude de Bavay. *G. T. Miles, Wycombe Abbey.*

CAITHNESS.—Plums are all grown on walls here, and the most useful sorts are Green Gage, Victoria, Coe's Golden Drop, Magnum Bonum, and Damson. *John Sutherland, Langwell, Berriedale.*

CARMARTHEN.—Plums are an uncertain crop, and are grown chiefly on walls. The Victoria here will not ripen on standards, but hardly ever fails on walls. Coe's Golden Drop, Orleans, and Diamond are good. *J. Ticehurst, Dynevor Castle, Llandilo.*

CHESHIRE.—Of Plums, those which succeed best are Kirke's, Victoria, Jefferson, Early Orleans, Green Gage, Old Orleans, and a large red culinary Plum, a local variety, called Thornhill's Plum, are the best. *Wm. Whitaker, Crewe Hall.*

CORNWALL. — July Green Gage, Green Gage, Jefferson, Early Prolific, Victoria, and Damsons. *H. Mills, Enys, Penrhyn.*

DEVON.—Pyramidal trees of Prince Englebert are very heavily laden with fruit. This is the best of all pyramidal Plums as a bearer, and it is also of good quality. Belle de Septembre, Mitchelson's, and Rivers' Early Prolific are also good, but the latter is apt to rot in clusters on the trees. *J. Garland, Killerton.*

HERTS.—Green Gage, Victoria, Golden Drop, Orleans, and indeed all Plums on the walls, are very heavily laden. *E. Bennett, Hatfield House.*

KENT.—Victoria, Green Gage, Mussel, Jefferson, Washington, Kirke's, and Damson. *Thomas Woodford, Eastwell Park, Ashford.*

KERRY.—We have very good crops of the Victoria on standards and pyramids. It appears to be the only variety suitable to this damp climate. *F. Bedford, The Gardens, Killarney House.*

LANCASHIRE.—Victoria, Magnum Bonum, Orleans, and Coe's Golden Drop. *W. B. Upjohn, Worsley Hall Gardens, Manchester.*

LEICESTER.—Plums are plentiful of the following kinds:—Belle de Septembre, Coe's Golden Drop, Green Gage, Early Orleans, Jefferson, Reine Claude de Bavay, and Victoria. *John Brown, Gopsall Hall, Atherstone.*

LINCOLN.—The best varieties here are Green Gage, Coe's Golden Drop, Reine Claude de Bavay, Victoria, Prince of Wales, and Poupart's. *R. Gilbert, Burghley, Stamford.*

MID-LOTHIAN. — Green Gage, Kirke's, Coe's Golden Drop, Jefferson, Magnum Bonum, Victoria. *M. Dunn, Dalkeith.*

NORFOLK. — Green Gage, Coe's Golden Drop, Orleans, Goliath, Victoria, Jefferson. *William Smythe, Elmham Hall.*

NORFOLK. — Plums are plentiful everywhere. Pond's Seedling is a great favourite in this neighbourhood, and so also are the Victoria and Warne's Seedling (?). *Thos. Wynne, Hemsby Hall Gardens, near Great Yarmouth.*

NORTHAMPTON. — Green Gage, Jefferson, New Orleans, White Magnum Bonum, Victoria, Goliath, Golden Drop, Wine-Sour, &c. *J. Worraker, Milton, Peterborough.*

SOMERSET.—Orleans, Mussel, and Green Gage. *John Scott, Merriott.*

STAFFORD. — Early Prolific, Victoria, Jefferson, Orleans, Coe's Golden Drop, Nectarine, Green Gage. *E. Simpson, Wrottesly, Wolverhampton.*

SUFFOLK.—Victoria, Violette Hâtive, and Jefferson seem to set more freely than any others. *D. T. Fish, Hardwicke.*

THE SWEET FLAG.

THE interesting article at p. 135 of the *Gardeners' Chronicle* raises the question of the nativity of Acorus Calamus in Britain, and appears to take a negative view of the case. The discussion is not perhaps so new as has been supposed, as it was raised by Trimen in 1871, who published in the *Journal of Botany* for that year a paper containing some facts which support the theory that the plant is not a native of western Europe. The following remarks, partly drawn from this paper, may be useful as supplementing the article which has appeared in these columns.

It is a curious circumstance that Dr. Bromfield, who was usually ready enough to admit the claims of any plant to a place in the British flora, should in this instance have been the first to express a doubt as to the nativity of Acorus Calamus. He says :—"I have a lurking suspicion that the Sweet Flag may not be aboriginal to Britain. Neither Gerarde nor Parkinson speak of it as known to them in a wild state in their time, nor is it once alluded to by Turner in his *Herbal.* Yet had it been as common in the days of these writers, as it is, or was till lately, about Norwich and other chief towns of England, it is difficult to imagine that a plant then much esteemed medicinally, and the roots of which were an article of importation from the Levant, could have passed unobserved by the earlier herbalists and simplers." Mr. Watson, on the other hand, whose authority on such matters is very great, and who cannot be accused of any tendency to admit a plant to our British lists on insufficient evidence, is inclined to consider the Acorus a native of Britain. Dr. Syme, in *English Botany* (1869), says :—"It is difficult to say in how many of its stations it is native. Bentham believes it to be "indigenous only in some of the eastern counties of England ;" while Dr. Hooker and Professor Babington admit it as an unquestioned native of England.

References to the older British writers have been given by "W. B. H." and need not be repeated. Turner, although he does not mention it in his *Herbal*, says in his *Names of Plants* (1548), "Acorus groweth not in Britain." Its first mention as British is that given by Christopher Merrett in his *Pinax* (1666), where we are told that it was "found by Dr. Brown near Lyn, and by Mr. Brown, of Oxford, near Hedley, in Surrey." Ray, in 1670, states that he had seen it near Norwich ten years before, and reports it as abundant and wild in Cheshire. Its present distribution in Britain, as summarised by Mr. Watson in *Topographical Botany*, indicates its occurrence in twenty-five English counties and vice-counties (a mark of suspicion being added in three cases), while thirteen other counties are given to which the Acorus is supposed to have been introduced, or in which its occurrence is "insufficiently vouched." That the Sweet Flag was planted in some of its localities is certain. Dr. Trimen says : "Dr. J. E. Gray, of the British Museum, tells me that the late Mr. Wheeler, of the Apothecaries' Company, planted it extensively about London, and that Dr. Gray himself saw this done at the well-known locality at Lord Mansfield's Highgate. It would seem still more likely for the older apothecaries to act in this manner, and they probably did so; though even without this direct interference of man, the Acorus might readily become established on a river-bank in proximity to gardens (as at Fulham, the first locality recorded for Middlesex), from the rhizomes being thrown out with garden rubbish."

Leaving the subject of the nativity of the plant in Britain, we may glance at its position in Western

FIG. 48.—PLANS OF CARPET-BEDS IN VICTORIA PARK.

Europe. Its occurrence in Germany has already been thoroughly investigated in the paper previously referred to, and the following analysis by M. A. Devos (much of which is taken from Kirschleger's *Flore d'Alsace*) of the claims of the plant to be ranked as a native of other European countries, will place the reader in possession of the most important facts, which tend to show the probability of its introduction. After stating that the Acorus was only known to Dodœus in a cultivated state, although it now exists in nearly sixty localities scattered through the various provinces of Belgium, he proceeds as follows :—

"We find it equally in neighbouring countries. Thus it is recorded as very frequent on the banks of the Moselle; it abounds along the Meuse in the Department of the Ardennes, and equally in the canal of the Ardennes and on the banks of the Oise. Kirschleger did not believe it to be spontaneous in the west of Europe. In the sixteenth century it did not exist in Central and Western Europe. Corda says, 'Omnino hoc Acoro caremus;' Trajus did not know it; Camerarius speaks of it only as an exotic medicament, saying that it grows in Pontus, Colchis, and Galatia. Clusius received living specimens from Constantinople in 1574; he cultivated it in the ponds of the Vienna garden, where it increased rapidly, and whence it was sent to the different gardens of Europe. J. Bauhin tells us that he cultivated the Acorus in 1590 in the Elector's garden at Montbéliard, that he had brought it from the Stuttgard gardens, where it had been received from the garden of the Marcgrave of Baden at Pforzheim; that Sebitz had cultivated it in 1591 in his garden at Strasburg, and Robin in the Jardin du Roy at Paris. It appears that Sebitz naturalised the plant at Strasburg, and J. Bauhin at Montbéliard and Belfort. In the time of Lindern and Mappus (1710—1750) the Acorus was very abundant in the environs of Strasburg."

After having cited many modern writers, English and German, as supporting the spontaneity of the Acorus in Europe, and quoting Dierbach and Schubler in favour of the opposite view, M. Devos proceeds :—

"Linné indicates it as occurring plentifully in Sweden, and Ledebour in the northern provinces of Russia. This plant is rare in France. It is recorded from Lorraine and Alsace [now French no longer!], and in the Jurassic chain, in the Alps and Pyrenees and western districts. It has not been detected in Central France. . . . J. Gay says that the Acorus exists in certain parts of France on the borders of ponds, but he adds that it is an Asiatic plant, which is nowhere really spontaneous in Western Europe, although the facility and rapidity of its spreading might lead to its being so considered. M. Puel reports that this plant is abundant in the environs of Rennes, where it has been recently introduced, and that it there appears quite spontaneous. M. Leroy says that he has seen the Acorus in the Ardennes in considerable quantity, having every appearance of nativity, in very wild places, where it seems hardly likely to have been artificially introduced. M. Menière observes that in the department of Maine-et-Loire, which has been repeatedly examined by experienced botanists, the Acorus has only been met with in one locality, about two kilometres from the property of M. Grépin, where it grows round a marsh in a desert place where it has not been sown. It has since been naturalised with success in other parts of the Department. M. Weddell planted it in 1842, in certain marshes of the forest of Marley, where it is naturalised."

M. Devos suggests that the plant may have been originally brought by the Romans to some of its stations, as that of Treves, an ancient Roman city; and it will be remembered that a similar origin is assigned for the occurrence of the Roman Nettle (Urtica pilulifera) on our shores. Its native country remains somewhat doubtful; but, as Dr. Trimen remarks, "all the facts about the plant seem to point to south-east Europe and adjacent parts of Asia" as its home. It is, however, pretty clear that its position in Western Europe, as well as in Britain, is only that of a denizen. *B. M.*

NOTES FROM A LANCASHIRE GARDEN.

Aug. 15.—It is, I find, a dangerous thing to leave a garden masterless for even a month. The best of gardens will probably fall short in some respect, and I certainly discover several matters which would have been otherwise had I remained at home. Your readers will hardly be interested by the details of my grievances: it is pleasanter to tell where we have been successful. [Perhaps so, but hardly more instructive. Eds.]

The wall fruit, however, I must mention. The ants and the aphis, and possibly some frost, have destroyed the Peach crop utterly. There is not a single Peach, and the Nectarines, which are certainly a hardier fruit with us, only number thirty in all! The Apricots have done fairly, and were so early that we gathered three or four in the last days of July—a full month before their usual time. The Moorpark Apricot, which we owe to Sir William Temple, is still the best. By the way he tells us that the Roman name for Apricots is Mala epirotica. Is this the root of the word Apricot, or may we still look upon it as from "apricus" the "sunny fruit," the fruit that loves the sun and has caught its own bright colour?

Of the smaller fruit Cherries have been a failure, with the exception indeed of the Morellos. Gooseberries have done well, though I fear I cannot compete with the giant Gooseberries of a Lancashire Gooseberry show. The Currants, whether against the wall or on bushes, have been capital, and the black Currants would take a prize at any show. We now net up some Currant bushes for the later autumn. The Raspberries, which we train in arches, have done tolerably, and we shall have a second crop of the white ones in October.

The Strawberries have been an average crop, and the little alpines have been capital—so large, so highly flavoured, and so redolent of Switzerland!

I am trying, too, for the first time, to grow Hautbois Strawberries, which are almost unknown with us. We are as yet not very successful, and I well know how capricious a fruit it is as regards setting. A year or two ago I was breakfasting with a well-known and most courtly physician in London, who is since dead. A dish of beautiful Hautbois was on the table. We were all admiring. "Yes," said our host, "they are now getting very rare. Sometimes a patient says to me, 'May I not have a little fruit?' 'Certainly not,' is my answer. 'Surely a few Strawberries?' Then, that I may not seem a great curmudgeon, I say, 'Well, a few Strawberries, but be sure they are Hautbois;' *and I know they can't get them!*" To ordinary Strawberries a Hautbois is what a Tea Rose is to ordinary Roses; it has an aroma all its own, and unlike all others.

In the flower garden the finest bed is one which I have now had for the last three years. It is a bed of Lilium auratum, with the dark Heliotrope growing in between. I take up the Lily bulbs for the winter, bring them on in heat, and then plant them out. They are really beautiful, and each year they seem more vigorous. Some have four blossoms, some have six or eight, and one has as many as ten. The strong perfume lies heavy on that end of the garden, and I think this Lily should never be brought inside the house. It is curious how the blossoms vary; in some the golden stripes are so much deeper, in some the dark claret spots are so much more numerous.

Another bed is of Lilium speciosum, planted to take the place of a bed of Sweet William, which was quite a glow of colour in the earlier part of the summer. This dear old Sweet William, which was the favourite in the old cottage gardens, and which, with the Lad's-love and the Pink, was the chosen flower for the buttonhole of the country boy, is now far too much neglected. Its rich velvet clusters of twenty different shades make a bed of exquisite beauty. It is over too soon, but it can be *supplanted* (may I say?) by something else. In a second bed of Sweet Williams I placed Gladiolus bulbs, and now they are coming into flower from out the green cushion, from which we have cut the withered blossoms.

A bed of the sweet little pink Pinks has of course been over some time, and though the bed is now quite bare of bloom—for I cannot disturb the roots—it is well worth sacrificing some colour in autumn for the three summer weeks of delicious perfume. Clusters of white Pinks have been no less sweet on the herbaceous borders, and now the Clove Carnations take their place.

It is curious that so familiar a flower as the Pink should be scarcely mentioned by the great poets. Shakspeare never speaks of it, nor, I think, does Marvell. Milton, in his *Lycidas*, barely alludes to "the white Pink," and Cowley has no separate poem in its praise. Indeed, one may say generally that with the exception of the Rose, the flowers in which the poets have rejoiced, and which they have immortalised, are the flowers of spring. Cowley, who wrote as a horticulturist, is the almost solitary exception. There is, however, a rather pretty and fanciful little song of Herrick's, "To Carnations" :—

"Stay while ye will, or go,
And leave no scent behind ye,
Yet trust me, I shall know
The place where I may find ye.
Within my Lucia's cheek,
Whose livery ye weare—
Play ye at hide or seek—
I'm sure to find ye there."

For the ordinary bedding-out of ordinary gardens I have a real contempt. It is at once gaudy and monotonous. A garden is left bare for eight months in the year, that for the four hottest months there shall be a blaze of the hottest colour. The same combinations of the same flowers appear wherever you go. Calceolarias, Verbenas and Zonal Pelargoniums, with a border of Pyrethrum or Cerastium—and that is about all. There is no thought and no imagination. The "bedding stuff" is got together and planted out, and each year of planting is a repetition of the year before; and thus, as Forbes Watson says so truly, "Gardeners are teaching us to think too little about the plants individually, and to look at them chiefly as an assemblage of beautiful colours. It is difficult in those blooming masses to separate one from another; all produce so much the same sort of impression. The consequence is, people see the flowers on our beds without caring to know anything about them, or even to ask their names." Any interest in the separate plants is impossible, and then they are, almost without exception, scentless plants, to which no association attaches, and which are cared for merely because they give a line or patch of red or yellow to the garden. "The lust of the eye and the pride of life,"—there is little purer pleasure to be drawn from "bedding stuff" than those words convey. However, there is already a reaction setting in, and the use of Echeverias and the like give evidence at least of a more refined taste in colour, though in themselves nothing can be less interesting. Meanwhile, as some bedded-out beds will always be necessary, we may try to diversify them as much as possible. The following are among my most successful :—A bed of Agapanthus, with its beautiful foliage and sky-blue umbels, is surrounded with bright yellow Peacock Gazania; a bed of scarlet Lobelia cardinalis (is this the "Cardinal Flower" that American writers speak of?) is edged with the white Ribbon-grass, and that again with the blue Lobelia speciosa; and a second bed of the same Lobelia cardinalis, the bronze foliage of which contrasts so well with the spikes of glowing red, has the Lobelia speciosa next to it, and the Golden Pyrethrum as a border. Another bed is of Humea elegans, edged with the white variegated-leaved Miss Kingsbury Pelargonium, and that again with the blue Lobelia. Into other beds I have introduced the variegated Aloe and the Aralia, as centres for the more dwarf and brightly-coloured Verbenas.

Of the variegated Pelargoniums I find the Beauty of Calderdale the most effective and most vigorous, and though I am told "Mrs. Pollock has a most excellent constitution," she does less well with me. One other bed, which is now over, has been too pretty for me not to mention; it was a bed of Antirrhinums of all colours, and I shall certainly repeat it another year. Lastly, I have a large bed of Clematis Jackmanni in full glory. Last year it did fairly well, but the plants were comparatively weak, and the flowers trailed upon the ground. This year the plants have grown vigorously, and I have trained withies all across the bed, so that the purple blossoms twine and cling around them, and are now a perfect mass of blossom.

On the house a Clematis lanuginosa, with its large discs of lilac-grey, is also very handsome, and seems to be doing as well as possible.

In the outer garden a great cluster of yellow Rose has made the border near the front door aglow with golden light; and in the vinery a beautiful Clethra arborea—the Lily of the Valley Tree—has been laden with bunches of its delicate and delicately-scented flowers.

The weather has broken completely during the fortnight, and it is now too much, and not little rain, of which we are complaining. *H.*

APPLES.

[The following varieties are those most recommended by our correspondents in various districts. Eds.]

Aberdeen.—New Hawthornden, Lord Suffield, Cellini, Stirling Castle, Ecklinville, Warner's King, Manks and White Codlins, Nonesuch, Ribston Pippin, Oslin Pippin, King of the Pippins, and Yellow Ingestre. *G. Donaldson, Keith Hall.*

Ayrshire.—The varieties which seem to succeed best here are Lord Suffield, Cellini, Stirling Castle, Ecklinville, Keswick Codlin, Early Oak (?), King of the Pippins and Hawthornden. *J. Gray, Eglinton Castle, Irvine.*

Berks.—The best of the culinary sorts are Keswick Codlin, Tower of Glamis, Lewis' Incomparable, Northern Greening, Broad-eyed Pippin, and Dumelow's Seedling, but the Northern Greening is the most useful of all. We had it in constant use here last season for eight months, viz., from the middle of October till the middle of June. Of dessert sorts the surest croppers are Summer Golden Pippin, Scarlet Nonpareil, Claygate Pearmain, Cox's Orange Pippin, Pitmaston Russet and Lord Burghley. These are the most to be depended upon out of about seventy sorts grown here. *Charles Ross, Welford Park.*

Berwick.—Stirling Castle, Hawthornden, and Adam's Pearmain are our best cropping varieties. *Peter Loney, Marchmont, Dunse.*

Bucks.—Devonshire Quarrenden, Cox's Orange Pippin, Ribston Pippin, Cockle Pippin, Blenheim Pippin, Court-pendu-plat, Juneating, both red and white, Kerry Pippin, Margil, King of Pippins, Mère de Ménage, Lord Suffield, Kentish Fillbasket, Waltham Abbey Seedling, Yorkshire Greening, Wellington, Warner's King, Rosemary Russet, Golden Noble, Alfriston, Emperor Alexander, and Cox's Pomona. *G. T. Miles, Wycombe Abbey.*

Caithness.—The following varieties do well at this place:—Hawthornden, Northern Greening, Lord Suffield, Ribston Pippin, Quarrenden, Blenheim Pippin, Cellini, Royal Russet, Early Margaret,

Loan's Pearmain, &c. *John Sutherland, Langwell, Ferriddle.*

Carmarthen.—The best kinds I find are Blenheim Pippin, Herefordshire Pearmain, Bedfordshire Foundling, Wellington, White Codlin, Keswick Codlin, Wheeler's Russet, Sykehouse Russet, and Court of Wick. *J. Tickhurst, Dynevor Castle, Llandilo.*

Cheshire.—The best kinds for general purposes are, for dessert: Blenheim Pippin, Irish Peach, Cellini, Cox's Orange Pippin, Ribston Pippin, Wormsley Pippin, Old Nonpareil, Keswick Codlin, Hawthornden, Lord Suffield, Minshull Crab, Dumelow's Seedling, Norfolk Beefing, and a local Apple, I believe called the Cottage Apple. *W. Whitaker, Crewe Hall.*

Cornwall.—Alfriston, Blenheim Pippin, Box Apple (?), Golden Pippin, Winter Pearmain, Hawthornden, Keswick Codlin, Hocking's Red Streak (?), Ribston Pippin, Supreme Russet, Red Quarrenden, and Stibbert (Early Harvest). *H. Mills, Enys, Penrhyn.*

Devon.—Dumelow's Seedling, Winter Pearmain, Hawthornden, Cellini, Bedfordshire Foundling, Warner's King, King of the Pippins, Ribston Pippin, Cox's Orange Pippin, Golden Pippin, Hubbard's Pearmain, Sam Young, and White Nonpareil. *J. Garland, Killerton.*

Lincoln.—The best varieties for this neighbourhood are Keswick Codlin, Hawthornden, Warner's King, Wellington (Dumelow's Seedling), and Golden Noble, as culinary kinds; and of dessert sorts, Red and White Juneating, Kerry Pippin, Ribston Pippin, Court-pendu-plat, but the surest and best bearer is Dutch Mignonne. *R. Gilbert, Burghley, Stamford.*

Merioneth.—Lord Suffield, Cox's Pomona, Forfar Pippin, Braddick's Nonpareil, Golden Pippin, Keswick Codlin, and Cellini, do well here. *James Bennett, Rhug Gardens, Corwen.*

Mid-Lothian.—The sorts which have proved the most useful with us are King of the Pippins, Hawthornden, Lord Suffield, Keswick Codlin, Cellini, Alfriston, Nonesuch, Reinette du Canada, Warner's King, Wellington. All standard trees. *M. Dunn, Dalkeith.*

Norfolk.—Red Margaret, Kerry Pippin, Devonshire Quarrenden, King of the Pippins, Margil, Ribston Pippin, Blenheim Pippin, Cellini, Warner's King, Cox's Pomona, Beauty of Kent. *William Smythe, The Gardens, Elmham Hall.*

Northampton.—Good and suitable varieties for cultivation in this district are Alfriston, Keswick Codlin, Dumelow's Seedling, Gloria Mundi, Yorkshire Greening, Lord Suffield, Old Nonpareil,

Fig. 49.—Lilium avenaceum.

Essex.—Our best croppers are Keswick Codlin, Lord Suffield, Blenheim Pippin, Three Tuns, Wellington, Warner's King, Court-pendu-plat, and Sturmer Pippin. Many of the dessert kinds, and notably the good old Ribston, seldom do well with us. *T. Simpson, Broomfield.*

Hants.—The following kinds of Apples are full crops:—Alfriston, Bedfordshire Foundling, Blenheim Pippin, Cellini, Deux Ans, Hawthornden, Lord Suffield, Old Nonpareil, Red Quarrenden, and Sykehouse Russet; these, considering the severity of the weather at the time the trees were in bloom, may rightly claim to be hardy kinds. *W. Wildsmith, Heckfield.*

Herts.—Lord Suffield, Hawthornden, Loan's Pippin, Wellington, Red Quarrenden, and Adams' Pearmain. *E. Bennett, Hatfield House.*

Kent.—Blenheim Pippin, Court-pendu-plat, Nonpareil, Hawthornden, Flower of Kent, King of the Pippins, Wyken Pippin, Golden Knob, and Norfolk Beefing. *Thos. Woodford, Eastwell Park, Ashford.*

Lancashire.—Our best kitchen Apples are Lord Suffield, New Hawthornden, Northern Greening, and the Wellington (Dumelow's Seedling). The Strawberry Pippin, Kerry Pippin, Court of Wick, and Scarlet Nonpareil, are the most constant bearers, and come to the greatest perfection amongst dessert sorts. *W. B. Upjohn, Worsley Hall Gardens, Manchester.*

Ribston Pippin, King of the Pippins, and Fearn's Pippin. *J. Worraker, Milton, Peterborough.*

—— All kinds do very well here. *John Smith, Althorp Gardens.*

Somerset.—Our markets arenow well supplied with the following varieties:—Red Quarrenden, Red Margaret, White Juneating, Pomme d'Eté or Early Harvest (also called Stibbert), Old Hawthornden, and some English Codlins. *John Scott, Merriott.*

Stafford.—Early Margaret, Early Harvest, Kerry, Pippin, Cox's Orange Pippin, King of the Pippins, Blenheim Pippin, Wyken Pippin, Keswick Codlin, Lord Suffield, Kentish Fillbasket, Northern Greening and Dumelow's Seedling are most suitable for general purposes. *E. Simpson, Wrottesby, Wolverhampton.*

—— Lord Suffield and the Hawthornden suit this neighbourhood well. *Thos. Bannerman, Blithfield, Rugeley.*

—— The varieties we grow the most of and find the most useful are, for kitchen: Lord Suffield, Kentish Fillbasket, Hawthornden, Northern Greening, Alexander, Besspool, Keswick Codlin, Manks Codlin, and Dumelow's Seedling; for dessert: Blenheim Pippin, Court-pendu-plat, Nonpareil, Adams' Pearmain, Cox's Orange Pippin (one of the very best grown), Golden Pippin, King of the Pippins, Lemon Pippin, Kerry Pippin, Ribston Pippin, Devonshire Quarrenden, Winter Peach. *Owen Thomas, Drayton Manor.*

LILIUM AVENACEUM.

This very pretty Lily, which was figured by Regel in the *Gartenflora* for 1865 under the name above adopted, was at one time considered by Mr. Baker as being identical with the L. maculatum of Thunberg; but we now learn that, following Leichtlin, he regards L. maculatum as doubtfully synonymous with L. medeoloides. It is a very hardy plant, being a native of Kamtschatka, Mandchuria, the Kurile Islands, and Japan, and was shown in very good condition at South Kensington a few weeks since by G. F. Wilson, Esq., from whose specimens our illustration (fig. 49) was prepared. Mr. Wilson's specimen was, however, much more vigorous in growth than the specimen figured by Regel.

It is one of the whorled-leaved species, and its pale tawny orange flowers, thinly spotted with black towards the base of the perianth segments, are most distinct in character, from the fact that the perianth spreads out almost flat from near the base. The ovary is very conspicuously and remarkably winged, as shown in the small magnified figure.

WEST INDIAN FRUITS.

For many years during the anti-slavery agitation the West India Islands continued to be brought prominently before the notice of the British public; and when that question, which had enlisted the sympathies and stirred the passions of different classes, was finally decided by the Act of Emancipation, these islands, with their white and coloured inhabitants, passed out of sight, and took the place of persons who had given an unusual measure of trouble, but were at length provided for and disposed of. The philanthropist could rest with a satisfied feeling that the work for which he had nobly laboured was accomplished. The effects of the change, however, were felt by the sugar planters, and it is still doubtful whether the African race can be induced to labour in their new and more favoured capacity of freemen. The islands have, therefore, passed through and are still undergoing change, the exact results of which are not clearly intelligible at the present day. From the cursory description given by travellers who have gone thither, either for purposes of business, pleasure, or in search of relief from pulmonary affections, and the more studied accounts of residents who have dwelt in detail upon the capabilities of the island, the splendour of the scenery witnessed in these tropical regions can scarcely be imagined. In one of the letters written by the physician who accompanied Columbus upon his second voyage of discovery, we are told that on the first Sunday after All Saints, namely, November 3, about dawn, a pilot of the ship *Capitana* cried out, "The reward—I see the land!" Thereupon the joy of the people was great, for the expedition had traversed many hundred weary leagues of water since its first starting from Cadiz. Fortunately these expectations were realised, for, lying direct in their course, the outlines of an island could be dimly discerned, and soon, on their right, another; and then, when it became lighter, other islands on both sides began to appear; so that, upon the eventful Sunday which gave the name of Dominica to the first seen of this group, six had been perceived in different directions. The expedition, pursuing its course, found other islands, all beautiful alike, and possessed of a most luxuriant vegetation. The approach to Guadalope was under the side of a great mountain, which seemed almost to reach to the skies; in the middle rose a peak, higher than the rest, from whence many streams diverged into different channels; and at some leagues distance could be seen an immense fall of water, which discharged itself from such a height that it appeared to fall from the upper regions. Upon landing, there were wild fruits of various kinds, one since supposed to be the fruit of the Manzanillo (Hippomane Mancinella), of which the men (not very prudently) tasted. Upon touching this fruit with their tongues their countenances became inflamed, and such great heat and pain followed, that they seemed to be mad. One captain, we are informed, advanced further into the island than the others, and, with six men who accompanied him, was missing for four days. The trees on the mountains where they had wandered were so thick and so close that they could not see the sky, some of the party had climbed the trees to obtain a sight of the stars, but had never seen them, and only found their way to the coast by accident. Amongst the other explorers one had been wounded by the tortoise-shell-headed arrows of the Caribs, and these were the only mishaps that occurred. The last island met with by the admiral—St. Martin's—appears from its beauty to have excited the imagination of the voyagers more than anything they had previously beheld. The first discoverers, the Spaniards, were soon succeeded by other nations, and the West India possessions have since that time repeatedly changed masters, following in the wake of the fortunes of their owners upon the continent of Europe.

The islands lie generally between 59° and 85° of west longitude, and, with the exception of the Bahamas, between 10° and 23° of north latitude; the largest are those which extend from the Gulf of Mexico eastward, Cuba, St. Domingo, Jamaica, and Porto Rico; those running from north to south are smaller, but many of them—Barbados, Martinique, Guadaloupe, Trinidad—are very important from their fertility and high cultivation. One portion of the group is frequently called the Windward, from their being exposed to the direct action of the trade winds blowing across the Atlantic, and the other are known as the Leeward. Although reaching beyond the tropics, these islands present an entirely tropical character in their vegetable productions, and the Northern Bahamas in this respect are quite distinct from the opposite continental shore of Florida, while Trinidad, lying almost contiguous to the delta of the Orinoco, partakes of the flora of Venezuela and Guiana. Jamaica again, from its mountainous character, and most of the Leeward Islands from being wooded volcanoes, and the majority of the Windward with a dry climate and low calcareous soil, form three divisions of the tropical archipelago which show as many peculiarities; thus the whole of the British West Indies has been divided by botanists into five natural sections, each with a distinct botanical character. Almost all the authors, with the exception of Grisebach, who have treated on the West Indian plants belong to the last century, and consequently to the Linnæan school. The first important works were those written by Sir Hans Sloane (1696—1725) and Patrick Brown (1751), both on the flora of Jamaica. The former contains a collection of rough drawings, and still exists and forms one of the treasures of the British Museum.

The year, as in most tropical countries, may be divided into two seasons—the wet and dry—though there is sufficient variation to mark the four seasons of more temperate regions. Spring commences in April, when the fields put forth their verdure. From May to October the tropical summer reigns in all its intensity, and the heat is insupportable; the sea breeze, however, which sets in about noon, greatly modifies the température. The sky, except in the rainy season, is charmingly serene; and at night the moon and planets shine with extraordinary splendour. Indeed, the night, while the moon is above the horizon, appears to be only a milder day; and Venus, sparkling high in the heavens, casts a shade from trees and houses, not unlike the moon of northern climates. These effects arise from the great rarity of the atmosphere, for which reason also there is scarcely any twilight. In this forcing-house for vegetation Nature appears prodigal of organic matter. The ground is overloaded with plants, which have scarcely room for their development; the trunks of the older trees everywhere are covered with a thick drapery of Ferns, mosses, and Orchideous plants, which diffuse into the air the richest odours, and almost conceal from sight the noble stems that uphold them. Their growth is favoured by the atmospheric moisture, and these lovely parasites, sheltered from the direct rays of the sun, are seen ascending on every side, even to the highest branches. So great is the variety of vegetable beauties that sometimes decorate a single trunk that a considerable space in a European garden would be required to contain them. One account descriptive of the scenery in Trinidad will suffice for all. The author says:—"Turning a corner in the wood, we suddenly came upon the most lovely amphitheatre in the world. A small stream, reaching from the woods, fell about 50 feet into a large basin of blue water, throwing its spray into the air; all around were great-leaved tropical plants, wild Bananas, and Ferns, in the thickest masses. Above towered lofty trees, nearly closing overhead, and only allowing a few spokes of bright light to enter and to touch the green leaves with still brighter green. Although green, everything had a blue tinge over it, and it all looked like some gorgeous closing scene in a ballet."

The huts of the negros are surrounded with Bananas and Orange trees covered with fruit and blossom, and over all wave the tall Cocoa-nut trees, a never-failing object in the landscape. The sides of the hills are clothed with the Mango, which gives forth such a rich abundance of fruit that the pigs are not sufficiently numerous to devour them. It is often astonishing to see how small a space of ground provides for the wants of the inhabitants, and it is scarcely to be expected that the negro, who can lie on the grass surrounded by Oranges, Bananas, and Pine-apples, and who can send his black urchin for a Bread-fruit, and pierce a Cocoa-nut for his beverage, will toil in a sugar-mill for a few pence per diem. The provision-grounds that surround their habitations are often very picturesque, not like a peasant's garden in England, filled with Potatos and Cabbages and other uninteresting vegetables, but containing Cocoa trees, Bread-fruit trees, Oranges, Mangos, Limes, Plantains, Jack-fruit, Soursop, and Avocado Pears. The Bread-fruit tree and the Mango are especially beautiful, and there is nothing prettier than a grove of Oranges. The Yam, too, is picturesque in its growth; as with the Potato the root alone is eaten, but the upper part is fostered and cared for as a creeper, so that the ground may be unencumbered by its thick tendrils. Support is provided for it as with Grapes or Pears. In these provision grounds there are seen also patches of Coffee, Arrow-root, and occasionally the Sugar-cane.

The vegetation everywhere displays the vigorous aspect and brightness of colour so characteristic of the tropics. One tree, called the "Bois immortel" [Erythrina umbrosa], when in flower is one mass of scarlet, as brilliant and showy as our scarlet Pelargonium. This tree is generally planted to shade the Cocoa groves, and is therefore called *La Madre del Cacao* in Spanish. It is supposed to collect the dews and moisture in the driest weather, and protects the Cocoa tree from the too great heat of the sun. The Cocoa itself grows in thick plantations, like a large Hazel bush, but rather larger in the trunk, of which there are several. The leaf is something like that of a sweet Chestnut, only larger. The fruit is a great thick pod 8 or 9 inches long, and it grows not on the sprays, like other fruit, but hangs from a little stem, perhaps an inch long, which springs from the side of the trunk, or one of the larger branches. The flower is excessively small, so is almost invisible on the side of the trunk. The pods vary in colour from a deep crimson to scarlet and orange, so that a heap, when gathered, has a very pretty appearance. Each pod contains twenty or thirty nuts, like Almonds. The nuts after being taken from the pods are crushed, then made into a paste, and finally formed into sticks by the negro women. *E. T. B.*

(*To be continued.*)

PLANT GOSSIP.

On the front of the residence of Mr. George Paul, at the Old Cheshunt Nurseries, can now be seen in all its free grand beauty the old Bignonia radicans major, thrusting out its many branches with terminal clusters of fine flowers. The wood of the Bignonia is mingled with the dense growth of a Wistaria sinensis, to which many clusters of flowers form an appropriate foreground. The many passers-by stop and wonder at this (to them) new floral revelation, and well they may, for it is seldom seen in these parts, at least in such fine condition, as a roadside plant. In 1860 it suffered severely at the hands of the terrible frosts of that year, and never since then has it flowered so grandly as during the present summer.

—— No establishment where cut flowers are in demand should be considered complete without a plant of the old East Indian Asclepiad, Pergularia odoratissima, not so much for the beauty of its flowers, which are green, as for their delicious fragrance. Mr. Dunn has a fine plant in one of the Pine pits at Dalkeith, which is cut down every year, grows away freely again in spring, and produces flowers all through the summer.

—— Cynara Scolymus, the common Artichoke, is a capital subject for ornamental purposes as a single specimen. It bears the wind well, and its ample cottony foliage and enormous heads of rich blue flowers render it highly effective. Standing on a lawn with the contrast of the dark green grass in its favour, it looks a much nobler object than when seen in the kitchen garden.

—— The pretty, new, Double-Flowered Lobelia pumila has been extensively tried as a bedding plant at Battersea Park this season, and we are sorry to say is a complete failure, the plants making growth and continuing quite green while they ought to be bearing flowers.

—— One of the commonest garden plants in the North of Scotland is the Willow herb, Epilobium angustifolium. In many places it is a common weed, braving the strong sea breezes, and spreading with a rapidity well-nigh astonishing. It flowers in the greatest profusion, the flowers, as Philip Miller wrote, being "very proper to cut for basins to adorn chimnies in the summer season." The fashion in this respect in Miller's time is the fashion now, especially in the Royal burgh of Wick (the seat of the greatest herring fishery in Scotland), where in many gardens, and notably in those of James Henderson, Esq., of Rose Bank, it is kept within bounds, and made to play a useful part in the summer decorations.

—— A writer in the *Revue Horticole* recommends the cultivation of the White Lily (Lilium candidum) as a winter garden or conservatory plant. The plant so treated is finer in all ways than when grown in the open air.

—— Few Yellow-leaved Plants have had a greater run of popularity than the Golden Feather Pyrethrum, especially as a bedding plant, but our useful friend must look to his laurels: there is a rival in the field which is held in high favour at some places, and at Battersea, for instance, is considered a more elegant plant than the Pyrethrum for ribbon borders, and is largely used accordingly. This is the Golden Chickweed, a yellow form of the common Stellaria graminea, named aurea. It is perfectly hardy, makes a close, low growth, and is very soft in colour.

—— There is a large plant of Passiflora macrocarpa in the Palm-house at Kew just now bearing about a dozen of its large fruit, resembling in shape, colour, and size those of the common Vegetable Marrow. Though the fruit is edible, it is inferior to that of the true Granadilla, the fruit of a closely-allied species, P. quadrangularis.

—— Gardeners who have to keep up a supply of table plants, and are not overdone with conveniences for growing them, find those subjects most useful which receive the least amount of injury from a maximum amount of work, and which is generally found to be the case with plants of a tough leathery texture or wiry habit. When in the Glasgow Botanic Garden the other day Mr. Bullen called our attention to an elegant plant of this kind, which would be extensively grown if it were only better known, viz., Lomatia propinqua. It is a "horny" sort of plant, with a reddish stem, and cut foliage of a light bronzy hue—a very handsome plant in a small state, and well worth looking after.

—— For the Subtropical Garden a very promising plant is the new Abutilon brasiliensis, whose sturdy growth and heart-shaped bright green leaves have somewhat of the appearance of the Wigandia. Mr. Roger has a fine bed of it at Battersea Park, where the new Abutilon Boule de Neige is also flowering freely, and doing very well.

—— One of the most useful of hardy bedding plants in the North is the variegated Lungwort, Pulmonaria cœrulea variegata, which does better in Scotland than we can recollect having seen it on this side of the Tweed. At Dalkeith it is associated with Iresine Lindeni, and the contrast is charming. The last named plant was exceedingly rich in colour, and threw up the golden tints of the Pulmonaria in a striking manner. The soil at Dalkeith is dry and warm, and when well dressed with rotten Mushroom bed manure it suits the Iresine Lindeni to perfection.

—— The very beautiful plant known in gardens as Pleroma macranthum should more correctly be called P. semi-decandrum, D.C. (see Triana, Monogr. Melastom., in *Trans. Linn. Soc.* xxviii. 41.)

—— Exceedingly chaste and beautiful subjects for forming a bright-coloured carpet under tall-growing dark-foliaged plants are the Fuchsias, Carter's Meteor and Wave of Life. The former is very fine in one or two places in the subtropical garden at Battersea, and the latter in the Royal Horticultural Society's Garden at South Kensington.

—— Where flowers are in demand during the dull winter months those plants which naturally, or with the least trouble, produce their inflorescence at that season are held of considerable value, and such a one is the New Caledonian Eranthemum Cooperi, which came under our notice at Dalkeith the other day. It is a half-shrubby plant, producing white, prettily purple-spotted flowers at the axils of the leaves very freely all the winter. Another plant, which Mr. Dunn also grows liberally for winter work, is Begonia manicata, a fine old plant, which cannot yet be dispensed with.

—— Where, for the purpose of edging flower-beds, succulent plants are in demand, Sempervivum ciliare will be a welcome addition. It is a robust grower, often attaining from 12 to 15 inches in diameter. For large beds it is one of the most appropriate of the family.

—— Pyrus variolosa, a rare and distinct species from Northern India and China, is now in fruit against a wall at Kew. It was introduced in 1825, and has fruited several times before in England, but not being so ornamental as some other species, and its fruit only eatable when partially decayed, like the Medlar, it has scarcely got beyond the Botanic Gardens. It is probably unknown on the Continent, for Koch does not mention it in his *Dendrology*.

—— Among New Bedding Pelargoniums of the Christine type we can well recommend Mrs. F. Fyche and Cleopatra. The first named has a dwarf, close-growing habit, and flowers, which are produced freely, of a rosy pink hue. Cleopatra is in the same way—a very much improved Christine. Both are very good at Battersea Park this season.

—— One of the most admired of the raised Pincushion-shaped Flower Beds in Battersea Park this season is a circular one, with a centre of the improved Coleus Verschaffeltii, round which follow in the order named distinct lines of Cineraria maritima compacta, Golden Feather Pyrethrum, and Aloe attenuata, and an outer edging consisting of a double row of Echeveria pumila.

Foreign Correspondence.

St. Petersburg: *July* 31.—On the morning of July 8, old style (July 20), after a *Te Deum* and a blessing pronounced by the bishop of the cathedral of St. Isaac, the clergy of that church being also present, the garden, which is laid out on the large square between the Winter Palace and the Senate House, was formally opened. At half past eleven it was visited by his Majesty the Emperor, accompanied by the Grand Duke Constantine and his two sons. On his arrival the Emperor was welcomed by the President of the Imperial Horticultural Society, General Greig, the members of the Council of the Society, and by the representatives of the city. The members of the Horticultural Society were assembled round the place appropriated for the planting of some Oaks by the members of the imperial family. The Emperor planted one, and the Grand Duke Constantine another. After the departure of the Emperor the garden was declared open to the public, who had been awaiting this announcement with impatience, and were assembled outside the railings in great numbers. The "Alexandrowsky Garden," as it is called, is, after the Summer Garden ("Lietny Sad"), the largest garden in the city. It consists of more than 15 acres (5 deciatines), and is of the more value from its situation in the centre of the town, where there is no other large plantation. The idea of laying out a garden in this place originated with the President of the Horticultural Society, General Greig; and not only the idea, but the honour also of its execution belongs to him. It was he who superintended the general dispositions and the execution of the details. The principal object is to serve as an agreeable promenade, and to secure a supply of fresh air. The Alexandrowsky Garden is destined also for other objects. It shows the possibility of making, by means of the plants native to the country, as pretty and tasteful decorations as are formed by means of the trees and shrubs of foreign countries. One part of the garden at the side of the palace is planted with species and varieties of Conifers; hence that part will be most visited in winter when our flowers are all dead or in their winter rest. The only evergreen shrub (except Conifers) which is able to bear the rigour of our winter is Mahonia Aquifolium, but it is too low-growing, hence it becomes buried up in the snow. In another part of the garden, on the opposite side, leading to the monument of Peter the Great, is constructed an artificial mound, on which are planted among rocks the representatives of the floras of Siberia and the Caucasus. The picturesque groups are composed of hardy plants, and constitute a border in the bedding-out style, but much less costly, and presenting a considerable variety, as they secure at all seasons a new and varied display.

Without speaking of the picturesque effect of these mounds, which are becoming fashionable with us, and which in a flat and uniform soil like that of St. Petersburg are important elements in landscape gardening effect, the plants which are grown on them furnish a sample of the natural vegetation at the disposal of the amateur for ornamenting his garden. But in spite of all its manifest advantages rockwork of large size is at present only found in a few special gardens.

An exception ought to be made in favour of the rocky part of the garden belonging to President Greig at Oranienbaum, near St. Petersburg. Taking advantage of a large natural cavern M. Greig has transformed it into an extensive piece of rockwork; and being gifted with very good taste, he has given it an attractive and picturesque appearance that one seldom finds elsewhere. I must do justice to the knowledge of M. Greig, who has studied the character and peculiarities of our hardy plants. I do not pass the bounds of truth when I say that on his rockwork are gathered together those representatives of our flora best fitted for growing in gardens, and the number of these representatives is very large. The most remarkable part of his ravine is without doubt that devoted to the collection of Ferns, including not only Russian species but also those of North America. The collections of Lilies and bulbous plants in general, as well as that of Sedums and Sempervivums, which supply the place of Echeverias, are also large.

Returning to the Alexandrowsky Garden it must be added that the necessary funds (more than 90 million roubles, £13,000 sterling) for its formation were given by the town, and that the plan and the planting have been executed under the superintendence of the Imperial Society of Horticulture by Vice-President Regel, assisted by two members of the Council of the Society, namely, Bergemann and Heddewig. The fountains have yet to be constructed, and they will, when completed, add greatly to the beauty of the garden. If the town has given a large sum the Horticultural Society has given its care and done its part in the formation of this fine garden. Thanks to the Minister of the Domains of the Government, M. Walouieff, the best and largest Conifers have been presented. Without the help of the Society, which has acted only in the interest of horticulture, and without the gift of the Minister of Domains, the expenses of the formation of this garden would have amounted to a much larger sum.

The zeal which M. Regel has shown, and the activity of MM. Bergemann and Heddewig in this matter are really remarkable. If we take into consideration that the work of taking up the pavement was not commenced until the autumn of 1872, and that the plantation, as well as the levelling of the ground, were necessarily stopped by the approach of winter, which lasts six or eight months, we shall see that the transformation of the space into a magnificent garden in a few months is worthy of admiration and praise. The Emperor has not been unmindful of this, and has presented Dr. Regel with the Order of St. Vladimir, third class, and MM. Bergemann and Heddewig with the Order of St. Stanislas, third class. *From our Special Correspondent.*

Waldai: *July* 31.—We have had an exceptional season. After a tardy vegetation, caused by a cold spring, we had at the end of June (old style—middle of July, new style) some warmish days, which animated the vegetable world, but that only lasted a little while. Cold and north winds came back, so much so that in my neighbourhood the frost of July 20 and 21 (new style) destroyed the Haricots and the Cucumbers. I was more fortunate, and the minimum temperature of my garden did not exceed + 3° R. (36° Fahr.). In spite of the unfavourable appearance the crops in the kitchen garden have been excellent, above all Strawberries and Hautbois. Black, white, and red Currants at St. Petersburg are destroyed by *Æcidium grossulariæ* (D.C.), with which all fruit is this year infested. *W.*

The Balearic Islands.—An important trade has grown up of late in these islands in the preservation of Figs for export, in which commerce the vessels formerly engaged in carrying Oranges to France are now occupied. The Orange crops are beginning to show some signs of improvement, and it is hoped by the growers that the worst of the fatal disease which destroyed the trees is over; but it must be some years before the exports in this fruit can return to their former magnitude. *B.*

Apiary.

Amongst the improvements in horticulture and its accessories in the last few years, bee management has perhaps advanced as much as anything, nevertheless the improvements in many cases require a good deal of outlay to begin with, and are so apt in the absence of the guiding head to be neglected, that a few words on the advantages of the old-fashioned straw "skep" for small gardens may not be out of place. Where but little, whether of time or money, can be spared for the honey-makers, the old straw hive plan of management has, with all its drawbacks, many recommendations. In some parts of the country this is still the favourite method, often yielding large returns, whilst should there be a failure, the expenses have probably been small, and the loss rather that of prospective profits than of real outlay.

In cottage gardens the treatment of the subject, looked at picturesquely, is various, and the arrangement of a broken milk-pan, an old petticoat, and a rough lump of dirty old straw mixed with rough sticks, by way of thatch and protection to the hive, are in no way to be recommended as an adjunct to the villa garden; neither is there any reason that the hives should stand in a little hutch during the summer. It protects them from rain certainly, but it also keeps in hot air, and forms a harbour for mice and insects, while if each skep has a board of its own it may be lifted, board and all, quite safely, and set in its place of shelter on the approach of winter.

For summer use it is sufficient to have a short stout post fixed in the ground with a flat top forming a kind of low table on which the straw hive with its board may be securely set, and if wished fixed in place by some little bolts or wooden turning buttons. The hive board of course should have due room for alighting, and the skep should be thoroughly protected from rain and heat by a very thick thatch of clean straw, neatly trimmed at the lowest edge, and gathered above into a large neat knob.

So managed the bee-hives have a very picturesque and pleasing appearance, harmonising well both in form and colour with the usual horticultural surroundings. It is best to set them in an airy and sunny situation, not overhung with trees, which are apt to cause a drip, and with it damp and disease in the skep, nor yet so exposed to glaring sunshine throughout the day as to risk the combs being melted from their places. If the heat should be very great the hives may be easily protected by some thick leafy boughs, and for general purposes a situation with a Laurel hedge or some shelter from cold winds behind and a tolerably broad border in front (so that visitors to whom the bees may chance to have an aversion may not be exposed to an unexpected attack) answers well.

It is said that bees have an antipathy to an invalid, and in a case where some had been special pets the attempt of their guardian to resume her charge after severe illness was followed by such well sustained assaults that they had to be banished. Under these circumstances a prompt retreat into a neighbouring bush appears the only safety. Therefore, as bees' tempers are a most uncertain matter, it is well to set their hives where, in case of necessity, a friendly shelter may be at hand.

The operation of hiving the swarms which this method of management necessitates is not difficult, and in a country neighbourhood there are usually plenty willing to undertake it, and though occasionally a swarm escapes, or lodges itself in some inaccessible spot, usually it settles quietly on the bough of some neighbouring tree. All that is necessary is then, after having smeared the inside of the hive with something attractive (beer and brown sugar, for instance, well rubbed in with Nut leaves), to saw off the bough, and lay it on a table set ready at hand, with the prepared hive placed over the swarm, and then leave it quietly till evening, when it may be moved to its stand.

In this part of the operations the rural observances are not without their reasons; for, though following the swarm at full speed with frying-pan and key is inexplicable on any reasonable ground for its supposed effects, the mug of beer to the swarmer is a great protection to him on account of the partiality of bees to the smell. The white tablecloth beneath the hive insures a clean surface, which is another point with the bees, and the Nut leaves used for rubbing in the beer and sugar similarly save the inside of the hive from any scents save those which the bees take pleasure in.

The taking of the hives in the autumn is easily managed, and though much is said at times of the inhumanity of the practice, it does not involve nearly as much destruction of insect life as is thought justifiable, or rather (and very rightly) not thought at all about, in other arrangements requisite for the convenience or food of man.

The operation is performed by lifting the hive from its board, and then placing it over a hole previously dug in the ground, in which some sulphur matches have been lighted: the bees are quickly stupified, and can be, for the most part, shaken into the hole, where it is better to cover them up at once, to save risk of their coming to life again.

In selecting hives to be taken, the plan of each having its own board is a great advantage, for when simply torn up from their fastenings, according to the common rural method of "hefting" (that is, judging of their weight), the arrangements of the bees are much disturbed, in addition to the disturber running much risk, whilst if a little plug is temporarily placed in the doorway a hive on its board may be lifted without risk or damage.

The lightest and the heaviest hives are usually chosen for taking—the first lest they should not stand the winter, the second for profit; but in this matter it is better for the amateur's selection to be guided at first by some hints from an experienced bee-keeper, and also it is well to put the combs when taken from the hive in some spot where they may not be too attractive to passing bees, who may possibly call all their kindred to the feast.

Sometimes, as mentioned in Mr. Cotton's *Bee Book* (published some thirty years ago, but still deserving perusal from the mass of information and the beauty of the illustrations it contains), the invaders are good-humoured, and simply clear the remaining honey left for them; but in another case, where it was requisite to shut them out, their tempers were too much tried, and the tenants of the adjoining room suffered severely from "gnat bites."

The special hive-board should be made with cross-pieces to keep it from warping in the various changes to which it is exposed, and if no other shelter occurs for the hives during the winter, Mr. Cotton mentions the plan of raising the hives from their bottom board, and hanging them up in a cold, dry, and perfectly dark room (each hive tied in a coarse cloth), as answering well. (*My Bee Book*, p. 87.)

Amongst the enemies to bees the most troublesome are the Galleria, or wax-moths, and the wasps, which occasionally are very destructive in their attacks, and should at once be met by contracting the entrance doorway with some little lumps of clay, so as to put its defence in the power of the bees.

The Galleria are injurious by weaving their web galleries through the comb in every direction, and their cocoons may usually be found in quantities in the hives thrown aside till needed—in farm and cottage gardens giving an abundant promise of future mischief. This might be easily counteracted by giving a good brushing to the inside of the hives; or where this does not suffice scalding the hive, or placing it in sharp heat for a few minutes, would destroy the moth grubs with little damage to the hive. The

scalding operation is most desirable as removing the melted wax without allowing it to clog the straw.

Although so partial to wax in the comb, the Galleria appear not to affect it in its prepared state; possibly in the mass the wax may be too hard for the larvæ, but in a quantity of comb left for about three quarters of a year to the undisturbed destruction of the wax-moth, although the galleries were taken freely about the thin paper in which it was wrapped, not the least impression was made on some cakes of white wax laid with the combs for the sake of experiment.

For museum-exhibition specimens illustrative of bees and their workings form one of the most popular entomological series, and may be made very instructive. The queen cells, worker and drone comb, and virgin honey-comb contrasting with the honey stored in the comb blackened by age and use, make a good set to begin with. There should also be comb stored with bee bread of various colours, pieces of hive showing the way in which the chinks are filled with propolis, some cells with the lining coat left by the previous tenant on its development drawn out like an inverted glove-finger, so as to show its substance; a piece of hive with combs attached, to show their vertical and parallel arrangement; and some pieces of comb showing the destructive nature of the Galleria workings.

To these may be added drawings of the bees, life size and magnified, to show their characteristic differences, and especially some very plain drawings of the wax scale in act of exudation from beneath the plates of the abdomen, and of a twig or two of the resinous plants from the leaf-buds of which the supply of propolis is obtained.

Many other points would suggest themselves as the work proceeded, and the result proves such a case of bee illustration not only instructive, but always attractive to the taste of all classes. *O.*

THE FARM.

Farms and their Products in Roumania.—In the eastern corner of Europe, between the Dneister, the Carpathians, the Theiss, the Danube, and the Black Sea, lies a country which for five centuries has been the common battle-field of Russians, Turks, Germans, Poles, and Hungarians. A portion of this territory, part of which belongs to Turkey, part to Russia, and part to Austria, has recently been restored to partial independence as the Principality of Roumania. Few countries in Europe have been more favoured by Nature than Roumania, but there are also few for which man has done so little. It possesses vast and fertile plains, rich meadows, and magnificent timber forests. The Olive and the Orange are the only European trees to which the soil and climate are not favourable. The mountains conceal undisturbed in their broad bosoms vast stores of iron, coal, copper, and sulphur, and the numerous vineyards which clothe their sides only require to be intelligently cultivated to produce wines rivalling those of France. Roumania is also one of the chief granaries of Europe, and, notwithstanding its defective system of agriculture, it produces annually 33,275,000 bushels of grain, about one-third of which is exported to Great Britain.

Roumanian farms rarely exceed 10 acres in extent, and are held in usufruct. The farmer is to a certain extent attached to the soil, and cannot leave his farm without the direct permission of the proprietor. On the other hand the tenant cannot be dispossessed by the landlord as long as he complies with the requirements of the law, *i.e.*, he must cultivate two-thirds of the farm, work four weeks in the year for his landlord, and deliver over to him a tenth part of all the produce of his farm. The farmhouses are in general constructed of wood, with shingled roofs; they are small, and seldom contain more than two rooms. The farm buildings consist of a small cow-house and a barn. About 1½ acre immediately round the house is enclosed for a garden, in which the peasant plants Potatos, Cabbages, Onions, and other vegetables for domestic use. In striking contrast to these humble abodes are the stately edifices in which the boyards or nobles reside. The boyards are the lords of the soil, and whilst they revel in every kind of luxury the oppressed peasants or tillers of the soil lead a miserable and impoverished life. The latter alone must pay all the taxes and keep the highways in repair, whilst the former are exempt from every species of impost and also from military service. All the burdens of the state are borne by the peasantry, and consequently produce a most injurious effect upon the prosperity of the country.

Under a better system of social management Roumania would become one of the richest countrie in Europe. The soil is of the utmost fertility, but scarcely a third part of it is cultivated, and even that seldom receives the benefit of manure. Wheat, Maize, and Millet are the grains principally sown. Wheat returns thirtyfold and Millet three hundredfold; and Maize frequently attains so great a height as to conceal a man on horseback. Maize is an especial favourite, and forms fully one-half of the cereal crop; the threshed-out heads of this grain are much employed as fuel, and the leaves and stalks are given as winter fodder to cattle. Tobacco is also cultivated in considerable quantities. In some parts of the country there are extensive forests of fruit trees, such as the Pear, Cherry, and Apricot.

The agricultural implements of the Roumanian farmer are few in number and primitive in construction. The ploughs are entirely made of wood, and are drawn by oxen, two or three pairs of which are often yoked to one implement. The harrow is usually a large bundle of rough branches, fastened together by ropes. Goods and farm produce are conveyed in summer in carts, and in winter on sledges. These vehicles are of wood, and exceedingly clumsy and inconvenient in their structure. Mattocks and wooden shovels and forks complete the list. The use of flails is unknown, and the grain is trodden out by horses or oxen. Scarcity of labour is a great drawback to the progress of agriculture in Roumania. The inhabitants may be roughly classed in two great groups—nobles and peasants. There is no middle class, and there is no labouring class, properly so called. The peasants are able to support themselves upon the produce of their farms, and only yield to the nobles the work which they are bound to do by law. Their wants are few, and they are fond of ease and indolence. For this cause the boyards are often obliged to have resort to Hungarian ploughmen, who arrive in the country in considerable numbers in spring and autumn. The boyards have also introduced many modern agricultural implements; and on several estates steam machinery is in full operation.

The climate of Roumania unites the most opposite extremes: in winter the cold is that of Moscow, in summer the heat is that of Greece. Correctly speaking, there are only these two seasons. Winter begins with November and lasts until the end of March; during the first four months the ground is usually covered with snow; April and May, as well as September and October, are delightful months. The climate is peculiarly favourable to the growth of the Grape. Were more care bestowed upon its culture the wine of Roumania would rapidly become an important article of export, as it far surpasses the Hungarian wine in flavour. However, almost all that is grown is consumed in the country. The Grapes are still trodden out with the feet.

The cattle of Roumania are noble animals, handsome in figure and delicious in flavour. They are characterised by their colour, which is invariably grey, and by their huge wide horns. The horses are small and ugly, with large heads and short limbs; they are, however, steady and enduring. Sheep and pigs are both numerous and of good quality; the buffalos of the country present a peculiar feature; the cows are highly valued for the richness and flavour of their milk, which is much superior to that of the common cow. The hair of these animals is long; they are either entirely black or entirely white in colour; their foreheads narrow and retreating; their horns small, blunt and pointed backwards; and their eyes small and treacherous. Altogether they have an exceedingly forbidding aspect. *J. D. W.*

On Cabbage.—As we have at the present moment two patches of Cabbage just coming in for use, we cannot help thinking that, in a season like the present, a few notes upon this valuable crop ought to be acceptable. Our plots of this plant consist of 3 acres each, side by side, of Oxheart and London Market Cabbages, occupying a portion of a large field cultivated for roots, the other crops consisting of Mangel Wurzels and Swedes. The field was prepared alike for all, being dressed with farmyard dung, which was ploughed in in the autumn, and after re-ploughing, clearing, and cultivation in spring, 3 cwt. per acre of Proctor's root-manure was broadcasted over the whole, and the cropping took place in the following order:—April 25, Cabbage seed drilled; April 30, Mangel Murzel do.; May 15, Swedes drilled; June 18, Swedes re-sown, as the first crop was destroyed by the Haltica.

Now, as regards the Cabbages, we would remark that this season they might easily have been sown a month earlier than April 25, and probably, as the season has turned out, the crop might have been earlier; still, taking the extremely dry weather for some weeks into consideration, our present crop may be considered as highly valuable.

It is worthy of remark that, notwithstanding the drought, the crop presents a tolerably even plant; but as some of the Oxhearts have hearted earlier than the others, they have been cut out and given to the rams, to which they have proved highly acceptable; so that it may be said that, from the sowing of the seed, we have had Cabbages ready for use in as little as three months. Of course, with such a dry summer, they would be unusually unequal in hearting; but it is worthy of remark that, in the whole six acres, there is not at this moment a single example of a better plant, while it may be stated that in Cabbages transplanted last autumn the produce was half bolted.

We have then, for some time past, had ready for cattle-feed or for market some excellent Cabbages, which are now daily turning in; and as they are in the field, and consequently inconveniently exposed to wind, the cabbage butterfly, which has this year been so destructive in the quieter garden, has not attacked them, and they are therefore far superior to any garden Cabbages now to be obtained.

Any point of importance to be observed in a season like the present is that while Rape and Swedes have been attacked by the Haltica the Cabbage has escaped, and again, while Rape and Swedes have succumbed to the weather, so that under any circumstances there can be but half a crop of them, yet the Cabbage, though looking blue and sickly during the drought, were only in the position of plants that had been transplanted, with, however, the important difference that when the rain did come our seeded crop was at once ready to take advantage of the change, whereas the transplanted specimens had to make their root as the effect of the first rain, and thus the second period of drought left them almost as bad as before, and the rains of the end of June were necessary to start them into new growth, while the same rain tended to the hearting of our sown crop.

Now as the drought has left us in the position of brown pastures and dried-up fields instead of aftermath, and no Rape to fall back upon, this 6 acres of Cabbage will be of the utmost use in bringing on our ewes, as they will now be folded upon a portion daily; and so it comes in opportunely as a change of food of a good and nutritious kind just as they are beginning to consort with the ram.

We look upon it then that Cabbages grown in the manner indicated are a very valuable crop, and as we have just got in a rick of Barley from our Cabbage plot of last year, it may be well to notice the effect of its use.

We usually employ this crop to forward sheep designed for market, and so the sheep are folded upon the Cabbage and allowed a little cotton-cake in the fold; land thus treated, as in our present case, grows first-rate Barley. Our crop this year after Cabbage is from seed procured from Major Hallett, and we estimate it at twelve sacks an acre.

We have always found the benefit of growing Cabbages in the way described, but for smaller holdings it is especially available, as the green crop may be followed with either Wheat or Barley, and in both it will allow of the growth of the finer sorts, which should fetch a good price, because pure and of good quality, and therefore available for those who are particular in this matter.

Natural History.

Wasps as House Pets.—Those who, with tastes for the study of insect habits, have little opportunity for extended observations in outdoor life, may find much amusement in watching the methods of procedure of a nest of live wasps, and with some little preliminary knowledge of their habits and requirements, and care in the choice of a position, they may be kept for months as a household amusement without danger to the possessor or his visitor; and a few hints gleaned from some years' observation in country life may possible prevent some of the unpleasantnesses apt to occur in the outset to those who may be disposed to experiment in the matter.

The first step is to procure a specimen, and unless the future observer is unusually well off for assistants, he had better undertake this matter himself. The most desirable kinds for observation are the hanging nests, probably Vespa sylvestris, or V. norvegica, for the V. Crabro, or common hornet, is far too dangerous to be recommended as a household guest, and the fourth species occurring in England, the V. arborea, is of great rarity.

A nest having been found in an accessible position, hanging from a bough, or supported amongst the twigs of a hedge, the collector should provide himself with a strong knife, a pair of strong scissors, and a sharp narrow saw, and then carefully attend to his personal defences.

For this purpose I have found thick gauntlet-topped gloves, with a further top of linen sewn on to them

(which can be drawn up and tied above the elbows), sufficient for the hands, whilst a broad-brimmed hat, with a large cylinder of coarse net drawn over it, secures the head: the upper edge of this bag of net should be securely fixed by a drawing round the band of the hat, and the lower (also with a drawing) should be securely pinned in many places round the upper part of the chest and shoulders. A still more secure method is to throw a large piece of the coarse open net of which window curtains are made over the hat, securing the lower edges as before. The great quantity of folds in this case serve to confuse the wasps, and deaden the sound of their first attack, which is no inconsiderable advantage to the operator, whose nerves must be strong indeed to stand the assault of an entire nestful of wasps in yet unproved defences without some feeling of uneasiness. He (or she) should also be sure that ankles are protected by ties over boot-tops, or long sweeping skirts, as circumstances require; and, these preliminaries arranged properly, all else is easy.

Supposing the nest to be on a tree, it is secured by sawing the branch through just above it. In a hedge the various small twigs should be snipped away by scissors till the nest is only held in place by its chief support, which can be cleared by the knife or saw, and the nest when free should be replaced in the hedge or hung as nearly as possible in its old position that its owners (which during its removal have probably been engaged in a universal attempt to penetrate their enemy's defences) may return to it again. As soon as this has happened, the nest and tenants may be gently placed in a box or basket, or, better still, carried by hand with such of the owners as choose flying round, to its place of destination. If the nest to be moved is small, it saves a deal of trouble to have a piece of soft gummed paper at hand, and by dexterously fixing this over the opening, the nest, wasps and all, may be safely moved without danger or difficulty.

A small box with one side removed forms a convenient shelter outside a window, the nest being fixed in place by ties passed through the uppermost part of the box and fixed to the sprays on which the nest is built; or if not wished for constant observation, it may be placed in some sheltering bush, secure from causing or receiving harm.

The chief point of interest is usually the process of paper-making, which may be watched in detail from the arrival of the wasp at home with its pellet of decayed wood, carefully conveyed beneath its chin, followed by the spreading of the material moistened from the wasp's mouth along the edge of the previous layer of paper beneath which it stands wrong way up with three legs on each side of the film of paper, drawing each successive strip of new material backwards as it adds to the former edge, to the drying of the new addition till it matches the former material in texture, but possibly not in colour, as each new piece of paper will vary according to the source from which it is derived; and a nest removed from country to town will show the exact time of removal by the blacker colour of the subsequent layers.

Good accounts of the process of paper-making are given by Reaumur, and by other subsequent observers, but though fully described, its interest is not the less even to those to whom it is not new.

Another point of observation is the mode of conveying food. If the wasps are allowed some fragments of any fibrous edible, such as meat or fish, they will be found dexterous in the removal as in that of their building materials. Choosing a piece of fish for instance, a morsel will be snipped off, or chosen, of the proper length, and tucking one end under its chin, the wasp will continue packing with the two front paws alternately till the length is gathered up, and the bearer transfers itself with its load to the interior of the nest.

The system of guards, method of repairing damages, sanitary rule of the nest, and other matters may all be made subjects of entertaining window observation; but where circumstances permit more extended, remarks there are points of still greater interest, and amongst these the repeated renewals of the nest as nearly as possible to its original site on the repeated removal of each successive replacement.

If all the wasps are gently shaken from a nest taken in the manner described they will return as soon as possible to the site of their former home and begin forthwith to build a new one, probably, however, with some little thing out of order in its construction, an irregularity of shape, too great thickness in the outside paper, or something amiss.

This nest being taken, the once more ejected tenants will form another, but, as far as I have seen, always of a still more misshapen form than its precursor; and the fourth and fifth, if reconstruction is carried so far, will be still more removed from regular shape—the last attempts being only mere dabs of wasp-paper, disposed apparently at hap-hazard, and useless for anything save some slight shelter to the few remaining owners.

Beyond this, I have never seen any attempt at construction. The numbers of the wasps had been thinned by exposure, and in the absence of their own leaders they lost both spirit and power, whilst the attempt to assist them by one from another nest was immediately rejected. The added queen herself showed every sign of pleasure at being once more amongst her kindred, but the feeling was in no way reciprocated, and they did not cease hustling and pushing till they had obliged her to drop from among them.

If treated with some degree of discretion, wasps are not as impatient of observation as is commonly supposed, and may be narrowly watched, even to placing the eye almost at the entrance of the nest, as long as the observer is still, silent, breathes quietly, and has nothing personally to excite their antipathy; but, as any disturbance brings an instantaneous punishment, it is prudent for him to be alone.

The nests of ground-building wasps are necessarily much more difficult to deal with, but if, as occasionally happens, their owners can be induced to form them in a roof, or similar locality, from which they can be removed uninjured, the specimens are of singular beauty, the white shell-like working (so to describe it) being procurable in this way in a perfect and clean state, rarely to be had from one of these nests built in its natural position, and for museum use contrasting well with the coarse workings of the hornet.

The adaptability of the wasp instinct in meeting special requirements is also very remarkable. If the protecting turf is removed from a ground-wasp's nest, either in very wet weather or where water and clay are accessible, its place will probably be supplied by a new roof of mud, the material being laid on very wet, but drying into a hard thick cake, supplying the sudden need of shelter, both from rain and sunshine, much more rapidly than could have been managed with paper: sulphured paper will be coated over with such a layer of their own paper of wooden paper, as apparently to neutralise all annoyance: a comb removed from a nest, and placed with the cells uppermost, will have another set formed on the opposing surface; but the instances of applied instinct to special needs would be too numerous to mention in detail, and should be seen in life to be appreciated.

In transmitting nests to naturalist friends or museum authorities, a little care in preparation would save a deal of annoyance to the recipients, who often are great sufferers from the unremoved tenants, whether live or dead. If the nest is kept a few days the paper casing will get a little damp from the state of the contents, and be sufficiently pliable to handle safely, and may be then laid open with a large pair of scissors from the entrance beneath to the top. The little pillars which join the mass of comb to the inside of the roof of the nest should then be severed by a horizontal cut or two of the scissors, and the entire mass may be taken out in a piece, thus removing grubs live and dead, and with them all cause of annoyance.

The paper exterior should then be well filled with cotton-wool, the severed edges replaced and fixed by a little gum slid beneath them, and if the work has been dexterously managed the nest will appear uninjured, and the mass of comb taken from the inside, after the grubs have been picked from their cells with forceps, will form a good accompanying illustration; whilst for its conveyance to its destination a few folds of silver paper round the nest, and then a bed and surroundings of coarse wadding, answer perfectly.

With all their disagreeableness, wasps are not quite the uselessly dangerous aggressors which they are popularly considered. Though marauding much on the fruit themselves, they yet keep the myriads of flies which otherwise would gain an inconvenient head in some degree of check. Reaumur mentions a habit of the butchers in one of the French towns of leaving some special piece of meat (supposed to have peculiar charms for them) to allure them to the shops, that, once drawn to the spot, they might clear away the meat flies, which were the more objectionable of the two; and on the whole it may be well that, notwithstanding the warfare constantly waged against them, enough should remain unharmed to keep up a very fair proportion in the balance of insect life. *O.*

Notices of Books.

Führer durch das Königliche Landwirthschaftliche Museum in Berlin (Guide to the Royal Agricultural Museum of Berlin). *Allgemeiner Katalog das Königlichen Landwirthschaftlichen Museums in Berlin* (General Catalogue, &c.).

The institution to which these publications refer is under the direction of Dr. L. Wittmack, and was opened in April, 1868. It was founded under the ministry of Von Selchow, the Minister for Agricultural Affairs, at the suggestions and representations of the Royal Economic Agricultural College. The collections are temporarily deposited in a building overlooking the Potsdamer Strasse and the Schöneberger Ufer. Although in its infancy, the Museum has already acquired very extensive collections, partly by purchase, but mainly by rich gifts. In his Guide Dr. Wittmack says that this instructive Museum is thoroughly appreciated and diligently attended. It is free to the general public from 10 till 3 on Tuesdays, Thursdays, and Saturdays, and open to students at other times upon application. Leaving the Guide, we will give a rough summary of the contents of the Catalogue, which will give an idea of the extent and scope of the establishment. The purpose of the Museum, we are told in the introduction, is to promote agriculture, especially by means of giving farmers the opportunity of seeing and examining the principal useful new inventions in agricultural machinery and implements, &c.

For convenience, the smaller objects from the different parts of the globe are labelled with distinctive colours, namely, Europe, white; Asia, yellow; Africa, blue; America, green; and Australia, violet. All objects are numbered, the figure reached in 1873 being 27,000. First we have the wood collection, comprising 1300 numbers of named and systematically arranged specimens of useful woods, with general indications of their applications. The "pathological" department of this collection is very interesting and instructive. It includes all sorts of malformations and insect devastations. Sections showing the ill effects of careless pruning, illustrations of the different methods of grafting, and magnified diagrams of the structure of wood bring us to the wool collection. This is very extensive, embracing samples of the skins and wool of all the principal breeds of sheep, both home and foreign. Statistics, illustrations of the different stages of manufacture, and a great deal of useful information respecting the history and value of different kinds of fleeces, render this department especially instructive.

The implement and machinery division is also very interesting. Dr. Rau, of Karlsruhe, exhibits an historical collection of models of ploughs. It consists of 187 models, showing the gradual development of the earliest known implements for tilling the soil up to the comparatively perfect ploughs of the present day. All parts of the world are represented in this rich collection. In addition to Dr. Rau's there is the public collection, which includes all the principal implements of English and American manufacture. Other implements and tools, though scarcely so fully illustrated, are represented, and include every branch of agricultural industry. The fourth division comprises agricultural seeds, cereals in ear, and various elementary substances. In this department Beet-root sugar naturally occupies a prominent position. Fruits, such as Apples, Pears, &c., also come under this head, and analyses of food substances. Division 5 comprises various vegetable products of commercial importance, as Tobacco, Hops, dye stuffs, tanning subtances, oils, fibres, &c. Division 6, dried plants, botanical models, diagrams, &c. The seventh division is devoted to zoological specimens, stock breeding and rearing. It includes collections of useful and noxious birds, insects, &c. Division 8 is a collection of inorganic substances, employed as artificial manures, and samples of various soils. Finally, we have a list of all the writings, places, figures, &c., in the library. From the foregoing notes it will be seen that the Prussians possess a far more complete Agricultural Museum than we could show them in this country.

—— Professor Bell's long-promised edition of White's *Natural History of Selborne*, which is now far advanced towards completion, will contain, besides a memoir of the author, many hitherto unpublished letters, scarcely less interesting than those which constitute the original work, and illustrating various phases of his character. Mr. Van Voorst will be the publisher of this edition.

—— We have received an important publication from India, consisting in the *Report of the Conference of Forest Officers* held at Allahabad in the early part of the present year, edited by Messrs. Baden Powell and J. S. Gamble, and prefaced by some comments from the pen of Dr. Brandis. At the conference it was determined henceforth to publish quarterly a *Forest Magazine* for India. The subjects discussed on the occasion related to forest legislation, the relation of forest officers to civil officers, forest revenue, the required area of forest in each province, the questions of forest rights and forest licences, &c., the method of planting on the Himalayas, the present state of the Himalayan Cedar forests, and other subjects, to some of which we may take an early opportunity of alluding. The next meeting is to take place at Simla, in September.

—— The first three parts of the twentieth volume of Van Houtte's *Flore des Serres* are before us, and contain coloured plates representing Placea ornata, Maranta Makoyana, various Clematis, Begonia octopetala, Odontoglossum vexillarium, Lapageria rosea and alba, × Lilium Krameri, Sarracenia psittacina, and Cypripedium japonicum, in addition to some beautifully executed coloured plates of Pears. The text is, as usual, "racy" and idiomatic. We shall speak more at length concerning the plates on another occasion.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

GOVERNMENT EMIGRATION to NEW SOUTH WALES.—Assisted Passages to Sydney, by the fine ship *Samuel Plimsoll*, 1440 tons register—to sail from Plymouth on September 15—may be obtained on application to the

Agent-General, 3, Westminster Chambers, S.W.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.

116, Penchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

MILDEW.

The best and most easily applied composition for the Prevention and Destruction of Mildew is

EWING'S INFALLIBLE COMPOSITION.

Can be had retail through all Seedsmen and Florists, in bottles holding about ¾ pint, sufficient to produce 8 gallons of fluid fit for use, at 1s. 6d. per bottle; or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, carriage paid to any Railway Station in the United Kingdom for 24 penny postage stamps.

Scott's Wasp Destroyer.

J. SCOTT, SEEDSMAN, Yeovil, offers his well-known preparation to Fruit Growers at 1s. 9d. and 2s. 9d. per bottle, post free, on receipt of stamps. No one who has fruit to preserve should be without it. It is also useful in the destruction of Flies, Cockroaches, and Crickets. See testimonials. None Genuine except the Corks bear "Scott, Seedsman, Yeovil." The Trade supplied. Prices on application.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Manures, Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of

POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing. Second sized Archangel, 100s.; Petersburgh, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; packing Mats, 20s., 30s., and 35s. per 100; and every other description of Mats at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

GREENHOUSES ERECTED in any part of England, including Brickwork and Hot-water Apparatus complete. *No extras.* Plans and estimates free on receipt of size required, to

R. STEVENS, Horticultural Builder and Hot-water Engineer, Bromley, Kent.

GREENHOUSES, VINERIES, ORCHARD HOUSES, &c., erected in any part of the Country. Every description of HOT-WATER WORK and PLANTHOUSE FITTINGS made and fixed. PLANT PRESERVERS, neat, useful, and portable. PLANS and ESTIMATES supplied without charge.—WILLIAM JAMES RIVETT, Horticultural Builder, Stratford, London, E.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),

Old Barge Wharf, Upper Ground Street, London, S.E., ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.

Price List on application, or six stamps for Catalogue.

HENRY ORMSON,
HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,

Stanley Bridge, King's Road, Chelsea, London, S.W.

PLANS and ESTIMATES on application.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.

87, Bishopsgate Street Without, E.C.

MARENDAZ AND FISHER, RUSSIA MAT MERCHANTS, 9, James Street, Covent Garden, W.C.

Large Stock of ARCHANGEL MATS, heavy and close-woven ST. PETERSBURG MATS, just arrived.

WANTED, for a term of years, about an ACRE AND-A-HALF or TWO ACRES of LAND, for a Florist Nursery, within 10 miles of London. State price, &c., to D. J., 1, Wellington Place, North Dulwich, Surrey, S.E.

ON SALE, several Second-hand Single and Duplex BOILERS of Weeks's celebrated manufacture, for Hothouse use; all in capital condition, and only removed through the houses being dispensed with. Apply to

Mr. L. COOPER, 56, Windmill Street Manchester.

Important to Fruiterers, Seedsmen, and Florists.

TO BE LET, on LEASE, 2½ acres of well-stocked LAND, with choice Fruit Trees, Flowers, and Vegetables; also an Eight-roomed HOUSE and SHOP, with Stabling and Out-buildings. Further particulars from

W. LANGRIDGE, on the Premises, Sydenham Road, Croydon, Surrey.

To Gardeners and Others.

TO BE LET, for a term of years, with immediate possession, within five minutes' walk of the Railway Station, very productive KITCHEN GARDENS, Stocked with choice Fruit Trees in full bearing—forty-eight Wall, fifty-eight Standard and Pyramid. Between 600 and 700 feet of Wall, from 7 to 12 feet in height. House and more Ground can be had, if required. Soil gravel. Apply on the Premises,

The Rectory, Ardleigh, near Colchester, Essex.

To Gentlemen's Gardeners.

TO DISPOSE OF, by tender, STOCK, CROP, and six years' unexpired LEASE of TWO ACRES of FRUIT and FLOWER GARDEN, near Leeds. Rent clear, £8 10s. Good land. Immediate possession. Suitable for tea gardens.

C. H. HUTCHINSON, Fruit Merchant, Kirkgate Market, Leeds.

To Nurserymen and Others.

TO BE SOLD, or LET on LEASE, an old-established NURSERY, in an increasing and populous neighbourhood, containing the usual Nursery Stock of the most healthy and best description. The Greenhouses are substantial, and admirably arranged with all modern appliances for carrying on an extensive and lucrative business. Within ten miles of Covent Garden Market. For particulars apply to

Messrs. FRASER AND BENTON, Horticultural Valuers, &c., Romford, Essex.

SALES BY AUCTION.

To Gentlemen, Nurserymen, Florists, Builders,
And OTHERS.

CLEARANCE SALE of about 4000 feet of GLASS, 600 feet of PIPING, BRICKWORK, STAGING, &c.

MESSRS. PROTHEROE AND MORRIS, having sold the freehold land, are instructed to SELL, without reserve, on the Premises, Perseverance Nursery, Lytton Road, New Barnet, Herts, on MONDAY, September 7, at 3 o'Clock in the afternoon, the GREENHOUSES, PITS, FRAMES, HOT-WATER PIPING, BOILERS, BRICKS, and other effects.

View prior to the Sale. Catalogues had at 98, Gracechurch Street, City, E.C.; and Leytonstone, E.

Preliminary Notice of

FORTHCOMING SALES, by PROTHEROE AND MORRIS.

SEPTEMBER 15.—TOOTING EXOTIC NURSERY. By order of Robert Parker, Esq. A splendid assortment of Stove, Greenhouse, and other Plants, Orchids, &c.

SEPTEMBER 16, 17.—LEA BRIDGE NURSERIES, Lea Bridge Road. By order of Mr. John Fraser. Winter Flowering Heaths, &c., in the finest possible condition,

EARLY IN SEPTEMBER—Tottenham. By order of Mr. John Maller. Winter Flowering Heaths and other Greenhouse Plants.

OCTOBER 1.—NORTH MANOR LANE. By order of Mr. Lee. General Nursery Stock.

OCTOBER 5.—Erith, Kent. ERITH NURSERY, No. 1, North End Villas. Evergreen and Coniferæ Shrubs.

OCTOBER 14, 15, 16, and following days.—SUSSEX, MARESFIELD, near Eckfield. By order of Messrs. Wood & Son. Large and Important Sale of General Nursery Stock.

OCTOBER 19, 20.—TOTTENHAM. By order of Mr. Ware. A Large Assortment of General Nursery Stock.

OCTOBER 26, 27, 28.—TOOTING, The EXOTIC NURSERY. By order of Robert Parker, Esq. An important Sale of well-grown Nursery Stock.

NOVEMBER 2 to 10, inclusive.—WANDSWORTH COMMON. Eight days' Sale. By order of Messrs. Robert Neal & Son. Great Sale of General Nursery Stock.

NOVEMBER 16.—EDGWARE.—Whitechurch Rectory. By order of the Rev. B. Norman. Thriving Nursery Stock, of fine growth.

FARMING STOCK.

SEPTEMBER 8.—WOODFORD, ESSEX. Glengall Farm. By order of S. Savage, Esq. Live and Dead Farming Stock.

SEPTEMBER 29.—WOODFORD. Whitehall Road. By order of the Executors. Live and Dead Farming Stock.

The Next Periodical Sale of Properties will be held at the Auction Mart on MONDAY, September 21.

Particulars of the foregoing Sales of Nursery Stock, Greenhouse Plants, &c., will appear in future Advertisements. Estate Offices, 98, Gracechurch Street, E.C., and Leytonstone, E.

Lea Bridge Road.

EXTENSIVE ANNUAL TRADE SALE of FINE WINTER FLOWERING HEATHS, EPACRIS, CYCLAMENS, TREE CARNATIONS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, without reserve, on the Premises, The Lea Bridge Nurseries, Lea Bridge Road, Leyton, Essex, on WEDNESDAY and THURSDAY, September 16 and 17, at 11 for 12 o'Clock precisely each day, about 30,000 Winter Blooming HEATHS, remarkably well grown, and including about 10,500 hyemalis, 2500 gracilis, 2500 Willmorei, 7500 caffra, 500 ventricosas of the best varieties; also large quantities of gracilis, vernalis, regerminans, colorans, Linnæa superba, melanthera, pyramidalis persoluta alba, and others; 1500 fine EPACRIS, of the choicest kinds; 1500 CYCLAMEN PERSICUM; 500 AZALEA INDICA, to name; 1500 CYTISUS FRAGRANS and ATLEANA; 1000 TEA-SCENTED ROSES in pots, to name; a large stock of SOLANUM CAPSICASTRUM, full of berries; TREE CARNATIONS, ACACIA DRUMMONDII, and a quantity of MISCELLANEOUS GREENHOUSE PLANTS, including Phœnicomas, Aphelexis, Pimeleas, Boronias, &c.

May be viewed any day prior to the Sale. Catalogues had on the Premises; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Important Sale of Very Choice Greenhouse
And other PLANTS.

MESSRS. LYTHALL AND CLARKE are instructed by the Executors of the late John S. Jerome, Esq., of Holland House, Sutton Coldfield, to SELL by AUCTION, at the Repository, Birmingham, on FRIDAY, August 28, commencing at 1 o'Clock, a very valuable COLLECTION of PLANTS, selected with great judgment and regardless of cost by the late Mr. Jerome, and successfully exhibited on many occasions; comprising in part 20 very beautifully trained specimen Azaleas, 25 large specimen Camellias, of the very choicest varieties; Dracænas and Palms; also fine Marantas, Lapageria rosea, Caladiums, &c., together with some magnificent specimen FERNS, comprising Adiantum formosum, cuneatum, &c., Neottopteris Nidus, Phlebodium aureum; and a few good PEACHES and APRICOTS in pots, all of the best sorts; some rare ORCHIDS, &c., two very fine variegated American ALOES, 7 feet across, obtained from Sir John Hartopp's collection; 12 RRODODENDRONS, &c. Also two LAWN MOWERS, ten Tree Training Hurdles, and about 50 lots of Miscellaneous Plants, the whole described in Catalogues, to be obtained from the Auctioneers.

The Auctioneers invite especial attention to this Sale, as it is well known that the collection of Plants of the late Proprietor is second to none in the Midland Counties, and the whole are in perfect health and vigour, and fit for exhibition purposes.

B. MALLER, Lewisham, Lee, S.E., begs to inform his Customers and the Trade generally that he has a fine lot of HEATHS and other winter-blooming plants, STANDARD ROSES, VINES, &c., to offer this autumn, a portion of which will be Sold by Auction in September.

B. M. respectfully solicits an inspection of the above, at the Burnt Ash Nursery, adjoining Lee Station on the North Kent (Dartford loop) Line.

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is unsurpassed, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.

Newton Nurseries, **Chester.**

SAXIFRAGA NEPALENSIS.—A beautiful hardy herbaceous plant, with a pyramidal-shaped spike of pure white flowers, about 2 feet high; admirably suited for decorative purposes. It was exhibited and greatly admired at the June Shows of the Royal Horticultural and Botanic Societies, where it had previously been awarded First-class Certificates. Strong plants, 42s.; second size, 18s. per doz.

T. JACKSON AND SON, The Nurseries, Kingston-on-Thames.

To the Trade only.

A. M. C. JONGKINDT CONINCK'S WHOLESALE LIST, including a fine stock of Maiden Apples, Pears and Plums, Moss Roses, Dwarf, Half-standard and Standard Roses, Dielytra spectabilis, Hotein japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants, is now ready, and will be sent, post free, on application.

Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

New Apple, Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now Booking Orders for this splendid Novelty, which obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, on November 12, 1873. Circulars with full particulars will be forwarded gratis and post-free to applicants. The price for strong maidens on and after November 1 next, is 7s. 6d. each, or three for 20s. The usual discount to the Trade.

DOUBLE FLOWERED CINERARIA.—This Novel Strain has received *a Silver Medal at the International Horticultural Exhibition at Florence*; First-class Certificate from the Royal Horticultural Society, Kensington. Packets of Seed, 3s. 6d., 5s., and 7s. 6d. each. Also

PRIZE STRAINS

of Primula, Calceolaria, Pelargonium, Cyclamen, Gloxinia, Begonia, Cineraria, Fuchsia, Coleus, Auricula, Carnation, and Petunia; each 2s. 6d. per packet.

MR. WILLIAM BULL'S
Establishment for Choice Seeds and New and Rare Plants,
King's Road, Chelsea, London, S.W.

Notice of Transfer.

E. JOSLING, SEED MERCHANT, St. Albans, in retiring from the Old-established Business, begs to tender her best thanks to all Patrons who have extended their kind support since the death of her husband.

F. SANDER AND CO., who are succeeding Mrs. JOSLING, hope to be favoured with commands from such as have hitherto entrusted their orders to the House. Their Flower Seeds are grown under the immediate supervision of one of the principals at their Erfurt Seed Grounds. Vegetable and Agricultural Seeds not harvested by them are procured from *bona fide* English and Continental Growers.

St. Albans, August 20.

Noteworthy Horticulturists and Botanists.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6*d.* each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.
W. WILSON SAUNDERS, F.R.S.
Rev. M. J. BERKELEY, F.L.S.
M. DECAISNE.
G. F. WILSON, F.R.S.
Dr. MOORE, of Glasnevin.
Professor REICHENBACH.
Rev. S. R. HOLE, M.A.
E. J. LOWE, F.R.S.
JAMES MCNAB.
ROBERT HOGG, LL.D.
Dr. REGEL.
JAMES BATEMAN, F.R.S.
BERTHOLD SEEMANN, Ph.D.
ARCHIBALD F. BARRON.
Hon. MARSHALL P. WILDER.
JOHN GIBSON.
Professor ASA GRAY.
I. ANDERSON-HENRY.
Professor KARL KOCH.
Baron VON MUELLER.
JOHN SMITH (Kew).
Professor WESTWOOD.
Dr. THWAITES.
Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W.C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5*s.* 11½*d.* | Six Months .. 11*s.* 11*d.*
Twelve Months .. £1 3*s.* 10*d.*

FOREIGN SUBSCRIPTION.

£1 6*s.* *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10*s.* 4*d.* *for* 12 *months, including postage to*—
AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14*s.* 8*d.* *for* 12 *months, including postage to*—
RUSSIA, ITALY, DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, AUGUST 22, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Aug. 24	Warkworth Horticultural Society's Show. Banbury Horticultural Society's Show.
TUESDAY,	Aug. 25	Dudley Horticultural Society's Show. Wotton-under-Edge Horticultural Society's Show. St. Andrew's Horticultural Society's Show.
WEDNESDAY,	Aug. 26	Sherborne Horticultural Society's Show. Tynemouth Horticultural Society's Show. Bournemouth Horticultural Society's Show.
THURSDAY,	Aug. 27	Kempsey Horticultural Society's Show. Cirencester Horticultural Society's Show. Skircoat Horticultural Society's Show. Perth Horticultural Society's Show. Chailey Horticultural Society's Show.
FRIDAY,	Aug. 28	Falkirk Horticultural Society's Show. Bishop Auckland Horticultural Society's Show. Sandy Horticultural Society's Show.
SATURDAY,	Aug. 29	Padiham (Lancashire) Horticultural Society's Show.

WITH all our vaunted progress in horticultural matters it must, we fear, be admitted that, so far as FRUIT CULTURE for the masses is concerned, we have not advanced of late years in anything like equal ratio to the increase of population. We are not speaking of Grapes and forced fruits—the luxury of the rich and well-to-do—but of fruits such as, with our resources, ought to be in general use at their proper season among the generality of the people. Even among the middle-classes fruit is looked on, more or less, as a luxury, to be indulged in only on high days and holidays, while a very large proportion of the poorer classes scarcely know the taste of it. Well-ripened or well-cooked fruit is so wholesome—we may even say is so nutritious—that it must be a matter of regret to all that such a scarcity should exist. It would be an interesting but somewhat complicated inquiry to endeavour to ascertain the cause of this. One reason, no doubt, is that the retail fruit-dealers attach such prices to their wares as practically to limit their sale very materially. We have no reason to think that the growers get unreasonable prices. On the contrary, we believe they sometimes get so little as to make it hardly worth while to send to market. In any case the subject is one which urgently demands consideration, and we should be glad if some means could be devised to promote the culture of fruit on a more extensive scale than at present. Flowers for the poor are no doubt very desirable, and we would gladly encourage all schemes which should lighten up the homes of our toiling masses, and afford them means of recreation and a source of interest, but, withal, fruit for the poor is yet more desirable, and gladly would we welcome any plan which should render available for their use a larger supply than at present. The subject is also one well worthy the attention of those interested in cottage and allotment gardens. One source of difficulty, no doubt, lies in the want of knowledge as to the most suitable varieties to grow for general purposes in particular districts, and to meet this difficulty we lately made inquiries from a large number of our correspondents in various parts of the kingdom, from Caithness to the Land's End, and from Beechy Head to Galway, as to the varieties they found by experience most generally suitable. The substance of some of their replies is given in another column with reference to Apples and Plums. We might have added to the list, but considerations of space, and the desire not to weary the reader with reiterations, have induced us to curtail the number of varieties, &c. The lists, we are sure, will be perused with interest, and they will afford a sure index of what varieties are really the best for cultivation. We shall publish other lists of a similar character from time to time.

With regard to nomenclature, the Horticultural Society many years ago issued an excellent catalogue, drawn up mainly by the late Mr. THOMPSON, while the successive editions of the *Fruit Manual* keep the reader posted in the newer varieties, and in the synonymy of the old. This question of nomenclature crops up in every department of horticulture. It is not an easy matter to deal with, even when questions of pure science are concerned, but when commercial interests are involved the difficulty becomes greater still. An amusing illustration of this is given in the *Proceedings* of the American Pomological Society, to which we lately referred, and in which we find Mr. SYLVESTER, of New York, narrating the following instructive story :—

"Two or three years ago, about the time of the Franco-German war (says Mr. SYLVESTER), I sent several half barrels of the Napoleon Pear to New York, and my consignee marked them 'Napoleon,' kept them on the stand for several days, and they did not go. One morning he came down and scratched out 'Napoleon' and put on 'Bismarck.' He sold some of them to a dealer, and the next day he came back and got the rest, and for the next few days there was a brisk demand for 'Bismarcks.'"

Whatever be the cause, we trust the subject of our scanty fruit supplies may be discussed by those whose opportunities give them the best means of forming an opinion on the subject, and of suggesting a remedy. When compared with Belgium, and specially with America, we seem, if not actually retrograding, at least to be standing still as regards fruit growing for the masses. Climate will be alleged, no doubt, as one reason for this, and spring frosts must bear the blame for a great deal, but an ungenial and capricious climate is not the only reason ; and, moreover, we have no monopoly of such unwelcome manifestations.

—— IT may perhaps interest those readers of the *Gardeners' Chronicle* who "go in" for PAPER AND PAPER MATERIALS to know that specimens of the stems, fibre, and "half stuff" prepared from Zizania aquatica (referred to at p. 129, August 1) are exhibited among the grasses in the Kew Museum. So largely is the paper used in North America, that several of the leading newspapers are printed entirely upon it, amongst them being the *New York Tribune*, *Montreal Gazette*, and *Portland Advertiser*. Another North American grass (Arundinaria macrosperma, Michx.) is used to some extent in paper-making. It belongs to the tribe Bambusideæ, and is a stiff-growing cane-like plant, attaining a considerable height. It is abundant on the banks of creeks and rivers in South Carolina and Georgia, the stems being stiff and hard, somewhat like those of the Bamboo; they appear to require exceptional treatment in their preliminary working for paper-making. A few years back a company was established in North Carolina for the purpose of preparing "paper stock" from this plant, and their mode of procedure is thus described :—"Tightly compressed bundles of the canes are put into steam cylinders or guns, and then subjected to the action of steam at a pressure of about 170 lb. to the inch for about ten minutes. The gums and glutinous matters which hold the fibres together are thereby dissolved or softened, and whilst in that state the cane is blown into the air by the force of the steam in the gun, and the fibres are separated by the expansion of the steam amongst them. The fibres are shot against a large target with considerable force, and the discharge resembles that of artillery. A battery of ten guns of the smaller size, 24 feet long and 12 inches in diameter, will yield over 50 tons per day. No delicate machinery is required, nor skilled workmen." When this particular company was formed, we are told it was proposed in the course of time "to manufacture box-board, which article could be placed in the market at 10 dollars less per ton than manufacturers who use straw can sell it." The same kind of machinery used for disintegrating this cane was used so far back as 1865 in the preparation of the Bamboo for paper-making by a company called the "American Fibre Disintegrating Company," having large works in Brooklyn, Long Island, and near St. Louis, Missouri.

—— The large genus ARTEMISIA is rich in species of graceful habit and elegantly cut foliage, and some of them would in all probability repay a trial, where lightness is the principal object. ARTEMISIA SCOPARIA is a good illustration of what we mean. The name scoparia is, however, scarcely appropriate ; plumosa would better describe its appearance. It has, moreover, the more suitable appellation of gracilis, but it was given by L'HERITIER at a later period, and is, therefore, inadmissible according to the rules of priority. It has a very wide range of distribution, being found from Hungary, Armenia, Persia, throughout Northern India and lower Siberia, to China and Japan. THUNBERG named it A. capillaris, a name that applies very aptly to the exceedingly fine divisions of the leaves ; and ROXBURGH called it elegans to express its graceful habit. But WALDSTEIN and KITAIBEL's name, scoparia, being the first, must be adopted, though it was doubtless given to the specimens from a poor stony soil or arid region. In our gardens it grows about 4 feet high, is of a rich, glossy dark green, and its finely-cut foliage gives it much the appearance of Asparagus.

—— Mr. DUNN, of Dalkeith, has kindly forwarded to us a large FASCIATED "OLIVE QUEEN" PINE-APPLE in which five or six fruits are confluent into one mass, like a Cockscomb Strawberry on a large scale. The appearance is probably due to the circumstance that what under ordinary circumstances are mere leaf shoots or "gills" are here represented by fruits which have become united together. The fruit was the produce of a plant twenty months old.

—— The recent rains have greatly improved the appearance of THE FLOWER GARDENS AT KEW, where the bedding plants are now at their best. There are some very pretty combinations and designs, whilst others, to say the least, are ugly. The oblong beds at either end of the Palm-house are as pleasing to the eye, perhaps, as any, principally owing to the intermixture of Verbena venosa and Mangles' variegated Pelargoniums. The composition of the beds at the south end is from the centre outwards—purple-leaved Canna, Verbena venosa, and Mangles' variegated Pelargoniums mixed, Iresine Herbstii, Pelargonium Albion's Cliffs, edged with Viola cornuta. A less massive subject than Canna would have made a more harmonious and effective centre. At the north end Lobelia takes the place of Viola cornuta, and Pyrethrum Golden Feather that of Pelargonium Albion's Cliffs.

—— On Monday last Dalkeith Palace was visited by His Majesty the KING of DENMARK, the Princess of WALES, and Prince WALDEMAR. The Duke of BUCCLEUCH and family being absent, the Royal visitors were shown through the house by one of the servants, and after leaving the Palace the Royal party were shown through the gardens and fruit houses by Mr. DUNN. In the forenoon of the same day Mr. LAIRD, of the firm of DOWNIE, LAIRD & LAING,

had the honour of presenting the Princess of Wales with an elegant bouquet at the Douglas Hotel, Edinburgh.

—— Mr. George Paul favours us with the following list of Roses, which he considers the best for exhibition or for garden purposes, and comments thereon.

Summer Roses (mostly exhibited as pot Roses).

H.C. Charles Lawson
,, Miss Ingram
,, Paul Perras
H.C. Paul Ricaut
,, Paul Verdier

Hybrid Perpetuals: crimsons and shades of deep red.

Achille Gonod
Alfred Colomb
Annie Wood
Baronne A. de Rothschild
Baronne de Bonstetten
Baronne Hausmann
Beauty of Waltham
Camille Bernardin
Charles Lefebvre
Christine Nilsson
Comtesse d'Oxford
Dupuy Jamin
Dr. Andry
Dr. Du Chalus
Duke of Edinburgh
Ferdinand de Lesseps, or Maurice Bernardin, &c.
Fisher Holmes [autumn)
Francois Fontaine (grand in
Général Jacqueminot
La Fontaine
Leopold I.
Madame Clémence Joignaux
Madame Victor Verdier
Maréchal Vaillant
Marie Baumann (a little weak in growth)
Marie Rady
Monsieur Boncenne
Mrs. George Paul
Pierre Notting
Prince Camille de Rohan
Sénateur Vaisse
Vicomte Vigier
Reynolds Hole
Richard Wallace

Rose Colour, with shades of pink.

H.P. Abel Grand
,, Belle Normandie
,, Anna de Diesbach
,, Centifolia rosea
,, Comte de Nanteuil
,, Clotilde Rolland
,, Duchesse d'Orléans
,, Edouard Morren
,, Etienne Levet
,, François Michelon
,, Henri Ledechaux
,, John Hopper
,, Jules Margottin
,, Julie Touvais
,, La Reine, or Reine du Midi, or Alice Dureau, all more or less forms of La Reine
H.P. La France
,, La Duchesse de Morny
,, Lyonnaise
,, Mdme. Crapelet
,, Mdme. Geo. Schwartz
,, Mdme. Thérèse Levet
,, Mdlle. Eugène Verdier, rather small grower, but too beautiful to to be omitted
,, Marguerite de St. Amand
,, Marquis de Castellan
,, Paul Neron
,, Vicomtesse de Vezins
,, Victor Verdier
,, Annie Laxton
,, Princess Beatrice

Bourbons.

Baron Gonella
Catherine Guillot
Michel Bonnette
Louise Odier

Tea-scented.

Adam or President (not identical)
Catherine Mermet
Cheshunt Hybrid
Céline Noirey
Goubault
Souvenir d'un Ami
Madame Camille

Whites and Lights.

H.C. Miss Ingram
H.P. Baroness Rothschild
,, Boule de Neige*
,, Caroline de Sansal
,, Madame Hippolyte Jamain
,, Madame Laurent
,, Mrs. Bellenden Kerr
,, Princess Louise Victoria
H.P. Princess Mary of Cambridge
,, Thyra Hammerich
Bourbon.— Souvenir de la Malmaison
Tea.—Alba rosea
,, Devoniensis, and its climbing variety
,, Madame Villermoz
,, Niphetos
,, Rubens

All Teas are moderate growers, but these are amongst the very hardiest.

Yellows and Yellowish Tints.

Noisettes.—Céline Forestier, now grand in pots
,, Caroline Kuster
,, Lamarque
,, Maréchal Niel
,, Rève d'Or
,, Triomphe de Rennes
Teas.—Belle Lyonnaise
,, Gloire de Dijon
,, Madame Berard
,, Madame Margottin
,, Marie Van Houtte
,, Perfection de Monplaiser

After a careful comparison of the above list with a Rose catalogue, what omissions do we find? Candidly there are some, but they are so few that I feel I shall not trespass too far on your space by giving them. Amongst show Roses we should miss from our gardens the Moss Roses, the China Roses, and the true Bourbon Roses, such as Acidalie, Armosa, Queen. Amongst Hybrid Perpetuals the following are fine flowers, but too weak growers:—

Duke of Wellington
Lord Macaulay
Horace Vernet
Lælia
Louis Van Houtte
Monsieur Noman
Olivier Delhomme
President Thiers (slightly too thin)
Sophie Coquerel
Xavier Olibo

Grand garden Roses, but lacking shape enough for show Roses are:—

Anna Alexieff
Baronne Prévost
Coquette des Blanches †
Madame A. de Rougemont †
Empereur de Maroc
Eugenie Appert
Glory of Waltham (good for pots)
Princess Louise
Souvenir de M. Poiteau

Of course there are many left out which most catalogues enumerate, and such a list as I have furnished must bear the mark of the personal taste of the writer; but I fancy nearly every really first-class kind, either as a garden Rose or as a show Rose, has been named, and the result of the analysis must be, I think, the conclusion that our best show and garden Roses are identical.

—— Æcidium Scrophulariæ is assuredly one of the most curious species of a very interesting genus. It was originally described as turning dark in age, but no reason was assigned for it, nor does this appear to be the case in more recent publications. The spores are yellow at first, but gradually lose their colour more or less, the edge of the peridium not projecting in a stellate manner as in many species, but being inflected so that each individual plant looks like a little Peziza. In an early stage, as we have received the plant from the Rev. M. Anderson, of Menmuir, there does not seem to be any tendency to a change of colour, nor is there anything in that condition to attract especial notice. After a time, however, the orbicular patches of peridiæ are surrounded by a ring of irregular brown flat pustules, the nature of which seems hitherto to have been misunderstood, for they are not discoloured peridia, but consist of a distinct species of Uromyces, with obovate spores, each seated on a very slender pedicel which is attenuated downwards. How far it may be a peculiar condition of the Æcidium is very uncertain. If it be true that there is any connection between the mildew of the Wheat and the Æcidium of the Berberry, the presumption would be against the Uromyces being a condition of the Æcidium; but doubtless there are several points in

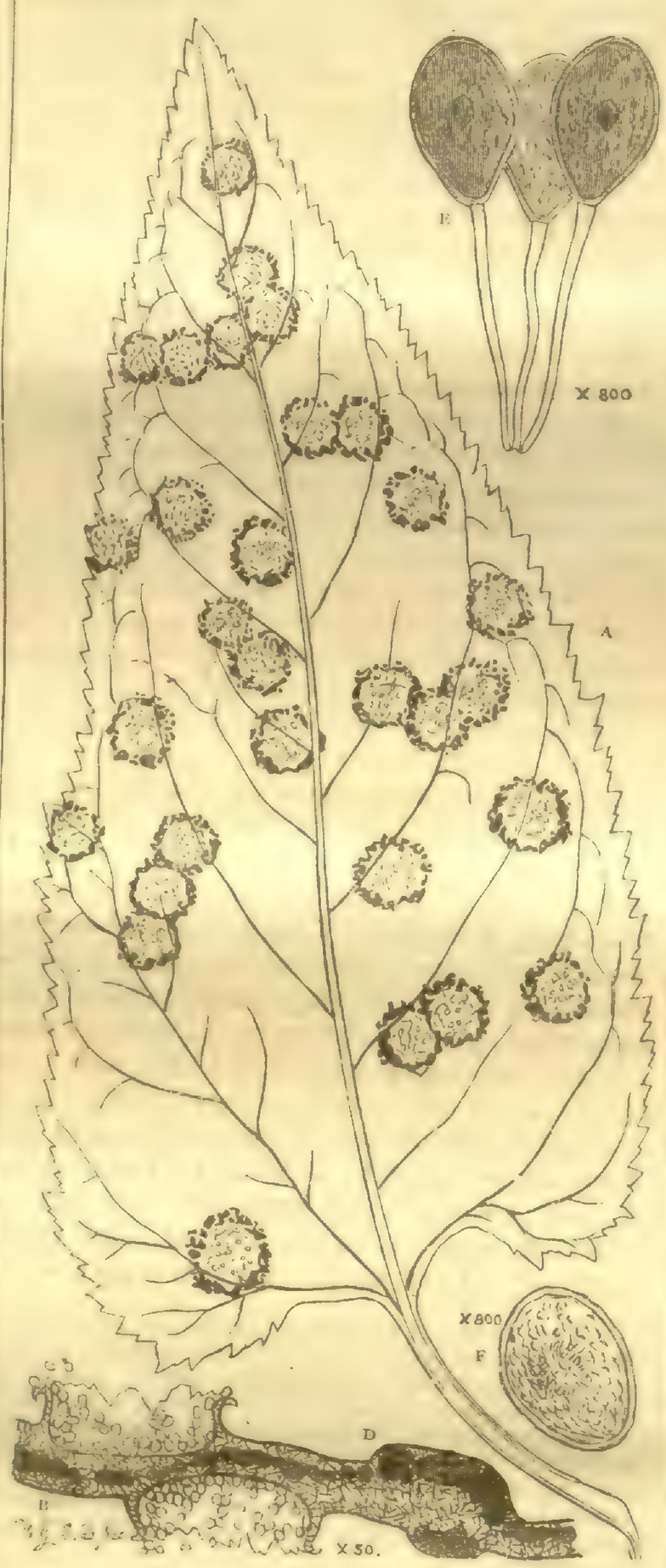


Fig. 50.—New species of Uromyces, Berk., surrounding Æcidium scrophulariæ, D.C., on Scrophularia nodosa, Linn.

A, Leaf of Scrophularia nodosa, Linn. (nat. size); B, Section through leaf, showing peridia of the Æcidium (C) and pustules of Uromyces (D), enlarged 50 diameters; E, Stipitate spores of Uromyces; F, Spores of the Æcidium, both enlarged 800 diameters.

these curious plants, which were once undeservedly too much disregarded by systematists, which need further investigation. For the present the Uromyces may be described under the name of U. concomitans, B. and Br.*

—— Messrs. Dehérain and Moissan have lately published in the *Annales des Sciences Naturelles* an account of some experiments they have been making on the Respiration of Plants, properly so-called, with a view to determine the quantity of carbonic acid gas produced by a definite weight of leaves kept away from the light in a stated period of time. The principal results obtained go to show that—1, the quantity of carbonic acid emitted from the leaves in darkness is comparable with that produced by the lower animals, frogs, silkworms, &c.; 2, that, as Garrean had previously shown, the quantity of carbonic acid gas emitted increases as the temperature to which they are submitted rises; 3, the quantity of oxygen absorbed by the leaves is greater than the quantity of carbonic acid emitted, the difference being particularly observable at low temperatures, which appear to favour the formation of incompletely oxidised products, such as vegetable acids; 4, leaves plunged in an atmosphere deprived of oxygen continue to emit carbonic acid at the expense of their own tissues, and this continues till the cells are dead. The power of resisting the effects of the asphyxia or suffocation arising from the absence of oxygen varies very much, according to the species; 5, the slow combustion which goes on in the leaves probably supplies the heat necessary to the formation of the products generated in those organs. The emission of carbonic acid is indeed favoured by heat and the absence of light, which also exercises a marked influence on the rapidity of growth of plants—a fact of which horticulturists avail themselves in growing plants under shaded glass, by means of which they lose part of the light, while the amount of heat is increased.

—— We understand that the collection of Orchids being formed by J. S. Bockett, Esq., at The Firs, Muswell Hill, and noticed in our columns at p. 538, has become too large for the accommodation at command there, and is now being removed to more suitable quarters—the old residence of Ambrose Bassett, Esq., on Stamford Hill, where, as many of our readers will remember, there was not many years ago a fine collection of similar plants under the management of Mr. G. Baker.

—— One of the most useful subjects we have for ornamenting the sides of paths in plant stoves is the beautiful, compact-growing, silvery-leaved Peruvian Acanthad, Fittonia argyroneura. Mr. Dunn uses it to good purpose in this way at Dalkeith, mixed with Tradescantia.

—— M. Endres sends us an Orchid Basket made of the bark of Robinia Pseud-Acacia, which has been in use for ten years in the Orchid-houses of Herr Borsig, of Berlin, and is still almost as good as when new. It is light and neat, and unusually durable.

—— There may be more truth in the saying "Nettles do not sting this month," than is generally supposed. M. Naudin has lately shown that after a violent gale of wind Nettles lose their irritating properties, and some hours elapse before they regain them.

—— M. Bouteille lately showed some pieces of glass from the windows of a church on which two lichens had grown, viz., Lecidea canescens and Placodium muroruin. The surface of the glass was pitted with a number of minute depressions, in which the spores of the lichens had grown.

—— In one of the long borders at Battersea Park there is a good line of a capital strain of Dwarf French Tagetes, which produces quite a profusion of its double bright orange flowers, and appears to be of considerable promise as a bedding plant.

—— Helianthus orgyalis, amongst the tall-growing, yellow-flowered Composites, is one of the most effective of that group. Its long linear leaves are crowded towards the summit of the stems before the appearance of the flowers, and they fall over in a most graceful curve, giving a kind of elegance peculiarly its own.

CYCLAMEN PERSICUM.

Perhaps there is no plant which has advanced at the same rate within the last few seasons, as the Cyclamen persicum. The improvement, moreover, has not been confined in this case, as in some others, to the individual improvement of the flowers or the habit of the plants, though in these respects the advance has been marvellous; but there has been at least as great an improvement in the mode of cultivating the plants, as the grand specimens now often brought to our exhibitions bear witness. The consummate skill which is now brought to bear upon their treatment is indeed well shown in the accompanying portrait (fig. 51) of one of the prize plants grown by H. Little, Esq., of Twickenham, to whose collection we have had occasion to refer on former occasions. Mr. Little is working assiduously at the improvement of the individual flowers, of the foliage, and habit of the plant; but this does not divert him from diving into the secrets of their wants as cultivated plants, and as a consequence of this the picture presented by his Cyclamen house, during the blooming season, is a sight not easily to be effaced from the memory.

* Beautifully own by Mr. Camm at the Royal Botanic Society.

† Two of our freest whites.

* Uromyces concomitans, B. and Br.: pustulis irregularibus depressis, peridia Æcidii cingentibus; sporis obovatis, pedicellis tenuibus deorsum attenuatis brevioribus.

There are one or two points to be specially noted as regards the successful treatment of this race of Cyclamens. The first is not to overpot them, but, in the language of gardeners, to let their roots feel the pots. The second is to remember that green-fly is an enemy very apt to attack the foliage in the earlier stages of development, and that unless the plants are kept clear of these insects irreparable injury will be done. Another point in the case of established plants is, that after flowering they require a dryish rest to secure perfect maturation, but the drying process must not be carried too far—not so far, indeed, as was commonly the case in the olden times.

BRITISH ASSOCIATION.

[The following extracts are taken from Professor Tyndall's inaugural address at the Belfast meeting on the 19th inst.]

In my frequent conversations with him, the late Sir Benjamin Brodie, a man of highly philosophic mind, often drew my attention to the fact that, as early as 1794, Charles Darwin's grandfather was the pioneer of Charles Darwin. In 1801, and in subsequent years, the celebrated Lamarck, who produced so profound an impression on the public mind through the vigorous exposition of his views by the author of the *Vestiges of Creation*, endeavoured to show the development of species out of changes of habit and external condition. In 1813 Dr. Wells, the founder of our present theory of dew, read before the Royal Society a paper in which, to use the words of Mr. Darwin, "he distinctly recognises the principle of natural selection; and this is the first recognition that has been indicated." The thoroughness and skill with which Wells pursued his work, and the obvious independence of his character, rendered him long ago a favourite with me; and it gave me the liveliest pleasure to alight upon this additional testimony to his penetration. Professor Grant, Mr. Patrick Matthew, Von Buch, the author of the *Vestiges*, D'Halloy, and others, by the enunciation of views more or less clear and correct, showed that the question had been fermenting long prior to the year 1858, when Mr. Darwin and Mr. Wallace simultaneously but independently placed their closely concurrent views upon the subject before the Linnean Society. These papers were followed in 1859 by the publication of the first edition of *The Origin of Species*.

All great things come slowly to the birth. Copernicus, as I informed you, pondered his great work for thirty-three years. Newton for nearly twenty years kept the idea of gravitation before his mind; for twenty years also he dwelt upon his discovery of fluxions, and doubtless would have continued to make it the object of his private thought had he not found that Leibnitz was upon his track. Darwin for two and twenty years pondered the problem of the origin of species, and doubtless he would have continued to do so had he not found Wallace upon his track. A concentrated, but full and powerful epitome of his labours was the consequence. The book was by no means an easy one; and probably not one in every score of those who then attacked it had read its pages through, or were competent to grasp their significance if they had. I do not say this merely to discredit them; for there were in those days some really eminent scientific men, entirely raised above the heat of popular prejudice, willing to accept any conclusion that science had to offer, provided it was duly backed by fact and argument, and who entirely mistook Mr. Darwin's views. In fact the work needed an expounder; and it found one in Mr. Huxley.

I know nothing more admirable in the way of scientific exposition than those early articles of his on the origin of species. He swept the curve of discussion through the really significant points of the subject, enriched his exposition with profound original remarks and reflections, often summing up in a single pithy sentence an argument which a less compact mind would have spread over pages. But there is one impression made by the book itself which no exposition of it, however luminous, can convey; and that is the impression of the vast amount of labour, both of observation and of thought, implied in its production. Let us glance at its principles. It is conceded on all hands that what are called varieties are continually produced. The rule is probably without exception. No chick and no child is in all respects and particulars the counterpart of its brother or sister; and in such differences we have "variety" incipient. No naturalist could tell how far this variation could be carried; but the great mass of them held that never by any amount of internal or external change, nor by the mixture of both, could the offspring of the same progenitor so far deviate from each other as to constitute different species. The function of the experimental philosopher is to combine the conditions of Nature and to produce her results; and this was the method of Darwin. He made himself acquainted with what could, without any manner of doubt, be done in the way of producing variation. He associated himself with pigeon-fanciers—bought, begged, kept, and observed every breed that he could obtain. Though derived from a common stock, the diversities of these pigeons were such that "a score of them might be chosen which, if shown to an ornithologist, and he were told that they were wild birds, would certainly be ranked by him as well-defined species." The simple principle which guides the pigeon-fancier, as it does the cattle-breeder, is the selection of some variety that strikes his fancy, and the propagation of this variety by inheritance. With his eye still upon the particular appearance which he wishes to exaggerate, he selects it as it reappears in successive broods, and thus adds increment to increment until an astonishing amount of divergence from the parent type is effected. Man in this case does not produce the elements of the variation. He simply observes them, and by selection adds them together, until the required result has been obtained. "No man," says Mr. Darwin, "would ever try to make a fantail till he saw a pigeon with a tail developed in some slight degree in an unusual manner, or a pouter until he saw a pigeon with a crop of unusual size." Thus Nature gives the hint, man acts upon it, and by the law of inheritance exaggerates the deviation. Having thus satisfied himself by indubitable facts that the organisation of an animal or of a plant (for precisely the same treatment applies to plants) is to some extent plastic, he passes from variation under domestication to variation under Nature. Hitherto we have dealt with the adding together of small changes by the conscious selection of man. Can Nature thus select? Mr. Darwin's answer is, "Assuredly she can." The number of living things produced is far in excess of the number that can be supported; hence at some period or other of their lives

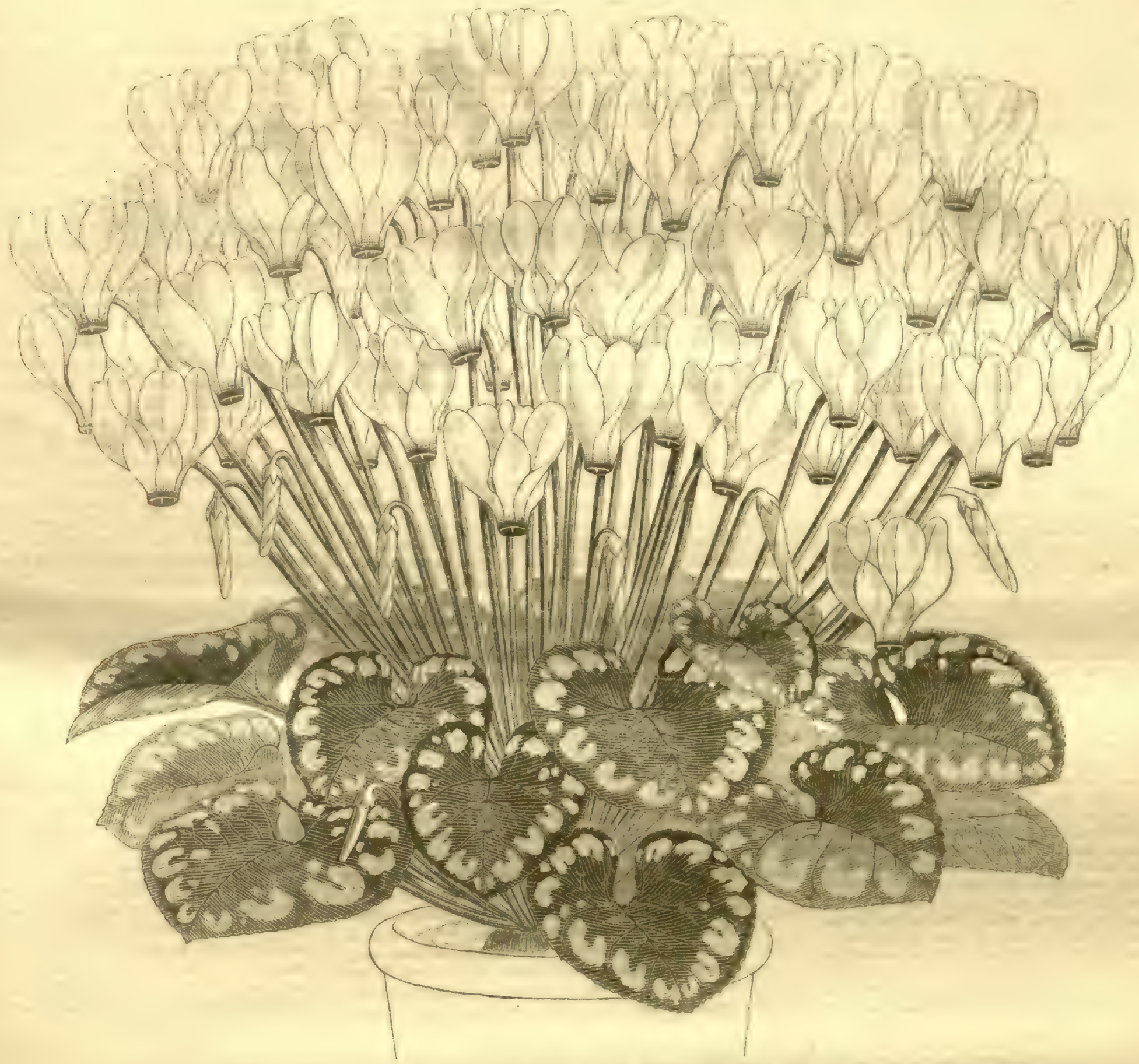


Fig. 51.—SPECIMEN CYCLAMEN, FROM THE COLLECTION OF H. LITTLE, ESQ.

there must be a struggle for existence, and what is the infallible result? If one organism were a perfect copy of the other in regard to strength, skill, and agility, external conditions would decide. But this is not the case. Here we have the fact of variety offering itself to Nature, as in the former instance it offered itself to man; and those varieties which are least competent to cope with surrounding conditions will infallibly give way to those that are most competent. To use a familiar proverb, the weakest goes to the wall. But the triumphant fraction again breeds to over-production, transmitting the qualities which secured its maintenance, but transmitting them in different degrees. The struggle for food again supervenes, and those to whom the favourable quality has been transmitted in excess will assuredly triumph. It is easy to see that we have here the addition of increments favourable to the individual still more rigorously carried out than in the case of domestication; for not only are unfavourable specimens not selected by Nature, but they are destroyed. This is what Mr. Darwin calls "Natural Selection," which "acts by the preservation and accumulation of small inherited modifications, each profitable to the preserved being." With this idea he interpenetrates and leavens the vast store of facts that he and others have collected. We cannot, without shutting our eyes through fear or prejudice, fail to see that Darwin is here dealing, not with imaginary, but with true causes; nor can we fail to discern what vast modifications may be produced by natural selection in periods sufficiently long. Each individual increment may resemble what mathematicians call a "differential" (a quantity indefinitely small); but definite and great changes may obviously be produced by the integration of these infinitesimal quantities, through practically infinite time. If Darwin, like Bruno, rejects the notion of creative power acting after human fashion, it certainly is not because he is unacquainted with the numberless exquisite adaptations on which this notion of a supernatural artificer has been founded. His book is a repository of the most startling facts of this description. Take the marvellous observation which he cites from Dr. Crüger, where a bucket with an aperture, serving as a spout, is formed in an Orchid. Bees visit the flower: in eager search of material for their combs, they push each other into the bucket, the drenched ones escaping from their involuntary bath by the spout. Here they rub their backs against the viscid stigma of the flower, and obtain glue; then against the pollen-masses, which are thus stuck to the back of the bee and carried away. "When the bee, thus provided, flies to another flower, or to the same flower a second time, and is pushed by its comrades into the bucket, and then crawls out by the passage, the pollen-mass upon its back necessarily comes first into contact with the viscid stigma," which takes up the pollen; and this is how that Orchid is fertilised. Or take this other case of the Catasetum. "Bees visit these flowers in order to gnaw the labellum; on doing this they inevitably touch a long, tapering, sensitive projection. This, when touched, transmits a sensation or vibration to a certain membrane, which is instantly ruptured, setting free a spring, by which the pollen-mass is shot forth like an arrow in the right direction, and adheres by its viscid extremity to the back of the bee." In this way the fertilising pollen is spread abroad. It is the mind thus stored with the choicest materials of the teleologist that rejects teleology, seeking to refer these wonders to natural causes. They illustrate, according to him, the method of Nature, not the "technic" of a man-like artificer. The beauty of flowers is due to natural selection. Those that distinguish themselves by vividly contrasting colours from the surrounding green leaves are most readily seen, most frequently visited by insects, most often fertilised, and hence most favoured by natural selection. Coloured berries also readily attract the attention of birds and beasts, which feed upon them, spread their manured seeds abroad, thus giving trees and shrubs possessing such berries a greater chance in the struggle for existence. With profound analytic and synthetic skill, Mr. Darwin investigates the cell-making instinct of the hive-bee. His method of dealing with it is representative. He falls back upon the more perfectly to the less perfectly developed instinct—from the hive-bee to the humble bees, which uses its own cocoon as a comb, and to classes of bees of intermediate skill, endeavouring to show how the passage might be gradually made from the lowest to the highest. The saving of wax is the most important point in the economy of bees. Twelve to fifteen pounds of dry sugar are said to be needed for the secretion of a single pound of wax. The quantities of nectar necessary for the wax must therefore be vast; and every improvement of constructive instinct which results in the saving of wax is a direct profit to the insect's life. The time that would otherwise be devoted to the making of wax is now devoted to the gathering and storing of honey for winter food. He passes from the humble bee with its rude cells, through the Melipona with its more artistic cells, to the hive-bee with its astonishing architecture. The bees place themselves at equal distances apart upon the wax, sweep and excavate equal spheres round the selected points. The spheres intersect, and the planes of intersection are built up with thin laminæ. Hexagonal cells are thus formed. This mode of treating such questions is, as I have said, representative. He habitually retires from the more perfect and complex, to the less perfect and simple, and carries you with him through stages of perfecting, adds increment to increment of infinitesimal change, and in this way gradually breaks down your reluctance to admit that the exquisite climax of the whole could be a result of natural selection. Mr. Darwin shirks no difficulty; and, saturated as the subject was with his own thought, he must have known better than his critics the weakness as well as the strength of his theory. This of course would be of little avail were his object a temporary dialectic victory instead of the establishment of a truth which he means to be everlasting. But he takes no pains to disguise the weakness he has discerned. Nay, he takes every pains to bring it into the strongest light. His vast resources enable him to cope with objections started by himself and others, so as to leave the final impression upon the reader's mind that, if they be not completely answered, they certainly are not fatal. Their negative force being thus destroyed, you are free to be influenced by the vast positive mass of evidence he is able to bring before you. This largeness of knowledge and readiness of resource render Mr. Darwin the most terrible of antagonists. Accomplished naturalists have levelled heavy and sustained criticisms against him—not always with the view of fairly weighing his theory, but with the express intention of exposing its weak points only. This does not irritate him. He treats every objection with a soberness and thoroughness which even Bishop Butler might be proud to imitate, surrounding each fact with its appropriate detail, placing it in its proper relations, and usually giving it a significance which, as long as it was kept isolated, failed to appear. This is done without a trace of ill-temper. He moves over the subject with the passionless strength of a glacier; and the grinding of the rocks is not always without a counterpart in the logical pulverisation of the objector. But though in handling this mighty theme all passion has been stilled, there is an emotion of the intellect incident to the discernment of new truth which often colours and warms the pages of Mr. Darwin. His success has been great; and this implies not only the solidity of his work, but the preparedness of the public mind for such a revelation.

SCRIPTURE BOTANY.

The Willow and the Poplar.—Of each of these two genera of the Amentiferæ certain species are unquestionably alluded to in Scripture. It is difficult, however, to determine the kinds, and to be sure even whether it be Willow or Poplar that is intended in particular verses. This comes of their near affinity, of the general similarity of their places of growth, and of the proneness on the part of the ancients to economy in the use of names. At the outset, for example, comes the question whether the "Willows" on which the captives suspended their harps were Willows indeed, the probability pointing to Poplars; and, still further to perplex the matter, there appears to be no doubt that various trees and shrubs Willow-like, but not really and botanically Willows, nor even amentiferous, were called by the same name, "orebim" or "arabim," just as to-day that sweet apple-scented crimson flower of the waterside, the Epilobium hirsutum, is in the vernacular called the "Willow-herb."

The resemblances between Willows and Poplars consist in their being diœcious, and in the seeds being winged with delicate cottony hairs, such as occur in no other members of the Amentiferæ. The diœcious character consists in certain individuals being purely and wholly male, and others exclusively female—a feature likewise quite their own among the Amentiferæ. In spring, when the catkins are open, it becomes an engaging pastime to note the distinctions, and by degrees, with the help of the foliage in summer evenings, to match the partners. Nothing can be more beautiful in its way than a shoot of the male of the common hedgerow Salix caprea, its large and swelling catkins powdered with gold, and conspicuous from afar; or a branch of the female of the same species, told, as it is so well, by the grey-green of the silky ovaries, and yet not a leaf upon either: or if we prefer a Poplar, than the deep and glowing crimson of the males, that deck the topmost and leafless branches as if for a *gala*, while the females form charming little necklaces of green beads, the end, as it were, let loose, like the chains in a goldsmith's window. When ripe, the little pods burst open, as do the capsules of the female Willows, and discharge their cotton in incalculable abundance, the trees seeming suddenly sprinkled with summer snow-flakes. All, however, is soon wafted away by the wind, and, as happens with the contemporaneous shining spheres of the Coltsfoot, and with the silvery pyramids of the Petasites, that

> "Like the baseless fabric of a vision,
> Leave not a rack behind,"

to-morrow all is gone, and if too late, we must be patient for another twelvemonth. In addition to these two capital points of agreement, the Poplars and Willows correspond in the venation of their leaves, which is of the wandering or "deliquescent" kind;—the differences between them consist in the structure of the catkin-scales, which in the Willows are narrow, pointed, and undivided, while in the Poplars they are broad and lacerated. Minute though it be, this is the best absolute distinction, for although the Poplars usually have leaves broader than long, and the Willows leaves longer than broad, in matters of mere measurement we are never safe. Poplars, it may be added, are always arborescent, whereas Willows, which are much more numerous as to species, frequently do not exceed the height of a man. A few are diminutive, and trail upon the ground: one of the smallest, and perhaps the most thoroughly arctic ligneous plants yet discovered, is the Salix polaris. The name of "Poplar," it must also be understood, is by no means the private property of the familiar spire-shaped tree, which is one only of a dozen different kinds, and which ought always to be specified as the "Lombardy Poplar."

A very curious peculiarity of many of the Poplars is that, owing to the length of the leaf-stalk, and to its being vertically flattened near the blade, the latter portion is competent to quiver, and is kept in motion by the wind, except during the stillest possible states of the atmosphere—

> "Gradual sinks the breeze
> Into a perfect calm; that not a breath
> Is heard to quiver through the silent woods,
> Or rustling turn the many twinkling leaves
> Of Aspen tall."

Directly the wind stirs the leaves begin to move, and we hear the noise, as it were, of a gently falling shower. Every leaf shakes upon its own account; the branch to which it belongs and the tree itself remain perfectly motionless, or exactly the reverse of what happens when a tree is "swayed" by the wind. Hence this tree has for ages been the symbol of tremor and timorousness, as in Homer,* Ovid,† and a thousand others. Beautiful, in another direction, is the passage where old Homer uses the busy motion of the leaves, not one of them standing idle, as an image of the ceaseless whirling of the spindles in the workshops of Alcinous.‡

Nothing in Nature could thus be more fittingly selected for the purpose required in connection with the events narrated in 2 Sam. v.:—"And the Philistines came up yet again. . . . and when David inquired of the Lord, He said, . . . and let it be, when thou hearest the sound of a going in the tops of the *becaim* thou shalt bestir thyself." The object in view was of course that of a signal, and to render it effective the air would be stilled: admirably illustrating how the least of the phenomena of Nature are no less immediately under the Divine control than the greatest and grandest. The Authorised Version in this passage has, unfortunately, translated the word *becaim* by "Mulberry trees." But the Mulberry, with the Hebrews, had quite a different name; the Mulberry, moreover, is not subject to the movement so characteristic of the Poplar,—the sensitive plant of the trees; and that "Poplar" is the legitimate rendering seems to be sustained by the fact that to this very day the Arabs call the tree "bak," literally, the gnat or fly tree. The etymological identity is disputed, but the resemblance of the names is at least very striking, and no one who has watched the flight of the little white-winged seeds, which for a while fill the air with fleecy atoms, can deny that if the tree be not so called it ought to be.

Willows and Poplars, though certain kinds grow in dry places, are trees emphatically and habitually of the water-side:—

> "There is a Willow grows askant the brook,
> That shows his hoar leaves in the glassy stream."

Hence the epithet of "populifer," given by the ancient poets to favourite streams,—to the Spercheus, for instance, one of the affluents of the Peneus, in the vale of Tempe.§ Hence, too, in all likelihood, the name of the locality spoken of in Psalm lxxxiv. 6, "the valley of Baca." Referable to their love of such localities, and to their being specially identified with the quiet and seclusion of the winding pathway by the river, where the fields, always sweet, are lone and peaceful, and there comes into one's spirit a certain tender pensiveness as we muse on the Before and After,—would seem the very ancient association of these two trees with sorrow and melancholy. Men have not made the objects of Nature into emblems and symbols: they simply discover for what purposes they were designed, or which they subserve. What began with the locality would be aided by the usual form of the tree, which is very generally inclined to the pendulous, in detail of twig and leaf, or what the arborists call "weeping." And how charming are the fables that, because of these associations, are bound up with the trees for ever! Flourishing upon the banks of the Eridanus, the Po of modern geography, and the scene of the lament of the sisters of Phaëthon, it was into these that the weeping maidens were transformed by the pitying god: their tears flow afresh every year, oozing out as balsamic juice upon every leaf-bud. A more exquisitely-fashioned myth it is impossible to find: to import botany into it is scarcely fair, yet it remains true that the scented gumminess of the leaf-buds of the Populus nigra, everywhere the commonest of the Poplars, constitutes one of its best distinctive characters. Not that it is peculiar to the Old World nigra. The American Balsam Poplar is even more noted: the scent of the latter is one of the prime features of the vernal season;

* *Iliad*, iv. 482.

† Epistles, *Hyp. Lynces*, 40. See also Theocritus, vii. 136, &c.

‡ *Odyssey*, vii. 106, referring, probably, to the Populus nigra, by the Greeks called *aigeiros*.

§ *Met.* i. 579.

if missed, it is because men do not believe enough in trees. This Poplar gum was believed by the ancients to be the origin of amber;* wherefore Pygmalion is represented as decorating his famous statue with "the tears of the Heliades."† Catullus has a remarkably beautiful phrase, "lightning-stricken Phaëthon's flexile sister."‡ *Leo Grindon, in the "Intellectual Repository."*

PAPER MANUFACTURE IN JAPAN.

The subject of the manufacture of paper in Japan from the bark of the paper Mulberry is one of so much interest that a more detailed account than that given in the *Gardeners' Chronicle* of August 1 will no doubt prove acceptable.

Having in view the multitudinous uses to which paper is put in Japan, and the care bestowed on its manufacture, Lord Clarendon, the then Foreign Secretary, applied some five years since to Sir Harry S. Parkes for information to be gathered from the British Consuls at the various Japanese ports. The result of this was the publication of three reports from H.M. Consuls at Kanagawa, Nagasaki, and Osaka; numerous specimens of the different kinds of paper were also obtained and sent to England, some of which are now in the museum at Kew. From these reports, which are illustrated by *fac-similes* of native drawings, showing the different processes of manufacture, I gather the following details. The bark of Broussonetia papyrifera, Vent., is the principal material used, and next to it the bark of B. Kæmpferi, Sieb. The plants are undoubtedly distinct species, and cannot be considered in the light of varieties. It is true that the leaves of the former species vary much in shape, but they do not approach in any way that of the latter, which may be generally likened to those of the Hornbeam.

Mr. Consul Lowder says that the manufacture of paper from the paper Mulberry (Broussonetia papyrifera) was introduced into Japan about A.D. 610. Up to the year A.D. 280 silk, with a facing of linen, was used for writing upon, and then wood-shavings were also employed. In that year, however, paper was imported from Corea, and this appears to have been the only paper known to the Japanese until the year 610, when two priests, named Doncho and Hôjô, were sent over to Japan by the king of Corea. Doncho is said to have been a clever man, learned in the Chinese classics and moreover a skilful artist; besides the manufacture of paper he also introduced that of writing ink and millstones into the county. Shôtoku Taishi, a son of the reigning Mikado, learned of Doncho how to make paper. But although the paper made by Doncho was very good of its kind, it did not take ink well; it would not bear rough handling and tore very easily, and moreover it was liable because of its material to become worm-eaten, seeing which Taishi introduced the manufacture of paper from the paper Mulberry; he made four kinds, and he caused the paper Mulberry to be extensively planted all over the country, and the mode of paper manufacture to be largely promulgated among the people.

The time of planting the Broussonetia papyrifera, which is known as the Makôdzu or Makoso, varies according to climate and soil, in some places towards the end of the year and at others at the beginning. Some old roots are separated from the plants and cut into lengths of about 3 inches, these pieces are planted in such manner that about half an inch is left above ground. They grow about a foot high during the first year, and in the second to 2 or 3 feet, and in the fourth to 6 or even 9 or 12 feet. Each year in the tenth moon they are cut down to the roots, and from each stalk five branches appear the next year, so that in five years a large and dense shrub is developed. The cuttings of the fifth year's growth are used for making paper. The plants will not thrive in old ground, but grow best round the edges of newly made ground or paddy fields; brackish water is injurious to them, and it is said they will not flourish near Millet or Sorghum. They require a moderate amount of manure, but if planted in the vicinity of other crops, such as Rice, where they can draw sufficient food from the adjoining ground, they flourish best. When the plant has grown it requires some care and attention, as it is liable to be burnt by the sun or injured by the autumn winds. Wild boars and deer also are fond of the young plants.

When the stems have attained a sufficient size they are cut into lengths of about 2½ to 3 feet and placed in a boiler for steaming—an operation which loosens the bark from the wood; this is afterwards stripped off by hand, the wood being of no use but for firewood. Amongst the poorest people employed in the preparation of the bark it is not unusual for several of them to club together and hire a boiling pot, paying for its hire with the wood from which the bark has been removed. After being stripped from the wood, the bark is tied up into bundles and hung on poles to dry, which usually takes two or three days; when thoroughly dry it is again made up into bundles, weighing from 32 lb. to 41 lb. each, and packed on horses, one load consisting of six bundles, and in this way it is sent to different parts of the country. The price of the dried bark varies from about 1*s.* to 2*s.* 2*d.* per bundle of 41 lb. The next process after drying is to thoroughly soak and wash the bark in running water for a day or a night or even more, when the inner bark is easily separated from the outer by drawing the material against the edge of a knife, which is fixed against a board. The outer bark is used for making an inferior kind of paper. The best kind is made from the inner bark, and it usually takes three days to make the paper, adepts, however, can finish it off in two days. To cleanse the inner bark from the glutinous matter with which it abounds it is taken, after the removal of the outer bark, to the river and thoroughly washed, after which it is further steeped in buckets of water, which is finally run off, and heavy stones are placed upon the bark to express the remaining liquid. The bundles of bark, which are known as "sosori," are then boiled in water in which the ashes of burnt Buckwheat husks have been infused, and are kept constantly stirred during the boiling; after boiling they are pounded or beaten into a pulp by wooden mallets on a thick solid wooden table.

This "sosori" is made into lumps or balls, and is identical with what is known amongst paper-makers as "half stuff;" pieces are broken off these lumps as required and thoroughly beaten up in a trough with a certain quantity of size or paste previously prepared from the roots of the "Tororo" (Hibiscus Manihot, L.): a peculiar and dexterous jerk is finally given to this trough or "boat," which "sets" the paper; it is then put up edgeways to drain, and finally dried by spreading the sheets on a large flat board. The paper is made in sheets of different sizes and thicknesses, the finest and smallest kinds being made by women. The paper is moreover cut into various sizes and made up into bundles ready for market. The different kinds of paper are known by distinct names, and the varieties even of writing, printing, and packing papers are exceedingly numerous, to say nothing of paper made expressly for purposes that we in the West would never dream of. Thus the following is given as the mode of making paper cloth warranted to wash:—"Take some of the paper called 'nôshô,' or some of the best 'senka,' and dye it of the colour required. Boil some of the roots called 'Kon-niaku-no-dama' (Arum Dracontium, L.?) with the skins on; try them with the inner portion of a rice stalk—when it penetrates easily they are sufficiently boiled; peel them and let the water run off, and then pound them into a paste. Spread this paste on either side of the paper and let it dry in the sun till quite stiff, then sprinkle water on it till it is thoroughly damped, and leave it in that state for a night. The next morning roll it upon a bamboo of the thickness of the shaft of an arrow and force it with the hands from either end into a crumple in the centre, unroll it and repeat this process two or three times, rolling it from each side and corner of the paper. Then crumple it well in the hands by rubbing it together until it becomes quite soft, and then sprinkle water on it again to damp it, pull it out straight and smooth, fold it up and pound it with a wooden mallet. It may then be put into water as much and as often as is liked without sustaining injury, having become a strong and lasting material. This cloth is made principally in the Daimiate of Sendai. Boxes, trays, and even saucepans may be made of this cloth, and saucepans thus manufactured sustain no injury over a strong charcoal heat. Bags may be made of it in which wine may be put and heated by insertion in boiling water. Paper thus prepared may be used for papering windows, and will withstand the rain without being oiled. Amusing experiments may be made with it."

The manufacture of oiled paper for waterproof coats and similar purposes was described in the number of the *Gardeners' Chronicle* referred to at the commencement of this paper; it need therefore only now be said that the size or paste made from the young shoots of Ferns is used to fix the separate sheets of paper one over the other to increase the thickness of the material, and that the Fern alluded to is probably Pteris aquilina.

Bank-note paper, called "kinsatu," is made by mixing 25 lb. of bark with 12 pints of a preparation of fine gravel and water, after which 2½ pints of rice starch are added. This paper generally consists of three layers of paper, and nine pints of "nibè" or powdered Wheat husks are also mixed with the pulp to give more substance to the paper. It is then pressed between two planks, and when dry submitted to the friction of two oak planks, which gives it a glossy appearance.

The process of paper-making in Japan from the bark of other plants, as the Broussonetia Kæmpferi, Passerina Gaupi, Edgworthia chrysantha, and Morus nigra, is conducted in a similar manner to that described here. Slight differences, however, sometimes occur in the use of different plants for sizing the paper, Kadsura japonica, L., being one not already mentioned.

The collection now exhibited in the Kew museum, though only a portion of what was originally sent from Japan, is tolerably complete, and illustrates in a striking manner the great ingenuity of the Japanese, not only in the manufacture but in the application of paper to the various requirements of life. The imitation crape used for ladies' head-dresses is marvellously light, and to all appearance a good substitute for real crape; the patterns are also good and the colours wonderfully bright. It would be interesting to know from whence the colours used as dyes by the Japanese are obtained, not one word on this subject being said in the interesting reports of the Consuls. Then again the specimens of string, some dyed black like coarse black thread, and others white like fine white twine, need almost to be untwisted before one can be fully satisfied that they are paper.

The oiled papers in imitation of leather, some of which are of great thickness, and the bookbinding cloths in imitation of our cloth bindings, are also surprisingly good, some of the designs being stamped or produced in relief and embossed with gold very similar to some bindings of English mediæval books or old missals. Altogether the collection is a very interesting one, and is doubly valuable on account of the excellent reports which accompany it. *J. R. Jackson, Museum, Kew.*

* Ibid., ii. 364—366. † Ibid., x. 263.
‡ Poem 64. The marriage of Peleus and Thetis.

Home Correspondence.

Berry-bearing Potatos.—Is not the idea put forth by "J. L.," on the subject of raising seed Potatos as an antidote to the disease, the resuscitation of an old notion in which great faith was placed by Paterson and others, and which has hitherto proved powerless for good? Of all men who had hoped to produce beneficial results in this direction, none laboured so hard, and with so much persistence, as did the late Mr. Paterson; and yet, although he was instrumental in raising thousands of comparatively healthy and certainly robust-growing seedlings, the pick of which have been for some years put into commerce, yet not one of these kinds are capable of resisting the disease in bad seasons, and no more reliance can be placed on their immunity from fungoid attacks than can be placed on that of any other kinds, be they ever so old. Paterson's Potatos are, as a rule, very late kinds, having coarse-growing haulm, showing in it a degree of rude health and vigour that none others excel; and yet, because of their lateness and vigorous haulm, are terribly subject to disease, especially if the autumn be wet. As a rule also, most of Paterson's Potatos produce seed-pods. Mr. Fenn has not been behind Mr. Paterson in his efforts to produce seedling varieties, but he has endeavoured to raise kinds that are more refined in growth, in shape of tuber, and in quality, and in this respect he has been eminently successful. He is now testing the third year's growth of some 150 selected seedlings; but Mr. Fenn would be the first to repudiate the idea that these seedlings are essentially more disease-resisting than other kinds, yet they produce seed-berries in abundance, and some of them do so in great abundance, the pods being as large as walnuts, and averaging nine to a bunch. Of the batch of seedlings now being put into commerce, I can instance Bountiful, Cambridge Kidney, and the Rector of Woodstock as large pod-bearers, and yet these can lay no special claim to disease immunity. Take, for instance, that well-known potato, Red Emperor. Now, I know of no variety that seeds so freely as this. I could gather a bushel of berries from it now. From one branch alone I gathered fourteen fine pods, and that is no isolated instance; yet it will be universally admitted that no variety exhibits the destructive effects of the disease so quickly and so severely as does the Red Emperor. In the face of this single instance, what become of "J. L.'s" theory? Now, it is a curious fact that almost all the American kinds growing in this country, although they flower freely, are yet with us seedless; in fact, are devoid of pollen. "J. L." would therefore be disposed to assert that all these lack health and vigour; but the question remains, Are they seedless in America? I should think not, as seedlings appear to be very freely raised there. Probably their pollen deficiencies are due to change of climate, and if so, the assumption that they lack vigour must go for nothing. In attempting to use flowers of the finest of the new American sorts as pollen parents for hybridisation, Mr. Fenn found that it was exceedingly difficult to obtain from them even the minutest grain, whilst flowers of his own kind would emit pollen in great profusion. The assumed immunity from disease of seedling varieties may be a comfortable theory to believe in, but it has not been borne out in practice. I grow yearly stock of the true original Lapstone, and it is not in any sense excelled by any of the score of seedlings that have of late years been raised from it. The present season seems unlikely to prove one of

value to inquirers into the nature of the disease; evidences of its existence so far are so small as to be absolutely unworthy of notice. In this respect it is peculiarly unfortunate for the Royal Agricultural Society's trials, as sorts everywhere are coming up so clean; therefore, their test for the present season will most likely have to go for nothing. Perhaps it will help to show quite as forcibly as though the season had proved to be a disastrous one, the utter absurdity of the whole proceeding. I have already lifted more than twenty kinds, in quantities more or less, and have not found amongst them a single diseased tuber, yet it would be ridiculous were I to claim for any of them capacity to resist disease. My observations with regard to pollen-bearing flowers, although few and recent, incline me to the belief that pollen is found in greater abundance in dark coloured flowers than in light ones; at least, I find the sorts bearing seed-pods this season have nearly all, if not quite all, dark coloured flowers. Whether there is any intimate connection between the two things is more than I can say—that is rather a point for the consideration of the botanist. There is also another point worthy of inquiry—Are kinds that produce seed in one part barren in another part of the country, and *vice versâ?* Should this prove to be the case, perchance it might result that all kinds produce seed somewhere or another. To solve these problems I would suggest that next season, when Potatos are in bloom, bunches of flowers of various kinds, properly named and packed, should be sent to the editors from divers parts of the country. By this means it would be possible to ascertain whether there was any relation between colour of flower and pollen production, and also what sorts were seed-bearers and what sorts were generally barren; it would hardly fail to produce some useful information. I am tempted to express a grave doubt whether "constitution," "healthiness," or "vigour of habit" has anything whatever to do with the production of, or resistance to, the so-called Potato disease. How is it possible to associate "want of vigour," "weak constitution," and "lack of health" with such sorts as Darne's Matchless, Red Emperor, Victoria, and dozens of other vigorous-growing kinds that are, until affected with the fungus, as full of rude health as possibly can be. The idea is a red herring trailed across the scent of earnest inquiry; it has led good men off the right track, and they are still floundering in the mud of absurdity into which the false trail has led them. Do not evidences multiply that these mysterious fungoid growths attack vigorous and healthy foliage as freely as they do foliage that is unhealthy? Has any one been mad enough to attribute the attacks of the Puccinea malvacearum on the Hollyhock to the lack of health and vigour in that plant? Does not the Oidium Tuckeri attack Vines under all conditions of culture, if it can get a foothold? and does not fungus settle upon Cucumbers, Peas, Pansies, and many other vigorous plants, if the fungus has the aid of, or is promoted by, atmospheric conditions? If these assertions and assumptions are correct, then let us bid farewell to the "lack of vigour" theory. *Alex. Dean.*

A Rose Garden at Cheshunt.—Several objections have been raised against the employment of the standard Rose in Rose gardens, the chief ones being that what has been rather superciliously styled mop-headed plants are unnatural in growth and appearance, and that the plants when worked on tall standards have their flowers above the line of sight, and the best part of them are not seen in consequence. Planted out dwarf Roses have been objected to also, on the ground that they are irregular in growth, and even when pegged down present a rugged and uncouth appearance. Another objection urged against the Rose garden is that after the Roses have gone out of flower and the leaves have dropped there is nothing but skeleton plants remaining, and it must be admitted they have but little interest for the gardener at that stage. At the Cheshunt Nurseries Messrs. Paul & Sons have formed an oblong Rose garden, in small beds geometrically arranged, after the fashion of a flower garden, each of which is edged with Box. The boundary of the garden is defined by a line of pillar Roses of varying heights, the beds are all dug out so as to afford space for plunging material, such as leaves, cocoa-nut fibre, or spent hops; and each bed is fitted with a number of pots of one variety of Rose. The centre bed is raised above the level of the others, and this was filled with dwarf bushy plants of the beautiful deep canary-yellow Tea-scented Rose, Perfection de Monplaisir, blooming profusely. Then the surrounding beds were filled with varieties, affording contrasts of colour—crimson here, scarlet there, alternating with rose, pink, blush, yellow, &c. The plants were placed in the beds the first week in March, and by the early part of June many were in flower. Just now the second crop of flowers is coming on, and there is such a rich promise of these that the bloom will be extended to the middle of October. Alfred Colomb, Baroness Rothschild, Charles Lefebvre, Comtesse d'Oxford, Duke of Edinburgh, Elie Morel, John Hopper, Louis Van Houtte, Madame Victor Verdier, Paul Neron, Victor Verdier, and Sénateur Vaisse—among hybrid perpetuals; Belle Lyonnaise, Cheshunt Hybrid, Devoniensis, Gloire de Dijon, Niphetos, Perfection de Montplaisir, and Souvenir d'un Ami—among Teas; and the pretty China Rose Mrs. Bosanquet, indicate some of the Roses that may be employed in this way. Clematises might very appropriately alternate with pillar Roses in forming the fence or outline to the garden; and, if it were thought desirable, a permanent border of hardy flowers might be arranged round the circumference, leaving the interior portion for Roses. The beds, after the pot Roses are removed in the autumn, could also be filled during the winter with hardy evergreens and variegated plants, such as Aucubas, Hollies, dwarf coniferous plants, Laurustinus, and other things that will readily suggest themselves; and at no season of the year would it have the dreary and desolate appearance common to most Rose gardens, when, with an aspect of dull despair, our parterres lie fast locked in the icy embrace of winter. *R. D.*

Another Horticultural Heresy.—The revolution which is slowly but certainly being effected in our notions respecting most of the phenomena connected with vegetation, and the necessarily progressive nature of horticulture, both suggest, among other matters, some examination into the efficacy of many remedies for the injuries effected by those formidable enemies of the gardener, insects. I will confine myself to one particular among so many, and that is the ordinary painting applied to trees at the winter pruning. This consists almost always of the same materials, slightly varied; and it cannot be said that the results are satisfactory. A part of the object aimed at is to stifle the germs of insect life; and this, in the opinion of some, could be effected by the simplest means, even by the application of clay. The addition of other ingredients seems to poison any living insect. As many of these compounds are unpleasant to the smell for long periods, and all are more or less sticky, I have tried the use of ordinary oil paint on Peach trees and on Vines, with apparently good results so far, and beg now to suggest a trial of it by others. It would be easy to experiment on some potted Vines, for example, and on a few trees in the orchard-house. I have employed a small brush, and run the paint lightly over the stems and branches, omitting the buds generally, and applying the paint thinly as a glaze. In the hollows of branches no precautions are necessary. From the nature of paint it is easier to apply it than the more solid compositions now used, and the work is cleaner to do by far. There will be no unpleasant after-smell, nor will the dressing adhere to the clothes. If we consider the materials which make up oil paint, I suppose it is the linseed oil which it is feared may set too hard, and fill up the bark too closely. But, on the other hand, soft soap is made from the refuse of coarse fish oils, and though in composition with potash it undergoes a change, still the linseed oil mixed with lead (or rather chalk by adulteration) also becomes distributed over a large surface, and, in practice, as the tree grows the paint cracks, and allows ample room for the functions of vegetable life. Those Vines and Peach trees on which the oil paint has been applied are in excellent health, and have borne fine crops. I first tried this plan on some Peach trees which had scale, and have since used it more largely. But as this method is new to me, and others may greatly improve on it, I leave it to them to consider, for the present filthy compositions are anything but satisfactory. *T. C. Bréhaut.*

Roses and Rose-shows.—I am proud to find my name associated with the names of Sowerby and Gibson—men who have already made a position for themselves—men who have had fathers before them whose names will live long and honourably in the annals of English botany and gardening. I should be glad if these gentlemen will tell your readers what part they took in and what claim they make to the origin and success of my Rose garden in the Regent's Park Botanic Gardens. Mr. G. Paul quotes as my words, "that the standard of size and shape does not prevent our finest garden Roses being shown" and promises a list of varieties to answer the "assertion." Now these words are not mine, I therefore need not notice the inferences he draws or intends to draw from them. But it is considered very unfair in controversy to misquote your adversary and then make a show of refuting what he did not say. Mr. G. Paul says, "he (Mr. William Paul) wishes the public to believe that those growers who, whether from a desire to avoid the necessary labour and expense, and a certain amount of risk of being beaten, or from other causes, do not compete, produce as good—nay, does he not insinuate better?—plants than those who exhibit for competition. Surely this is misleading the public." I reply, I insinuate nothing, nor am I misleading the public. I have spoken out boldly and in the plainest language that I can command, in a manner which I judge calculated to prevent the public from being misled by others, or misleading themselves. I say that the standard of size and shape required at the Rose shows shuts out many of the best sorts of Roses for garden decoration; and, 2 l, that Rose plants grown for prize blooms, however fine the plants may be, are not intrinsically so valuable to purchasers as plants grown otherwise. These two propositions I think I can make clear to your readers, and I will endeavour to do so at an early date. But I should like first to hear a little more of the "drawing-room" discussion. The little bit we have already got is the fullest endorsement I could wish for of an important feature (freshness) in my show; and perhaps when we have the remainder further correspondence on my part may be rendered nugatory—who knows? All that I did, and which was "the talk of the town the next day," may have been revolving for years in the hidden and mysterious depths of other minds, and the horticultural public may as well be informed as to who are its most original and greatest thinkers! I am not afraid that they will forget my Rose shows. *Wm. Paul, Paul's Nurseries, Waltham Cross, Herts.*

The Spanish Name of the Cork Tree.—Can any of your learned correspondents—Mr. Grindon, for instance—inform me what is the origin of the Spanish name for the Cork tree, Alcornoque. In former days I supposed it to be Arabic, and that we had derived from it our word Acorn, just as Alemir, Almirante, became admiral; but as Acorn is simply the Saxon aac-kern, Oak-grain, that will not hold good. Still the word as pronounced bears such an almost ludicrous resemblance to acorn-oaky, that it is impossible to suppose it to be accidental. Is it to be accounted for by the residence of the Goths in Spain? It is remarkable that while in Italy and France Episcopus retains the form of Vescovo, it assumes that of Obispo in Spain and Germany, showing apparently a Teutonic influence upon the language of the Peninsula. If the question can be cleared up it would solve a difficulty of many years' standing. *H. K., Hants.*

Begonia nitida.—Of all our stove-flowering Begonias, this old variety is undoubtedly one of the most useful. But few of our newer varieties produce flowers superior in point of beauty, and I think there is no variety flowers in such profusion or retains its bloom so long. Fair, well-sized, established plants, if introduced into a brisk heat early in spring, and removed to a cool stove or warm greenhouse when the flowers begin to make their appearance, will cause a fine display throughout the summer and part of the autumn months. Being of a free-growing nature this plant is eminently useful for training along the rafters of low span-roofed houses, and for covering exposed inside walls which have to be covered with climbing plants. When plants are cultivated in this manner, if their roots can be planted in a border in comparatively rich soil, they soon attain a good height, and throw up abundance of young shoots which can take the place of the old ones as they become unsightly. Of course flowers are not produced in such a profuse manner when treated in this way as when the plant has its roots confined in a pot, but the colour of the leaves, which is of a bright shining green—the young leaves as they become developed possess a brightness peculiarly their own—always renders it as an object of attraction. *W. McR.*

The Succulent House at Kew.—The house for succulent plants at Kew presents just now a very striking and unusual appearance. It will at all times prove a rich source of pleasure to those who delight in the strange, often grotesque, forms assumed by many members of the Cactus, Houseleek, Euphorbia, and other families. Here we frequently have the most brilliantly-coloured flowers associated with a fleshy development and curious shape of foliage or stem. In the Stapelias, on the other hand, a most interesting structure of the essential organs of the usually dull-coloured vilely-scented flowers, may be studied by those who can overcome their unpleasant odours. But it is not this division of De Candolle's Xerophiles that is distinguishing itself by an unwonted activity at the present moment. It is the monocotyledonous or endogenous group of plants, characterising the warm dry regions of different parts of the world. Some of them, alas! like the grand Agave mentioned last week, are, in the language of botanists, monocarpic, which signifies that they flower once only, and then die! Indeed, the splendid foliage we have admired for years, and perhaps also our fathers before us, begins to show signs of decay with the first appearance of the flower-shaft; and, ere the flowers are fully expanded, those fine fleshy leaves have shrunk and withered away almost to nothing. This is certainly a drawback; and therefore, in the case of some rare species, we can scarcely rejoice at the opportunity of seeing them flower, because the first thought that presents itself is, can they be replaced? Happily horticultural establishments are so numerous now-a-days, that there are not so many difficulties in the way of filling up vacancies. But truly there is a sight worth seeing at Kew just now,

and one that will afford pleasure even to those who are not troubled with botanical knowledge, although neither gorgeously-coloured flowers nor graceful habit meet the eye. In addition to the stately Agave, just in its prime of flowering, two Dasylirions, on the decline, the Xanthorrhæa recently figured in the *Botanical Magazine*, and many other curious things, the flowering stems of several species of Fourcroya are rapidly rising in all directions. Something seems to have stimulated or forced them into a premature development of flowers. Or are they all trying to emulate their near relative Agave? And now we are here, it is right to mention that Fourcroya differs mainly from Agave in its filaments being literally, not filaments at all, but globular fleshy masses, with an anther perched at the top. In all other respects the species of the former genus resemble the Agaves, presenting about the same variations in foliage. But the species are by no means so numerous. Some of them have tall stems, and others are stemless, or almost so. The trunk of F. longæva is said to attain a height of 50 feet, and the flower shaft another 40, in its native country, Mexico; whilst F. gigantea, unfortunately for its name, which was given before the former was known, has no trunk. The latter and two others are coming into flower at Kew. F. longæva flowered at Regent's Park a few years ago. Two species of Dasylirion—acrotrichum, and glaucum—still bear their flower-spikes; and the peculiar Australian genus, Anigosanthus, whose flowers have the appearance of felt or plush, is represented by two interesting if not showy species. *K.*

Cycas revoluta.—A fine specimen of this really noble class of plants, commonly known here as the Sago Palm, is now producing a large head of flower at the well known Rosedale Nursery of R. Buist, and which, probably, will measure over 3 feet in circumference by the time it is fully expanded. The plant in question is by no means a young one, having already attained a stem or trunk some 40 inches in circumference, and 4 feet in length, from tub to base of fronds, which also measure 7 feet through. The circumstance of its present flowering might not be so remarkable but for the fact of its having stood out in the open air, and in the full sun, for over two months; indeed, it is almost surprising to a European gardener to see with what impunity stove plants in general stand the effects of a United States' summer, for all such hard-wooded plants as Clerodendrons, Justicias, all the varieties of Hibiscus sinensis, Ardisias, Eranthemums, the double-flowering Tabernæmontana (which is flowering most profusely now), and many other varieties which would in England be thought impossible to move beyond the shade of a greenhouse, are all placed out in the open air, under shade trees, during the summer months. Not only do stove plants thrive well under this treatment, but flower in a manner which, if seen by many admirers of horticulture, could not fail to cause regret that many of our old stove-flowering plants are too rarely seen now-a-days in many fine collections. At the above nursery is also a large plant of Tecoma (Bignonia) radicans covering the wall of an old lean-to conservatory, some 20 feet in height and breadth, now bearing some hundreds of its beautiful orange-scarlet trumpet-like flowers, which in itself is a perfect flower show well worth the seeing. *T. F., Philadelphia, U.S.A.*

A Permanent Rat-trap.—It is hardly safe to venture an estimate of the amount of grain yearly destroyed by rats, because we might be so far under the mark. We know a case in which the corn crop of a field of 13 acres was put away into a mow with the ears on, so that it might be cut up together and steamed for the stock, and three-fourths of it was destroyed by the rats, and rendered useless. This is an extreme case, but the damage to corn in cribs and unthreshed grain in barns is vastly greater than farmers generally suspect. It is true that these pests are hard to get rid of, that they are sagacious and cunning, and that their perseverance is remarkable. But a man should know more than a rat, and he has but to exercise equal perseverance with these enemies to vanquish them. Where it is possible, the best thing to do is to remove every hiding-place by elevating the buildings upon posts or pillars of brick or stone, and letting daylight beneath them. Rats love darkness, and will not harbour or breed in places where they are exposed to view. The pig-pens, which are favourite resorts for them, should be raised well up above the ground, and the pigs will be all the better for it. The stables should have paved floors, and the sills should be placed on a brick underpinning. The barn, if there is no basement, should be raised upon pillars or short walls two feet high, so that dogs or cats can get under them. If this can be done, and every rat that is seen is hunted down perseveringly until it is caught, the pests will desert the place as being unwholesome for them. Where thorough work is not possible, they may be induced to desert their quarters by one or two effectual raids made upon them by means of the contrivance which we here illustrate (fig. 52). It should be set up in an outhouse, or a quiet part of a barn or stable. It consists of a long narrow box, 3 or 4 feet long, and 6 or 8 inches wide and deep. This is set upon another box about 30 inches high, with sloping sides, so that the first box forms the top part of the second box; the first box is open at the top for about a foot at the rear end, and this open part is partly filled with corn or corn ears. Immediately in front of this part there is a loose bottom neatly fitted upon pins, so that it will open downwards with the weight of a rat. A piece of lead is fastened to it to keep it in position, or restore it to its place after it has been disturbed. The front of the box is partly hidden with a couple of sheaves of corn stalks or rye straw, which furnish a ready means of access for the rats. At the bottom of the second box there is a narrow box or tube fitted, which leads through the wall of the building into a barrel half sunk into the ground outside, as shown. A loose trap is also fitted at the end of the tube. The barrel is covered with a wide board, with a hole in the centre to admit the light. A few pailsful of water are put into the barrel. At first the loose bottom is pegged fast and the rats, quickly finding out the way to the corn, are allowed to gather there for a week or two, and are fed liberally. When they have taken full possession, the pegs are taken away, and the pivots are greased, and the rats are caught one after the other. As they find their way to the barrel, attracted there by the light, which they can see through the tube, they are drowned and their bodies may be scooped out daily. The number caught in this way is astonishing, and for a time afterwards few, if any, rats will be seen about the place. Then the pegs may be replaced, and the rats encouraged to gather again. The contrivance is a permanent one, and will pay for the attention it requires. It is not a new thing, and

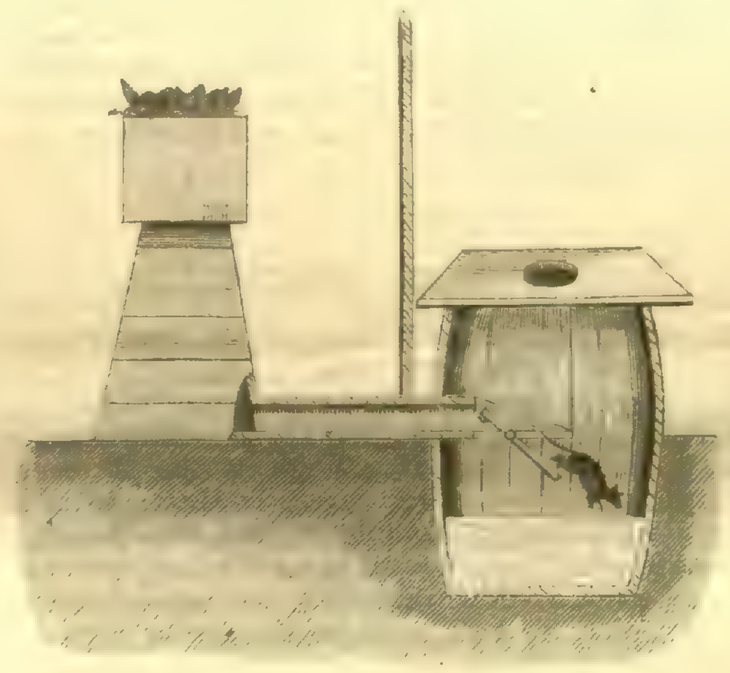


Fig. 52.—A permanent rat-trap.

has been used with great success for many years, but is probably new to most of our readers. *American Agriculturist.*

Phlox Miss Robertson.—I wish to put in a word or two of high praise in favour of this beautiful pure white Phlox. I have at the present time growing in my conservatory a plant in a 24-pot, which has a yet undeveloped spike nearly a foot in length, and some of the pips are almost 1½ inch in diameter. It is distinctly and sweetly fragrant; the plant I have fills the house during the night when it is shut with a pleasant odour. I think it ought to be called the Hyacinth-flowered Phlox, for it greatly resembles the spike of a magnificent pure white Hyacinth. There is an impression abroad that Phloxes, or at least the varieties of the P. decussata section, cannot be grown in pots with anything like success, unless very special efforts are put forth to keep the plants in condition. If Miss Robertson may be taken as a case in point, I think we might do better with some of the varieties of the P. suffruticosa section. At any rate, Miss Robertson makes a fine pot plant, and does well in a greenhouse under ordinary treatment. It must have good soil and an abundance of water, and then it will abundantly repay such attention. To those who grow collections of Phloxes it is equally acceptable, because it furnishes us with a first-class pure white variety. A thoroughly good thing like this Phlox deserves to be well praised, and I am glad to know that Messrs. James Cocker & Sons, Sunny Park Nursery, Aberdeen, who distributed Miss Robertson, have other seedlings of an equally fine character with Miss Robertson. *Richard Dean, Ealing, W.*

Hollyhock Disease (Puccinia malvacearum).—This terrible disease has now for twelve months threatened the complete annihilation of the glorious family of Hollyhock, and to baffle all the antidotes that the ingenuity of men could suggest, so rapidly does it spread and accomplish its deadly work. Of this I have had very sad evidence, as last year at this time I had charge of, if not the largest, one of the largest and finest collections of Hollyhocks anywhere in cultivation, which had been under my special care for eleven years; and up to within a month of my resigning that position I had observed nothing uncommon amongst them, but before taking my final leave of them I had to witness the melancholy spectacle of bed after bed being smitten down, and amongst them many splendid seedlings, which had cost me years of patience and anxiety to produce. And again, upon taking a share and the management of this business another infected collection fell to my lot, so that I have been doing earnest battle with this disease since its first appearance amongst us, and I must confess that, up to a very short time back, I had come in for a great deal the worst of the fight, although I had made use of every agent I could imagine as being likely to aid me, and all that many competent friends could suggest. But lately I was reminded of Condy's patent fluid diluted with water, and at once procured a bottle of the green quality, and applied it in the proportion of a large tablespoonful to one quart of water, and upon examining the plants dressed twelve hours afterwards was delighted to find it had effectually destroyed the disease (which is easily discernible, as when it is living and thriving it is of a light grey colour, but when killed it becomes a rusty black). Further to test the power at which the plant was capable of bearing the antidote without injury, I used it double the strength. This dose was instant death to the pest, leaving no trace of any injury to the foliage. As to its application, I advocate sponging in all dressings of this description. Syringing is a very ready means, but very wasteful. No doubt sponging consumes more time, but taking into consideration the more effectual manner in which the dressing can be executed alone, it is in the end most economical, especially in regard to this little parasite. I have found it difficult by syringing, as it has great power of resisting and throwing off moisture, and if but a very few are left living it is astonishing how quickly it redistributes itself. I am anxious to make this known, that all interested in the cultivation of the Hollyhock may try it, and make known its effect, for it would be an infinite pleasure to me should this be only the partial means of saving from destruction these beautiful ornaments of our gardens. I feel confident, if spared until another season, that by the application of this remedy in time, of being able to keep this collection healthy and clean so far as Puccinia malvacearum is concerned. I believe planting the Hollyhock in large crowded beds should be avoided, as I have observed the closer they are growing the more virulently does the disease attack them, whereas isolated rows and plants are but little injured. *E. Speed, Gonville Nursery, Cambridge.*

Orange Trees.—I fear your "Subscriber for Thirty Years" will be disappointed in his orangery. The Orange grove of the poet sounds very pretty, but the reality falls far short of the imagination. The Orange tree is seen in perfection at Nice or Sorrento, and grows from 12 to 20 feet in height. As to its thriving best under a dark roof, I expect that is mere moonshine. The sun at Nice, even in the middle of winter, is as bright, and very nearly as hot, as it is in many parts of England during the dog days. I would strongly advise your Subscriber to keep his trees in tubs, as they are more manageable. I have seen trees in Switzerland in tubs preserved in a greenhouse in winter which were infinitely more graceful than the Orange trees of Italy and the South of France. The Lemon, however, is a much more graceful tree than the Orange. It hangs its branches like a Quince; its flowers are quite as delicately perfumed, and its fruit is likely to be quite as valuable as any Oranges grown under glass in England are, the value of either being very little. Oranges and Lemons both like a sandy soil which has a certain amount of clay well mixed through it. Plenty of water and liquid manure, joined with thorough drainage, is what both Orange and Lemon require. The Orange will grow in a low-lying, damp spot, where the lemon would die, but it is never healthy in such situations. They both thrive best on terraces formed up the side of a steep hill, each terrace from 3 to 6 feet high and from 8 to 12 feet wide, a single row of trees on each terrace; but it is impossible to grow them without an ample supply of water. Last December the sun at Mentone up to the end of the month was usually from 92° to 94° F. at 8 to 9 o'clock in the morning. *G. A. H.*

—— Precedent would suggest to your correspondent that he should keep his Orange trees in boxes, or, what is more proper, in tubs. If this cannot be done, it will be to his advantage to make such preparations for drainage beneath the beds he intends planting them upon as will insure that the moisture the soil is capable of holding be under the most perfect control, and with this view he may surmise that quite a depth of material of as open and air-permeating a

kind as possible be so placed. The Orange delights in rich unctuous loamy soils, and in abundant waterings, alternated with strong doses of liquid manure during summer and when growing. It also likes an occasional watering in winter, yet no tree-roots are so averse to soured soil as are theirs. The difficulty with planted-out trees is to avoid this. I should advise keeping them in tubs. Look at the age of the Hampton Court trees, yet how vigorous have they kept. I remember once having to assist in retubbing a cargo or two of Orange-trees brought over from Versailles. They were large, fine trees, but with the roots cramped into inconceivably small, square, planed, yet paintless tubs. Evidently they were richly fed at their growing season. Notice how green very young plants will keep in the smallest of pots and take a lesson from the fact. They thrive best under half wood and half glass, the glass in thin strips, &c. Why not grow Grapes over them, or other kinds of creeping plants? *William Earley.*

American Blight.—I observed in your paper of last week an article from Mr. George Davison, White Cross Nursery, Hereford, wherein he speaks of his Apple trees being infested with blight. Thirty thousand trees affected!—thirty gallons of paraffin oil applied! It is to be hoped that this strong dose has had the desired effect, or woe betide the orchards of Herefordshire when the infection from these 30,000 trees becomes distributed. I live in the same county as Mr. Davison, and grow some thousands of Apple trees, but amongst my collection I have not observed any unusual quantity of blight of any description. I have always found that good culture, frequently stirring the soil, to encourage as much as possible vigorous healthy growth, to be the best antidote for all diseases or blight of any kind. *X. Z.*

The Rose Show Controversy.—As a rosarian not without some knowledge of the subject, though neither judge nor exhibitor, I have read with considerable interest the discussion upon Rose shows going on in your pages. Few intelligent minds will dispute the statement that "controversy," conducted in a spirit of impartiality and fair-play, and with the design of eliciting only the truth, is an important element in progress, as well as a proof of wholesome vitality in the topics concerning which it is carried on. It must not, however, be one-sided, nor must the real points of the discussion be lost sight of. Neither of these latter propositions, in my humble opinion, appear to be perceived by those who have set themselves to question the merit of Mr. W. Paul's praiseworthy attempt to develope a new and more natural method of displaying the decorative capabilities of the Rose. It would almost appear from the tone of some of the communications that a certain section of the Rose world, like the craftsmen of Ephesus at the preaching of Paul, felt their trade in danger. But I do not gather that Mr. W. Paul's enterprise was at all put forward with the object of superseding, or even interfering with the present manner of showing Roses for prizes, although a large body of rosarians outside the charmed circle of those interested in maintaining the system have long felt that the whole question of Rose shows was ripe for reform. Nay, I venture to think that even the morality of such exhibitions as now carried on is open to serious doubt, consisting, as it does, of bringing specimens to the tables with colourable properties as to size, &c., which the varieties they represent never attain under the conditions of general culture, and which are produced by an adventitious course of treatment that from ordinary growers they are never likely to receive. Nay, it is even a not uncommon practice to cut exhibition blooms from plants grown under glass, thus, to say the least, misleading the public as to the true character of the varieties presented to their view. It must not be forgotten that, with trade exhibitors, the chief value of the prizes consists in their advertising value, as it is well known that there are hosts of inexperienced lovers of Roses who frequent these shows expressly to form their opinions from what they see, noting down for future purchase the names of such as please their fancy. The disappointment, the discouragement, and not seldom anger, leading frequently to the relinquishment of Rose culture altogether, following these ill-advised selections, is too generally known to require extended remark. It may be laid down as an axiom that, in ninety-nine gardens out of one hundred, not a single bloom in any season, even of the best varieties, will be found equal to the samples on the strength of which purchase was made. Under these circumstances "the high educational influence," to which Mr. G. Paul alludes, of the present system of exhibiting blooms under false colours, seems open to question. The case of prize pigs and fat cattle which has been sometimes quoted in excuse is not analogous, because no purchaser imagines any one of the breed will reach the standard of the prize beast, nor is such an expectation put forward even inferentially, as it is with prize Roses. There is another point in Mr. G. Paul's letter (August 15) upon which I must join issue. Does he mean to assert that such Rose firms as those of Messrs. John Fraser, Wood & Sons, the Patriarch of Sawbridgeworth, and many others, who seldom or never exhibit, refrain from the "fear of being beaten," or that they could not equal the productions of the Cheshunt nursery, even under its present skilful management? I also beg to doubt the superiority of plants subjected to the course of treatment he shadows forth, which means far more than is expressed. Large plants may be produced, veritable Titans or even Tichbornes in bulk, but more "pithy" than "woody" and well matured, and like all organised life in a state of over-excitement. Rose growers know what "good tilthy ground" and "good food" mean in nursery parlance—always more or less in danger, ill adapted to bear the shock of removal, and it is a shock even under the most favourable circumstances. I could not help smiling at the same writer's notion of a Rose show in "the dim religious light" of the cloistered aisles of York minster, so admirably adapted to throw off or conceal the beauties or blemishes of our charming favourite, to say nothing of the play of colours from the stained glass windows. I have seen elsewhere a cry of alarm from an exhibitor lest any change should be made in the present mode of exhibiting Roses, he having just invested the magnificent sum of fifty shillings in a new set of those picturesque boxes, resembling the trays in which milliners send out their wares, or pastrycooks their pies and tarts, which portentous outlay would be in vain were a new medium of display introduced; thus it is that narrow self-interested considerations too often outweigh necessary reforms required on behalf of the public good. I should like to have had a word or two with some other "Volscians" of the Rose world, evidently "fluttered" by your commendatory "editorial" on Mr. W. Paul's successful innovation, but respect for your space will not permit. For the same reason I have been unable to touch upon the salient points of Rose shows, a text far too large for the limits afforded by the correspondence columns of a journal. However, if you wish, I shall be pleased to resume the subject on a future occasion. *W. D. Prior.* [We are sure our readers will like to hear what can be said on both sides of this question. Eds.]

Reports of Societies.

Royal Horticultural: *August* 18.—Dr. Denny in the chair. The Rev. M. J. Berkeley, when announcing the awards made by the Fruit Committee, remarked that Venn's Seedling Muscat Grape was a cross between the Black Hamburgh and the Muscat of Alexandria, the berries being oval in shape, black in colour, with a slight flavour of Elderflower-water. The variety had been known to members of the committee for two or three years, but, owing no doubt to over-cropping, it had never been seen in first-rate condition. Its great recommendation, he thought, would be for pot culture. Messrs. H. Lane & Son had sent a seedling white Grape with a flavour like that of honey, with a slight suspicion of Muscat, which was favourably regarded. With it came a bunch of Mr. Pearson's hybrid Ferdinand de Lesseps, which is a great favourite with some, the flavour being exactly that of barley sugar. To Mr. Browne, gr. to Earl Howe, Gopsall Hall, Atherstone, a Cultural Commendation had been awarded for a box of Peaches and Nectarines, the interest in which was explained in the following note which accompanied them:—

"I herewith send for the inspection of the Fruit Committee a box of Peaches and Nectarines, not that they are of extraordinary merit, but to show the result of moving large Peach and Nectarine trees. In this case the trees were lifted in the middle of January last from the open wall, and transferred to a second early Peach house, three trees occupying the back wall, and three the front trellis, all of which have done remarkably well. The three trees on the back wall cover a space of 480 superficial feet, which will give some idea of their size. The outside borders being of the ordinary kitchen-garden soil, and very light in texture, I was unable to secure any ball of earth, nevertheless the roots were carefully preserved and as carefully planted into good strong maiden loam, into which they soon took root—each tree producing a good crop of fine fruit, more especially two Grosse Mignonne, the fruit of which are now over. The tree from which the accompanying Peaches were taken furnished nine dozen, of which these are a fair sample. The Nectarines are the average size of six dozen gathered and remaining on the tree."

Some Kidney Beans exhibited, he thought, were nothing more than the common Caseknife, though the grower stated that he had both growing side by side, and they were distinct. No variety was better worth growing than the old white-seeded Dutch Caseknife, which was totally different from the white-seeded and white-flowered Scarlet Runner, sometimes sold for it. There had been a trial of Beans at Chiswick this year, but the season had been so unfavourable for their perfect development that before publishing the results it had been decided to grow them again next year. Mr. Groom, gr. to the Earl of Stradbroke, Henham Hall, brought under the notice of the committee a white-fleshed Melon, which was grown from seeds brought from Africa by Sir Samuel Baker, and presented by him to the Earl of Stradbroke. From its great size, Mr. Groom was very doubtful of its proving of good quality:—

"But," he writes, "I was agreeably surprised to find that one cut last week, weighing 12½ lb., was so highly appreciated by every one that tasted it, and was preferred to such excellent varieties as Gilbert's Improved Victory of Bath, &c. I may also remark that the smaller fruits of this kind, about 7 lb. weight, are much handsomer than this one, being finely netted and evenly swelled. The weight of this fruit is 18½ lb., and the same plant has grown one of 14½ lb., and one of 10 lb.

The flavour, remarked Mr. Berkeley, was extremely good, though he could not say that it was better than the Gilbert's Victory of Bath which had been tasted at the committee-table, and it was a valuable Melon to grow for pic-nics, being almost as juicy as a Water Melon.

Alluding next to some subjects brought before the Floral Committee, Mr. Berkeley stated that the flower of the Decabelone elegans, shown by Mr. Croucher, gr. to J. T. Peacock, Esq., though closely allied to Stapelia, had the merit of not being so detestably fœtid as many of the latter. The plant was figured in 1871 in the *Annales des Sciences Naturelles*, and in the last part of the *Botanical Magazine*, tab. 6115. Its origin was unknown, but he might mention that the processes of the crown from which it takes its name were very curious, and M. Decaisne had compared them to the filaments which ornament the crown of Bolbophyllum barbigerum. With regard to the seedlings of Vallota purpurea shown, he might state, as the fact did not seem to be generally known that there were two forms in cultivation, viz., V. purpurea major, which had been figured in the *Botanical Magazine*, and the smaller form, figured in the *Botanical Register*.

Mr. Worthington G. Smith had placed in his hands a drawing of the pollen grains of Fuchsia procumbens, which are quite different from those of ordinary Fuchsias and indeed Onagraceæ. He had mentioned at the last meeting that if the plant was hybridised with some of the garden varieties the results might prove valuable, but the fact pointed out by Mr. Smith makes it doubtful whether fertilisation would succeed. Mr. Smith also pointed out the analogous case of Primula japonica.

The Chairman stated that Mr. Kinghorn had said he had carefully crossed the plant and obtained seedlings, but the results had yet to be proved.

Floral Committee.—Dr. Denny in the chair. Messrs. Paul & Son, Cheshunt, sent eight boxes of cut Roses and specimens of Cerasus semperflorens pendula aurea, a golden variegated weeping form of the All Saints' Cherry; Cerasus Mahaleb pendula, an elegant form of the old "perfumed Cherry," with the habit of the Kilmarnock Willow; and Cornus alba marginata, a white-edged variety, which has been described as second only in merit to Acer Negundo. To each of the above First-class Certificates were awarded. From Mr. Blackwood, gr. to F. Collison, Esq., Herne Hill, Dulwich, came a specimen of Cheilanthes Bergianum, an elegant free-growing Fern from the Cape of Good Hope, with branching fronds and delicately cut pinnæ, and which also gained the coveted award. With the above came a flowering plant of Bonatea speciosa, a terrestrial Orchid, also received from the Cape, with singularly constructed green and white flowers. Mr. Croucher, gr. to J. T. Peacock, Esq., showed a nice specimen of Aloe Traskii, one of the tree forms; and Decabelone elegans, alluded to in another column, which gained a Botanical Commendation. From Mr. C. May, gr. to J. S. Bockett, Esq., Muswell Hill, came three plants of the beautiful Cattleya Dowiana, on which collectively there were five spikes, with two of its large and distincly coloured flowers on each spike. A vote of thanks was accorded. Weigela Lavallei, a distinct variety, with dark claret-coloured flowers, came from Mr. Bull; and Pilea muscosa alba, a close, dwarfish-growing variety, with white flowers; and a few other plants were contributed by Mr. Chambers, Westlake Nursery, Isleworth. Mr. Chater, nurseryman, Saffron Walden, received a vote of thanks for a nice collection of Hollyhocks, and First-class Certificates for the following Seedlings:—Mulberry Gem, a full flower of fine form, and the colour of Mulberry juice, very distinct; and Rose Supreme, large, bright rose, smooth and good. A nice collection of cut flowers of autumn flowering Phloxes were contributed by Messrs. Rollisson & Sons; and Messrs. W. Henderson & Son, Bedford Nursery, Plymouth, sent examples of their seedling Amaranthus Hendersoni, which was noticed in our columns last year, and now "Commended for the strain" by the committee. Mr. J. Offer, nurseryman, Upper Clapton, sent a batch of a medium dwarf, free flowering blue Ageratum, under the name of Clapton Gem.

Fruit Committee.—G. F. Wilson, Esq., F.R.S., in the chair. Mr. Sweeting, gr. to T. Y. Venn, Esq.,

Sneyd Park, Bristol, exhibited examples of Venn's Seedling Black Muscat Grape, which, it will be remembered, was originally shown at the Bath exhibition of the Society, where the judges awarded it a First-class Certificate, the award being subsequently repudiated by this committee on the ground that the judges in question acted without its authority. It is an oval Grape, with large well-shouldered bunches, the flavour being rich, with the distinct taste of Muscat. The committee considered it a valuable addition to the early varieties of its class, and gave it a First-class Certificate. From Mr. Dancer, Little Sutton, Turnham Green, came some fine examples of Prince of Wales and Prince Englebert Plums, and of the new Souvenir du Congrès Pear. Messrs. H. Lane & Son sent specimens of Pearson's Ferdinand de Lesseps Grape, and a seedling white variety with round berries of medium size, which is alluded to in another column. Mr. Browne, gr. to Earl Howe, Gopsall Hull, Atherstone, sent a box of good Peaches and Nectarines gathered from trees lifted last January, an account of which will be found above. A large white-fleshed Melon, grown from seed brought home from Africa by Sir Samuel Baker, and which proved to be of good quality, came from Mr. Groom, gr. to Lord Stradbrooke, Henham Hall. Some seedling Cucumbers were brought before the committee, but were passed over.

The Great International Flower and Fruit Show at Belfast: *Aug.* 20 *and* 21.—We learn by telegraph as we are going to press that this show has far surpassed the expectations of its most sanguine supporters, especially in the quality of the exhibits. The plants, for so late in the season, have never been surpassed. The £20 cup for sixteen plants was well won by Mr. Magee, gr. to H. Hawkins, Esq., Belfast. The fruit is equally fine. Mr. Johnston, gr. to the Earl of Strathmore, Glamis Castle, takes the 1st prize of £20 for twelve dishes of fruit. Mr. Hunter, gr. to the Earl of Durham, Lambton Castle, exhibits the most extraordinary production, in the shape of a bunch of Black Hamburgh Grapes, weighing 21 lb. 12 oz. Mr. Hunter also takes the 1st prize for the heaviest bunch of white Grapes —Foster's Seedling, weighing 15 lb. Every department of the show is well filled.

Messrs. Veitch & Sons and Mr. B. S. Williams each exhibit a fine group of new plants.

The show promises to be in every way a success.

Weston-super-Mare and East Somerset Horticultural: *August* 11.—There are few places the general character and appearance of which are in better keeping with a floral exhibition than the beautiful seaside town of Weston. The committee work hard, and are indefatigable in their endeavours, not only to keep pace with the times in horticultural matters, but to step out far in advance of many places where the material wherewith to make a large exhibition and the population indispensable to support it by their presence are more numerous. Nevertheless, the Society's exhibition on August 11 was such as they may well feel proud of both in its extent and the quality of the exhibits. The show was held in the Grove and Rectory Field, by permission of Walter Tucker, Esq., and the venerable Archdeacon Browne. It filled three spacious tents, which were crowded with company during the afternoon. The liberal prizes offered has the effect of bringing out the principal growers in the west of the kingdom, and on this occasion the competition in the principal classes was close. In the class of twelve plants, in or out of flower (Orchids excluded), Mr. Cypher was first, exhibiting all flowering plants; and amongst a really good lot had very fine specimens of Erica Hartnelli and æmula: these were both large and well-flowered; a splendid plant of Eucharis amazonica, with some three dozen spikes, the flowers large and fresh; a nice Ixora coccinea, and the useful but now seldom seen Clerodendron fallax, with several panicles of its bright red flowers. Messrs. Parker & Bush were 2d, and showed flowering and foliage mixed. In their collection was a magnificent plant of Nepenthes Hookerii, Croton undulatum, large and fine; a good Statice profusa, and Rondeletia speciosa. Messrs. Bryant & Hoskins and Mr. Drummond were equal 3d, both showing good even plants. In Mr. Drummond's lot was a charming example, profusely flowered, of the seldom seen Chironia ixifera. In the class for six plants (Orchids excluded) Messrs. Bryant & Hoskins were 1st, and amongst others they had a fineyl-coloured Franciscea calycina and a good Allamanda; Mr. Cypher was 2d, with the pale blue Statice Holfordii, Phœnocoma prolifera, &c. For eight Ferns Mr. Cypher was 1st, his best being Gleichenia dicarpa and Adiantum Farleyense. Mr. Drummond was 2d, and in his lot was a fine Thamnopteris Nidus.

In the amateurs' tent Fuchsias and Liliums were produced in considerable numbers, and were better than in the open classes; stove and greenhouse plants, nice and fresh, but not so large as in the all comers class; exotic Ferns, very fresh and well done, consisting principally of such species as Adiantums, Asplenium and Gymnogramma. The table decorations were nicely and tastefully arranged, with nothing extraordinary in the quality of the flowers, but they possessed the merit of not being overdone, and yet had not the opposite appearance of poverty, which the exhibits of this description sometimes seen would lead to the supposition was the highest aim of the competitors. Cut flowers were produced in large quantities, and were very effective. The Roses were shown in considerable force, but, as might be supposed from the lateness of the season, coupled with the continued dry weather, they were not so good as otherwise they would have been. Dahlias were exhibited in fine condition for so early in the season by Mr. Walker, his flowers being both fresh and well up. Gladioli were plentiful and very good; those from Messrs. Kelway & Son (1st) were magnificent, some of their seedlings being wonderfully fine. Verbenas and Asters were remarkably well done. Hollyhocks, not individually large, but clean. Stove and greenhouse cut flowers, shown in bunches of twelve varieties, brought out a good competition, and were very attractive. This is a feature that, at this advanced season, might, at the majority of shows, be with advantage extended.

Fruit was shown in large quantities and good condition, especially Cherries, of which a number of fine dishes were exhibited of Morello and Late Duke. Peaches and Nectarines were fine in colour. Culinary vegetables were shown in abundance, and, as might be expected from the locality, very good. *From a Correspondent.*

The People's Garden, Old Oak Common, Willesden: *August* 15.—Encouraged by the great success which attended the exhibition held on June 13, the board of directors of this place of popular resort arranged another exhibition on the above date, and had a glorious bright day on which to hold it, for the weather was fine and the wind had abated somewhat of its roughness on the preceding day. Unfortunately the permanent tent was altogether overcrowded with exhibits, for the strength of the wind on the previous day was of such a character that all attempts to put up a second tent were rendered abortive. It was only by the exercise of great ingenuity that the various collections were staged, but the inevitable over-crowding detracted much from the effect.

The dry weather notwithstanding, the grounds of the People's Garden—for on the top of the hill there is a broad surface of flower garden not seen from the Great Western Railway—looked very gay indeed, and especially was this true of some beds of Petunias, that were charmingly bright and effective under the midday sun. The soil on the exposed hillside is of a clayey loam, which, when well worked, will be found to have generously nourishing qualities. The difficulty of gardening in such a place consists in getting trees and plants to establish themselves; but, once established, they can scarcely fail to do well. It should be stated, to the credit of Mr. Scrivener, the head gardener to the Company, that each time the garden is seen by us it presents a more finished appearance; but it requires a man of great energy and undoubted pluck to face and resolutely overcome the gardening difficulties on Old Oak Common, as they are faced and overcome by the present gardener.

The leading group of plants was a collection of six, remarkable for their foliage, furnished by Mr. H. Burley, of Bridgewater. They consisted of Phœnix dactylifera, Cycas revoluta, Yucca aloifolia variegata, Phormium tenax, Dicksonia antarctica, and Corypha australis. Stove and greenhouse plants in flower, stove and greenhouse Ferns (some capitally grown examples of the latter being staged), Begonias, Caladiums, Fuchsias, Balsams, &c., were all shown by local exhibitors, such as Mr. T. Parsons, gr. to R. Attenborough, Esq., Fairlawn, Acton; Mr. M. Walker, gr. to H. J. Atkinson, Esq., Gunnersbury; Mr. C. Osman, Stanmore Hall; Mr. B. Porter, Isleworth; Mr. Dunsmore, gr., The Cedars, Harrow Weald; Mr. C. Rose, gr. to J. S. Laprack, Esq., of Acton, and others. Some very nice Zonal Pelargoniums were staged by one exhibitor; and Mr. T. Pestridge, Boston Road, Brentford, set up some of those nicely grown and coloured gold and silver edged Tricolor Pelargoniums for which he is so famous. There were a few classes for cut flowers, but they were generally indifferent shows. Bouquets and button-holes were nicely done; and some excellent stands of miscellaneous cut flowers were also staged.

The best feature of the show was the fruit, and here a nice collection was staged by Mr. Dunsmore. This consisted of Muscat Hamburgh, Madresfield Court, and Foster's Seedling Grapes; Queen Pine, Peaches, Nectarines, and Apricots, all very fine; Plums, Pears, Cherries, and Figs. Mr. John Hawkins, Acton, had the second best collection. Some nice Black Hamburgh Grapes were shown by Mr. Parsons, and in the class for white Grapes Mr. Dunsmore staged some excellent examples of Foster's Seedling. Cucumbers and Melons were both plentiful.

Cottagers' productions were, on the whole, well done. A few resident at Acton show for competition, but the majority of the cottage class is made up of plate-layers, pointsmen, &c., engaged on the North-Western and North London Railways. Any stray bits of ground lying by the sides of the lines are brought into cultivation, and notwithstanding the ground looks strong, clayey, and wet, it appears to produce good vegetables.

It may be added that the board of directors possess the power to close the gardens against the shareholders six days in each year, and they do this on flower-show days, and the money taken from their own members and their friends enables them to find the means of offering prizes for plants and flowers. The show is also continued on the Sunday, when a large number of persons are attracted to see it. It is the practice of the directors to present a season ticket for the current year to each exhibitor at their shows.

The Villa Garden.

Every villa ought to have its piece of Kitchen Garden, though it is unfortunately the practice now-a-days, in planning and laying out gardens to villa residences, to act as if the flower garden was the main, and the kitchen garden the secondary, consideration. The garden ought to be the recreation ground of the house, and where there are children in a family it is well to have a green sward on which they can frolic, and walks on which they can perambulate. In many instances all this can be provided, and a piece of ground set apart as a fruit or kitchen garden. Much can be done—in fact, much more than is generally imagined—in the way of a small and interesting fruit garden, from which one can not only get a fair produce in favourable seasons, but extract from it also a great deal of pleasurable interest. There are many who love gardening for its own sake, and for the sake of the occupation it affords to those having otherwise unemployed leisure and who make a hobby of fruits, as others do of Roses, Clematises, Carnations, Pelargoniums, and other popular flowers. Hence, they plan and carry out a fruit garden on a spare piece of ground. Such a garden, as it actually exists in a villa residence near London, arises in our mind's eye; and it may be taken, if not as a model, at least as a type of what might be constructed in the autumn. An oblong piece of ground admits of three lines of pyramid fruit trees, six trees in a row. Cherries and Plums constitute the entire line—nice trees, in a good bearing state, 6 to 8 feet in height, by a corresponding breadth. May Duke, Bigarreau, and Late Heart Cherries, that bore well this season, alternate with Angelina Burdett, Jefferson's, and Victoria Plums, all well cropped—the former nearly all gathered, but a fine handsome, dark, luscious Plum, that any one might feel proud to place on their table amid the dessert. Jefferson's Plum is very fine, and nearly ready to gather. The Cherries and Plums have been kept pretty well pinched in during the summer. By "pinching in" is meant that the young shoots had been kept shortened back by the finger and thumb to two or three eyes, and as the soil is somewhat light, resting on a gravel subsoil, the plants were mulched with cowdung early in the summer. A good layer, broken up into small pieces, was laid about the roots of the plants on the surface of the soil, and occasionally a 4-gallon can of water, in which had been dissolved about ¼ lb. of Fowler's garden manure, was given to each plant. That the cultivator of this little fruit garden should be proud of his Plums is no wonder, for they well-nigh rival in appearance some of the best grown on walls: and at the local horticultural show their star is always in the ascendant. On either side of the centre line of trees comes in a row of Apples and Pears planted alternately; nice young pyramids, just getting into a good bearing condition. Of Apples there are Cellini Pippin, Hawthornden, Lord Suffield, Cox's Orange Pippin, Warner's King, and one other; of Pears, Louise Bonne of Jersey, Jersey Gratioli with some fine fruit, Bon Chrétien, Urbaniste, and others. A gravel path flanks this garden on either side; a neat edging of Box gives a finish to it, and between the Box edging and the outer line of trees on either side, there is space for a line of Strawberries, and a few of the choicer sorts are well grown in a stiffish clayey loam. But that is not all, for Flora is seen to be in happy unison with Pomona, and between the Apples and Pears forming the outward line of trees on either side, but rather nearer the Strawberries, there is planted a dwarf bush of one of the newer hybrid perpetual Roses; and Etienne Levet, François Michelon, Louis Van Houtte,

Devienne Lamy, Marie Baumann, André Dunard, La France, Baronness Rothschild, and others, produce their delicate, and gorgeous hued flowers; and frequently a bunch of beautiful full blooms excites the envy of less successful cultivators as they are proudly borne to London of a morning on the way to business. And then, as if to test the capacities of the ground to the very utmost, and to fill up to overflowing the measure of enjoyment the garden affords, space is yet found at the foot of the trees to grow a few Potatos of the scarcer early varieties of undoubted quality, for our cultivator is great at Potatos also; and at the local show at the middle of July, the classes in the schedule severally for a dish of kidney, and the same of round Potatos, are hotly contested: and the excitement appears to grow, and the interest to increase as the metropolitan suburb widen its bounds, and extends its limits by the addition of new residences. Only let a man who loves gardening for its own sake steadily set himself to grow flowers, fruits, and vegetables well, and make the most of his garden, and he will surely attract to himself a host of imitators; the love of flowers seems to be inborn in most persons, and if only the spark of opportunity be applied to the train of hidden emotion, it will surely burst forth and transform itself into action.

And let it be remembered in this relation that with some who love a garden, age, infirmity, chronic dyspepsia, and other ailments prevent the exercise of the harder labour required in cultivating a kitchen garden, but which it is not necessary to put forth in such a fruit garden as that just sketched! When a man has made a competency he usually retires from business, after spending the best days of an active life in realising the hope of his manhood. But occupation is absolutely necessary to his existence, for the bustle and energy consequent on a business career cannot easily be abandoned; its use has bred ineradicable habits in the man, and what is more natural than that he should turn to a garden for the occupation that has become almost indispensable to his life.

One of the most charming and useful pot plants for early spring is the Intermediate Stock, and now a few seeds of each colour should be sown for blooming by-and-by. A great deal has been said and written of late respecting the East Lothian Intermediate Stocks, a strain peculiar to Scotland, and of great decorative value for flower gardens. This strain differs materially in character from what is known as our London Intermediate Stocks, being of a more bushy or branching habit of growth, and much later in blooming. Therefore when Intermediate Stocks are required for flowering in pots, the London market strain, as it is termed, should be asked for. There are of colours the scarlet, the white, and the purple; the last, however, is somewhat scarce. The seed can be sown in a small bed on a shady cool border, or in shallow boxes, and the soil kept moist. As soon as they are large enough to be potted they can be placed, three in a 48-pot, using a good soil in which plenty of decayed leaves has been mingled. It will be obvious that when they are potted young in this manner that single flowers will be found mingled with double ones, and there is no guarantee they will be all in flower together. Therefore it is well to transplant from the bed to a cold frame, and in the act of transplanting the tap root—that is, the main root which goes straight down into the soil—should be cut away. The removal of this will cause the production of nice bushy roots; and when the buds begin to appear the plants can be lifted, and placed three in a pot. By this means there is a certainty of double flowers, and the plants will be in bloom at the same time.

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

Greenhouse Hard-wooded Plants.—If through late potting or other causes any plants yet remain not turned out that require full exposure they should be at once got outside. The few weeks that still remain wherein they can with safety be left out are short, so far as inducing a disposition to flower, but in the case of plants that are subject to mildew during the winter the remaining time will in most cases be found enough to render them less liable to the attacks of the parasite, which delights in soft immature growth. The continuous fine weather experienced since the plants were turned out will have had the effect of ripening them up very quickly; it also gives the opportunity for free use of the syringe every afternoon, which is a great advantage in the extermination of spider and other insect pests, as with the syringe water can be got under the leaves and in their hiding-places. Every advantage of this should be taken whilst the weather remains fine, for if it comes wet the syringe cannot be used, on account of wetting the soil too much. Continue to use unremitting care in watering, for although the weather in all probability will not again be of so drying a description as it has been, yet there is no time in the year that healthy plants make such a quantity of roots, interlacing the inside of the pots until, in some cases, they form a thick coat. A little reflection will convince that where such is the case a few hours' negligence in permitting a plant in this state to suffer for the want of water must have a most injurious effect by destroying the feeding points of the roots, which in many cases take weeks to restore to their wonted condition. It often happens that a plant assumes a hard unkindly appearance without any known cause, and this more especially in the case of such as have been in the best possible health; the cause, if detectable, would often be traced to conditions such as described. The temporary absence of the occupants from the hard-wooded and Heath houses give an excellent opportunity for painting. By a little forethought this may be turned to account so as to get a very considerable number of the houses in any place thoroughly cleansed and painted. In most stoves painting, either inside or out, in the way it is often done, does very little good. Houses of this description, that have the woodwork almost saturated with water, constantly in use, receive little benefit from paint, unless they can be thoroughly dried before it is put on. This will be apparent to any one who has noticed stoves newly painted, that in a few weeks after have the paint all standing in blisters upon them full of water, which often occurs when even only the outside is painted, showing that the water absorbed from the inside was escaping outwards through the wood. That paint laid on the wood whilst in this condition is simply money thrown away no one can deny. If when, as at this season, the houses devoted to the hard-wooded plants now out-of-doors were filled with the occupants of the stove, giving them the necessary shade, and the stoves thoroughly dried by turning on fire-heat in addition to the drying influences of the weather, throwing them wide open, in ten days the wood would become thoroughly dry, when paint will not only adhere to it, but the oil it holds will enter the pores, preventing the after absorption of moisture, so far as paint is capable of doing so. Where advantage is taken of the opportunity thus offered, a number of houses may be painted in a way that gives some after-satisfaction. The great increase that has taken place in the cultivation of stove plants within the last twenty-five years, and the much greater amount of water used in the atmosphere to what was at one time considered sufficient, has forced the necessity for regular paintings upon us in a way that could not be overlooked unless there was a disposition to stand still and see these moisture-charged plant-houses melt away with a rapidity almost beyond the comprehension of those who have not had the opportunity of witnessing it.

Camellias.—Plants of whatever description grown under glass are much more influenced by the weather outside than at first sight might be supposed—at all events, by such as are only partially initiated in their culture. The extremely dry condition of the air consequent upon the absence of moisture in the earth's urface has, in addition to the sun's powerful and slmost continuous unclouded action, been constantly at work drawing the moisture from the leaves of every plant with which it came in contact; and if through any cause the root-supply has been deficient, the natural consequence has been that the plants so situated have suffered more than ordinarily. This has been the condition in which several lots of *Camellias* and *Oranges*, recently planted out, have been, that have come under my observation during the present summer. Plants of these when turned out into the open borders are generally full of roots; in fact too often they are in the condition of being pot-bound. They usually have a good soaking before they are turned out, but however wet the soil is made it quickly becomes dry from two causes, the ordinary requirements of the plants exhaust it by sucking it up from the soil, and the new earth, being for the most part considerably drier, absorbs it from the ball it surrounds, Water no doubt is given, but the ball containing the roots is often in such a condition as either not to be able to soak up enough, or to show the deficiency it is suffering under. A very common practice in planting these subjects out is to sink the ball of the plants an inch or so below the level of the bed, and then draw a corresponding portion of new soil over. This soil, unoccupied by roots, is just the thing to mislead us, from the fact of its having none to absorb the moisture contained it remains wet, whilst in all probability the ball underneath is quite dry, the result being that the plants are perishing for want of water whilst the surface is quite wet. A not unusual practice, and, if performed with care, not attended with any injurious consequences, is to take a round iron skewer the thickness of a black-lead pencil and perforate the ball, more particularly near the centre, so as to make a way for the water, but if this is carried too far, as will be obvious, it will seriously mutilate the roots. The very sound of this iron amongst them produces not the most pleasurable sensation, and, except in the case of extremely pot-bound plants, I would rather sink the ball a couple of inches below the surface of the surrounding soil, ramming the latter as hard as the ball itself, leaving it to form a sort of rim above the ball such as will force the water through it. This should remain for the whole of the first season's growth, after which the roots will have freely penetrated the new soil, and be safe from injury from this cause.

Soft-wooded Greenhouse Plants.—*Primulas* sown in the spring must be got on without delay. They should now be moved into their flowering pots; if delayed too long in this they do not get the pots sufficiently filled with roots before the short days are upon us. These most useful plants deserve more attention than they sometimes receive. They do not like full exposure to the summer's sun—a circumstance known to all who have had anything to do with their culture, and on that account they are often placed in dark or overshaded pits and frames, where their leaves become drawn, and the whole constitution of the plant enfeebled; a condition that can never afterwards be remedied, for the simple reason that things of their nature which have to be grown up from the seed-pan, and flowered under the twelve months, have no time to lose. They should be placed in a good light pit, close to the glass, with abundance of air, and a thin shade over them in sunny weather, but never allowed to remain on when not required. Plants so treated are not half so liable to damp through a little extra water touching them, as the weak drawn-up things often met with. Good loam four parts, rotten dung and leaf-mould in equal quantities two parts, with a sprinkling of clean, sharp sand, will grow them well. *Cinerarias.*—Shift into their flowering pots—6-inch pots are the most useful for general decoration; they can be well done in this size. Soil such as advised for Primulas will grow Cinerarias well; but these latter should never during the summer season be stood upon a dry medium, such as shelves or boards, of any description; a good bed of ashes, always damp, is the best position for them. Perfect cleanliness from aphides is the first consideration in Cineraria culture; they require continuous watching in this respect. Fumigation they do not like; the best method for these and many other things is to always keep a vessel in readiness containing some tobacco-water, so that, when a plant is found affected, it can at once be dipped. *Cinerarias*, to bear the stamp of good cultivation, should, when in flower, retain green and healthy their largest bottom leaves; these deficient, not only is their general appearance spoilt, but the head of flower is proportionately smaller. *Chrysanthemums.*—The treatment which these plants now receive will determine their comparative value at the time of flowering. There are few plants that will exist under such indifferent treatment as the Chrysanthemum, yet it is not very often that they are met with well done. This generally arises from the plants not being sufficiently fed with manure-water, proportionate with the size of the pots they occupy. They are gross feeders, and must be liberally fed if expected to flower well. *T. Baines, Southgate, N.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—Now that the flower garden is at its best for the season, the great aim should be to keep it gay and attractive as long as possible. To this end let every dead or decaying leaf and flower be removed as soon as perceived, that no injury be caused to adjoining plants by the damp thus engendered. Pelargoniums are especially liable to damp where growing thickly together, and as the propagating season has arrived it will be advisable to thin these out for cuttings, which strike best on a sunny bank or border in any ordinary garden soil, the only requisite to a successful strike being that they are made firm in the ground. Cuttings inserted now will be ready for potting up by the end of September. Occasionally we have struck them in pots or boxes where they have been wintered, but give the preference to plants struck in the open ground. It is quite unnecessary to propagate a large quantity of Ageratums, Alternantheras, Alyssums, Mesembryanthemums, Lobelias, Petunias, Verbenas, Coleus, or Iresine, as all these are best propagated in the spring; so that if a few pots of these are put in now for stock at that season this is all that is required. A month hence will be quite early enough for cuttings of Calceolarias and Violas. This is also a good time for propagating Echeverias, Sempervivums, Saxifragas, and Sedums. The now common but most effective Echeveria secunda glauca we propagated and wintered last year as follows:—Wherever there was space in front or against the end of the houses a bank of mould made

very firm was placed, and about 9 inches wide at the base, and falling away to nothing at the top, and on this was planted offsets of Echeveria, row upon row according to the height of the wall: every plant (and there were many thousands) grew and wintered without a single failure. Moisture in winter is the Echeveria's greatest enemy, and by this method no water could lodge between the axils of the leaves to the detriment of the plants. Sedums and Saxifragas can be divided and replanted in any corner, and will do well. Sempervivums are somewhat more difficult to deal with, and for these the soil should be made firm and tenacious, the plants pressed tightly into the soil, and afterwards covered with netting to prevent birds uprooting them. The three kinds used for edgings here are S. californicum [calcareum], S. montanum or soboliferum, and arachnoideum. Now is the time to note all failures and successes in plants, planting arrangements, or colouring; such notes will be of great service when making arrangements for next year's display. "Carpet beds" are now in great beauty, and notwithstanding the abuse received from certain quarters against this style of gardening, it is still very popular, and will continue to be so as long as it is kept in proper bounds, but if adopted to the exclusion of flowers from the parterre, then there will be some fear of its dying out. Keep the lines and divisions in such beds well defined by constant pinching and clipping. To be effective they must be well kept. Keep all walks weeded and rolled, the verges regularly cut, and let every department present a neat appearance, and so add to the enjoyment of the garden. *W. Wildsmith, Heckfield.*

Orchids.—A strict discipline must be commenced now the weather has become cooler, and the sun of less power; the East India house must be kept moderately close, and a growing atmosphere kept up. If the weather should be dull the moisture must be reduced and recourse had to fire-heat to maintain a temperature of 75° by day and 65° by night. The blocks must be syringed and the houses damped down by 3 o'clock. The shading must be drawn up as soon as all fear of the sun scorching the foliage is past. Aerides, Vandas, Saccolabiums, and Phalænopsis, should still receive every encouragement to grow; any check given to them now will result in the production of short leaves, which gives the plant an irregular appearance. Where Phalænopsis are grown in pots or baskets care must be taken not to get the Sphagnum in a soddened state, or the leaves will soon show signs of disease. Shading on the Cattleya-house should now be dispensed with altogether. The question of light is of the greatest importance for the proper ripening of all pseudobulbous plants. Such plants as Barkerias, Cattleyas, Lælias, Dendrobiums, Oncidiums, Epidendrums, and many other kinds, if not thoroughly ripened will produce weak and in many instances deformed flowers, succeeded by a sickly growth. It will frequently happen that a vigorously growing Cattleya will commence a second growth before the first is completed; in that case the plant should be encouraged to complete its growth as soon as possible. Where plants are suspended to the roof they should be arranged over the paths or at the ends of the house, so that in watering or syringing the plants growing on the benches will not get the drip from those suspended. As flowers are now become scarce, it is necessary to take all possible care of those in bloom, to keep them free from damp, for this affects them most when suspended too close to the glass. A very nice display might still be kept up with Cattleyas and Odontoglossums. Cattleya labiata, C. crispa, C. Harrisonii, C. maxima, and the C. guttata type will be flowering from now up to October; in fact, with a judicious selection of plants there should be always some interesting plants in flower. Calanthe Masuca and C. veratrifolia may now be repotted. If the soil has become sour they should be carefully shaken out, and the roots washed in tepid water; afterwards repot in a compost of equal parts of turfy loam and peat; add a little rotten dung and some pieces of charcoal broken to the size of small nuts, all well mixed together; about 2 inches of drainage should be placed at the bottom of the pot. The plants must be kept 1 inch below the top of the pot. *G. Baker, Clapham Common.*

FRUIT HOUSES.

Melons.—Continue the general treatment as before advised. In lean-to houses, facing south, the lights may be closed and the plants syringed about 3 P.M., while in span-roofed houses running north and south the operation may be delayed half an hour later. These observations are intended for young growing crops, and are, of course, subservient to the condition of the weather. If the plants are healthy and robust, shading may now be almost or quite dispensed with, and less atmospheric moisture will be henceforth required. If the last batch of plants are weakly, weak liquid manure may be applied about twice a week, and especially if they are growing in pots or boxes; as a rule, however, do not apply much stimulant till after the fruits are set, after which earth-up with a good compost, and feed liberally till ripe. Continue to fertilise the female blossoms every day, maintaining a dry condition of both the roots and atmosphere. In pits and frames husband a good sun-heat by closing early; gently damp the foliage at the same time, and do not omit to regularly dust flowers of sulphur amongst the foliage as an antidote to red-spider. Let the fruits be elevated on small pots, and as they advance towards ripening be well exposed to the sun. Beware of slugs at the fruits and canker at the collar. Thoroughly cleanse pits and frames as the crops become cleared off. *Thomas Simpson, Broomfield.*

Cucumbers.—The general treatment in this department also remains the same. Plenty of moisture, liberal feeding, a free use of the finger and thumb and knife, and a close attention is sure to be crowned with success, more or less. Take advantage of every opportunity to collect and well prepare a goodly compost for the winter fruiters, and continue to clear out exhausted plants, and make such other preparations as were suggested in the last Cucumber Calendar. Bestow a liberal attention upon the autumn fruiters just got out, and continue to add a little fresh earth as the roots penetrate through. Encourage surface roots, which are a true indication that the plants are doing well, and maintain a firm bed for the roots to grow in. A little fire-heat should be turned on on cold nights. Attend to the harvesting of the seed as soon as ripe; wash it clean, and reserve those seeds only which sink to the bottom, and let them be well dried before storing away. I have pointed out in a former Calendar the advisability of fertilising the blossoms of those fruits which are to remain for seed. For pits and frames, see this week's Melon Calendar, and be careful not to over-crowd the foliage. Use the finger and thumb freely at every watering, nipping out the growing points and spotted leaves, and give them a general cutting over once a week. *Thomas Simpson, Broomfield Lodge.*

The Orchard-house.—In this structure *Peaches, Nectarines, Figs*, and *Plums*, &c., are fast becoming ripe, and will require constant attention, as such fruit as the *Peach*, &c., should never be allowed to fall from the trees, but should be daily examined and removed as soon as ripe; and as soon as the fruit has been all gathered the trees, if in pots, should be removed into the open air, and placed in a situation fully exposed to the sun, in order that the wood may become thoroughly ripened; and in order to thoroughly clean the foliage let them be well syringed every night for some time to come. This removal of a portion of the potted trees into the open air will afford additional space to those trees which it is necessary to retain for some time longer in the structure, such as late *Peaches, Coe's Golden Drop* and other late *Plums, Figs* swelling off their second crop of fruit, &c., all of which should be rearranged and carefully attended to, although little if any more stopping or pinching will be necessary during the present season. Diminish, without altogether withholding it, the supply of water given to trees, whether in pots or planted in borders, as their fruit approaches a state of ripeness, and discontinue syringing altogether for a time. Give, however, abundance of ventilation by night as well as by day, taking care to exclude birds and insects by the use of the hexagonal netting or some other suitable material. *P. Grieve, Culford, Bury St. Edmunds.*

FRUIT HOUSES.

Figs.—When the second crop of Figs are all gathered, which will soon be the case with early forced trees, the main point to which attention should be directed will be the proper maturation of the growths, as unless these be fully perfected continued success will be very doubtful, and particularly so with respect to early forced trees. Assuming the growth and spurs to have had the attention in regard to thinning and regulating in the manner from time to time recommended in the Fig Calendar, there remains little else to be done now beyond attending to watering and airing. Now that the fruit is over and gone, and the growths of the trees are nearly completed they will not require so much water—merely enough to prevent the borders becoming dry will now suffice, and syringing should be abandoned altogether, excepting for the purpose of keeping the trees free from insects. With regard to ventilating, it is still important to regularly attend to this matter as hitherto. A free circulation of warm dry air should be maintained in the house until the foliage indicates signs of having performed its proper office, and dies off naturally. In the case of trees which have not had the attention alluded to above, but are now thickly crowded with wood, by all means remove sufficient of it at once, so as to admit the free action of sunshine, light, and air, to perfect those growths which are retained. Those trees which produced a crop of ripe Figs in June will now be furnishing another lot of ripe fruit; encourage such trees by liberal waterings of manure, or clear water, as they may require. The ripening of this crop will extend over a considerable period, throughout which a constant supply of warm dry air should be in circulation. Fig trees which are grown in pots do not make such rampant growth as those trees which are planted out, therefore they will be much benefited by exposure to atmospheric influences after the crop is gathered and the growths matured; but those in glass houses need not necessarily be subjected to that process, in fact I prefer retaining the sashes on such trees and liberally ventilating them. In gathering ripe Figs much depends on the purpose for which they are required to be had in perfection; they should be fully ripe at that time; for packing for a long journey not quite so ripe, and for marketing purposes they should be got soon after colouring commences. *G. T. Miles, Wycombe Abbey.*

HARDY FRUIT GARDEN.

The great value of the *Strawberry* as a useful and wholesome fruit renders its successful cultivation an object of considerable importance, and the present is a suitable time to prepare ground for the formation of fresh plantations. Wherever this may be considered necessary, select for the purpose a piece of deep rich soil, in an open situation, as this fruit seldom succeeds under the shade and drip of trees. Let the land be heavily manured and deeply trenched, as the roots of the Strawberry plant are found to penetrate to a very considerable depth under favourable circumstances; and this tendency ought to be encouraged, as it enables the plants to better withstand the effects of dry hot weather, which so frequently proves injurious, and sometimes fatal, to the crop. The plants intended to form the plantation should by this time be well established in 3-inch pots, and should be planted in lines at 3 feet apart, and at about 18 inches from plant to plant; or in gardens of limited extent they may of course be planted somewhat closer. In establishments where this fruit is extensively forced, plants which have borne a crop are the best of all for the purpose of forming a new plantation in the open air, the site for which may be selected now and prepared at any convenient time during the autumn or winter months. As the *Raspberry* season is now quite over, the old bearing wood should be at once cut out, and the young canes thinned to four or five of the strongest and best placed, which may be left loose to ripen, or, if there is danger of their being blown about too much by the wind in exposed situations, it may be advisable to secure them loosely to the stakes until they have quite finished their growth and well-ripened their wood. A few bushes of the *Red Warrington Gooseberry* may now be netted up, that the fruit may by this means be preserved for some considerable time; this however can be better secured by having a few plants trained to a north wall, but if kept very long the fruit will be likely to lose its flavour, while *Red* and *White Currants* will retain this for a much longer period, and *Morello Cherries* will even continue to improve in this respect until the beginning of October. In all cases, however, the hexagonal netting should be used to protect them, as it excludes insects as well as birds, and although wasps have not this season as yet been troublesome, they may soon be expected to become so. *Peaches, Nectarines, Figs, Plums* and *Pears* are now beginning to ripen upon the open walls, and require daily attention. Such fruit should never be allowed to fall from the trees, as the experienced eye need find little difficulty in detecting the indications of maturity, and by gently raising or moving such fruit it will separate from the tree without difficulty; these fruits should at all times be handled with the greatest care and delicacy, as the slightest undue pressure or rough handling will inflict injury, the result of which is rapid decay, and the deterioration both of flavour and beauty. This is more particularly the case as regards the *Peach* and the *Nectarine*, and it is also necessary to handle *Pears* with great care, placing them on the shelves of dry, well-aired fruit-rooms in single layers, there to complete the ripening process. Gather *Apples* as soon as the various sorts become ripe. The crop of this useful fruit is this season in most places exceedingly light, and on that account it is the more necessary to husband it with greater care. Birds are exceedingly destructive to the softer-fleshed kinds, even before the fruit is nearly ripe; and it becomes necessary to use the gun, with a view to intimidate them. *Nuts* are also in most instances a very light crop this season, and the squirrels appear more determined than usual to claim the lion's share of the same. One can hardly feel otherwise than reluctant to destroy such merry and interesting, although mischievous, little animals; and if blank-cartridges are used upon them, they soon seem to comprehend that you do not really wish to hurt them, and consequently disregard your attentions. If the charge of gunpowder, however, be supplemented by a few Peas, or any other similarly harmless missiles, this will generally have the effect of leading them to understand that their company is not desired; but if this fails, they must either be shot, or the crop of Nuts must be relinquished in their favour, and they will effectually dispose of them in a wonderfully short space of time. *P. Grieve, Culford, Bury St. Edmund's.*

Obituary.

The papers record the recent death of the learned and amiable Dr. Sumner, formerly Bishop of Winchester, and brother of the late Archbishop of Canterbury.

Bishop Sumner's name, until his retirement from the see of Winchester, was for a great many years familiar to plant growers. For a long time he was a member of the Council of the Royal Horticultural Society and of the Royal Botanic Society also. On taking possession of Farnham Castle, the episcopal residence of the Bishops of Winchester, he found the place so entirely deficient of good gardens, that a remodelling of the place was decided on, and in place of what were rough kitchen gardens around the castle and on the keep, are now beautifully kept pleasure-grounds and flower gardens, and a new kitchen garden was made at one side of the park.

He began forming a collection of Orchids about twenty-four years since, and the extraordinary Coryanthes Sumneriana—named in his honour—was first bloomed in his garden. It was an imported plant, purchased at Stevens' Rooms. Amongst other Orchids which were first bloomed in England at Farnham Castle may be mentioned Saccolabium giganteum and Saccolabium compressum, probably the only plant in England.

The collection is in perfect health, and reference has at various times been made to it in our pages. It contains remarkable specimens of Dendrobium Kingianum, Angræcum eburneum superbum, Maxillaria venusta, which has just given forty blooms, Dendrochilum filiforme, and D. glumaceum, and many others, all of which will shortly be sold by auction.

Six years since the Bishop was seized with paralysis, which deprived him of clear articulation, and it was with great difficulty he could make himself understood except by those who were constantly about him; still he retained his great love for his Orchids and other plants to the last, and went through the Orchid-houses with Mr. Lawrence on the last day he was out, for retiring to his room that night, he never left it again, but about a fortnight before his death he sent for Mr. Lawrence to talk about his plants and other matters. He loved his plants, and he was thoughtful of others.

He was a large-hearted benevolent man, in whom the poor of the district lose a warm friend, whilst those who were dependent on him and served him warmly reverence his memory, and speak of him as one sincerely beloved.

With the collection of Orchids Mr. Lawrence has been associated for twenty-two years, in fact it is to his good cultivation of them that the collection enjoys such a *prestige*. We fear they must now part, as the establishment will shortly be broken up.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, August 19, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
Aug.	In.	In.	°	°	°	°	°	°			In.
13	29.37	−0.40	65.2	55.6	9.6	58.8	− 3.1	56.2	91	S.W.	0.34
14	29.40	−0.37	69.8	53.0	16.6	58.5	− 3.2	51.4	77	WSW	0.14
15	29.86	+0.09	69.8	49.4	20.4	58.1	− 3.4	50.7	77	WSW. W.	0.00
16	29.91	+0.13	70.2	52.1	18.1	61.6	+ 0.3	56.2	83	S.W.	0.00
17	30.01	+0.22	69.3	49.2	20.1	58.3	− 2.8	49.0	71	W.: N.W.	0.00
18	30.12	+0.32	71.5	47.9	23.6	59.3	− 1.7	55.4	87	WSW.	0.00
19	30.20	+0.40	81.2	59.2	22.0	67.3	+ 6.2	60.2	78	NNE: E.S.E.	0.00

Aug. 13—Overcast till afternoon, and rain fell frequently; fine and partially cloudy afterwards.
— 14—Variable. Occasional showers of rain.
— 15—Fine; partially cloudy.
— 16—The amount of cloud was large, and the weather fine throughout the day.
— 17—A fine day; light clouds were prevalent till afternoon; cloudless at night.
— 18—Fine, but generally cloudy.
— 19—Fine. The amount of cloud varied till evening; cloudless after 6 P.M.

—— In the vicinity of the metropolis the reading of the barometer at the level of the sea increased from 29.76 inches at the beginning of the week to 29.86 inches by noon on the 9th, decreased to 29.56 inches by the evening of the following day, increased to 29.79 inches by 9 P.M. on the 11th, decreased to 29.47 inches by 9 A.M. on the 14th, and was 30.09 inches at the end of the week. The mean reading for the period was 29.72 inches, being 0.10 inch lower than that of the preceding week, and the mean daily readings were below their averages on every day except the 15th, the greatest departures in defect being 0.40 inch on the 13th, and 0.37 inch on the 10th and 14th.

The highest temperatures of the air in the shade were all between 65° and 70°, and the mean of the seven maximum values was 68½° The lowest temperatures at night were more changeable, the extreme readings being 55½° on the 13th, and 47¾° on the 12th, with a mean for the week of 51¾°. The mean daily range of temperature was 16¾°, the greatest being 21¾° on the 12th, and the least, 9½°, on the 13th. The mean daily temperatures of the air were as follows:—9th, 58°.4; 10th, 57°.6; 11th, 58°.4; 12th, 57°.6; 13th, 58°.8; 14th, 58°.5; 15th, 58°.1; and their departures in defect of their respective averages—3°.7, 4°.5, 3°.7, 4°.4, 3°.1, 3°.2, 3°.4; therefore, the mean temperature of the air for the week was 58°.2, being 3°.7 lower than the average of the corresponding week, as deduced from observations extending over a period of fifty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 143°, 129°, 128°, and 138° on the 9th, 10th, 11th and 12th respectively, and the mean of the daily maximum readings of this instrument was 126°. The lowest readings at night of a thermometer on grass, with its bulb fully exposed to the sky, varied from 54½° on the 13th, to 41¾° on the 14th, the mean value for the week being 46½°.

Brisk W.S.W. breezes were generally prevalent, and the average daily horizontal movement of the air was nearly 440 miles.

The sky was generally cloudy, and rain fell on five days, the heaviest falls being 0.41 inch and 0.34 inch on the 10th and 13th respectively, and the total amount measured in the week was 1.04 inch.

In England the extreme high temperatures observed by day ranged from 72° at Sunderland to 65° at Newcastle-on-Tyne, with a general average over the country of 68½°. The extreme low temperatures observed by night varied from 50¼° at Bradford to 44¼° at Wolverhampton, with an average value of 47¼°. The mean range of temperature in the week was 21¼°. The mean high day temperatures ranged between 68½° at Blackheath and 62° at Newcastle-on-Tyne, the general average being 65¼°. The mean low night temperatures varied from 52¼° at Manchester and Leeds to 49¼° at Newcastle-on-Tyne, with a general average of 51°. The mean daily range of temperature was 14¼°, varying from 17¼° at Sunderland to 10¾° at Liverpool. The mean temperature for the week was 56½°, the highest being at Blackheath, 58¼°, and the lowest at Newcastle-on-Tyne, 54°.

Rain fell on every day in the week at most stations, the amounts varying from 2¾ inches at Eccles to half an inch at Newcastle-on-Tyne. The average fall over the country was 1¼ inch nearly.

The weather during the week was dull and cloudy, with frequent showers of rain.

In Scotland, the highest temperatures ranged from 66¼° at Aberdeen to 62¾° at Leith; the lowest temperatures varied from 49½° at Leith to 46° at Dundee, their averages being 65¼° and 47¾° respectively. The mean temperature for the week was 56°, the highest being at Dundee, Aberdeen, and Perth, 56¼° respectively, and the lowest at Leith, 55¾°. The amounts of rain measured during the week ranged from 4½ inches at Aberdeen to 2½ inches at Dundee and Perth, the average fall being 3¼ inches nearly, or 2 inches more than the average in England.

At Dublin, the highest temperature was 67½°, the lowest 43°, the mean 5½°, and the rainfall 2.38 inches.

Variorum.

Olive Oil in Tunis.—In the very important division of the regency of Tunis called the Sahil, of which Susa and Monastir are the chief seaboard towns, the only valuable product, indeed the real wealth of the place, is said to be olive oil. In a report on the trade of Susa some interesting facts on the oil produce are embodied, and from which we learn that its development took place some twenty years ago, when the duty of 10 per cent., so universal in Mahommedan countries upon the produce, was changed to a fixed duty uuon the tree. Before which period the native, having to pay away a tenth of his crop, was, comparatively speaking, indifferent as to the amount of the yield of his trees; whereas, under the present system, not only have old and profitless trees been replaced by young fruit-bearing ones, and sites better chosen, but it has also given rise to a more equal distribution of property, by inducing landholders to part with their lands. The beneficial effect of this measure was manifested by the results of the years immediately following. The duty, or "kanoon," as it is called, varies, according to the tree, from 1½*d.* to 3*d.* Another advantage over the old system is that it yields the State a fixed instead of a dubious revenue, resulting from the uncertainty of the crops. In regard to the culture of this valuable tree the worst enemy it has to contend against is the drought, and this too frequently occurs—the absence of natural springs rendering it entirely dependent upon the rains. The first and most called for of these are the winter rains, which predispose the trees to an abundant florescence, the spring rains to force the fruit, and lastly any subsequent falls to fill it out. It occurs at times that some of these periodical rains are wanting, at others that they are all withheld, as was the case during the last three or four years, when the crops were reduced to a fourth and even to a sixth of an average yield. Dependent, therefore, as the native is upon these rains for the fruit of his trees, it is distressing to witness the disregard he manifests in the way of help to Nature. He seldom loosens the earth around their base to enable the roots to imbibe the atmospheric moisture of the nights, nor trains them, as he might do, horizontally to screen the roots by the foliage from the parching effects of the summer sun. The Olives are gathered in December and January, with leather or horn casings on the fingers, and the fruit is collected on mats or on cloths spread around the trunk of the tree for that purpose. There are two kinds of oil—the "masri," which is strong in flavour and in smell, and the "drub-el-ma," which is deprived of both by being passed through water. The mills, however, are rudely constructed and very imperfect, the result being that a great deal of the oil is not pressed out, and, consequently, passes off with the refuse; besides, the process is attended with a great deal of waste. They are composed of round blocks of stone, from 3 to 4 feet long, revolving on an axis fixed horizontally to a vertical stake, and put in motion by a mule or camel. By this roller the Olives are crushed into a sort of paste, which, for the "drub-el-ma" is precipitated into water, upon which the oil floats, from the difference of its specific gravity, and is skimmed of. If the "masri" is required, this paste is submitted to pressure. The residue, after the extraction of the oil, is known as "fittura," and is given to the camels. The purchases of oil are effected by means of "sunsars," or brokers, with whom the oil merchants contract for future delivery, and at prices agreed between them. These buy from the producers the quantities they have to furnish, but as these payments are always made in cash, the merchants are often called upon to make heavy advances. In these transactions, and, in fact, in all others, the system of advances, so universal here, in anticipation of an article non-existing, cannot fail to be attended with great risk, to cover which the advancer can only afford the offer of low prices and charges heavy interest. Transactions here are, after all, but loans of money for a return with interest in produce when instalments become due. If the crops fail, the contract is renewed for the following year, after altering the conditions to the advantage, in most cases, of the creditor rather than that of the debtor. It is calculated that during the last five years £300,000 worth of oil left these shores, of which Great Britain took one-fifth, while the rest was divided between France and Italy. Freights direct to the United Kingdom now range from 40*s.* to 50*s.* per ton, but for the latter rate vessels call at Italian ports for casks to contain the oil. It is only within the last few years that shipments have been made direct to ports in the United Kingdom. Up to this date British trade was limited to the island of Malta, and results show that it amounted on an average only to an annual value of about £20,000 for exports, and considerably less for imports. France and Italy, it is maintained, can always successfully compete with Great Britain in the oil trade on this coast, notwithstanding the quantities shipped during the last years, as the demand in those countries is constant, and the cost of transit is much lower. *J. R. Jackson, Kew.*

Press Carrier Pigeons.—One of the most curious incidents connected with modern journalism is the regular employment of carrier pigeons in collecting intelligence for the daily and weekly newspapers. In the competitive exertions to procure the "latest intelligence," it has been found that for short distances newspaper reports can be sent readier, cheaper, and quicker by press carrier pigeons flying a mile per minute, than by the postal telegraph. These aërial postmen are entrusted to resident correspondents in various places, ready to be despatched at any moment, whilst others are sent out by reporters to places where important events are transpiring. It is now no uncommon thing to see reporters at police courts, inquests, public meetings, &c., despatch folio after folio of "copy" by press carrier pigeons tossed through the nearest window, or thrown out of a train or steamer going at full speed. The attachment of these birds to the place of their birth, and their ability to find their homes from marvellous distances, are, of course, their distinguishing characteristics. A "columbier," or home, is established at the various newspaper offices, and whenever a bird arrives with a message, the act of the pigeon entering its cot sets a call-bell ringing in the editor's room, the bell machinery continuing in

motion until attended to. Being expressly bred for press purposes—conveying news to our great cities—they are not the pure carrier pigeon (which is larger, heavier, and slower on the wing and not so well adapted for press purposes), but are of a special pedigree, bred by Messrs. Hartley & Sons, of the *Woolwich Gazette*, Woolwich, from prize birds imported from the best lofts of Antwerp, Brussels, and Liege; all "producteurs" being rejected which have not won a 300 mile "concours." Press carrier pigeons owe their origin to Darwin's principle of "natural selection," or the "survival of the fittest." In the struggle for life in connection with the compulsory flying of long distances, the homing and flying powers of the pigeons are developed to a large degree, whilst the birds which cannot do the distance are necessarily lost and eliminated. The surviving or winning voyageurs become thus educated to the highest standard of perfection, and this system being continued through many generations (the flying distances increasing every year), a race of pigeons have been produced with powers which a few years ago would have been deemed impossible. Press carrier pigeons, though as a rule only used for short distances, in competition with the electric telegraph, can be specially trained to distances of 500 miles, and frequently fly to England from Dublin, Brussels, Paris, Lisbon, and even Rome. The utilisation of the instincts of birds for press purposes is being carried even further than this. An ocean homing bird, of great docility, intelligence and spirit, has been found in Iceland, which flies at a meteor-like speed of 150 miles an hour, and is able to find its home, over sea and land, from any part of the habitable world. A pair of these birds, a few days ago, brought despatches from Paris to a lonely spot, congenial to their nature, in a wild and rocky part of Kent, within ten miles of London, in one hour and a quarter. Press carrier pigeons took the despatches on to the city, the whole distance from Paris to London, by actual parcel mode of conveyance, being done within one hour and a half! If the experiments at present being made in training and educating them continue successful, it is hoped by next summer to establish a daily miniature ocean mail between America and Europe, the whole distance to be traversed between sun-rise in one hemisphere and sun-set in the other. *Land and Water.*

Growth of Madder in England.—Mr. T. Sidebotham publishes the results of some experiments on the cultivation of Madder-roots, made some time ago in England. A piece of rich land in Derbyshire was sown with seed from fine Madder, early in the spring of 1868; in the autumn the Madder plant came into flower and the roots of some pulled up measured 13 inches. The plants came up in the spring of 1869 very strong and healthy, and so on until August, 1871, when they were dug up. To produce the best results, the roots should have remained another year in the ground, but for experimental purposes this growth was considered sufficient. The quantity produced was small, in appearance and size the roots were about equal to fine French roots, but on breaking them, instead of the deep red colour in the best French roots, they were orange or yellow. The dyeing properties were of a very disappointing character; the colours after soaping were loose and similar to Dutch Madder, pinks and reds being loose and weak, and the purple element entirely wanting; probably the cause of this is deficiency of sun and heat in this climate. *Practical Magazine.*

Notices to Correspondents.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. Letters relating to advertisements should be addressed to the Publisher.

Antirrhinums: *Ramsgate.* We should sow as soon as the seed is ripe, pot off, and house in a frost-proof frame, to get seedlings in bloom in June; or the result would doubtless be attained by sowing in heat in February, pricking out, and potting on as required, but they must be kept near the glass to avoid being drawn up. We cannot recommend dealers. Apply to some of the florists who catalogue their flowers.

Books: *J. P. M.* Berkeley's *British Mosses* (Reeve & Co.); *Lichenes Brittanici*, by Crombie (Reeve & Co.); *Handbook of British Fungi* (Cooke); Tate's *British Molluscs*; Reeves' *Land and Fresh Water Molluscs.* It will be well if you send another specimen of the insect.

Dahlia: *R. C. P.* The colour appears to be what is called amaranth, if it has not changed in withering.

Fern: *W. D.* The specimen sent is clearly a well-marked and exceptionally good form of Asplenium Adiantum-nigrum grandiceps. How it comes to have sprung from a sowing of A. marinum we cannot tell, unless the spores have been scattered and settled on the frond, and so got sown with A. marinum, while with the one exception the normal A. marinum did not germinate.

Journal of Botany: *H. E. E.* This is a monthly publication devoted solely to British and foreign botany, and published by Messrs. Ranken & Co., Drury House, Strand.

Melons Diseased: *Nemo.* There is little doubt that the cause of disease in your Melons is in the root. You should examine the roots to see whether this is the case, and at any rate entirely remove the old soil and limewash the house, or, if it admits of it, purify it thoroughly with burnt sulphur. You will probably get rid of the disease by this treatment, except there is something in the soil which does not agree with Melons. If you cannot purify the house, the only course left is to plant your Melons in some other house, taking the proper precautions. *M. J. B.*

Names of Plants: *J. Kingsbury.* A well-known sport from the common Beech, of which there are better examples in cultivation.—*G. W. B.* Rhipsalis salicornoides.—*M. A.* The small form of Cystopteris fragilis, often mistaken for C. alpina. The other specimen is a very common one, apparently a barren form of some Polystichum with palmate pinnæ. We should like to see it again when more developed.—*G. H. Harris.* 1, Lastrea glabella; 2, Asplenium palmatum; 3, Litobrochia aurita.—*W. Hills.* 1, Photinia serrulata (?), perhaps a Prunus; 2, Bambusa, sp.; 3, Cornus fragifera; 4, Aristotelia Maqui; 5, Dracæna australis. As nothing but leaves were sent, we have been unable to determine them satisfactorily. In future please send flowers.—*W. P. T. V.* 1, Pentstemon venustum; 2, Origanum Sipyleum; 3, Statice Gmelini; 4, Anemone japonica; 5, Verbena venosa; 6, Nepeta Nepetella.—*Thomas Bell.* Asclepias curassavica.—*N. M.* 3, Pholidota imbricata.—*W. Ingle.* Oncidium luridum.

Nursery Assessments: *G. W. B.* asks, "Can nurserymen be assessed for local rates beyond the amount of rent paid by them? In other words, can the assessors assess the value of their glasshouses?"

Ornamental Pots: *H. E. E.* Write to such makers as Mr. Matthews, The Royal Pottery, Weston-super-Mare.

Plum Leaves: *D. D.* The fungus is Puccinia prunorum (the Plum-tree brand). Try a weak solution of carbolic acid, instead of the Gishurst.

Plum with Variegated Leaves: *W. G.* We have not before observed so much variegation in the Plum. We do not consider it at all pretty, or at all desirable.

Tomato: *E. L. W.* For exhibition purposes the Tomato is usually regarded as a vegetable, but, like the Cucumber, it is of course the fruit which is eaten.

Catalogues Received:—A. M. C. Jongkindt Coninck (Tottenham Nurseries, Dedemsvaart, Zwolle, Holland), Wholesale Trade List of Nursery Stock.—Miller & Sievers (27, Post Street, San Francisco), Special Trade List of Californian Bulbs.—B. S. Williams (Victoria and Paradise Nurseries, Upper Holloway, London, N.), General Bulb Catalogue.—W. Cutbush & Sons (Highgate, London, N.), General Descriptive Catalogue.—James Veitch & Sons (Royal Exotic Nursery, King's Road, Chelsea, S.W.), Catalogue of Hyacinths and other Bulbous Roots.—Robert Parker (Exotic Nursery, Tooting, Surrey, S.W.), Catalogue of Alpine and Herbaceous and Miscellaneous Plants.—Stephen Brown (Weston-super-Mare), Catalogue of Bulbs and Flower Roots.—Suttons (Royal Berks Seed Establlshment, Reading), Autumn Catalogue of Bulbous Roots, Plants, Seeds, &c.

Erratum.—At pp. 212, 213, for the Rev. J. D. Wonner read the Rev. J. D. Horner.

Communications Received:—J. R. P.—J. F. (next week).—W. T. P.—F. J. S.—B.—J. C. (next week).—J. R. P.—R. D. B. (the Thames Bank Iron Company, Upper Ground Street, S.E.).—T. W.—No. 8.—W. E.—S. H.—E. P. D.—W. Cox.—Tyro.—G. Cannon.—F. G.—T. B.—T. J.—W. T.—J. D.—A. F.—W. M.—F. W.—R. D.—W. T. P.—B. J. C.

Markets.

COVENT GARDEN, August 20.

Supply sufficient for the trade. Foreign consignments heavy. West India Pines over. *Thos. Taylor, Wholesale Apple Market.*

Fruit.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Lemons, per 100	16 0–24 0
Apricots, per doz.	2 0– 4 0	Melons, each	2 0– 5 0
Cherries, Morellos, per lb.	0 6– 2 0	Nectarines, per doz.	4 0–10 0
Currants, p. ½-sieve	4 0– ..	Nuts, Cob, p. lb.	1 0– 1 6
— black, do.	5 0– ..	Oranges, p. 100	16 0–20 0
Figs, per doz.	2 0– 4 0	Peaches, p. doz.	2 0–15 0
Filberts, per lb.	1 0– 1 6	Pears, p. doz.	2 0– 3 0
Gooseberries, p. qrt.	0 4– 0 9	Pine-apples, p lb.	3 0– 6 0
Grapes, English, p. lb.	2 0– 6 0	Plums, ½-sieve	3 0– 4 0
— finest, do.	8 0– ..	Raspberries, p. lb.	0 6– 0 9
— Muscats, do.	3 6– 8 0	Strawberries, p. lb.	..
		Walnuts, p. bush.	16 0– ..

Vegetables.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Aubergines, per doz.	2 0– ..	Mint (green), p. bun.	0 6– ..
Beans, Broad, English, per bush.	3 0– 3 6	Mushrooms, per pott.	1 0– 2 6
— French, per bush.	5 0– ..	Onions, young, bun.	0 4– 0 6
Beet, per doz.	1 0– 2 0	Parsley, per bunch	0 4– 0 6
Broccoli, p. bundle	0 9– 1 6	Parsnips, p. doz.	0 9– 1 0
Cabbages, per doz.	2 0– 3 0	Peas, per quart	1 0– 2 0
Carrots, new, p. bun.	0 9– ..	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	— black, Turnip, do.	– 0 6
Celery, per bundle	1 6– 2 0	Rhubarb, p. bundle	0 4– 1 0
Cucumbers, each	0 6– 1 0	Shallots, per lb.	0 3– ..
Endive, per doz.	1 0– 2 0	Salsify, per bundle	1 6– ..
Herbs, per bunch	0 2– 0 4	Spinach, per bush.	2 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Tomatos, per doz.	1 0– 3 0
Leeks, per bunch	0 2– 0 4	Turnips, per bundle	0 3– 0 4
		Veg. Marrows, doz.	1 6– 2 0

New Potatos:—Round, 4s. to 6s. per cwt.; Kidneys, 6s. to 8s. per cwt. Supplies large, and trade bad.

Cut Flowers.

	s. d. s. d.		s. d. s. d.
Carnations, per doz. bunches	3 0– 6 0	Pelargoniums, per 12 sprays	0 6– 1 0
Corn-flower, p. doz. bunches	2 0– 6 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Eucharis, per doz.	4 0– 9 0	Pinks, mixed do.	2 0– 4 0
Escholtzia, p. 12 bun.	2 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Gardenias, p. doz.	3 0– 9 0	— Outdoor, do.	0 4– 1 0
Gladiolus, doz. sprays	0 6– 1 6	Spiræa, per 12 sprays	1 0– 2 6
Heliotropes, per doz. sprays	– 0 6	Stephanotis, 12 sprays	3 0– 9 0
Mignonette, 12 bun.	2 0– 6 0	Sweet Peas, 12 bun.	3 0– 6 0
		Tuberoses, p. doz.	1 0– 2 0

Plants in Pots.

	s. d. s. d.		s. d. s. d.
Balsams, p. doz.	3 0– 9 0	Geraniums, dbl., doz.	4 0– 9 0
Begonias, do.	6 0–12 0	Heaths, in var., do.	12 0–30 0
Bouvardias do.	9 0–18 0	Hydrangea .. do.	9 0–18 0
Calceolarias, shrubby	6 0–18 0	Liliums, in var., each	1 0– 3 6
Coleus, p. doz.	3 0– 9 0	Mignonette, per doz.	4 0– 6 0
Cyperus .. do.	6 0–12 0	Myrtles .. do.	3 0– 9 0
Dracæna terminalis	12 0–30 0	Pelargoniums do.	6 0–18 0
,, viridis .. doz.	12 0–24 0	do, Scarlet .. do.	3 0– 9 0
Fuchsia .. do.	4 0–12 0	Rhodanthe .. do.	6 0–12 0

SEEDS.

London: *Aug.* 21.—We have to report a good steady business passing in those kinds of seeds required for present sowing. Of new Trifolium the quantity remaining on hand appears to be very limited: good bright yearling seed is now in request. Values of both descriptions are without alteration. White Mustard seed continues to move off very freely at full rates. In Rape seed there is not much doing. As the article is now unusually cheap, it excites, as might be expected, but little attention. For sowing Rye we have a brisk inquiry. New winter Vetches have during the last few days come to hand rather more freely: the prices asked for them are very high. Some of the samples now offering are of very fine quality. In both red and white Clover seed transactions for the present are very limited: the reports received of the new crops are not satisfactory. Blue boiling Peas are still in short supply. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the grain trade was quiet. The demand for English Wheat ruled heavy, at 1s. per qr. reduction. New red was quoted at 52s. to 55s.; white, 53s. to 59s.; and choice Talavera at 60s. to 62s. per qr. The trade in foreign Wheat was dull, and prices rather easier. The demand for Barley was inactive, on former terms; malt quiet at late rates. Sales of English Oats were made quietly on former terms. Maize was inactive, at drooping currencies; and Beans and Peas were quiet, but firm. The flour market was dull and without feature.— Little business was done at market on Wednesday. English Wheat sold slowly at previous currencies; foreign was without alteration. The supply of Barley was moderate; in all qualities sales were at previous currencies. Malt was dull, on former terms. Transactions in Oats were restricted, at previous quotations. Maize was inactive, at late currencies. Beans and Peas were steady in value, and flour was dull on former terms.

CATTLE.

There was no feature of importance in the cattle trade at Monday's market. English beasts, choice breeds, from their scarcity, were in request, and realised full prices; but inferior breeds sold slowly. The best Scots and crosses changed hands at 6s. to 6s. 2d. per 8 lb. On the foreign side of the market a good show of stock was exhibited, and trade was quiet at late rates. The market was well supplied with sheep, the prices for which were maintained. Best Downs and half-breds changed hands at 5s. 4d. to 6s. 6d. per 8 lb.; lambs at 5s. 6d. to 6s. 8d. per 8 lb. For calves the demand ruled heavy, prices tending in favour of buyers.—On Thursday trade for beasts was dull, and the average prices were not so good as on Monday. The quotations for sheep were well maintained; of lambs only a few choice were sold at reduced rates. For milch cows and calves the report continues unfavourable.

HAY.

A small supply of hay and straw was on sale at Smithfield on Tuesday, and trade was steady, at the following rates:—Prime old Clover, 100s. to 125s.; inferior do., 75s. to 85s.; prime meadow hay, 90s. to 114s.; inferior do., 55s. to 75s.; and straw, 33s. to 44s. per load. The Cumberland Market quotations are:—Superior old meadow hay, 112s. to 118s.; inferior do., 90s. to 98s.; new hay, 90s. to 104s.; superior old Clover, 118s. to 126s.; inferior do., 95s. to 108s.; new Clover, 100s. to 118s.; and straw, 44s. to 48s. per load.

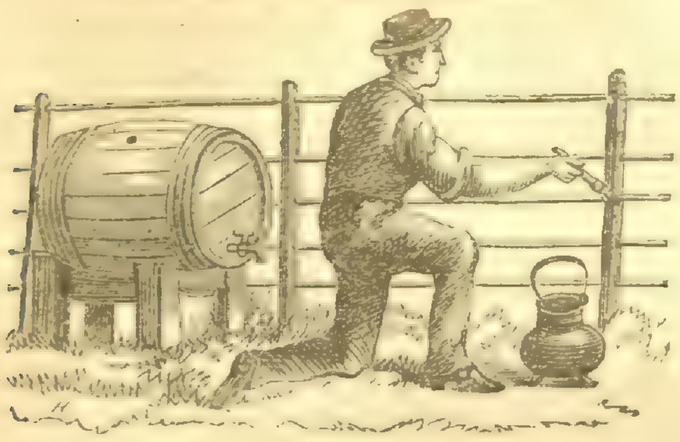
POTATOS.

From the report of the Borough and Spitalfields market for Monday we learn that English Potatos were in moderate supply, but foreign descriptions scarce. The trade was steady for all kinds at, for Regents, 90s. to 140s.; Shaws, 85s. to 100s.; and for Kidneys, 110s. to 140s. per ton.

COALS.

There was a good demand for house coals on Monday. Best sorts met with a ready sale at last prices, and seconds realised an advance of 6d. per ton. The same may be reported for Wednesday. Prices: Wallsend —, Hetton, 25s.; East Hartlepool, 24s. 9d.; Lambton, 24s. 6d.; Original Hartlepool, 25s.; Tees, 24s. 9d.; Kelloe, 23s.; Newbottle, 22s.; Bebside West Hartley, 22s. 3d.; Hastings Hartley, 22s. 3d.; Holywell Main 22s.; East Wylam, 22s. 3d.

Oil Paint no Longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all outdoor work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

CARSONS' PAINT,

PATRONISED BY THE QUEEN,

The British, Indian and Colonial Governments,

8000 of the Nobility, Gentry, and Clergy,

Railway and Canal Companies, Collieries, Ironmasters, &c., &c.,

Is extensively used for all kinds of

OUTDOOR WORK.

It is especially applicable to

WOOD, IRON, BRICK, STONE & COMPO.

CAN BE LAID ON BY UNSKILLED LABOUR.

Sold in all Colours.

2 cwt. free to all Stations.

Prices, Patterns, and Testimonials sent Post Free.

WALTER CARSON & SONS,

LA BELLE SAUVAGE YARD,

LUDGATE HILL, LONDON, E.C.

And 21, BACHELOR'S WALK, DUBLIN.

NO AGENTS.

SYRINGES & GARDEN ENGINES.

G. & W. PURSER'S

List of Engravings for this Season

Is now ready, and may be had, post free, on application.

Sole Makers of the Jet d'Eau.

WORKS: WARWICK STREET, BIRMINGHAM.

DAVIS' IMPROVED WASP DESTROYER.

Price 1*s.* 6*d.* and 2*s.* 6*d.* per bottle (Post Free 1*s.* 8*d.* and 2*s.* 9*d.* in stamps), with full Directions.

"It has completely cleared my Vineries, &c., of Wasps and Flies."

For Testimonials see Circulars, free on application.

B. R. DAVIS, Yeovil.

Is indispensable to Nurserymen, Gardeners, and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1*s.* and 1*s.* 6*d.*, and sent post free with directions, for 1*s.* 3*d.* and 1*s.* 10*d.*, by the Proprietors—

WILLIAM ROLLISSON & SONS, Tooting, London, S.W. Wholesale Agents: Messrs. Turner & Rowe, 84, Little Britain.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.

Illustrated Price Lists free.

HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

The Improved Imperishable Labels !!!

IMPORTANT NOTICE.

J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.

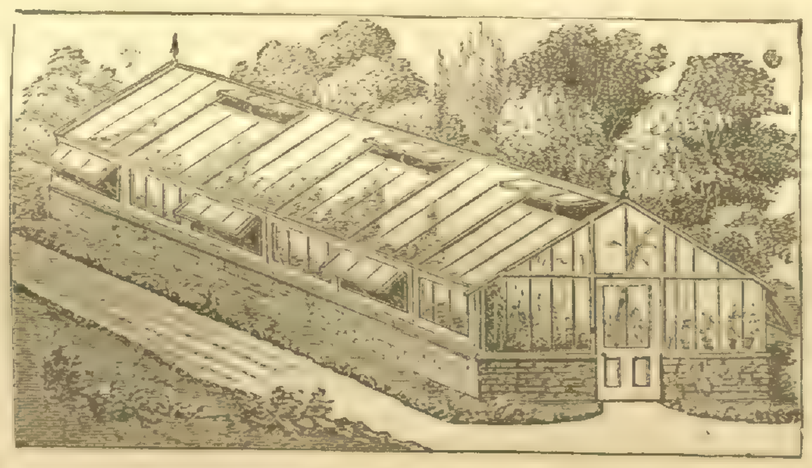
J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose.

All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

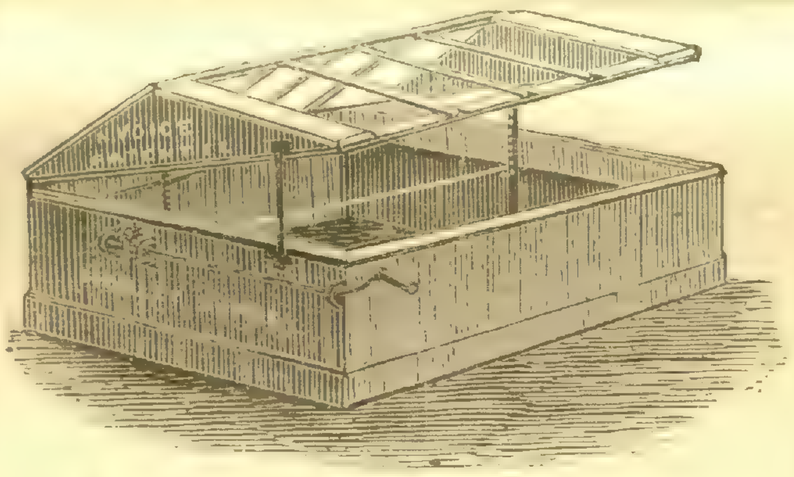
W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to

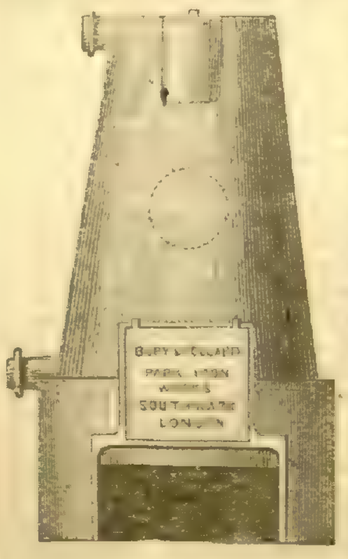


N. VOICE, Horticultural Builder and Patentee; Works Horley, Surrey.

N.B.—AGENTS WANTED.

Heating by Hot Water.

PUBLIC and PRIVATE BUILDINGS, MANUFACTORIES, CONSERVATORIES, &c., heated on the most improved system, combined with perfect ventilation.



These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

POLLARD AND CO. (late Bury & Pollard, Successors to John R. Peill, late Stephenson & Peill), Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Fixed at seats of Duke of Newcastle, Lord Belper, Lord Middleton, &c. At Viscount Sydney's replaced, after being twenty years in constant use. Foreign orders promptly executed. The Prince Salm Salm, the Duke de Croy, &c., recently supplied.

PRICE LISTS free by post.

Bear Garden, New Park Street, Southwark, London, S.E.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS' PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS' Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,

THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

Works on Botany, by Dr. Lindley.

THE VEGETABLE KINGDOM; or, THE STRUCTURE, CLASSIFICATION, AND USES OF PLANTS, Illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25*s.*, with upwards of 500 Illustrations.

EXTRACT FROM THE AUTHOR'S PREFACE.

"The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be brought by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects."

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL

AND

NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.

Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

THE AGRICULTURAL GAZETTE,
SATURDAY, August 22, 1874,
Contains—
Original Articles on The Harvest—Stock Food—Treatment of Foot-and-Mouth Disease—Cricket—Ducks—Cattle Trucks (Illustrated)—The Derbyshire Cheese Factories—A Seven Days' Continental Trip—The Chestnut and other Trees—The Harvest and the Crops—The Birmingham Horse Show—Agricultural Machinery (Illustrated)—Indisceret Utterances of the Labourers' Union Leaders—The Herd of Shorthorns at Dunmore—Stumps (Illustrated)—The Farmers and Labourers, &c.
Home and Foreign Correspondence on The Maintenance of Turnpipe Roads—Morecambe Bay—Sewage Irrigation at Wrexham—Destruction of Weeds—Economical Labour—Land Reclamation—Mushrooms—Welsh Farming—What is a Barrel?—Farm Notes from the Argentine Republic—Canadian Farming—Rural Notes from Greater Britain—Russian Moss Distilleries—Farm Notes and Memoranda from English, Scottish, and Irish Counties, &c.
REPORTS OF AGRICULTURAL SHOWS.
Also—
The Veterinarian—The Poultry Yard—The Beekeeper—The Garden of the Farm—Notices of Books—Markets—Recent Fairs—Ram Sales, &c.
Price 4d.; post free, 4½d. Published by William Richards, at the Office, 7, Catherine Street, Strand, W.C.

Popular Works by Mr. Smiles.
Small 8vo, 6s.
SELF HELP. With Illustrations of Conduct and Perseverance. By SAMUEL SMILES, Author of "Lives of British Engineers."
"This admirable little volume, which Mr. Smiles has called 'Self Help,' has been appreciated as it deserves, for it is a book which must stimulate many a youth to form habits of temperance, frugality and industry. It appeals to all the noblest sentiments that elevate man—duty, honour, and obedience."—*Spectator.*
By the same Author,
CHARACTER. A Companion Volume to "Self-Help." Small 8vo. 6s.
"A charming volume. In a small compass is compressed much sterling sense and advice, culled from all sources, ingeniously woven into a continuous whole."—*John Bull.*
III.
THE STORY OF THE LIVES OF GEORGE AND ROBERT STEPHENSON, Railway Engineers. Woodcuts. Small 8vo. 6s.
"A story worthy to be known by thousands, and issued in a form which will make it accessible by men of humble means who have especial right to be among its readers; we hope that this library open to working men will be without it."—*Examiner.*
IV.
LIFE OF THOMAS TELFORD, with a History of Roads and Travelling in England. Woodcuts. Small 8vo. 6s.
INDUSTRIAL BIOGRAPHY; or, Iron Workers and Tool Makers. Small 8vo. 6s.
A BOY'S VOYAGE ROUND THE WORLD. By Samuel Smiles the Younger. Woodcuts. Small 8vo. 6s.
"A volume of the healthiest and most agreeable kind. Unaffected, vivacious, and rich in incident. It contains, moreover, a large amount of information, and in writing of well-known places it is evident that the author sees with his own eyes and not through 'the spectacles of books.'"—*Pall Mall Gazette.*
JOHN MURRAY, Albemarle Street.

This Day is Published, Crown 8vo, 7s. 6d., 5th Edition, Revised and Enlarged, of
A BOOK ABOUT ROSES: How to Grow and Show them. By S. Reynolds Hole.
BLACKWOOD and SONS, Edinburgh and London.

This Day is Published, fcap. 8vo. price 2s.,
NEWMAN'S BRITISH FERNS—People's Edition. Contains full Descriptions, Lists of Localities, and Instructions for Cultivating. Illustrated by six Steel Plates, giving accurate figures of almost every British Fern.
JOHN VAN VOORST, 1, Paternoster Row, E.C.

Just Published, imperial 8vo, on fine toned paper, with eleven Illustrative Plates,
THE NATURAL PRINCIPLES of LANDSCAPE GARDENING. By Jos. Forsyth Johnson (Landscape Gardener), Curator, Royal Botanic Gardens, Belfast.
Price 7s. 6d., post free 7s. 9d., from the Author.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. Fountaine, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, Illustrated.
Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE ELEMENTS of BOTANY, Structural and Physiological. With a Glossary of Technical Terms and numerous Illustrations. 9s. cloth.
This completes the series of Elementary Botanical Works by Professor Lindley, of which *School Botany* and *The Vegetable Kingdom* form the other parts.
The first two Parts of *The Elements of Botany*, comprising Structural and Physiological Botany, and a Glossary of Technical Terms, are published in one 8vo volume, price 9s.
These three Parts form a complete Manual of Botany for Medical and other Students who have made themselves acquainted with the Author's *School Botany.*
N.B. The Glossary may be had separately, price 5s.
London: BRADBURY, AGNEW and CO., Bouverie Street, E.C.

PARTNERSHIP (active or otherwise), in a First-class London Wholesale Seed House. Capital required. Confidential.—G. W. L., Mr. F. Nix, Tobacconist, 79, Bishopsgate Street Within, London, E.C.

To the Seed Trade.
WANTED a REPRESENTATIVE.—The Advertisers are in want of a thoroughly competent Man, with good manners and address, who understands the Nursery, Vegetable, Flower, and Agricultural Seed Trade. Must have great experience in each department. To a thoroughly qualified person liberal encouragement will be given. Also an UNDER SHOPMAN, of good Counter experience.—Address, A. B. C., care of Mr. Robert Cooper, Fleet Street, London, E.C.

WANTED, a good WORKING FOREMAN and PLANTSMAN, in a Small Nursery. Must be thoroughly trustworthy and industrious. A married man without family preferred. Wages 20s. per week, rent free and garden.—State age, class of experience, &c., to W. B. SMALE, 89, Lower Union Street, Torquay.

WANTED, a middle-aged MAN and his WIFE—the Man as good Working Gardener, and the Wife to assist in the House.—Address, by letter, to C., Timothy Brigden, Seedsman and Florist, 52, King William Street, London, E.C.

WANTED, an UNDER GARDENER, not under 25 years of age; must thoroughly understand the profession in all its branches. Also an active GARDEN LABOURER, who understands Pruning and Tying.—J. CALLWOOD, Alderley Park, Crewe.

WANTED, near London, a young Man, as PROPAGATOR and GROWER of Bedding-out Plants, to get up yearly about 50,000. Wages, with fire and lodgings, 18s. per week, with an advance of 2s. per week after the first year, for the next five years, if satisfaction is given.—L. W., *Gardeners' Chronicle* Office, W.C.

WANTED, a first-rate INDOOR PROPAGATOR of Hardy Trees, Shrubs, Conifers, and Roses. To a thoroughly efficient, energetic, and persevering Man liberal wages will be given.—State experience, when applying, to Mr. RICHARD SMITH, Nurseryman, Worcester.

WANTED, as UNDER WAREHOUSEMAN, a young Man with a knowledge of the Seed Trade.—WARD and CO., Bristol.

DICK RADCLYFFE and CO. REQUIRE the services of a young Man, to fill the post of ASSISTANT SHOPMAN. He must have a general knowledge of the profession, and be a good Salesman.—Apply, by letter only, stating age, experience, references, and salary expected, to DICK RADCLYFFE and CO., 129, High Holborn, W.C.

WANTED, a FIREMAN (a good hand).—Wages, to begin with, 20s. per week, with lodgings on the ground and the usual allowances.—Mr. W. DAVIS, Whetstone, N.

WANTED, a TRAVELLER, thoroughly acquainted with the Value of General Nursery Stock both indoors and out.—THOMAS CRIPPS and SON, The Nurseries, Tunbridge Wells, Kent.

Seed Trade.
WANTED, a steady respectable MAN, for the Warehouse Department.—Must have held a similar situation and be well recommended.—Apply, with all particulars as to age, salary, references, &c., to JAMES DICKSON and SONS, 108, Eastgate Street, Chester.

MESSRS. BARR and SUGDEN, 12, King Street, Covent Garden, REQUIRE a PACKER; he must be a steady, respectable Man, and a good general Packer. Wages 25s. per week.

JAMES BIRD thanks the many applicants for his FOREMAN'S place, and informs them that the SITUATION is FILLED.—American Nurseries, Downham.

WANT PLACES.

To Gardeners in Want of Situations,
Whose characters will bear strict investigation.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

NURSERY MANAGER or FOREMAN PROPAGATOR.—Long and practical experience in Stove and Greenhouse Plants, Ericas, New Holland Plants, Pot Vines, Grafting Roses, Rhododendrons, Clematis, Coniferæ, and the usual routine of a Nursery, indoors and out. Good Salesman. First-class references.—P. J. H., Mr. E. Holmes, Whittington Nursery, Lichfield.

GARDENER (Head).—B. Richardson, Gardener to Sir J. W. C. Hartopp, Bart., The Warren, King's Wood, Epsom, wishes to recommend to any Lady or Gentleman (within thirty or forty miles of London) a young Man in the above capacity. Thoroughly experienced in every branch of the profession. No single-handed place accepted.—Address as above.

GARDENER (Head), in large general Gardens.—Young, staid, and single at present; understands Flowers, Fruit, Vegetables, under Glass, &c. Of good education, ability, and general character. Highest references from late employer.—B., Swiss Villa, Lea Road, Gainsborough.

GARDENER (Head).—John Macdougal, late of Hampton Lodge, Farnham, Surrey, wishes for a re-engagement. Highly recommended by former employers.—82, Junction Road, Upper Holloway, London, N.

GARDENER (Head, Working).—E. Cooling can recommend a married Man (age 33, with two children), as thoroughly competent in every branch of the profession.—E. COOLING, Mile Ash Nurseries, Derby.

GARDENER (Head, Working).—Age 28; practical knowledge of the profession. Good references.—State wages, &c., R. S. G., Post Office, Lee Bridge, Lewisham, S.E.

GARDENER.—Age 25, single; thoroughly practical in the Cultivation of Vines, Peaches, Melons, and Stove and Greenhouse Plants. Three years' good character.—M. W., Smith, Fortis Green, Finchley, N.E.

GARDENER (Under), in a Gentleman's Establishment, where Fruit and Plants are extensively grown.—Has had experience in Stove and Greenhouse Plants, and Flower and Kitchen Gardening.—A. S., 41, Cochrane Street, St. John's Wood, London, N.W.

GARDENER (Under).—Age 20. Good reference.—T. ANKCORN, 1, Lily Place, Owen Street, Birmingham.

GARDENER (Under).—Age 23, single; good character from last and present employers.—A. B., The Gardens, Westwood, Beulah Hill, Upper Norwood, Surrey, S.E.

GARDENER, or BAILIFF (married, no family).—J. K., having completed an engagement at Hall Place, Tunbridge, is open to another as above, or both combined. Twenty-five years' experience. Ten years with last employer, from whom first-class testimonials may be had. Wife first-class Manager of Dairy and Poultry.—J. K., Highgate Nurseries, London, N.

FOREMAN, or FOREMAN and PROPAGATOR.—Twenty-five years in the profession.—G. SMITH, Foreman, Ashford Nursery, Ashford, Middlesex.

PROPAGATOR (Indoor) of Hardy Trees, Shrubs, Coniferæ, Clematis, Roses, &c.—A. C. E., Pine-apple Nursery Company, Maida Vale, London, W.

FARM BAILIFF.—A Farmer's Son requires a situation as above. Ten years' good character.—C., Post Office, Rusholme.

To the Seed Trade.
CLERK or SHOPMAN.—Age 20; six years' experience in Scotland and Ireland. Good references.—ALPHA, Messrs. Hurst & Son, 6, Leadenhall Street, E.C.

COACHMAN (Second), or GROOM (Single-handed), in a Nobleman's or Gentleman's Family.—J. R., London Colney, near St. Albans, Herts.

TO THE SEED TRADE.—A young Man of 10 years' experience is desirous of obtaining an engagement in a first-class House. Highest references.—G. S. M., Messrs. Thomas Carter & Sons, Seed Merchants, Berwick-on-Tweed.

KINAHAN'S . LL . WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES,
in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.
EPPS'S COCOA, BREAKFAST.
"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*
Manufacture of Cocoa.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*
Made simply with boiling water or milk.
Sold by Grocers, only in packets, labelled
JAMES EPPS and CO., HOMŒOPATHIC CHEMISTS,
48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, N.W.

DINNEFORD'S FLUID MAGNESIA.
The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD and CO., 172, New Bond Street, London, W., and of all Chemists throughout the World.

Lea & Perrins' Sauce.
THE "WORCESTERSHIRE,"
pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.
ASK FOR LEA and PERRINS' SAUCE.
Beware of Imitations,
and see the names of LEA and PERRINS on all Bottles and Labels.
Agents—CROSSE and BLACKWELL, London, and sol by all Dealers in Sauces throughout the World.

THE AGRICULTURAL GAZETTE

AN ILLUSTRATED JOURNAL FOR

LANDOWNERS AND TENANT FARMERS.

PRICE FOURPENCE.

AFTER thirty years' association with "*THE GARDENERS' CHRONICLE*," *THE AGRICULTURAL GAZETTE* now stands alone, and the double space at its disposal is occupied with matters strictly Agricultural.

Full Market Reports. FULL MARKET REPORTS, both Metropolitan and Provincial, accurate Accounts of Prices, Sales, and Business Transactions of all kinds, are published every week.

Prices, Sales, &c.

Universal Intelligence. and Correspondence. INTELLIGENCE in any way affecting Agriculturists, or interesting to them, is carefully collected and made known. Correspondents have been secured in every county. Separate editorial departments have been established for Scotland and Ireland. Reports are periodically received from Canada, Australia, India, France, Germany, and Hungary, and from the United States of America.

Proceedings of Agricultural Societies. The PROCEEDINGS of AGRICULTURAL SOCIETIES, Farmers' Clubs, and Chambers of Agriculture—their Meetings, Exhibitions, and Discussions—are reported fully and with promptitude.

Estates and Farms. EVERY DEPARTMENT OF THE ESTATE OR FARM receives attention—Land Agency, Estate Equipment, Forestry, Farm Buildings, Roads, Fences, Cottages—Live Stock, Plants, and Implements of the Farm—Drainage, Tillage, and Manuring of the Soil.

A Veterinary Editor. A VETERINARY EDITOR has been secured.

The Poultry Yard, Apiary, and Garden. Departments relating to the POULTRY YARD, the APIARY, and the GARDEN of the Farm are under separate professional direction.

Reviews of Books. REVIEWS are published of all Books claiming a place in the library of the Farmer.

Special Reports. REPORTS of noteworthy Estates, Farms, Herds, Flocks, and Factories are given from week to week.

Botany, Chemistry, Physiology, Entomology, Natural History, &c. &c. Teachers and students of the several sciences in which the Agriculturist is interested—BOTANY, CHEMISTRY, PHYSIOLOGY, ENTOMOLOGY, NATURAL HISTORY—are constant contributors.

Agricultural Machinery. Especial attention is given to AGRICULTURAL IMPLEMENT manufacture. Improvements in Machines are reported—New Inventions made known—Patents discussed—and the Implement Factories of the country described—Engravings, always necessary in such cases for intelligible description, being given without stint.

Patents and Inventions.

Illustrations. No expense is spared in ILLUSTRATIONS—wherever they can be of use. Not only Implements, but Plants, Weeds, varieties of Cultivated Crops, &c.; and animals—breeds of Horses, Cattle, Sheep, and Pigs; also Poultry, Insects, General Natural History; and Buildings—Farmhouses, Homesteads, Cottages; Photographs Illustrative of Country Life and Occupations, whether at home or abroad:—all these provide subjects for the Engraver. Portraits and Memoirs of Noteworthy Agriculturists are also occasionally given.

THE AGRICULTURAL GAZETTE professes no Party Politics; but it does not hesitate to discuss any subject affecting the Position or Relations of those whose Professional Organ it desires to be. It will be found absolutely Independent, excepting only of such rules as govern honourable men. And nothing that affects the interests, whether of the Landowner, the Tenant-Farmer, or the Labourer, is excluded from its Columns.

SUBSCRIPTIONS PAYABLE IN ADVANCE,

Including postage to any part of the United Kingdom:

Three Months, 5s.; Six Months, 9s. 9d.; Twelve Months, 19s. 6d.

P.O.O. TO BE MADE PAYABLE AT THE KING STREET POST OFFICE, W.C., TO WILLIAM RICHARDS.

Publishing Office, and Office for Advertisements:

7, CATHERINE STREET, STRAND, LONDON, W.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, August 22, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 35.—Vol. II. {New Series.} SATURDAY, AUGUST 29, 1874. {Registered at the General Post Office as a Newspaper.} Price 5d. Post Free, 5½d.

CONTENTS.

America, the Peach trade in 266
Apiary 267
Apple orchard, a Middlesex 262
Apricot tree, a productive (with cut) 275
Bangalore 266
Bedding-out, a new style of 270
British Association .. 260
Carnation, the 262
Carnivorous plants .. 260
Carpet gardening .. 276
Copal 273
Cotyledon Peacockii .. 258
,, peruviana .. 258
Culinary notes 258
Farm, the 267
Foreign correspondence . 262
Fuchsia Riccartoni in Ireland 270
Garden operations .. 279
Grapes at Belfast, the .. 270
Grape Phylloxera, the .. 271
Greenhouse plant culture 274
Harvest, and after .. 267
Home correspondence .. 274
Honey supers, judging .. 267
Horticulture and the labour difficulty .. 269
Irrigation in the kitchen garden 276
Kew, the old walls at .. 271
Levens Hall (with cuts) 263
Mont d'Or Butter Bean . 274
Myosotis dissitiflora .. 275
Natural history 267
Pandanus longifolia flowering at Lowther . 275
Peach trade in America . 266
Plants, new garden .. 258
Rose exhibitions, immoral 275
Royal Horticultural Society 275
Rubus occidentalis .. 270
Societies :—
Belfast Great Show .. 276
Canterbury Horticultural 278
Devon and Exeter Botanical and Horticultural 278
Isle of Thanet Horticultural 279
Reading Horticultural 277
Sevenoaks Horticultural 278
Tropæolum speciosum .. 275
Tuberose, the 257
Veronicas in Ireland .. 270
Villa garden, the .. 279
Water-beetles 267
Weather, the 281
Wild flowers considered in relation to insects .. 261
Xanthoceras sorbifolia fruiting in Paris .. 270
Xanthosoma (?) mirabile . 258

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION *to the* GARDENERS' CHRONICLE, *including postage to the United States, is* £1 6*s*.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth,* 16*s*.
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.—NOTICE.—FRUIT and FLORAL COMMITTEES' MEETING, on WEDNESDAY NEXT, SEPTEMBER 2, and SHOW of DAHLIAS, &c., at 11 o'Clock. General Meeting at 3 o'Clock. Band from Half-past Three. Admission 2*s*. 6*d*.

WARWICKSHIRE AGRICULTURAL SOCIETY'S EXHIBITION, at Knowle, near Birmingham, SEPTEMBER 15 and 16 next.—A GRAND HORTICULTURAL SHOW will be held in connection with the above. Entries close August 31. Schedule of Prizes on application to JOHN MOORE, Sec., Warwick.

GIBSON TESTIMONIAL.
For full particulars, see *Gardeners' Chronicle*, p. 204.
Amount already promised, £386.
Subscriptions are received by
Mr. THOMAS MOORE, Treasurer, Botanic Gardens, Chelsea, S.W.; or,
Mr. HARRY J. VEITCH, Hon. Sec., Royal Exotic Nursery, King's Road, Chelsea, S.W.

Herbaceous Calceolaria.—To the Trade.

WOOD AND INGRAM have just harvested their crop of the above (from Neill's superb strain), and beg to offer it in quantities from one-eighth of an ounce. Price on application. The Nurseries, Huntingdon.

Splendid Herbaceous Calceolaria.

LUCOMBE, PINCE, AND CO., can offer good packets of their superb strain at 2*s* 6*d*., 3*s*. 6*d*. and 5*s*. each; also their celebrated strains of CINERARIA, PRIMULA and CYCLAMEN, at 2*s*. 6*d*., 3*s*. 6*d*. and 5*s*. each. PRIMULA JAPONICA, new seed, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*. and 5*s*. per packet. Exeter Nurseries, Exeter.

Cineraria, Primula, Calceolaria, and Cyclamen.

WM. CUTBUSH AND SON very highly recommend their choice strain of the above, which always gives satisfaction. In packets, 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*., post free. Highgate Nurseries, London, N.

Wheeler's Superb Herbaceous Calceolaria.

GEO. WHEELER is prepared to offer packets, post free, at 1*s*. 6*d*., 2*s*. 6*d*., and 3*s*. 6*d*. each, of his very superior Strain. Being dwarf and robust the habit of the Plants is all that can be desired, and may generally be grown without the aid of sticks to support the flower-stems.
Young plants of the above may be sent safely by post, when ready, at 3*s*. per dozen.
The Nurseries, Warminster, Wilts.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

Standard Tea Roses from Paris.

LEVEQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer for next autumn a splendid and large stock of TEA ROSES, comprising all the best sorts, Maréchal Niel, per hundred. The price will be £5 per 100. LIST of sorts on application.

LILY of the VALLEY.—Strong 3-yr. old clumps for forcing, 6*s*. per dozen, or 40*s*. per 100; variegated do., 6*s*. per dozen.
ANTHONY WATERER, Knap Hill, Woking, Surrey.

Lily of the Valley.

ROBERT NEUMANN, The Nurseries, Erfurt, begs to offer large quantities of strong flowering roots, for forcing, of the above, at 45*s*. per 1000.
Also strong clumps of SPIRÆA (HOTEIA) JAPONICA.

CONVALLARIA MAJALIS, strong clumps for forcing, £2 6*s*. per 100. SPIRÆA (HOTEIA) JAPONICA, strong clumps, £1 6*s*. per 100, larger quantities less. D. JACOBSON, Haarlem, Holland.

Large Conservatory Plants for Sale.

E. COOLING has some large CAMELLIAS, AZALEAS, LEMONS, PALMS, &c., to dispose of. LIST, with prices, on application.
Mile Ash, Derby.

Vines, Vines, Vines.

F. AND A. SMITH have a splendid Stock of all the Leading Kinds to offer, in PLANTING and FRUITING CANES.
The Nurseries, West Dulwich, S.E.

DOWNIE, LAIRD AND LAING beg to intimate that all the popular VIOLAS of the present day may NOW be SEEN in FULL FLOWER in their Flower Garden at their Royal Winter Gardens, Edinburgh, near the Haymarket Station.

NEW SEEDS of CYCLAMEN.—New Seed of Mr. Kopsel's choice varieties of Cyclamen persicum and europæum can now be supplied by the pound or ounce. Lowest trade prices on application to
ALBERT KOPSEL, The Nurseries, Cothen, Germany.

To the Trade.

HOLLIES, 1-yr. Seedling.—A sample 1000 sent on receipt of 4*s*. August is the best month to plant them. Also THUJA GIGANTEA (Libocedrus decurrens), transplanted autumn 1873, extra fine plants, from seed, 3 to 3½ feet, 20*s*. per dozen; 3½ to 4 feet, 30*s*. per dozen; a few extra fine specimens, 6 to 7 feet and 7 to 8 feet, 5*s*. to 7*s*. 6*d*. each. Apply to
C. WHITEHOUSE, Brereton Nurseries, Rugeley, Staffs.

British Fern Catalogue.

ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Strawberries.

PAUL AND SON have now ready strong NEW transplanted RUNNERS, of leading sorts. Descriptive LIST post free.
"Old" Nurseries, Cheshunt.

Strawberries.

CHARLES TURNER can now supply strong Plants of all the leading varieties; the new kind, "LA GROSSE SUCRÉE" is highly recommended for early forcing. CATALOGUE on application.
The Royal Nurseries, Slough.

NEW STRAWBERRIES, Exquisite and Traveller (First-class Certificate).—The best for flavour and transmission. See advertisement in *Gardeners' Chronicle* of the 8th inst. Strong plants now ready. Particulars post free from W. AND J. BROWN, Stamford.

WANTED, GERANIUM CUTTINGS, Tricolor and other good sorts. State price per 100 or 1000.
J. ROBINSON, Nurseryman, Stretford, Manchester.

WANTED, Three Thousand GERANIUM CUTTINGS—Mrs. Pollock, Lady Cullum, and Sophia Dumaresque, equal quantities. Price per thousand.
G. D., 6, Maiden Lane, Club Moor, Liverpool.

WANTED, CUTTINGS of GERANIUMS—Mrs. Pollock and other Tricolors. State price per 100, and quantity of each, to
JOHN GRIER, Nurseries, Ambleside, Windermere.

WANTED, CUTTINGS of GERANIUMS—Mrs. Pollock, Lady Cullum, Sophia Dumaresque, Vesuvius, Master Christine, Madame Vaucher, Beauty of Calderdale, Tom Thumb, Bijou, Crystal Palace Gem. Also CALCEOLARIAS—Prince of Orange, Crimson Dwarf, Aurea floribunda, Sparkler. State quantity and lowest price to
Box 68, Post Office, Chester.

WANTED, CUTTINGS of Mrs. Pollock, Lady Cullum, Lady Palmerston, Sophia Dumaresque, and Rev. Mr. Radclyffe. State lowest price per 100, and quantity to H. W. BRIDPORT, Florist, Nursling, Southampton.

To Scotch Gardeners.

WANTED, SPECIMENS of MOSSES growing north of Tweed. For particulars, address, with terms required,
GEO. GALLATLY, West Hill, Highgate, London, N.

WANTED, LARCH FIR, from 1½ to 2 feet high. State price and quantity.
GEORGE TOWNSEND, Nurseryman, Fordham, near Soham.

Now ready, gratis and post-free.

CARTER'S Illustrated CATALOGUE of BULBS for 1874. It contains full descriptions of the best kinds of Hyacinths, Tulips, Crocus, and other Bulbs, with full directions for the guidance of amateurs desiring to be successful cultivators of these beautiful spring flowers.
CARTER'S, the Royal Seedsmen, High Holborn, London, W.C.

ROMAN HYACINTHS.
The Trade should apply to
HOOPER AND CO., Covent Garden, London, W.C.

New August Catalogue.

PAUL AND SON, The "Old" Nurseries, Cheshunt, have now ready their new LIST of DUTCH BULBS, SPECIALITIES for FORCING, including Azaleas and Camellias, Strawberries and Vines.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete every published.
Hale Farm Nurseries, Tottenham, London, N.

To the Trade.

HYACINTHS, early white Roman, 27*s*. per 100; do., picked bulbs, 30*s*. per 100. NARCISSUS, early Paper-white, 14*s*. per 100; Early Double Roman do., 11*s*. per 100. Large consignments of the above to hand in splendid condition. Terms cash.
GEO. POULTON, Seed and Bulb Merchant, Angel Road, Edmonton, London, N.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s*. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other Dutch Roots, in fine condition. Early orders are requested. CATALOGUES post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Spring Flowers.

THOMAS S. WARE'S NEW BULB CATALOGUE contains a selection of all the best spring flowering Perennials in cultivation. A section requiring to be planted in the autumn to ensure a good display the following spring. Hale Farm Nurseries, Tottenham, London, N.

To Florists and Others.

FOR SALE, choice CUT FLOWERS, including Gardenias, Stephanotis, &c.; likewise STRAWBERRY PLANTS of all the leading kinds, in or out of pots. WANTED, CAMELLIA BLOOMS.
G. WALKLING, College Park Nursery, Lewisham, S.E.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

New Turnip Seeds for Present Sowing.

H. AND F. SHARPE are now harvesting TURNIP SEEDS of 1874 growth, and are prepared to execute Orders from the Trade at very moderate prices, and on receipt of Letter or Telegram.
Seed Growing Establishment, Wisbech.

Seeds for Present Sowing.

JAMES DICKSON AND SONS can supply, of best quality, all SEEDS, including Turnip, Rape, Mustard, Trifolium, Cabbage, Vetches, Italian Rye-grass; mixed Grasses and Clovers for permanent pasture; also all other Farm Seeds, as well as Garden and Flower Seeds of all sorts.
108, Eastgate Street, Chester.

CABBAGE PLANTS.—For Sale, good strong Robinson's Champion Ox Cabbage Plants, at 3*s*. per 1000; also a few thousand Enfield Market, at 3*s*. 6*d*. per 1000. Can now be supplied by
J. WOODBERRY, Nurseryman, &c., Billingshurst, Sussex.
Remittance to accompany all orders from unknown correspondents.

The New American Potatos.

SNOWFLAKE, BROWNELL'S BEAUTY, EXTRA EARLY VERMONT, COMPTON'S SURPRISE.
HOOPER AND CO. are large holders of these very choice sorts, and can give special advantages to buyers in the trade during the autumn. Prices on application.
HOOPER AND CO., Covent Garden, London, W.C.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1*s*. per bushel, or 6*d*. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

WHEELERS' CHOICE SEEDS

FOR PRESENT SOWING.

POST FREE.

TOM THUMB LETTUCE.

TOM THUMB LETTUCE.

WHEELERS' TOM THUMB LETTUCE.

A small compact Lettuce, of fine flavour and excellent quality; a capital variety for winter and early spring.

Large packet, 1s.; small packet, 6d.

"I am going to try how your Tom Thumb Lettuce will stand the winter. As a summer Lettuce it is invaluable, and not to be approached by any in cultivation."—CHAS. BRETTINGHAM, Goodwick.

"Please forward me two packets of your most excellent Tom Thumb Lettuce, the best Lettuce ever introduced into this country."—C. THURNALL, Whittlesford, near Cambridge.

"Your Tom Thumb Lettuce is the most tender and delicious of all Lettuces.—W. M. THOMAS, Fanfield, Bedale, Yorkshire.

"Having heard the fame of your Tom Thumb Lettuce I intend to make a trial of it, if you will kindly send me a packet by return of post."—JOHN CARLL, Streatham Common.

"Wheelers' Tom Thumb Lettuce is a capital variety for winter and early spring."—THOMAS RIVERS, Sawbridgeworth.

J. C. WHEELER & SON,
SEED GROWERS, GLOUCESTER, and 59, MARK LANE, LONDON, E.C.

Sutton & Sons

RECOMMEND THE FOLLOWING

CHOICE

ONION SEEDS

For Present Sowing.

The varieties, if sown at once, will come to a very large size next Spring and Summer.

NEW QUEEN.—The earliest of all Onions; if sown at once will be ready for use this Autumn. 1s. 6d. per packet.

NEW GIANT ROCCA.—Very large, mild flavour; can be grown 2 lb. to 3 lb. in weight. 1s. per ounce.

LARGE EARLY RED ITALIAN and LARGE EARLY WHITE ITALIAN.—Very large, hardy, and good keepers. Each 1s. per ounce.

GIANT LATE RED ITALIAN and GIANT LATE WHITE ITALIAN.—Coming in a fortnight after the preceding, very large. Each 1s. per ounce.

NEAPOLITAN MARZAGOLA.—Very quick growth. 1s. per packet.

☞ Postage 2d. per ounce extra.

Particulars of other Choice Vegetable and Flower Seeds for Present Sowing, Gratis on application.

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING.

Now ready, Gratis and Post-free,

Beautifully Illustrated, and containing complete Cultural Instructions.

SUTTON AND SONS, The Queen's Seedsmen, READING.

WANTED, with immediate possession, ONE or TWO ACRES of LAND, for a Florist's Nursery; with good Dwelling-house and Outbuildings attached. N. or N.W. suburbs preferred. Apply to
A. B., Post Office, Chigwell Road, Essex.

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	.. ..	3s. 4½d.
3-inch Pipe, per yard	.. ..	2s. 8½d.
2-inch Pipe, per yard	.. ..	1s. 8d.

Connections at proportionate prices.
Illustrated Price List free on application to
T. G. MESSENGER, Hot-water Engineer, Loughborough.

The Royal Pottery, Weston-super-Mare.

UNDER ROYAL PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7d. each.
JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS' PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1d. for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS' Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,
THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

Secure Your Peaches by Covering Your Walls
WITH

SIR J. PAXTON'S HOTHOUSES

FOR THE MILLION,

Which are sent out glazed and painted complete, all ready for putting on the Walls prepared for them, and can be taken down in sound whole pieces, ready for removal, in a few hours. They are durable and efficient, and as permanent structures are equal to others much more expensive, and superior to most, if not all, of those at lower prices.

MANUFACTORIES IN
LONDON, GLOUCESTER, COVENTRY, ULVERSTONE, PAISLEY, AND ABERDEEN ONLY.

HORTICULTURAL BUILDINGS

OF EVERY DESCRIPTION

Designed, Built, and efficiently Ventilated and Heated.

Estimates given to Architect's Plans, or to Rough Sketches, with Sizes, &c.

Agents for Chapman's "Multum in Parvo" Flower and Fruit Cases.

A Pamphlet with Illustrations, Testimonials, &c., and Price Lists of Sir J. Paxton's Hothouses, for 3d. post free.

A Handbook of Vine and Fruit Tree Cultivation, with Plans of Glass Houses, Heating, &c.; post free, 13d.

HEREMAN AND MORTON,
HORTICULTURAL ENGINEERS,
14, TICHBORNE STREET, REGENT QUADRANT,
LONDON, W.

AGRICULTURAL LOCOMOTIVES,

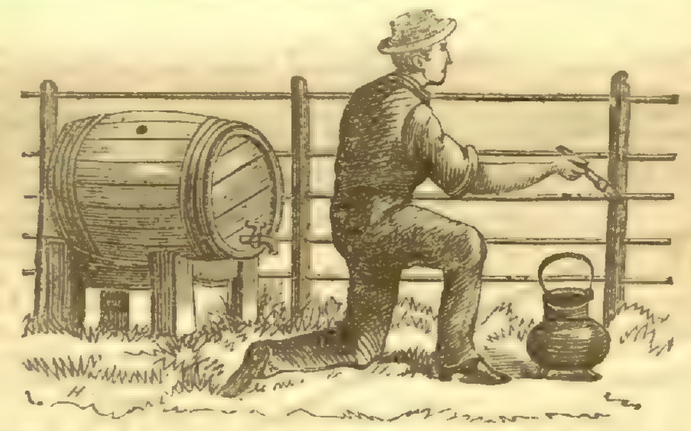
STEAM PLOUGHING MACHINERY,
ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES,
STEAM ROAD ROLLERS.

For Prices, Description, and Reports of Working, apply to the Manufacturers,

AVELING & PORTER,
ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

Oil Paint no Longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

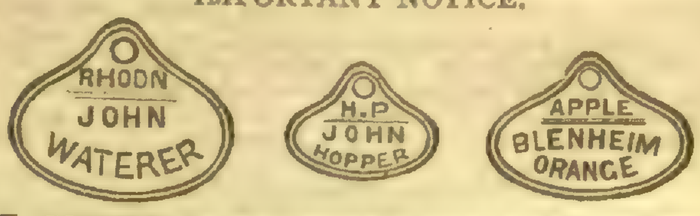
"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5s., amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

The Improved Imperishable Labels!!!
IMPORTANT NOTICE.



J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.

J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose.

All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

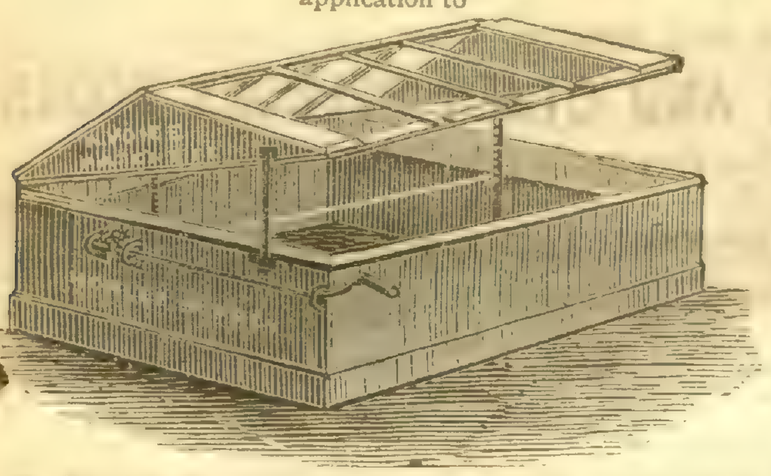
J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

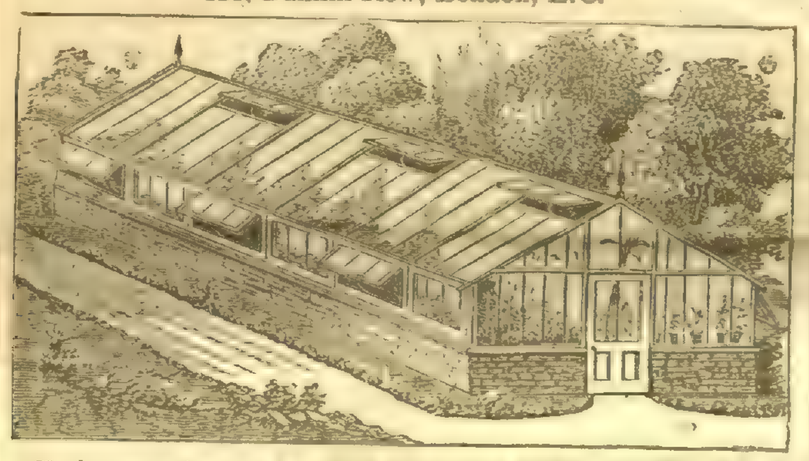
N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

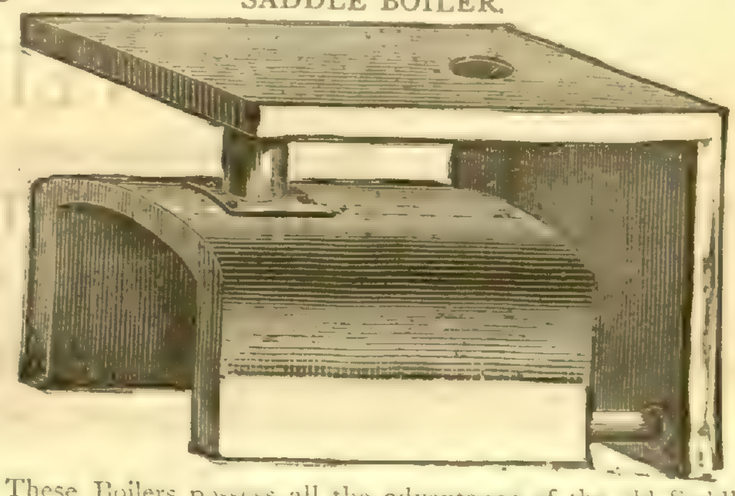
Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

Is indispensable to Nurserymen, Gardeners, and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1s. and 1s. 6d., and sent post free with directions, for 1s. 3d. and 1s. 10d., by the Proprietors—

WILLIAM ROLLISSON & SONS, Tooting, London, S.W. Wholesale Agents: Messrs. Turner & Rowe, 84, Little Britain.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30 ,,	30 ,,	72 ,,	2,600	35	0	0
36 ,,	36 ,,	96 ,,	4,500	50	0	0
48 ,,	48 ,,	108 ,,	7,000	75	0	0
48 ,,	48 ,,	144 ,,	10,000	100	0	0

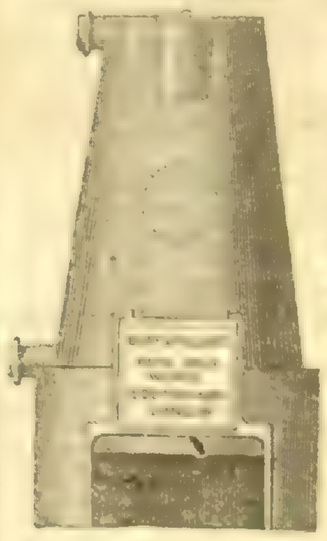
And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

Heating by Hot Water.

PUBLIC and PRIVATE BUILDINGS, MANUFACTORIES, CONSERVATORIES, &c., heated on the most improved system, combined with perfect ventilation.



These BOILERS are adapted for setting in Brickwork, or as shown in sketch they require NO BRICKWORK.

POLLARD AND CO. (late Bury & Pollard, Successors to John R. Peill, late Stephenson & Peill), Sole Manufacturers of the Improved CONICAL BOILERS, which are in general use, and which Boilers have for their durability and economy attained a celebrity far surpassing any other Boilers ever invented.

Fixed at seats of Duke of Newcastle, Lord Belper, Lord Middleton, &c. At Viscount Sydney's replaced, after being twenty years in constant use. Foreign orders promptly executed. The Prince Salm Salm, the Duke de Croy, &c., recently supplied.

PRICE LISTS free by post.

Bear Garden, New Park Street, Southwark, London, S.E.

DAVIS' IMPROVED WASP DESTROYER.

Price 1s. 6d. and 2s. 6d. per bottle (Post Free 1s. 8d. and 2s. 9d. in stamps), with full Directions.

"It has completely cleared my Vineries, &c., of Wasps and Flies."

For Testimonials see Circulars, free on application.

B. R. DAVIS, Yeovil.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

THE SYDNEY MAIL AND NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4d.; Stamped, 5d.

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London .. Mr. George Street, 30, Cornhill, E.C.
Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham. Mr. R. S. Kirk, 90, New Street.
Liverpool .. Lee & Nightingale, 15, North John Street.
Bristol .. James & Henry Grace, Royal Insurance Buildings.
Edinburgh .. Robertson & Scott, 13, Hanover Street.
Glasgow .. W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

Every Saturday, price 4d., by Post, 4½d.

NOTES AND QUERIES:

A MEDIUM OF INTERCOMMUNICATION FOR LITERARY MEN, ARTISTS, ANTIQUARIES, GENEALOGISTS, &c.

Edited by Dr. DORAN, F.S.A.

"When found, make a note of."—CAPTAIN CUTTLE.

CONTAINING EVERY WEEK AMUSING ARTICLES ON SOME OF THE FOLLOWING SUBJECTS:—

ENGLISH, IRISH, and SCOTTISH HISTORY, Illustrated by original Communications and inedited Documents.
BIOGRAPHY, including unpublished Correspondence of eminent Men, and unrecorded Facts connected with them.
BIBLIOGRAPHY, more especially of English Authors, with Notices of rare and unknown Editions of their Works, and Notes on Authorship of Anonymous Books.
POPULAR ANTIQUITIES and FOLK LORE, preserving the fast-fading relics of the old Mythologies.
BALLADS and Old Poetry, with Historical and Philological Illustrations.
POPULAR and PROVERBIAL SAYINGS, their origin, meaning, and application.
PHILOLOGY, including Local Dialects, Archaisms, and Notes on our old Poets.
GENEALOGY and HERALDRY, including Histories of Old Families, Completion of Pedigrees, &c.
MISCELLANEOUS NOTES, QUERIES, and REPLIES, on points of Ecclesiastical History, Topography, Fine Arts, Natural History, Miscellaneous Antiquities, Numismatics, Photography, &c.

NOTICE.—The FOURTH SERIES is now complete, in Twelve Volumes. A New Series, the FIFTH, commenced with SATURDAY, January, 3, 1874. As many of the Numbers are scarce, subscribers desirous of completing their Sets should order at once the Numbers required.

GENERAL INDEX to the Second Series may be had, price 5s. 6d.
GENERAL INDEX to the Fourth Series, price 6s., now ready.
COVERS for BINDING now ready, 1s. each; by post, 1s. 2d.
Vol. I., Fifth Series, JANUARY to JUNE, 1874, price 10s. 6d., cloth.

Published by JOHN FRANCIS, at 20, WELLINGTON STREET, STRAND, W.C., And may be had by Order of all Booksellers and Newsmen.

NEW ROSES for 1874, GLADIOLI, &c.—The following varieties of Roses, all of the first order, are from the Nurseries of the Horticultural Establishment of EUGÈNE VERDIER, FILS AINÉ, and selection can be made from a stock of nearly 25,000 plants :—

H.P. Bernard Verlot
,, Frederick Wood
,, Henry Ward Beecher
,, La Souveraine
,, Mdlle. Ilona de Adarjon
May Turner
,, Monsieur E. Y. Teas
H.P. Princesse Antoinette Strozzio
,, Souvenir de Charles Sumner
,, Souvenir de Duche
H. (not P.) Mdme. Rivière (gratis).

All other French varieties are also to be obtained.

CATALOGUES, with names, descriptions, prices, and mode of forwarding, will be sent, together with a Special CATALOGUE of GLADIOLI (which are sold by the hundred or thousand of each variety), post free, to all who may apply to

EUGÈNE VERDIER, FILS AINÉ, Horticulturist, 72, Rue Dunois, Gare d'Ivry, Paris.

Cultivated Seedling Briars.

GEORGE PRINCE, in compliance with numerous applications, has much pleasure in announcing that he is able to supply this season very fine plants of the above, at 1*s.* 6*d.* per 100. Ready first week in November.

GEORGE PRINCE,
14, Market Street, Oxford.

DR. DENNY'S GERANIUMS.

SECOND SET.

JOHN COPELIN

Begs to announce that the Price of the above is now reduced to 10*s.* 6*d.* per set.

TYSSEN STREET NURSERIES, WEST HACKNEY, LONDON, N.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

NEW PLANT CATALOGUE 1874,

Gratis and Post Free.

B. S. WILLIAMS'

NEW PLANT AND GENERAL

CATALOGUE OF NURSERY STOCK

Is now ready, and will be forwarded to all applicants.

It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPOT,

QUEEN VICTORIA STREET,

CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to

THOMAS THORNTON,
Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

Camellias, Indian Azaleas, &c.

JEAN VERSCHAFFELT begs to offer the above, in fine healthy grown plants, at the undermentioned low prices, viz.:—

CAMELLIAS, with buds, 1 to 1½ foot high, £7 per 100; stronger, £10 to £15 and upwards; without buds, fine strong plants, £6 to £8 per 100.

AZALEA INDICA, fine plants, £5 per 100; stronger, £6, £8, to £12 and upwards.

NOTE.—Selection of sorts, which are all first-rate, to be left entirely to J. V.

OTAHEITE ORANGES, with fruit, 28*s.* per dozen.

JASMINUM GRANDIFLORUM, grafted, 28*s.* per dozen.

Early orders solicited by

JEAN VERSCHAFFELT, The Nurseries, Ledeberg, Ghent, Belgium.

YOUNG PALMS.—The following are now disposable in large quantities, viz.:—

LATANIA BORBONICA, two to three divided leaves, £6 per 100.

CORYPHA AUSTRALIS, £6 per 100.

CHAMÆROPS EXCELSA, 1 foot high, strong, £5 per 100.

,, FORTUNEI, 1 foot high, strong, £5 per 100.

PHŒNIX RECLINATA, 1½ foot, with dividing leaves, 40*s.* per dozen, £16 per 100.

,, ,, Seedlings, 6 inches high, in store pots, 48*s.* per 100, £20 per 1000.

PTYCHOSPERMA ALEXANDRÆ.—This most beautiful new Palm, in store pots, £4 per 100.

ARECA MONOSTACHYA, in store pots, £6 per 100.

Early orders respectfully solicited by

JEAN VERSCHAFFELT, Nurseryman, Ledeberg, Ghent, Belgium.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED THEIR

ANNUAL SUPPLY OF HYACINTHS AND OTHER BULBOUS ROOTS

from Holland, and are pleased to say that they are in splendid condition.

J. V. & Sons were awarded the following Prizes for Hyacinths, &c., at the Spring Exhibitions:

1st Prize for 50 Hyacinths, distincts sorts, Royal Horticultural Society, March 18.
1st ,, 18 ,, ,, ,, ,, ,,
1st ,, 6 ,, new varieties ,, ,, ,,
1st ,, 12 pots Tulips, in 6 varieties ,, ,, ,,
1st ,, Collection of Crocus ,, ,, ,,
Extra Prize for Group of Hyacinths, Narciss, and Tulips ,, ,,
1st Prize for 12 Hyacinths, distinct sorts, Royal Botanic Society, March 25.
1st ,, 12 pots Tulips, in variety ,, ,, ,,
Extra Prize for Collection of Hyacinths ,, ,, ,,
Extra ,, Group of Hyacinths, Tulips and Narciss, Liverpool Horticultural Society.
Cultural Certificate for Group of Hyacinths, Tulips, and Narciss, Manchester Botanical Society.

In addition to the above 26 First and Extra Prizes for Hyacinths and Tulips were awarded to J. VEITCH & SONS at the Metropolitan Spring Exhibitions of 1871, '72, and '73.

JAMES VEITCH & SONS have also had the pleasure of supplying to the Commissioners of Her Majesty's Works the Hyacinths, Tulips, and Crocuses for the decoration of Hyde Park during the last four seasons.

Catalogues, Illustrated with upwards of Sixty Woodcuts, are now ready, and will be forwarded, Post Free, on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

DUTCH FLOWER ROOTS.

B. S. WILLIAMS

BEGS TO ANNOUNCE THAT HIS

ANNUAL CATALOGUE OF DUTCH FLOWER ROOTS,

CONTAINING A DESCRIPTIVE LIST OF CHOICE HYACINTHS, TULIPS, NARCISSUS, CROCUS, &c.;

Also a Select List of Fruit Trees, Roses, Vines, &c.,

Is now ready, post-free to all applicants.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

Carter's

ANNUAL CONSIGNMENTS of HYACINTHS, TULIPS, and OTHER BULBS

Have arrived, in splendid condition. Before ordering send for

CARTER'S ILLUSTRATED AUTUMN CATALOGUE for 1874,

Gratis and Post Free.

THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

DICK RADCLYFFE AND CO.'S
ILLUSTRATED
AUTUMN CATALOGUE
OF
HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.,
is now ready, and can be had gratis and post free on application.
129, High Holborn, London, W.C.
Seed Grounds—Erfurt, Prussia.

To the Trade.—Spiræa japonica.

JEAN VERSCHAFFELT, having a large stock of the above, in strong clumps for winter forcing, begs to offer them at the following low prices, viz.:—
24*s.* per 100 clumps; £10 per 1000 do.
Orders are now being booked, and will be executed in the course of November.
The Nurseries, Ledeberg, Ghent, Belgium.

New Double Dwarf Sweet William
(DIANTHUS BARBATUS MAGNIFICUS).

THOMAS S. WARE is now prepared to send out the above new and distinct Dianthus, which has been so highly spoken of by the Horticultural Press. For description and figure of this charming novelty see my NEW BULB CATALOGUE, which can be had free on application.
Hale Farm Nurseries, Tottenham, London, N.

To the Trade, &c.—Roses! Roses! Roses!

EWING AND CO. are offering very fine plants of the best varieties in cultivation. Twelve new varieties of 1874, in fine well-established plants, sent, carriage and package paid, to any Railway Station in the United Kingdom, on receipt of Post Office Order for 31*s.* 6*d.*
Descriptive and Priced CATALOGUES, and further information, gratis and post free on application.
The Royal Norfolk Nurseries, Norwich.

New Apple, Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now Booking Orders for this splendid Novelty, which obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, on November 12, 1873. Circulars with full particulars will be forwarded gratis and post-free to applicants. The price for strong maidens on and after November 1 next, is 7*s.* 6*d.* each, or three for 20*s.* The usual discount to the Trade.

To the Trade only.

A. M. C. JONGKINDT CONINCK'S WHOLESALE LIST, including a fine stock of Maiden Apples, Pears and Plums, Moss Roses, Dwarf, Half-standard and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants, is now ready, and will be sent, post free, on application.
Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

SAXIFRAGA NEPALENSIS.—A beautiful hardy herbaceous plant, with a pyramidal-shaped spike of pure white flowers, about 2 feet high; admirably suited for decorative purposes. It was exhibited and greatly admired at the June Shows of the Royal Horticultural and Botanic Societies, where it had previously been awarded First-class Certificates. Strong plants, 42*s.*; second size, 18*s.* per doz.
T. JACKSON AND SON, The Nurseries, Kingston-on-Thames.

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, **Chester.**

B. MALLER, Lewisham, Lee, S.E., begs to inform his Customers and the Trade generally that he has a fine lot of HEATHS and other winter-blooming plants, STANDARD ROSES, VINES, &c., to offer this autumn, a portion of which will be Sold by Auction in September.
B. M. respectfully solicits an inspection of the above, at the Burnt Ash Nursery, adjoining Lee Station on the North Kent (Dartford loop) Line.

JOHN MALLER begs to call the attention of the Trade to his unsurpassed stock of winter-flowering HEATHS, which are in the finest possible condition; SOLANUM CAPSICASTRUM, unusually well berried; a fine lot of double white PRIMULA, BOUVARDIA of sorts, ACACIAS, CYCLAMENS, ADIANTUM CUNEATUM and FARLEYENSE, with a quantity of other popular plants; which will be SOLD by AUCTION by Messrs. PROTHEROE AND MORRIS, early in SEPTEMBER, at the Brunswick Nursery, Tottenham. Trains run every fifteen minutes from Bishopsgate to White Hart Lane. Station adjoins the Nursery.

DOUBLE FLOWERED CINERARIA.—This Novel Strain has received *a Silver Medal at the International Horticultural Exhibition at Florence;* First-class Certificate from the Royal Horticultural Society, Kensington. Packets of Seed, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Also
PRIZE STRAINS
of Primula, Calceolaria, Pelargonium, Cyclamen, Gloxinia, Begonia, Cineraria, Fuchsia, Coleus, Auricula, Carnation, and Petunia; each 2*s.* 6*d.* per packet.
MR. WILLIAM BULL'S
Establishment for Choice Seeds and New and Rare Plants,
King's Road, Chelsea, London, S.W.

Notice of Transfer.

E. JOSLING, SEED MERCHANT, St. Albans, in retiring from the Old-established Business, begs to tender her best thanks to all Patrons who have extended their kind support since the death of her husband.

F. SANDER AND CO., who are succeeding Mrs. JOSLING, hope to be favoured with commands from such as have hitherto entrusted their orders to the House. Their Flower Seeds are grown under the immediate supervision of one of the principals at their Erfurt Seed Grounds; Vegetable and Agricultural Seeds not harvested by them are procured from *bona fide* English and Continental Growers.
St. Albans, August 20.

SATURDAY, AUGUST 29, 1874.

THE TUBEROSE.

THIS beautiful and fragrant flower, which is now conspicuous in Covent Garden, and still more so in the flower markets of Paris, where it appears to be very popular, has been in cultivation in England since the time of Parkinson, who, in his *Paradisus Terrestris* (1629), figures and describes two varieties of it under the name of "The Indian Knotted Iacinth." He tells us that "they both grow naturally in the West Indies, from whence being first brought into Spaine, have from thence been dispersed unto divers lovers of plants." The native country of the Tuberose was for some time unknown; Linnæus and Hermann believed it to be indigenous to Ceylon and Java; Clusius, who published a figure and description in 1601, received it from Simon de Tovar, who was said to have obtained his plants from India. It is, however, pretty clear that by India some part of America was intended; De Tovar was a Spaniard and as such had probably closer relations with America than India, and it is well known that the term "Indian" was often applied to plants coming from America, as an instance of which the so-called Indian Cress (Tropæolum majus) may be cited, which was brought to Europe through Spain from Peru. Indeed, the names of countries when applied to plants are often very misleading; thus our French Bean (Phaseolus vulgaris) is probably of Asiatic origin, and the French Honeysuckle (Hedysarum coronarium) is a native of Italy; the Prussian Asparagus of the Bath markets (Ornithogalum pyrenaicum) is a British plant [we bought it in Bath as "wild" Asparagus, or Bath Asparagus: see 1873, p. 843] and the Jerusalem Artichoke (Helianthus tuberosus) is a native of Brazil, while the French and African Marigolds (Tagetes patula and T. erecta) are both natives of Mexico and Peru. The Jesuit Father Connel, who travelled in the Philippine Islands as a missionary about 200 years since, tells us in his account of the plants of Luzon that the Tuberose had been brought by the Spaniards from Mexico, under the name of Vara de S. Josè, or St. Joseph's Wand, in reference, no doubt, to the tall stem surmounted by its white, somewhat lily-like flowers, and the ecclesiastical tradition which refers to the miraculous blossoming of St. Joseph's rod. Hernandez also states distinctly that it is a native of the cool and temperate districts of Mexico.

The name Tuberose is a curious illustration of the way in which popular plant names are manufactured. It has nothing whatever to do with Roses, as might be expected, but is simply a corrupted abbreviation of the old scientific title of the plant, Hyacinthus tuberosus, having possibly been introduced into our language through the word Tubereuse, by which the plant (which is said to have been first cultivated in the neighbourhood of Toulon) is known in France. It is now known as Polianthus tuberosa, the generic name (which is sometimes wrongly spelt Polyanthes), signifying that it is a favourite in towns. This is by no means an inappropriate designation, for, besides its widely extended popularity and cultivation in Europe and the United States, it is, or was, formerly grown in the gardens of Peru, Cochin China, and the Malay Archipelago. To this latter region it was introduced by the Dutch from Batavia in 1674. The elegant appearance of the plant and its exquisite fragrance render it a deservedly favourite flower.

The normal single-flowered state of the Tuberose was first introduced into cultivation, and is beautifully figured by Redouté. It is now, however, very seldom met with, the less elegant double-flowered variety having taken its place. It is curious to notice how many plants are known and appreciated in cultivation only when they produce double flowers; and to such an extent is this carried that a normal single-flowered specimen is often very rare. We were especially struck with this recently in France, where the Oleander is a favourite ornament of gardens and railway stations, producing its lovely rose-pink blossoms in the greatest profusion. In only two instances did we see the single-flowered state, and one of these was a white-blossomed variety; yet it is difficult to understand why it is that the double-flowered form is so universally preferred. The double Tuberose was first raised by a Leyden florist named Le Cour, who obtained it from seed; and such was his selfish anxiety to remain the sole possessor of the novelty that, having propagated it so extensively as to have more than he could plant, he cut the remaining roots in pieces rather than distribute them to his friends.

We have already referred to the delicious fragrance of the blossoms, which is especially observable at night, and almost justifies Shelley's description of the plant as—

> "The sweetest flower for scent that blows."

Like several others of the Lily tribe, its odour is unpleasant to some persons, producing headache and asphyxia when inhaled in a room. The scent is extracted from the blossoms by perfumers by the process of *enfleurage*, the flowers being thickly strewn upon a layer of fat about a quarter of an inch thick, and left for a considerable time, at the end of which the scent of the flowers has passed into the grease. The oil of Tuberose is obtained in a somewhat similar manner, coarse cotton cloths being saturated with the best Olive Oil, and placed upon a frame, and on these the flowers are laid. After a certain time has elapsed the cloths are submitted to great pressure, by means of which the now perfumed oil is obtained. About 5 kilogrammes of flowers are required to perfume 1 kilogramme of grease, the value of the flowers being about five francs per kilo. This preparation is mainly carried on in the South of France, where the Tuberose is largely grown for this purpose. The bulbs which are sent to England for garden cultivation come chiefly from Italy, especially from the neighbourhood of Genoa, where it is much grown for purposes of exportation, and where it is employed in the decoration of churches.

In the Malay Islands the Tuberose is known by a name signifying the "Mistress of the Night," which has been employed by Moore in *Lallah Rookh*, who speaks of—

> "The Tuberose with her silvery light,
> That in the gardens of Malay
> Is called the Mistress of the Night,
> So like a bride—scented and bright—
> She comes out when the sun's away."

The "silvery light" of the frost is not the only radiance emitted by the Tuberose. Like the garden Nasturtium (Tropæolum majus) and some other plants it has been observed to shoot out small sparks of flame from the fading flowers in great abundance, on an occasion when the air was highly charged with electricity after a thunderstorm.

The bulbs of the Tuberose are so cheap that it is scarcely worth while to attempt to raise them. This, however, may be done with some trouble, as is shown by a long detailed account

given by Salisbury in vol. i. of the *Transactions of the Horticultural Society.* A variety with variegated leaves is, or has been, in cultivation, but calls for no special notice. *B. M.*

New Garden Plants.

Cotyledon (Echeveria) Peacockii, *Baker.**

This is a well-marked new species which I have seen more than once mentioned in your columns under its garden name of Echeveria Peacockii. It was discovered by M. Benedict Roezl in New Mexico, and I am indebted to the courtesy of Mr. Croucher for a sight of the specimen from which the following description was made, which flowered in the collection of Mr. Peacock, at Hammersmith, in the month of July of the present year. It comes nearest the well-known and now widely-spread Cotyledon (Echeveria) pumila, and rivals it in the intensely glaucous colour and persistence of the waxy coating of its leaves, but it may be readily recognised at a glance by its larger size, much broader leaves, and spicate, not racemose inflorescence.

Acaulescent. Leaves about 50 in a close rosette half a foot broad, 4 inches high, obovate-spathulate, the outermost 2—2½ inches long, 15—18 lines broad above the middle, mucronate, slightly red towards the tip, densely persistently glaucous on both sides, the face in the outer spreading ones flat, in the inner rather concave, the middle 2 lines thick, the back faintly keeled in the upper half. Stem lateral, slender, terete, reddish brown, rather glaucous, a foot high before the flowers begin, furnished with only a few lanceolate adpressed bract-like leaves ½—¾ inch long. Spike scorpioid, a foot long, the upper flowers close, the lower distant. Bracts glaucous, lanceolate, ¼—½ inch long, with two spurs at the base. Calyx segments linear, unequal, thick, glaucous, 3—4 lines long, erecto-patent, joined only at the very base. Corolla bright red, under ½ inch long, the valvate acute lanceolate divisions united in a turgid hemispherical cup at the base. Stamens and style falling ¼ short of the petals.

Cotyledon (Echeveria) peruviana, *Baker in Ref. Bot., Mon. No.* 10.†

This is the most southern in geographical range of all the Echeverias, as it inhabits the Peruvian Andes, whilst most of them belong to Mexico and the South-Western United States. At the time of our monogragh in the *Refugium* it was not known in cultivation, and we were only able to give a description drawn up from a dried specimen, necessarily very imperfect because these succulent plants lose so many of their characters in the drying process. The specimen from which the present notes was taken was flowered by Mr. Green at Reigate, and presented by him to the Kew collection in the month of July of the present year.

Stem in an old plant not more than 2—3 inches long, ½ inch thick. Leaves about thirty, in a lax rosette 3 inches deep, obovate-spathulatate, the largest 3 inches long by 1 inch broad two-thirds of the way up, glaucous, cuspidate, tinged with red towards the base, as are the young stems, turgid on the face, faintly keeled down the back, ½ inch broad at the base. Flowering stem lateral, 1 foot high before the flowers begin, furnished with distant ascending oblanceolate reduced leaves growing gradually smaller upwards, the topmost ½ inch long. Flowers 12—20, in a lax equilateral raceme half a foot long. Pedicels erecto-patent, 2—3 lines long, shorter than the lanceolate bracts. Calyx 3—4 lines long, the sepals oblanceolate acute, unequal, thick, glaucous. Corolla ⅝ inch long, red in the upper, yellow in the lower half on the outside, the lanceolate falcate acute petals united in a hemispherical cup in the lowest quarter. Stamens falling one-third short of the petals, deeply perigynous; filaments lanceolate; anthers minute, oblong, yellow; carpels ⅜ inch long, narrowed suddenly into the styles. *J. G. Baker.*

* Acaulis, foliis circiter 50 dense rosulatis obovato-spatulatis mucronatis basi cuneatis 2—2½ poll. longis utrinque persistenter intense glaucis facie primum concavis demum planis dorso obscure carinatis; caule bipedali dimidio superiori florifero; foliis caulinis paucis bracteiformibus lanceolatis adpressis; floribus 30—50 in spicam secundam scorpioideam dispositis; pedicellis subnullis; bracteis parvis lanceolatis basi bicalcaratis; sepalis crassis linearibus inæqualibus glaucis; petalis rubellis lanceolatis valvatis basi in cupulam hemisphæricam coalitis; genitalibus petalis ¼ plo brevioribus.—*Echeveria Peacockii, Hort. Angl.*

† Breviter caulescens, foliis circiter 30 laxe rosulatis patulis obovato-spatulatis 2½—3 poll. longis glaucis mucronatis facie turgidis dorso obscure carinatis; caule laterali triente supremo florifero, foliis distantibus lanceolatis ascendentibus reductis prædito; floribus 10—12 in racemum æquilateralem laxum dispositis; pedicellis erecto-patentibus flore triplo brevioribus; bracteis lanceolatis pedicellis superantibus; sepalis 3—4 lin. longis acutis glaucis inæqualibus; petalis sursum rubris deorsum luteis lanceolatis acutis basi in cupulam hemisphæricam coalitis; genitalibus petalis triente brevioribus.—*Echeveria peruviana, Meyen Reise,* i., p. 448; *Walp. Rep.* v., p. 794.

Xanthosoma (?) mirabile, *Mast.* (figs. 53, 54).*

This striking and remarkable Aroid was introduced to our gardens by M. Roezl, from tropical South America. It was first brought under our notice by Messrs. Carter, and subsequently by Mr. W. Bull. It is a handsome plant, requiring stove treatment, and it is one that will be appreciated by the connoisseur. Its botanical interest is great. The plant has a milky juice; its root-stock is tuberous. The leaves are erect

Fig. 53.—Xanthosoma (?) mirabile.

A, Spathe, B, Spadix, both natural size; C, D, Side and top of stamens, showing pores, enlarged 4 diam.; E, Pollen grain, side and top, enlarged 160 diam.; F, G, H, Ovary, with transverse and longitudinal section, enlarged 4 diam.

and spring from a shortened caudex, and measure (including the stalk), 3 feet and upwards in length. The blade is glabrous, green above, and blotched with pale yellow spots. On the lower surface it is purplish in the centre, green towards the margin. In outline it is cordate at the base and deeply palmately 3-sect. The central lobe is ovate-lanceolate and equilateral; the lateral lobes, about 10—11 inches long and 4 wide, are inæquilateral and lanceolate. The venation is arcuate and prominent. The petiole is sheathing at the base, purplish, covered with a glaucous bloom, convex below, flattish above, and slightly winged at the margins. The peduncles spring one above another from the caudex, from among the leaves, than which they are much shorter. They are glabrous, trigonous, and traversed by air canals. The spathe is 5—6 inches long, curved, glabrous, slightly convolute for the greater part of its length, slightly constricted above the middle, and then expanding into an oblong-acute concave limb of a primrose-yellow colour. The spadix is about two-thirds the length of the spathe, from which it is partially inseparate at the base. Its upper third is densely covered with male flowers; the central third, or rather less, bears scattered neutral flowers, and rather more than a third of the basal portion is densely covered with female flowers. The anthers are confluent into 4-lobed cuboidal masses, each anther opening by two pores beneath the apex. The ovaries are free, irregularly cuboidal, truncate, 4-celled, with axile placentæ; style none, stigma discoid. Ovules numerous, on long stalks, micropyle superior. Fruit not seen.

Technically, this plant differs principally from its near allies, Caladium, Acontias, and Xanthosoma in the free not confluent ovaries, as also in the form of the leaf and the direction of the ovules. From Phyllotænium, with which it agrees in the possession of a tuberous root-stock, it differs in foliage, spathe, free, not coherent, ovaries, which, moreover, are 4, not 2-celled, as in Phyllotænium. The ovules again are different. In all probability, when the plants of the order are revised as a whole, some of the genera above-named will be abolished. Our present plant agrees with none of the genera yet published in all points, but it is so close to them that we are unwilling to make a new genus for its reception, feeling sure that, if we did so, it would not be retained when the whole order comes once more under comparative review. For similar reasons we do not think it advisable to call this plant a Phyllotænium, seeing that it differs from that genus in several particulars, and considering, moreover, that Phyllotænium itself is hardly likely to be retained as a separate genus. *M. T. M.*

* Xanthosoma (?) mirabile; lactescens, rhizomate tuberoso; foliis longe petiolatis (petiolis basi vaginatis) glabris flavido-maculatis alte trilobis, lobis ovato-lanceolatis medio majore lateralibus inæquilateralibus; spadicibus pluribus stipitatis e caudice inter folia exsertis; spatha arcuata inferne arcte convoluta ima basi a spadice paulo breviore inseparata, ad faucem in laminam cymbiformem acutam expansa; antheris quaternatim aggregatis summum spadicis vestientibus singulis poro parvo infra apicali dehiscentibus; floribus neutris pluribus dissitis mediam partem spadicis obvallantibus; ovariis numerosissimis dense aggregatis partem inferiorem spadicis omnino tegentibus singulis quadratis truncatis 4-locularibus, stylo nullo, stigmate hemisphærico glutinoso; ovulis plurimis longe funiculatis ascendentibus, micropyle supero, placentæ axili affixis.—*Phyllotænium mirabile, Hort.*

CULINARY NOTES.

In Consultation.—About cookery being bad there can be no doubt, when it is really bad; but there is a cookery which will pass for good until you come to know it better. It is a superficial pretender, whose mask of merit falls off on closer acquaintance. So thought my invalid friend, Mrs. Munster, who, to avoid trouble at a much frequented watering-place, had consented, with her maid's approval, to be taken in and done for entirely, and in every respect and particular, cooking included.

"How do you like your lodgings and accommodation?" I asked, after she had been settled in them two or three days.

"Very fair; I have no fault whatever to find. But I don't think this coast agrees with me. The air does not seem to suit my constitution; for, instead of gaining, I am losing appetite."

"And the dinners?" I inquired, with unfeigned interest.

"Very fair; very fair indeed for 'furnished apartments.' Dine here to-day, and you will see."

I did dine. Dinner over—"Well, what do you say to it?" she asked.

"I agree with you. Very fair indeed for seaside lodgings and summer customers. Giblet soup quite passable. The fish made a little break in the flavours; but it struck me that the veal cutlets had the same taste as the soup, and the roast fowl as the veal cutlets."

"That's just what I was saying to Charlotte yesterday. Shut your eyes, and you couldn't tell the mutton chops from the oxtail soup, nor the roast duck from the mutton chops, nor to-day's dinner from yesterday's. Except for the slice of salmon and the tart, I have had the same taste perpetually in my mouth for the last ninety-six hours."

"Which fully accounts for your loss of appetite. I see how it is. Your cook has one stock-sauce only, which is good enough for once, or now and then, and in which, after serving it as soup, she dishes up every imaginable flesh and fowl. Either her imagination is defective, or else her indolence is in excess. 'What's the use,' perhaps she says to herself, 'of contriving different sauces for people coming and going every week and every day? If the condiments don't change the customers do. What serves for goose, ought to serve for gander and a good many other things besides. There, Mary, take up that dish of hash; you see how easily it's made. You say the gentleman liked the stewed rump steak; if he don't like the hash, all I can say is that he don't know his own mind?'"

"But cooks ought to be aware that monotony is tiresome."

"And so is trouble, and they act accordingly. Perhaps, too, they think that their own proper handiwork can never tire or become monotonous. Like Frederick of Prussia, who played the same flute-concerto for years, night after night, to his admiring courtiers, they serve up the same eternal 'bubble and squeak,' without ever changing the tone or the key of their stewpans. But monotony in eating is worse than wearisome, it is absolutely unwholesome. Louis XIV.'s horror of *toujours perdrix*, wrong and immoral in his metaphorical, was right in a literal and material sense. Do me the honour to dine with us to-morrow, and try whether change of diet and sauce do not bring about increase of appetite. What would you prefer? Suppose you suggest a short bill of fare."

"Oh, anything to vary this cloying sameness."

"Very well, then; as you will not be hard to please, I will mention a few possibilities that may appear at table, and how we prepare them. Say we begin with carotine soup, so named because it is made with essence of Carrots; or call it daucine soup, and it will taste just as sweet. Put a good quantity of Carrots and a few Onions into a soup-kettle with sufficient water to keep them well covered while cooking; let them boil three hours. Then crush them, and squeeze out all their juice through a fine-holed cullender. Make a *roux* (see the *Gardeners' Chronicle* for July 11, 1874, p. 40, col. *c*). When the *roux* is made gradually stir in the Carrot juice. Have ready a little Rice which has been set on the fire in cold water, cooked for half an hour, and drained. Add as much of this Rice to the essence of Carrots as you hink fit; if for the nursery we make it thick, if for dining-room company thin. Let all simmer gently an hour together, and your soup is ready."

"I wish it were mine, instead of their eternal stock-soup, which they seem to draw off from some inexhaustible, unchanging cauldron, with the cooks singing in chorus while they draw it, 'Flow on, thou shining river.' Your carotine, with its native aroma, supported by good substantial Rice, brings the water into my mouth. I declare I could eat a plate of it now at dessert, if I had it."

"You shall have one, my dear madam, for your supper, to stay your stomach for the night. An inferior form of this is *Purée à la Crecy*, so named because Crecy, near Abbeville, in France, is famous for our Edward III.'s victory, and for Carrots. It has the merit, however, of economy. When you have three or four large Carrots left cold, grate them fine through a wire sieve or cullender; add the remainder of any broth or soup left the previous day, and one or two tablespoonfuls of rice boiled quite soft, the whole to be of the consistency of pea soup. You thus obtain *Purée à la Crecy*; good, but not so good as our carotine. But one cause of the sameness of "apartments'" soup is their limited resources for browning. One we occasionally use with advantage is Peashell browning. After shelling Peas, select the cleanest, plumpest, and most uninjured of the shells; put a single layer of them (as close together as you please, but not heaped) on an iron plate—such as you bake cakes on. Set them into a slow oven, of such a temperature as to dry and brown, without burning or charring them. This may also be done in an American oven before the fire; but in either case it requires time and patient watching. When done they will keep in a dry closet or hung up to the ceiling in canvas bags. Half a dozen or more of these browned pea-shells, thrown into soup or broth while cooking, will not only impart a nice golden hue, but also be an improvement to its flavour. We must have some vegetable! Asparagus is over; you are tired of green Peas. What shall it be?

"I will give you a hint just received from my nephew Henry, whom you know. 'Vegetable Marrows,' he writes, 'are now in season; please, O! please not to despise them. At any rate, "Sauce Henry" makes them good. Boil till tender; let drain five minutes or more. Then put into a white sauce flavoured with Lemon-peel. Simmer for twenty minutes; serve in dish with toast.' Will that do?"

"Delicate, but I fear insipid and mawkish. Nevertheless, it will be only fair to try it. But I confess to disliking Vegetable Marrows, and know of no preparation that makes them good at the size they are usually gathered in England. Cut small, not bigger than a good plump sausage; split down the middle, and fried with the skin on in a plentiful bath of boiling fat, taken out as soon as light-brown outside and tender within, drained on a slice and served immediately they answer to their name of Vegetable Marrow. But the deep frying-pan of fat (in the South of Europe they use oil) is not often met with in small establishments."

"Because of the prejudice that things fried in it must necessarily be greasy; whereas, if well fried, they are not greasy at all."

"Just so. Our first dish of meat shall be a *Haricot de Mouton*, which is not mutton with Haricots, but a French Irish stew, very convenient and wholesome at this time of the year—cheap moreover. The only roasts possible now are veal and poultry. Lamb has grown into mutton which, like beef, is hard and cannot be kept till tender. Fresh pork would be forbidden by your doctor."

"No, indeed; he allows me to eat whatever I please."

"Wise man; because you would be sure to eat it, if he didn't allow it. For our *haricot* we will take breast of mutton (not a prime or costly joint), cut into shapely squares fit to help with a spoon. We will make a *roux*: when it has taken colour, we will add the meat; when that is also coloured outside, we will add the quantity of water or broth necessary to moisten and keep it moist. Arrived at the boiling-point, we will put in some very young, sweet, and solid Turnips, cut into halves or quarters, according to their size, with a seasoning of pepper and salt to suit our palates and stomachs, and a bouquet of sweet herbs (Thyme, Knotted Marjoram, Bay-leaf, Parsley), any or all. Those who like Onion and Carrot may have them, but Potatos are not admissible. We will let this simmer gently over a handful of fire for two and a half or three hours. After enjoying it, we will each take a glass of sound, not strong, Bordeaux, and will reckon, D.V., on an easy digestion."

"But isn't breast of mutton rather fat?"

"Which saves your taking cod-liver oil, besides giving you the gelatine of the bones and gristle (the result of slow and protracted stewing) and the medicinal aroma of the vegetables. Another day, we will try something *à la Jardinière*, cooked on the same principle. Shall we say pork chops? ordering the cook to proceed thus: Boil in as little soft water as will cover them, green Peas, shreds of Cabbage, sprigs of Cauliflower, slices of Turnip and Carrot cut or punched into ornamental shape—in short, any esculent vegetable or root which you happen to have in the garden or to find in the market. Of course those which discolour the water or give out bitter juices, such as Artichokes (of which the bottoms only would be used), Broad Beans, French Beans, Salsify, &c., would be cooked separately; Potatos likewise. When very nearly done, take them up and drain them. Fry the pork chops in butter; when three-quarters done, take them up. Make a *roux* in a stewpan with the butter and gravy left in the frying-pan, adding more butter if necessary. Dilute it with hot broth or water, till sufficient in quantity to cover the chops and the vegetables. Let them simmer gently together till the meat is thoroughly cooked. Add a few Mushrooms, season according to taste. Then arrange the chops round a good-sized hollow dish, and pour the stewed vegetables in the middle."

"The recipe sounds relishing, and doubtless is so. It might be a good thing if every gardener's wife could serve her husband with a dish of cutlets, no matter what—veal, pork, mutton, or beef—*à la Jardinière*."

"My dear Mrs. Munster, you cannot expect it; it would take too much time, and give too much trouble. The way is, to whip the meat into a red-hot frying-pan, and do it black and brown in the twinkling an eye. To make use of such odds and ends and gleanings of vegetables would be simply robbing the rabbits and the pig, not to mention the plague of preparing them. Besides, who would have patience to watch a slow stew, when the frying can be done in the tenth of the time?"

"But perhaps the time required for digesting the

Fig. 54.—Xanthosoma (?) mirabile. (Reduced figure, showing habit.)

dish may be in inverse proportion to the time employed in cooking it."

"Not unfrequently, I venture to say. For stews of this kind I can suggest a useful and economical addition during the season that it is to be had, which is nothing more than a *purée* of peashells. After shelling green Peas, reject any of the shells that are dirty, bruised, or otherwise injured. Wash the rest in a pail of water; first pour off the foreign matters that rise to the top, then transfer the peashells to a boiler, cover them with cold spring water, with a spoonful of salt in it, and boil slowly for an hour or more, with care that none of the peashells stick to the bottom. Then pass the liquor through a large-holed cullender, and add to it all you can squeeze out of the peashells with the back of a wooden spoon. Strain it again through a finer-holed cullender, and it is ready to heighten the flavour of green Peas or other vegetable soups, or of *ragoûts* and dishes *à la Jardinière*, into which vegetables enter largely."

"The only vegetable I am afraid of is Cucumber."

"Cook it, then, and you will find it digestible. Slice it in the usual way, pepper and salt it, put it in a saucepan with a lump of butter, there let it stew until quite tender. Relieve its insipidity with a dash of vinegar, and then serve in a heap in the middle of a dish surrounded with nicely broiled mutton chops, which, if tender, you may pass off as lamb chops with Cucumber sauce. But these digressions have made us forget our little dinner to-morrow. Shall the roast be a fowl, with salad? Lettuce?"

"The very thing. So easy and simple."

"I beg your pardon; quite the contrary. Have you tried yet 'furnished apartments' salad? No; the salad is a grave and important affair. Let us agree to this. We will draw lots who shall dress the salad—not your maid Charlotte, nor yet my cook, but one of our two respective individual personal selves. If it falls to you I am sure it will be perfect, and I shall watch your method of proceeding. If the duty be mine I will strive hard not to be called a *coquin*, although I do sometimes sign *Coquinus*.

BRITISH ASSOCIATION.

In the department of Zoology and Botany the President, Dr. Hooker, C.B., Pres.R.S., delivered the following address on

Carnivorous Plants.

I have chosen for the subject of my address to you from the chair in which the Council of the British Association has done me the honour of placing me, the carnivorous habits of some of our brother-organisms—plants. Various observers have described with more or less accuracy the habits of such vegetable sportsmen as the Sun-dew, the Venus' Fly-trap, and the Pitcher plants, but few have inquired into their motives; and the views of those who have most accurately appreciated these have not met with that general acceptance which they deserved. Quite recently the subject has acquired a new interest, from the researches of Mr. Darwin into the phenomena which accompany the placing albuminous substances on the leaves of Drosera and Pinguicula, and which, in the opinion of a very eminent physiologist, prove, in the case of Dionæa, that this plant digests exactly the same substances, and in exactly the same way, that the human stomach does. With these researches Mr. Darwin is still actively engaged, and it has been with the view of rendering him such aid as my position and opportunities at Kew afforded me, that I have, under his instructions, examined some other carnivorous plants. In the course of my inquiries I have been led to look into the early history of the whole subject, which I find to be so little known and so interesting that I have thought that a sketch of it, up to the date of Mr. Darwin's investigation, might prove acceptable to the members of this Association.

Venus' Fly Trap.

About 1768, Ellis, a well-known English naturalist, sent to Linnæus a drawing of a plant, to which he gave the poetical name of Dionæa. I will read the account which he gave of it to Linnæus, and which moved the great naturalist to declare that, though he had seen and examined no small number of plants, he had never met with so wonderful a phenomenon:—"The plant . . . shows that Nature may have some views towards its nourishment, in forming the upper joint of its leaf like a machine to catch food; upon the middle of this lies the bait for the unhappy insect that becomes its prey. Many minute red glands that cover its surface, and which perhaps discharge sweet liquor, tempt the poor animal to taste them; and the instant these tender parts are irritated by its feet, the two lobes rise up, grasp it fast, lock the rows of spines together, and squeeze it to death. And further, lest the strong efforts for life in the creature just taken should serve to disengage it, three small erect spines are fixed near the middle of each lobe, among the glands, that effectually put an end to all its struggles. Nor do the lobes ever open again while the dead animal continues there. But it is, nevertheless, certain that the plant cannot distinguish an animal from a vegetable or mineral substance; for if we introduce a straw or pin between the lobes, it will grasp it full as fast as if it was an insect." Linnæus, however, only saw in these wonderful actions extreme sensitiveness in the leaves, and did not accept Ellis' account of the *coup de grâce* which the insects received from the three stiff hairs in the centre of each lobe of the leaf. For about a century the history of the plant was very little advanced. Sixty years after Linnæus wrote, Dr. Curtis, of Wilmington, North Carolina, published the following accurate scientific observations:—"Each half of the leaf is a little concave on the inner side, where are placed three delicate hair-like organs, in such an order that an insect can hardly traverse it without interfering with one of them, when the two sides suddenly collapse and enclose the prey, with a force surpassing an insect's efforts to escape. The fringe of hairs of the opposite sides of a leaf interlace, like the fingers of two hands clasped together. The sensitiveness resides only in these hair-like processes on the inside, as the leaf may be touched or pressed in any other part without sensible effects." To Ellis belongs the credit of divining the purpose of the capture of insects by the Dionæa; but Curtis made out the details of the mechanism. For another generation the history of this plant stood still; but in 1868 an American botanist, Mr. Clanby, while staying in the Dionæa district, studied the habits of the plant pretty carefully, especially the points which Dr. Curtis had made out. His first idea was that "the leaf had the power of dissolving animal matter, which was then allowed to flow along the somewhat trough-like petiole to the root, thus furnishing the plant with highly nitrogenous food." By feeding the leaves with small pieces of beef, he found, however, that these were completely dissolved and absorbed; the leaf opening again with a dry surface, and ready for another meal, though with an appetite somewhat jaded. He found that cheese disagreed horribly with the leaves, turning them black, and finally killing them. Finally, he details the useless struggles of Curculio to escape, as thoroughly establishing the fact that the fluid already mentioned is actually secreted, and is not the result of the decomposition of the substance which the leaf has seized. This Curculio, being of a resolute nature, attempted to eat his way out. When discovered he was still alive, and had made a small hole through the side of the leaf, but was evidently becoming very weak. On opening the leaf the fluid was found in considerable quantity around him, and was without doubt gradually overcoming him. The leaf being again allowed to close upon him, he soon died." Dr. Hooker then described the character of the communication on this plant made at the last meeting of the Association by Dr. Burdon Sanderson. All students of the vegetable side of organised Nature were astonished to hear that certain experiments which Dr. Sanderson, at the instigation of Mr. Darwin, had made, proved to demonstration that when a leaf of Dionæa contracts, the effects produced are precisely similar to those which occur when muscle contracts. Not merely are the phenomena of digestion in this wonderful plant like those of animals, but the phenomena of contractility agree with those of animals also.

Sun-Dews, Drosera.

Not confined to a single district in the New World, but distributed over the temperate parts of both hemispheres in sandy and marshy places, are the curious plants called Sun-dews—the species of the genus Drosera. They are now known to be near congeners of Dionæa, a fact which was little more than guessed at when their curious habits were first discoveerd. The President proceeded to trace at much length the interesting history of the Sun-dew. It is to Mr. Darwin we are indebted for the latest and most important additions to the facts established by the earliest observers. Subsequent botanists had boldly asserted that the early accounts given of the Sun-dew were not true. The repeated testimony of various observers, with respect to Dionæa and Drosera, spreads over a century, and though at no time warmly received, must, I think, satisfy you that in this small family of the Droseraceæ we have plants which, in the first place, capture animals for the purposes of food; and, in the second, digest and dissolve them by means of a fluid which is poured out for the purpose; and, thirdly, absorb the solution of animal matter which is so produced. Before the investigations of Mr. Darwin had led other persons to work at the subject, the meaning of the phenomena was very little appreciated. Only a few years ago, Duchartre, a French physiological botanist, after mentioning the views of Ellis and Curtis with respect to Dionæa, expressed his opinion that the idea that its leaves absorbed dissolved animal substances, was too evidently in disagreement with our knowledge of the function of leaves, and the whole course of vegetable nutrition, to deserve being seriously discussed. Perhaps if the Droseraceæ were an isolated case of a group of plants exhibiting propensities of this kind, there might be some reason for such a criticism. But I think I shall be able to show you that this is by no means the case. We have now reason to believe that there are many instances of these carnivorous habits in different parts of the vegetable kingdom, and among plants which have nothing else in common but this.

Sarracenias.

As another illustration I shall take the very curious group of Pitcher-plants which is peculiar to the New World. The genus Sarracenia consists of eight species, all similar in habit, and all natives of the eastern States of North America, where they are found more especially in bogs, and even in places covered with shallow water. Their leaves, which give them a character entirely their own, are pitcher-shaped and trumpet-like, and are collected in tufts springing immediately from the ground; and they send up at the flowering season one or more slender stems, bearing each a solitary flower. This has a singular aspect, due to a great extent to the umbrella-like expansion in which the style terminates; the shape of this, or perhaps of the whole flower, caused the first English settlers to give to the plant the name of Side-saddle Flower. The first fact which was observed about the pitchers was that when they grew they contained water. In 1829, Burnett wrote a paper containing a good many original ideas, expressed in a somewhat quaint fashion, in which he very strongly insisted on the existence of a true digestive process in the case of Sarracenia, analogous to that which takes place in the stomach of an animal. Our knowledge of the power of Sarracenia variolaris is now pretty complete, owing to the observations of two South Carolina physicians. One, Dr. M'Bride, made his observations half a century ago, but they had, till quite recently, completely fallen into oblivion. He devoted himself to the task of ascertaining why it was that Sarracenia variolaris was visited by flies, and how it was that it captured them. Dr. Mellichamp, who is now resident in the district in which Dr. M'Bride made his observations has added a good many particulars to our knowledge. It is evident that there are two very different types of pitcher in Sarracenia, and an examination of the species shows that there must probably be three. These may be primarily classified into those with the mouth open and lid erect, and which consequently receive the rain water in more or less abundance; and those with the mouth closed by the lid, into which rain can hardly, if at all, find ingress. There is obviously much still to be learned with regard to Sarracenia, and I hope that American botanists will apply themselves to this task.

Darlingtonia.

I cannot take leave of Sarracenia without a short notice of its near ally, Darlingtonia, a still more wonderful plant, an outlier of Sarracenia in geographical distribution, being found at an elevation of 5,000 feet on the Sierra Nevada of California, far west of any locality inhabited by Sarracenia. It has pitchers of two forms; one, peculiar to the infant state of the plant, consists of narrow, somewhat twisted, trumpet-shaped tubes, with very oblique open mouths, the dorsal lip of which is drawn out into a long, slender, arching scarlet hood that hardly closes the mouth. The slight twist in the tube causes these mouths to point in various directions, and they entrap very small insects only. Before arriving at a state of maturity the plant bears much larger, suberect pitchers, also twisted, with the lip produced into a large inflated hood, that completely arches over a very small entrance to the cavity of the pitcher. A singular orange-red, flabby, two-lobed organ hangs from the end of the hood, right in front of the entrance, which, as I was informed last week by letter from Professor Asa Gray, is smeared with honey on its inner surface. These pitchers are crammed with large insects, especially moths, which decompose in them, and result in a putrid mass. I have no information of water being found in its pitchers in its native country, but have myself found a slight acid secretion in the young states of both forms of pitcher. I cannot dismiss Darlingtonia without pointing out to you what appears to me a most curious point in its history, which is, that the change from the slender, tubular, open-mouthed, to the inflated, closed-mouthed pitchers, is absolutely sudden in the individual plant. I find no pitchers in an intermediate stage of development. This, a matter of no little significance in itself, derives additional interest from the fact that the young pitchers, to a certain degree, represent those of the Sarracenias with open mouths and erect lids, and the old pitchers those of the Sarracenias with closed mouths and globose lids. The combination of representative characters in an outlying species of a small order cannot but be regarded as a marvellously significant fact in the view of those morphologists who hold the doctrine of evolution.

Plant-Nutrition.

In what I have said, I have described the most striking instances of plants which seem to invert the order of Nature, and draw their nutriment—in part at least—from the animal kingdom, which is often held to be the function of the vegetable kingdom to sustain. I might have added some additional cases to those I have dwelt upon. Probably, too, there are others still unknown to science, or whose habits have not yet been detected. But the problem that forces itself upon our attention is, how does it come to pass that these singular aberrations from the otherwise uniform order of vegetable nutrition make their appearance in remote parts of the vegetable kingdom?—why are they not more frequent, and how were such extraordinary habits brought about, or contracted? At first sight the perplexity is not diminished by considering the nature of ordinary vegetable nutrition. The roots take up certain matters from the soil. Nitrogen forms nearly four-fifths of the air we breathe, yet plants can possess themselves of none of it in the free uncombined state. They withdraw in minute quantities from the ground nitrates and salts of ammonia, and from these they build up with starch, or some analogous material, albuminoids or protein compounds, necessary for the sustentation and growth of protoplasm. At first sight nothing can be more unlike this than a Dionæa or a Nepenthes capturing insects, pouring out a digestive fluid upon them, and absorbing the albuminoids of the animal, in a form probably directly capable of appropriation for their own nutrition. Yet there is something not altogether wanting in analogy in the case of the most regularly constituted plants. The seed of the Castor-oil plant contains, besides the embryo, a mass of cellular tissue or endosperm filled with highly nutritive substances. The seedling lies between masses of these, and is in contact with them. The warmth and moisture of germination set up changes which bring about the liquefaction of the contents of the endosperm, and the embryo absorbing them grows in so doing, and at last, having taken up all it can from the exhausted endosperm, it developes chlorophyll in its cotyledons under the influence of light, and relies on its own resources. A large number of plants, then, in their young condition, borrow their nutritive compounds ready prepared, and this is in effect what carnivorous plants do later in life. The absolute difference between

plants which absorb and nourish themselves by the products of the decomposition of plant structures, and those which make a similar use of animal structures, is not very great. We may imagine that plants accidentally permitted the accumulation of insects in some parts of their structure, and the practice became developed because it was found to be useful. It was long ago suggested that the receptacle formed by the connate leaves of Dipsacus might be an incipient organ of this kind; and though no insectivorous habit has ever been brought home to that plant, the theory is not improbable. Linnæus, and more lately Baillon, have shown how a pitcher of Sarracenia may be regarded as a modification of a leaf of the Nymphæa type. We may imagine such a leaf first becoming hollow, and allowing *débris* of different kinds to accumulate; these would decompose, and a solution would be produced, some of the constituents of which would diffuse themselves into the subjacent plant tissues. This is in point of fact absorption, and we may suppose that in the first instance—as perhaps still in Sarracenia purpurea—the matter absorbed was merely the saline nutritive products of decomposition, such as ammoniacal salts. The act of digestion—that process by which soluble food is reduced without decomposition to a soluble form fitted for absorption—was doubtless subsequently required. The secretion, however, of fluids by plants, is not an unusual phenomenon.

Nepenthes.

In many Aroids a small gland at the apex of the leaves secretes fluid, often in considerable quantities, and the pitcher of Nepenthes is only a gland of this kind enormously developed. May not, therefore, the wonderful pitchers and carnivorous habit of Nepenthes have both originated by natural selection out of one such honey-secreting gland as we still find developed near that part of the pitcher which represents the tip of the leaf? We may have supposed insects to have been entangled in the viscid secretion of such a gland, and to have perished there, being acted upon by those acid secretions that abound in these and most other plants. The subsequent differentiation of the secreting organs of the pitcher into aqueous, saccharine, and acid, would follow *pari passu* with the evolution of the pitcher itself, according to those mysterious laws which result in the correlation of organs and functions throughout the kingdom of Nature; and which, in my apprehension, transcend in wonder and interest those of evolution and the origin of species. These remarks will, I hope, lead you to see that, though the processes of plant nutrition are, in general, extremely different from those of animals, yet that the protoplasm of plants is not absolutely prohibited from availing itself of food such as that by which the protoplasm of animals is nourished, under which point of view these phenomena of carnivorous plants will find their place as one more link in the continuity of Nature.

Professor Huxley begged to move a vote of thanks to Dr. Hooker for the very remarkable and suggestive address which he had just delivered. He would ask the male portion of his audience to imagine street after street of public-houses charged with the most exquisite drinks—whatever might be their particular drink—and with no Licensing Act in force—always open at night; and he would ask the other portion of the audience to imagine street after street of milliners' shops, filled with the most exquisite bonnets, also open day and night, and without any fear of fathers or husbands examining the bills; and they would then be able to picture the condition of those animal organisms in which these plants are sustained. These poor animals were wandering about, following their sensations. They saw the most exquisite drinks, and the most beautiful bonnets, but suddenly they found themselves in the jaws of death, inclosed in an inextricable trap, and he was not sure that their admiration of the ways of Nature would reconcile them next morning when they they found themselves in a mass of transparent jelly! That was one of the considerations that passed through his mind while listening to the paper, but there was a scientific question which bore very strongly upon his own immediate pursuits. In the Dionæa, and again in the Drosera, we find actions which exactly correspond with what are called reflex actions in ourselves. That Dionæa shuts its leaf in exactly in the same way as an infant's hand closes when you touch it in the middle of the palm. That is what we call reflex action, and whoever would solve the question as to the manner in which the impulse was given in those plants, by which the leaves contracted, would make one of the most wonderful discoveries in modern biology.

Flowers and Insects.

During the course of the same meeting, Sir John Lubbock, Bart., M.P., gave a lecture on "Common wild flowers, considered in relation to insects," of which the following is an abstract:—

At the close of the last century, Conrad Sprengel published a most valuable work on flowers, in which he pointed out that their forms and colours, their scent, honey, and general structure have reference to the visits of insects, which are of importance to flowers in transferring the pollen from the stamens to the pistil. Sprengel's admirable work, however, did not attract the attention it deserved, and remained comparatively unknown until Mr. Darwin devoted himself to the subject. Our illustrious countryman was the first to perceive that insects are of importance to flowers, not only in transferring the pollen from the stamens to the pistil, but in transferring it from the stamens of one flower to the pistil of another. Sprengel had indeed observed in more than one instance that this was the case, but he did not appreciate the importance of the fact. Mr. Darwin's remarkable memoir on Primula, to which I shall again have occasion to refer more than once, was published in 1862. In this treatise the importance of cross-fertilisation was conclusively proved, and he has since illustrated the same rule by a number of researches on Orchids, Linum, Lythrum, and a variety of other plants. The new impulse thus given to the study of flowers has been followed up in this country by Hooker, Ogle, Bennett, and other naturalists, and on the Continent by Axell, Delpino, Hildebrand, and especially by H. Müller, who has published an excellent work on the subject, bringing together the observations of others, and adding to them an immense number of his own.

Value of Insects.

Every one knows how important flowers are to insects, but it is only recently that we have realised how important, indeed how necessary, insects are to flowers. That the colour of the corolla has reference to the visits of insects is well shown by the cases of flowers, which, as for instance in the "ray" or outer flowers of Centaurea, contain neither stamens nor pistli, and serve therefore mainly, and indeed, as it would seem entirely, to render the flower-head more conspicuous. Again, night flowers are white, seen when their near allies are coloured; thus, Lychnis vespertina, which, as its name denotes, is an evening flower, is white, while L. diurna, which flowers by day, is red. Again, the calyx is usually green, but when the position of the flower is such that it is much exposed, it becomes brightly coloured, as, for instance, in the Berberry or Larkspur. If it is objected that I am assuming the existence of these gradual modifications, I should reply that it is not here my purpose to discuss the doctrine of natural selection. I may, however, remind you that Mr. Darwin's theory is based on the following considerations: (1) that no two animals or plants in Nature are identical in all respects; (2) that the offspring tend to inherit the peculiarities of their parents; (3) that of those which come into existence only a certain number reach maturity; and (4), that those which are on the whole the best adapted to the circumstances in which they are placed are most likely to leave descendants. No one of these statements is, or can be, disputed; and they seem fully to justify the conclusions which Mr. Darwin has deduced from them, though not all those which have been attributed to him by his opponents. Now, applying these considerations to flowers, if it is an advantage to them that they should be visited by insects (and that this is so will presently be shown), then it is obvious that those flowers which, either by their larger size, or brighter colour, or sweeter scent, or greater richness in honey, are most attractive to insects, will *cæteris paribus* have an advantage in the struggle for existence, and be most likely to perpetuate their race. Every one, however, who has watched flowers, and seen how assiduously they are visited by insects for the sake of honey, will admit that they must often transfer pollen from the stamens to the pistil; in many cases from the stamens to the pistil of the same flower; but in others from the stamens of one flower to the pistil of another. This we will call cross-fertilisation.

Cross Fertilisation.

I will not now enlarge on the importance of this cross-fertilisation, which has been fully proved by experiment. I will only observe that every breeder of sheep or cattle knows the necessity of avoiding "in-and-in" breeding, and it is no less necessary to avoid it in the case of plants. We will now pass to the consideration of the means by which self-fertilisation is checked, and cross-impregnation is effected in plants. In some cases the pollen is simply wind-borne, in others it is carried by insects. These are attracted, partly by the pollen itself, partly by the honey; while the bright colour and the scent serve to indicate the spot where the pollen and honey are to be found. The calyx, which is not generally brightly coloured, probably serves as a protection to the honey, and tends to prevent bees and other insects from obtaining access to it by force.

It is an almost invariable rule that wind-impregnated flowers are inconspicuous, but the reverse does not hold good, and there are many flowers which, though habitually visited by insects, are not brightly coloured. In some cases flowers make up by their numbers for the want of individual conspicuousness; in others, the insects are attracted by scent: indeed, as has been already mentioned, the scent as well as the colours of flowers has no doubt been greatly developed through natural selection as an attraction to insects. In confirmation of this it is stated that when insects are excluded the blossoms last longer than is otherwise the case; that when flowers are once fertilised, the corolla soon drops off, its function being performed. But though bright colours and strong odours are sufficient to attract the attention of insects, something more is required. Flowers, however sweet-smelling or beautiful, would not be visited by insects unless they had some more substantial advantages to offer. These advantages are the pollen and the honey; though it has been suggested by Sprengel that some flowers beguile insects by holding out the expectation of honey which does not really exist; just as some animals repel their enemies by resembling other species, which are either dangerous or disagreeable. In other cases the pistil ripens before the stamens. Thus the Aristolochia has a flower which consists of a long tube, with a narrow opening closed by stiff hairs which point backwards, so that it much resembles an ordinary eel-trap. Small flies enter the tube in search of honey, which, from the direction of the hairs, they can do easily, though, on the other hand, from the same cause, it is impossible for them to return. Thus they are imprisoned in the flower; gradually, however, the pistil passes maturity, the stamens ripen and shed their pollen, by which the flowers get thoroughly dusted. Then the hairs of the tube shrivel up, and release the prisoner, which carries the pollen to another flower.

I will now call attention in more detail to some of our common wild flowers in order to show how beautifully they are adapted to profit by the visits of insects, and how the various parts are arranged so as to favour, not only the transfer of pollen from one flower to another, but also its deposition on that part of the pistil which is especially prepared for its reception. Wherever the pistil projects beyond the stamens, it is obvious that a bee alighting on the flower would come in contact, first with the former, and subsequently with the latter. In flying from flower to flower, therefore, she would generally fertilise each with the pollen of one which had been previously visited.

The Dead Nettle.

In the case or the Dead Nettle it may be seen from the position of the pistil, which hangs down below the anthers, that the bee comes in contact with the former before touching the latter, and consequently generally deposits upon the stigma pollen from another flower. Thus, then, we see how every part of this flower is either, like the size and shape of the arched upper lip, the relative position of the pistil and anthers, the length and narrowness of the tube, the size and position of the lower lip, the ring of hairs and the honey, adapted to ensure the transference by bees of pollen from one flower to another; or, like the minute lateral lobes of the lower lip, is an inheritance from more highly developed organs of ancestors. If we compare Lamium with other flowers we shall see how great a saving is effected by this beautiful adaptation. The stamens are reduced to four, the stigma almost to a point. How great a contrast with the Pines and their clouds of pollen, or even with such a flower as the Nymphæa, where the visits of insects are secured, but the transference of the pollen to the stigma is, so to say, accidental. Yet the fertilisation of the Lamium is not less effectu ally secured than in either of these.

Heaths.

The Heaths offer us another very ingenious arrangement—E. tetralix (the cross-leaved Heath) for instance: the flower is in the form of a bell, which hangs with its mouth downwards, and is almost closed by the pistil, which represents the clapper. The stamens are eight in number, and each terminates in two cells which diverge slightly, and have at their lower end an oval opening. But though this opening is at the lower end of the anther cells, the pollen cannot fall out, because each cell, just where the opening is situated, touches the next anther cell, and the series of anthers thus form a circle, surrounding the pistil and not far from the centre of the bell. Each anther-cell also sends out a long process, which thus forms a series of spokes, standing out from the circle of anthers. Under these circumstances a bee, endeavouring to suck the honey from the nectary, cannot fail, firstly, to bring its head in contact with the viscid stigma, and thus to deposit upon it any pollen derived from a previous visit; and secondly, in thrusting its proboscis up the bell, it inevitably comes in contact with one of the anther-processes, which acts like a lever and dislocates the whole chain of anther cells, when a shower of pollen falls from the open cells on to the head of the bee. In many cases the effect of the colouring and scent is greatly enhanced by the association of several flowers in one bunch or raceme, as, for instance, in the wild Hyacinth, the Lilac, and other familiar instances.

Orchids.

Perhaps no group of flowers offer more remarkable adaptations than the Orchids, which have been so admirably described by Mr. Darwin. As an illustration of our English species I shall take the common early purple Orchis (Orchis mascula) as being one of the commonest, if not the commonest, species, and a fair example of some of the remainder, which, however, differ in many interesting and important points. I cannot resist mentioning the case of Catasetum, one of the Vandeæ, which, as Mr. Darwin says, are "the most remarkable of all Orchids." In Catasetum the pollinia and the stigmatic surfaces are in different flowers, hence it is certain that the former must be carried to the latter by the agency of insects. The pollinia, moreover, are furnished with a viscid disc, as in Orchis; but from the large size of the flower and the position of the honey, the insect has no inducement to approach, and, in fact, does not touch the viscid disc. The flower, however, is endowed with a peculiar sensitiveness, and actually throws the pollinium at the insect. Mr. Darwin has been so good as to irritate one of these flowers in my presence; the pollinium was thrown nearly 3 feet, when it struck and adhered to the pane of a window. This irritability, however, is confined to certain parts of the flower.

Marcgraavia.

I will only mention one other tropical flower, the very curious Marcgraavia nepenthoides. The flowers are disposed in a circle, and beneath them are suspended some pitcher-like vessels, which secrete a sweetish liquid, and thus attract numerous insects. These again bring birds, which can hardly fail to brush against the flowers, and thus convey the pollen from one to the other. In the flowers hitherto described, while the several species offer the most diverse arrangements, we have met with no differences within the limits of the same species, excepting those dependent upon sex.

Violets.

I must now call attention to some cases in which the same species possesses flowers of two or more kinds, which sometimes, as in the Violet, are adapted to different

conditions, but more frequently are so constituted as to insure cross-fertilisation. In some of the Violets (V. odorata, canina, &c.), besides the blue flowers with which we are all so familiar, but which produce very little seed, there are other autumnal flowers almost without petals and stamens, and which indeed have none of the appearance of true flowers, but in which the seeds are produced. As these curious flowers, however, have no relation to our present subject, I shall not now dwell on them.

Primula.

I pass on to the genus Primula, which offers a most interesting case of dimorphism. The Cowslip and Primrose resemble one another in many respects, though the honey they secrete must be very different, for while the Cowslip is habitually visited during the day by humble bees, this is not the case with the Primrose, which in Mr. Darwin's opinion is fertilised almost exclusively by moths. This, however, is a digression. If a number of specimens of Primroses or of Cowslips are examined, we shall find that about half of them have the stigma at the top of the tube and the stamens half way down, while the other half have, on the contrary, the stamens at the top of the tube, and the stigma half way down. Corresponding differences occur in the Polyanthus and Auricula, and had long been known to gardeners, and even to school children (by whom the two kinds of flowers are known as "pin-eyed" and "thrum-eyed"); but it was reserved for the genius and perseverance of Mr. Darwin to explain the significance of this curious phenomenon, and the important part it plays in the economy of the flower. Now that Mr. Darwin has pointed this out it is sufficiently obvious—an insect thrusting its proboscis down a Primrose of the long-styled form would dust its proboscis at a part which, when it visited a short-styled flower, would come just opposite the head of the pistil, and could not fail to deposit some of the pollen on the stigma. Conversely, an insect visiting a short-styled plant would dust its proboscis at a part further from the tip, and which, when it subsequently visited a long-styled flower, would again come just opposite to the head of the pistil. Hence we see that by this beautiful arrangement insects will carry the pollen of the long-styled form to the short-styled, and *vice versâ*. There are other points in which the two forms differ from one another—for instance, the stigma of the short-styled form is globular and rough, while that of the short-styled is smoother, and somewhat depressed. The pollen of the two forms is also dissimilar, that of the long-styled being considerably smaller than the other —7-7000ths of an inch in diameter, against 10-11-7000ths, or nearly in the proportion of three to two, a difference the importance of which is obvious, for each has to give rise to a tube which penetrates the whole length of the style, from the stigma to the base of the flower; and the tube in the long-styled form must, therefore, be nearly twice as long as in the other. Mr. Darwin has shown that much more seed is set if pollen from one form is placed on the pistil of the other, than if the flower is fertilised by pollen of the same form, even if taken from a different plant. Nay, what is most remarkable, such unions in Primula are more sterile than crosses between distinct, though nearly allied species of plants have in some cases been found to be. The majority of the species of the genus Primula appear to be dimorphic, but not all.

Insect-Adaptation.

Let us now consider the manner in which the bees are adapted to the flowers. Although we may in one respect say that the general organisation of the insect is modified with reference to these relations, still the parts which have been the most profoundly modified are the mouth and the legs. If we are asked why we assume that in this case the mouth-part and legs have been modified, the answer is that they depart greatly from the type found in allied insects, and that between this type and these modified examples various gradations are to be found. The mouth of an insect is composed of:—1, an upper lip; 2, an under lip; 3, a pair of anterior jaws or mandibles; and, 4, a pair of posterior jaws or maxillæ. These two pair of jaws work laterally, that is to say, from side to side, and not, as in man and other mammalia, from above to below. The lower lip and maxillæ are each provided with a pair of feelers or palpi. In the different groups of insects these organs present, however, almost infinite variations. There are several flowers which are inaccessible to hive bees and to Bombus terrestris, which has a shorter proboscis than some of the other species belonging to that genus. Hermann Müller mentions, for instance, that he has seen Bombus terrestris endeavouring in vain to suck the flowers of the Oxlip (Primula elatior). Having satisfied themselves that they were unable to do so, but not till then, they proceeded to cut a hole in the base of the tube, and thus arrived at the honey. This seems to show, he observes, that they act upon the results of experience, and not by what is called mere instinct. Indeed, any one who has watched bees in greenhouses will see that they are neither confined by original instinct to special flowers, nor do they visit all flowers indifferently. Müller mentions several cases in which he has seen honeyless flowers visited by insects; Genista tinctoria, for instance, is frequently visited by insects in search of honey, although it does not contain any. Certain insects, on the other hand, confine themselves to particular flowers.

It would also appear that individual bees differ somewhat in their mode of treating flowers. Some humble bees suck the honey of the French Bean and the Scarlet Runner in the legitimate manner, while others cut a hole in the tube and thus reach it surreptitiously; and Dr. W. Ogle has observed that when he followed any particular bee she always proceeded in the same manner, some always entered by the mouth, others always cutting a hole. He particularly mentions that this was the case with bees of the same species, and infers, therefore, that they differ from one another in their degrees of intelligence, and his observations, though of course not conclusive, are interesting and suggestive. If again, we examine the hind legs of bees we shall find similar gradations. In Prosopis they do not differ materially from those of genera which supply their young with animal food. Portions of the leg, indeed, bear stiff hairs, the original use of which probably was to clean these burrowing insects from particles of sand and earth, but which in Prosopis assist also in the collection of pollen. In some bees the pollen is collected on the body; and here also we find a remarkable gradation from Prosopis, which has only minute and simple hairs like a wasp; through Specodes and Nomada, in which the longer hairs are still few, and generally simple, though some few are feathered, to Andrena and Halictus, where the hairs are much more developed; a change which is more marked in Sarapoda, Colletes, and Megachill; still more so in Osmia and Anthophore, until we come to the humble bees, in which the whole body is covered with long feathered hairs.

Closing of Flowers.

One other peculiarity of flowers is explained if we take this view of the relations of insects to flowers. Many flowers close their petals during rain, which is obviously an advantage, since it prevents the honey and pollen from being spoilt or washed away. Everybody, however, has observed that even in fine weather certain flowers close at particular hours. This habit of going to sleep is surely very curious. Why should flowers do so? In animals we can understand it; they are tired, and require rest. But why should flowers sleep? Why should some flowers do so and not others? Moreover, different flowers keep different hours. The Daisy opens at sunrise and closes at sunset, whence its name, day's-eye. The Dandelion (Leontodon Taraxacum) opens at seven and closes at five; Arenaria rubra is open from nine to three; Nymphæa alba from about seven to four; the common Mouse-ear Hawkeed is said to wake at eight and go to sleep at two; the scarlet Pimpernel (Anagallis arvensis) to wake at seven and close soon after two; while Tragopogon pratensis opens at four in the morning and closes just before twelve, whence its English name, "John go to bed at noon." Farmer's boys in some parts are said to regulate their dinner-time by it. Other flowers, on the contrary, open in the evening. Now, it is obvious that flowers which are fertilised by night-flying insects would derive no advantage from being open by day; and, on the other hand, that those which are fertilised by bees would gain nothing by being open at night. Nay, it would be a distinct disadvantage, because it would render them liable to be robbed of their honey and pollen by insects which are not capable of fertilising them. I believe, then, that the closing of flowers has reference to the habits of insects; and it may be observed also, in support of this, that wind-fertilised flowers never sleep, and that some of those flowers which attract insects by smell emit their scent at particular hours; thus, Hesperis matronalis and Lychnis vespertina give forth their odours in the evening, and Orchis bifolia is particularly sweet at night. Although flowers present us with all these beautiful and complex contrivances, whereby the transfer of pollen from flower to flower is provided for and waste is prevented, yet they are imperfect, or at least are not yet perfect in their adaptations.

It is, of course, possible that these cases may be explained away; nevertheless, as both insects and flowers are continually altering in their structure and in their geographical distribution, we should necessarily expect to find such instances. Animals and plants constantly tend to adapt themselves to their conditions just as water tends to find its own level. Many small insects obtain access to flowers, and rob them of their contents. Malva rotundifolia can be, and often is, sucked by bees from the outside, in which case the flower derives no advantage from the visit of the insect. In Medicago sativa also insects can suck the honey without effective fertilisation, and the same flower continues to secrete honey after fertilisation has taken place, and when apparently it can no longer be of any use. Fritz Müller has observed that, though Posoqueria fragrans is exclusively fertilised by night-flying insects, many of the flowers open in the day, and consequently remain sterile.

A MIDDLESEX APPLE ORCHARD.

To give this designation to a small orchard of about 4 acres may seen pretentious, or even ridiculous, but let it be remembered that 4 acres of trees, if they be well and carefully cultivated, may be esteemed as representative in its way as 100 acres, supposing that the cultivation exhibited be the same. Fifty years since, when Hounslow Heath extended nearly to Staines, and there were more desolate than cultivated tracks on that wide expanse of land, the site of this little orchard was then part gravel pit part swamp, and was about as unpromising a piece of garden land as could be desired. Even Mark Tapley might here have found special reasons for jollity, for the city of Eden could hardly have been worse. When its present owner took it in hand he was comparatively a young man, full of energy and that determination to win which is the sure forerunner of success. He drained it as well as means would admit of, but leaving a small pond in one portion, rightly judging that whilst too much of the limpid element was an undoubted evil, the entire absence of it might also at times prove to be equally so. Then gradually the whole space was levelled and trenched 3 feet in depth, and a portion of it planted with Apple trees, the sorts selected being the Manx Codlin, Keswick Codlin, Cellini Pippin, King of the Pippins, and Wellington—all popular as market Apples years ago as now. Of these the Cellini has been gradually eliminated, as it is found here that with age the trees canker and decay. The Keswick Codlin has also not proved so well favoured as the Manx, and now the three other sorts monopolise the space originally planted. The remaining portion of the ground was for a long number of years used for Strawberry growing, and the finest possible crops were yearly obtained. However, some ten years since this space was planted with young trees of the popular Manx Codlin, the intervening ground being occupied by fruit bushes, and all present the finest possible appearance. These young trees have this year but a spare crop of fruit, as is the case in all young orchards, but the sample is extremely fine, indeed I have never seen finer fruit of this Codlin than these young trees produce. The older trees are laden with a very heavy crop, and looking over them it seems difficult to realise that after all the Apple crop is exceedingly partial. Codlins, Kings, and Wellingtons are alike loaded with fruit, and it is anticipated that the yield will not be less than 800 bushels. Last year, when the younger trees fruited well, the produce of this small orchard reached 1000 bushels. Beneath the older trees the ground is entirely occupied with very fine robust black Currant bushes, most of which were planted twenty years since. I have never seen a finer and healthier lot of bushes, producing literally a ground cover, and they never fail to yield an immense crop yearly. All this productiveness arises from the fact that the ground was first well drained, and next deeply trenched before planting. Then the selection of sorts has proved to be such as are well adapted to the locality, and are well in request for market sale. Lastly, there has been no expense spared either in labour or manure to keep the trees thin and healthy, and the soil full of nutriment. When I looked through this orchard but recently, the whole of the surface of the soil was covered with a good dressing of long stable manure, and this served the treble use of supplying nutriment and retaining moisture, keeping down weeds, and materially saving from dirt and damage the fallen fruit. Of other kinds that are greatly favoured in West Middlesex none suit better than the Early Julien, as it matures early and comes a good size. Lord Suffield is also largely planted, but I am assured that this Apple is not so much esteemed for cooking as is the Manx Codlin. Of dessert kinds the Red Astrachan and the Yellow Ingestre are favourites, and in some parts the Blenheim Pippin finds favour. Of fine kitchen sorts that will do well, but are not common for market work, are Harvey Codlin, Warner's King, and the Alfriston, all three of which will make superior market varieties. *Alex. Dean, Bedfont.*

THE CARNATION.

On p. 212 the rejuvenescence of the National Carnation Society was spoken of. *Apropos* to this, a few particulars may perhaps be interesting in regard to the history of the flower, every year seeing the uprise of new and intelligent students of Dame Nature —students to whom the information may be useful, just as it was in days gone by to their seniors and teachers. I do not believe in that ill-natured expression, "every schoolboy knows." Very few schoolboys possess a tenth of the wonderful knowledge which the phrase ascribes to them. I should be disposed to say, rather, "As 999 out of every 1000 schoolboys don't know." This must be my apology for bringing forward what to the learned may seem trite: they must remember that there are plenty who are not learned. To begin at the beginning, let me say that the Carnation is indigenous in its wild and primitive state to warm and sunny banks and other dry and comfortable habitats of similar character in the South of Europe, and especially in the Mediterranean regions of France. Whether a native or not of our own country cannot, perhaps, be said positively. Smith's *English Botany* and most of the subsequent British Floras say "Yes," giving as the localities the ruined walls of certain old castles built in the Norman times—those, for instance, of Deal, Rochester, and Sandown. [Deal and Sandown date only from Henry VIII.'s time. Eds.] Mr. Bentham, on the other hand (who always speaks as one to be trusted, and not as the scribes), declines to include it in his Handbook, and the probability would seem to be that such examples of the plant as occurred in days gone by, on the walls in question and elsewhere in England, were waifs of former cultivation, just as in 1874 we have the Isatis tinctoria, with the juice of which the ancient Britons were wont to colour their bodies; the Reseda alba, the Hypericum calycinum,

and many another, associating with the aborigines, and living beside our Daisies as naturalised foreigners. The ancients do not appear to have noticed it. No name met with in the classical authors can be connected with it, for Dianthus, though a Greek name, signifying Flower of Jove, is of modern construction, while Caryophyllus, though at least 2000 years old, denoted in its first use some kind of oriental pepper or spice. "There is in India," says Pliny, "another flower which bears a considerable resemblance to Pepper, but is longer and more brittle: it is known by the name of Caryophyllon. It is said that this grain is produced in a sacred grove in India; with us (the people of ancient Rome) it is imported for its aromatic perfume." This looks very much like a reference to the common Clove, the produce of the Eugenia caryophyllata, or, as some prefer to call the tree, the Caryophyllus aromaticus, a native of the Moluccas, whence it is quite possible that Cloves may have been imported into India in the earliest ages, the famous merchants who traded with the remote East making them known eventually to Europe. On this point, however, there is difference of opinion as well as to the birthplace of the name, which, though possessed of the form and complexion of a Greek one, is said to be the Arabic Qarunfel, accommodated to the language in the literature of which it first appears. Be this as it may, the extension of the name to the Carnation, the "Clove Pink," as by some it is aptly called, the "Clove Gilliflower," as it is called by Lord Bacon in his charming essay upon gardens, was most felicitous, the flower being, as it were, another home of the aroma of the spice. In the foundation upon Caryophyllus, as the adopted name of the Carnation, of the ordinal or collective term Caryophyllaceæ, we have, at the same time, a very curious illustration of the way in which systematic botany often dissolves all the scent and poetry out of an ancient epithet. That the Dianthus Caryophyllus, the gem, the jewel, the uncontested queen of the order, should supply the cognomen of the entire family is no doubt perfectly proper. But how difficult it is to carry the sweet thought of this most bright and beautiful flower into our studies of the Chickweed, the Mouse-ear, or the Pearl-wort. To associate these latter with it seems little less than sacrilegious, and yet, on considering, I am disposed after all to recognise a certain fitness in the act over and above that which is established by botanical likeness in structure. For these pretty little Caryophylls, the Chickweed, with its snowy petals, so sensitive to light and warmth; the Mouse-ear, with its translucent capsules, always out of the perpendicular at the top; and the tiny Pearl-wort, with a seed-pod that seems a fairy cup and saucer; with fifty others, all matchless in their own way; the Bladder-Campion of the shore, the Arenarias, and the Stitchworts, not to mention the Rose Lychnis of the hedge-bank and the wood, that even in winter, when the season is mild, succeeds in producing a flower or two—

"Still in their ashes live their wonted fires"—

all these, I say, if not possessed of the fragrance and the robes of their royal mistress, are still most exquisite to look at. To an inquisitive eye—one that loves to rest on Nature's *bijouterie* as well as on the great and grand—they have a beauty of form and fabric quite commensurate with any qualities that belong to ideas of scent and colour, and these seem to me to lift them to a place tantamount, at all events, to that of Maids-of-Honour.

A beautiful order in any case is that one named Caryophyllaceæ. Leaving on one side the inconspicuous species and the weeds, we have in Lychnis, Agrostemma, Saponaria, and Silene, genera that well herald their inestimable leader. These, however, must at present be passed over, or we shall have no time left for Dianthus, in which are assembled not only the Pinks, the Carnations, and the Picotees, but the Indian Pink, the Cheddar Pink, and the Sweet William—the latter recalling the speckled wings of butterflies, with many more scarcely known in cultivation, but which show the genus, as a whole, to be one of the most playful in regard to flowers contrived by Nature. Under cultivation, the Caryophyllus holds the triple form of the Flake, the Bizarre, and the Picotee—or self-coloured Carnations, striped and variegated ones—and those which have a clear ground, either white or yellow, and the serrated margin most exquisitely laced or bordered with longitudinal lines resembling eyelashes, whence they are sometimes spoken of as "wire-edged." The name Picotee is from the French; so, for that matter, is *bizarre*, meaning the odd, the eccentric, or fantastical, and is thus admirably appropriate to the unique blending of their colours. In respect of colour, it may be well to say there is scarcely any shade in the xanthic series that the Carnation does not admit of. Blue alone, the culminating point of the cyanic series, is unknown to it, as happens also in the Dahlia and the Rose. We must not allow ourselves to imagine with many that the Carnation is so named because of its being incarnate or flesh-colour, though it is perfectly true that this tint, the incarnate, is to be met with, and that it may be perhaps the ruling one in the wild or uncultivated form of the plant, also in some of the single varieties found in gardens. The etymology, like that of Pink, has nothing to do with the colour. "Pink" has been shown by Dr. Prior to be an abbreviation of Pentecost, the species of Dianthus called by this name being in perfection, or coming into bloom about Whitsuntide. He is sustained by many similar abbreviations,—"alms, for instance, which is the Greek *eleëmosunë*, shorn of more than half its letters, to say nothing of such abridgments as that of *mea domina* into madam, ma'am, and 'm, a single letter being all that remains when the waiting-maid acknowledges her mistress' behests with 'yes, 'm." The veritable etymology of "Carnation" refers us, after the same manner, not to the hue of the flower, but to its employment in bygone times in the manufacture of coronals, garlands, or chaplets. Perhaps it would be safer to say that, the grand and pre-eminent employment of flowers in ancient times having been for the manufacture of chaplets, the epithet of "coronary" became extended, by a kind of courtesy, to everything that was specially delightful, whether actually used for coronets or not. This will account for its application to the Philadelphus coronarius, the Hedychium coronarium, the Agrostemma coronaria, and a good many others; possibly also for the Dianthus Caryophyllus, being the coronation *par excellence*. Whatever the exact intention of the name, such, at all events, was the original shape, as appears from various passages in the poets of the time of Elizabeth; in Spenser, for example, who employs it in the *Shepherds' Calendar*—that beautiful pastoral completed beneath the shade of the Penshurst Oaks, in which the profuse allegory of the *Faërie Queene* gives place to easy chat upon everyday matters in good old fashioned English. It appears also in the translation of Dodonæus, by Henry Lyte, who died in 1607, and who, speaking of "Glovegillofers" says, "The greatest and bravest sort of them are called Coronations or Cornation" (book ii., chap. 7). The mediæval Latin name of the plant appears to have been Vettonica coronaria. In Fuchsius, A.D. 1542, temp. Henry VIII., various allied species are figured, all under the generic name of Betonica. Nothing certainly is more seductive than the Latin *caro*, *carnis*, but etymology is only too well known to be full of pitfalls for the unwary; and the popular idea is strengthened by the now accepted use of the word, after the manner of lilac, pink, rose, and peach, to denote a particular tint—the sweet pale blush, that is, which Lord Byron intends in the lovely line,

"Carnationed like a sleeping infant's cheek."

Shakspeare himself, cotemporaneous with Spenser and Lyte, gives it countenance, saying in *Henry V.*, act ii., sc. 3, "'A could never abide carnation; 'twas a colour he never liked;" and again in *Love's Labour Lost*, act iii., sc. 1, "Pray you, sir, how much carnation ribbon may a man buy?" There can be no doubt, however, that coronation is the true and original spelling, and that the meaning of the name is as above stated—a flower fit for use in garlands. It is not a little curious that the mistaken name of that beautiful Asiatic siliceous stone, the carnelian, a variety of calcedony, or, as it is sometimes written, chalcedony, and which is really and truly derived from caro, carnis, because of the flesh-colour of the first-known sorts, exactly reverses with the vulgar what has happened with Carnation, being pronounced by them cornelian. A singular appellation of one of the old varieties of the Carnation, esteemed 300 years ago, was "Sops-in-wine," as in Drayton, in the *Polyolbion*—

"Sweet Williams, Campions, Sops-in-wine;"

and Spenser and Ben Jonson likewise employ it—the reference in all three of these authors being to the repute of the flowers of the Carnation, in mediæval times, as a cure, when soaked in wine, for certain nervous disorders. Opinions will scarcely differ as to whether the flowers, or the good sack or malmsey that was used as the vehicle, operated most beneficially upon the patient. The flowers were also candied with sugar.

When the original Dianthus Caryophyllus was first brought into cultivation is not known, nor is there any evidence as to when it first acquired that strange and hypertrophied condition, withal so beautiful, which in this and a thousand flowers we denote by the figurative term "double." Evidently, from the allusions in Lord Bacon, Shakspeare, and the other authors cited, the flower had been long cherished, and was known by them in many sorts. Perdita, in the *Winter's Tale*, act iv., sc. 3, says—

"Sir, the year growing ancient—
Nor yet on summer's death, nor on the birth
Of trembling winter, the fairest flowers o' the season
Are our Carnations.
* * * * *
I have heard it said,
There is an art which in their piedness shares
With great creating Nature."

This last verse shows that the multiplication of sorts was not left to Nature's spontaneity, but that the gardeners of the period had some method of accelerating it. Gerarde, in 1597, remarks of the varieties known to him, that "a great and large volume would not suffice to write of every one at large in particular." Some of these many sorts, he says, are called "pageants;" he adverts to them also as Coronations and Sops-in-wine, and describes the yellow variety as a great curiosity, recently received from Poland. Parkinson, in the *Paradisus Terrestris*, descants upon them at length; and at the beginning of the eighteenth century it is stated there were 400 varieties known and recorded. If any of these now exist, perhaps nobody can tell, but that they may do so is quite likely. Cottagers, especially about towns and villages, have been their conservators. In their trim little enclosures may still be seen flowers of great beauty—scarlet, purple, pink, and blood-red—mingling in the sweet bouquet which a large and well-formed flower really constitutes in itself. Which of the varieties are most open to enrichment seems unsettled. It is certain, however, that so far the white ground Picotee has been quite in the ascendant.

Special treatises upon the culture of Carnations have been produced from time to time—in bygone days by Maddock and Hogg, in our own by Glenny. Improvement consists in promoting, in the first instance, in Picotees, absolute purity of the ground-colour, which must be perfectly free from bars and specks. The petals individually must be of well proportioned breadth and roundness, not lapsing into the strap-shaped, nor must any of them be deformed, so as to call for lady's-maid work in "dressing" the flower. The flower must be well-filled, and the colours must be bright and clear. From first-class parentage about one plant in fifty comes what the high-priests consider "good." It is to be observed also that the seed of either Carnation or Picotee will give rise to the other; and that in the herbage or "grass" there is no perceptible difference.

It remains only to speak of that very curious sport or monstrosity called the "Wheat-ear" Carnation. In this, the small rhomboidal bracts which surround the base of the calyx are prodigiously multiplied in number. The axis at the same time lengthens, and the result is a long green imbricated and quadrangular spike, not very different to the eye of a casual observer from an ear of beardless Wheat while green. A flower, either single or double, but more or less imperfect, is usually produced at the extremity, but sometimes the bracts extend the whole length, rendering the resemblance to the Wheat ear still more remarkable. The development in question corresponds, of course, with what may be commonly observed in certain odd varieties of the Plantago major, also with the abortion commonly cultivated under the absurd appellation of the "green Rose," the blue Rose never having come into existence. The Wheat-ear Carnation appears to have been first discovered in Holland, the original plant being described in the *Hortus Cliffortianus*, 1737, a folio volume, in which Linnæus gives an account of the botanical collection formed at Hartcamp by his early friend and patron, the celebrated George Cliffort, the same in whose honour he subsequently named the curious Cape genus Cliffortia. A coloured drawing of it, as "variety imbricatus," rather exaggerated, we fancy, as to flower, is given in the *Botanical Magazine* for March, 1814, plate 1622, at which time the plant was cultivated by Mr. Davey, nurseryman, of the King's Road, Chelsea, but since then it seems scarcely to have been heard of in the living state, and has probably become lost from English gardens. *G.* [Not quite. Eds.]

LEVENS HALL, WESTMORELAND:

The Seat of the Hon. Mrs. Greville Howard.—This fine old place is situated about two miles from the village of Milnethorpe. The mansion from the north-west overlooks the river Kent, some two hundred yards distant, winding its way westward to the sea, into which it empties itself about two miles lower down. The place dates from a very remote period. It would seem that Levens, at the time of the Conquest, was in the possession of Tosti, Earl of Northumberland, and at the time of Doomsday survey it belonged to Roger of Poictou. Later on, in the time of the second Henry, it was owned by one Ketel, who sold it to Henry, son of Norman de Redeman, in whose family it remained until near the end of the fifteenth century, when it was purchased by the Bellinghams, of Burnside, in whose family it remained until the reign of James II.. It was then purchased by Colonel James Grahme, a younger brother of Sir Richard Grahme, of Netherby, in the possession of whose descendants it has continued until the present day. There would appear to be nothing authentic known as to the date of the present building, still there are portions remaining that point unmistakably to a date considerably more remote than the principal portion of it, that evidently has undergone reconstruction, such as the exigencies of decay necessitated. Especially the tower, which with its spiral stair

and embattled roof, point to the troubled times which necessitated the adoption of this style of architecture, more especially in the north of the kingdom, exposed to the rival factions that so long engaged in deadly strife for supremacy.

There is a peculiar attraction in the contemplation of these grand old buildings that stand as monuments of generations that are gone, yet who live, as it were, and seem to speak to us through the long-enduring works which they raised, and that appear almost to defy the ravages of time. The imagination lingers in a sort of reverie over these solid piles that have for ages resisted the inroads of decay, and seem as if destined yet to see many more generations of our race shuffle off their mortal coil.

It is with the garden and grounds at Levens that our province more particularly lies. The visitor, once inside, is impressed with the apparent antiquity of the place. The mansion, the different offices, and the garden are all in excellent keeping—none of the so-called improvements sometimes met with in old places, but which are often nothing more than unmistakable evidences of the worst possible taste. The time of my visit was one of those lovely August mornings—the weather not too hot, yet with so little air that the Aspens scarcely moved. There was a feeling of perfect stillness and repose about the place, that was only disturbed by the slight rippling of the river as it wound its way over its shingly bed. The garden, as will be seen from the illustrations (figs. 55, 56), is of a description such as was in fashion in different parts of Europe in the latter part of the seventeenth century. The individual employed by Colonel Grahme in the formation of this garden was a Frenchman named Beaumont, gardener to James II., and who, I believe, designed the works of a similar description at Hampton Court. The Levens garden was commenced somewhere about the autumn of 1701, and here it is well to observe that Colonel Grahme seems to have been a gentleman who, in his love for gardening and liberality in carrying it out, must have stood a long way in advance of the majority of others in his time; neither is there any reason to doubt the happy selection of the situation, as to its suitability in shelter and soil, for it is here some 5 or 6 feet in depth, of a rich unctuous nature, all no doubt an alluvial deposit from the river. In front of the house, which faces nearly north, is a slightly raised terrace, on which is a row of antique vases, filled in the summer season with appropriate plants. From this terrace, looking westwards, is a fine view in the direction of the bay; the eye catches the distant Whitborough crags, some three or four miles away. These perpendicular masses of rock are brought out in bold relief by the background of richly timber clad country surrounding. The broad expanse of highly cultivated meadows lying immediately next this side of the house have their surface relieved by stately timber, not standing too closely so as to defeat the object for which they exist, by obstructing, as they are sometimes allowed to do, a clear view in every direction. From the eastern end of this terrace we approach by a doorway, through a high Ivy-clad wall, the far-famed garden, noted as the most perfect example existent of this particular and now almost obsolete style of gardening.

The impression produced at first sight will no doubt be greatly different upon each individual, and in some measure be influenced by fixed notions. Here all our ideas of seeing Nature as she appears untrammelled, or with only such assistance as helps her to keep some necessary check upon shrub and tree, sufficient to restrain the strongest from overpowering the weak, and to enable each to fully develope its natural habit, are just reversed; every shrub and tree is induced by knife and shears to assume some particular form—human beings, as well as the lower animals, birds and beasts, are represented. We have here good Queen Bess, wearing her crown and unmistakable ruff, surrounded by her maids in waiting, and with an ample flagon to cheer their spirits. By the way, some of her Majesty's ladies have much outgrown her. Then we come to a certain personage who has made himself known and felt in a good many corners of the world, although of late years it has been said that he has had neuralgia, or some other of those new-fashioned complaints in his teeth, by which they have been somewhat impaired: I mean the British Lion; but so far as his general appearance goes, even to the tuft on his tail, he is a picture of health and vigour. Near here there is a monstrous living example of that highest repository of wisdom, the judge's wig, and so far as being a representative in form of that appendage it is appropriately named. It is composed of a number of common Yews planted in a half circle, so as to form an arbour, by bringing the branches over the top in a hood-like fashion. It will seat a number of people: the outside is clipped in wig form, the inside has now become denuded of foliage, the branches being interwoven almost as closely as wicker-work, and in it may be seen some of the most curious and perfect examples of natural grafting imaginable, where the branches have grown together by continuous contact. All used are evergreens, and consist of common Yew, Hollies (green, gold, and silver), and Tree Box. They are almost all cut into shapes differing somewhat from each other, of which the accompanying illustrations will convey a correct idea. They are planted considerable distances apart, in oblong beds edged with Box, with grass walks.

Some idea of the extent of these beds, as well as of the whole of this clipped garden, and the labour in going over it every year, will be realised when it is stated that there are over nine miles of this Box edging. This was all replanted by Mr. Forbes, gardener here

Fig. 55.—View in the Garden at Levens.

for fifty-two years, and who preceded the present able manager, Mr. Craig, who has been here some dozen years. The grass walks at one time were narrow, with about a foot of gravel on each side betwixt it and the Box; this Mr. Craig has done away with, and extended the grass as near as it can be allowed up to the Box without its running in amongst it. The beds are principally filled with herbaceous plants and Roses, than which nothing could be more appropriate. Some years ago, when the rage for summer bedding plants was at its height, a portion of the herbaceous subjects were removed to make way for the summer bedders, but these are being gradually supplanted by the much more fitting herbaceous plants. The whole is formed into groups of beds; for instance, the series representing Queen Elizabeth and her maids, already alluded to, has all the space not occupied by the shrubs filled up with Carnations, Roses, some Gladioli, and an assemblage of other herbaceous subjects, amongst which are a collection of Scillas, including the autumn flowering S. peruviana, S. peruviana alba, S. amœna, S. sibirica, and S. præcox: intermixed with Dog's-tooth Violets and all the obtainable varieties of Narcissus, which must make a fine effect during the spring and summer months.

Adjoining this group of beds, is another similar as to its clipped shrubs, and filled up with Pentstemons, Gladioli, and other plants of a similar description; and so on all through the garden, each group of beds, with their occupants as already described, edged with Box, and divided with grass walks, are bounded by wide gravel walks dividing each group or series of beds from the next series. Other groups again were filled in with all the best Roses in cultivation, budded low down on the Manetti, so as to root independently of the stock. These were in fine bloom; they are checked in their growth every autumn, before the leaves are all fallen, by being partially lifted with a fork. This checks their disposition for pushing early in the season, until the spring frosts are over, which here are both late and severe. That the practice is sound is evident, and which was exemplified this season in a most marked manner, when so many Roses in all parts of the country had their first efforts destroyed. In addition to the herbaceous plants already named, interspersed through these beds, there are very large quantities of the best varieties of Phloxes, Anemone japonica, both the white and pink varieties, Asters, numbers of hardy Lilies, including the tall-growing L. giganteum, Primula japonica, Pæonies, Veronicas, Gentianas, Potentillas, Everlasting Peas, large masses of Sweet Williams in various shades, Campanulas, double and single scarlet Lychnis, Ranunculus, large breadths of Carnations, &c. In one sheltered spot I noticed good plants of Ramondia pyrenaica, Primula purpurea, Anthericum Liliastrum, Morina persica, Wulfenia carinthiaca, Adonis pyrenaica, Aquilegia californica, Iris pallida, Campanula celtidifolia, Coreopsis auriculata, Trillium grandiflorum. On another long border were a magnificent lot of hardy Cypripediums. Here were C. spectabile and C. calceolus, in several large masses, having borne from thirty to forty flowers on a plant, both varieties bearing seed pods that have been crossed. I also saw here a gigantic form of Orchis maculata, with very deep-coloured flowers, the stems some 20 inches high.

At the northern end of the garden, and adjoining the gardener's house, under the partial shade of some of the largest Hollies and Yews, are very good specimens. Hardy Ferns, of which Mr. Craig has a magnificent collection of all the choicest in cultivation, are in the best possible condition. The house is nicely covered with Ivy and Honeysuckle, intertwining and festooning naturally. The general effect has been much improved by planting Ayrshire and other free-growing climbing Roses near some of the tallest of the clipped shrubs; they have been taken half-way up their stems right through the centre of the plants, and then brought out and trained in a series of festoons, with others standing near similarly treated. These, either in or out of flower, have a pleasing appearance, and in some measure relieve the stiff formality of the clipped outlines they are associated with. Pillar Roses have also been introduced with good effect, and large masses of Pampas-grass are dotted about, the silvery plumes of which during the autumn will be finely brought out by the deep green background of the Yews and Hollies. Hollyhocks are also planted here and there, but, as in many other places, the disease threatens speedily to exterminate the whole of them; the rapidity with which they are reduced to the most miserable plight is even greater than in the worst case of the Potato disease.

To any one who has studied the nature of vegetable life, the first feeling upon seeing these closely cut-in trees will be one of surprise that the whole, without any exceptions, should have for so long continued with every appearance of health and vigour after the number of years that they have been subject to have their whole season's growth cut away as close as it can be done. There are several matters that have an influence upon them. First, the soil is in every way suited to their requirements in its nature, its depth, and in being naturally sufficiently but not too dry. Secondly, the trees have been allowed to attain a considerable size, from 5 to 30 feet in height, with a corresponding breadth. Then, again, any tree that evinces signs of weakness is allowed to go for a season uncut.

The east side of the garden is enclosed by a high wall, planted with Pears, Plums, and Mulberries; these latter so treated bear satisfactorily. Amongst the Pears Marie Louise is said to do well. There is a mixed border at the foot of this wall containing Roses, herbaceous and bedding plants, margining a

Fig. 56.—View in the Gardens at Levens.

noble gravel walk 300 yards in length, by 21 feet in width. The north boundary wall is covered with Ivy, intermixed with the yellow-flowered Kerria japonica, at the foot of which is planted Pyrus japonica and the old Fuchsia Riccartoni, in front of which is a row of Hepaticas, comprising all the varieties in such quantities as would make the eyes sparkle of any lover of these beautiful gems of the spring. The east side of the wall, to which, as well as a portion of the south, this garden adjoins, is covered to a considerable height with Ivy, Wistaria sinensis, Roses La Marque and Maréchal Niel, some 20 feet high, which in this sheltered spot grow and flower freely; the white summer-flowering Jasmine, and the winter-blooming yellow variety—these intermixed with Clematis Jackmanni and the newer variety C. Lawsoni, trained loosely; the lower parts of the walls covered with Cotoneaster and similar things, both appropriate and effective. In this direction were some very fine plants of Weigela rosea, almost as large as good-sized Portugal Laurels, which flower profusely.

Southwards from and adjoining the part already described, the garden assumes more of an ordinary character. A portion is laid out in fine grass walks, some 20 feet wide, bounded by Beech hedges 12 feet high, and as much through, all kept clipped as even as a wall, the closely-shaven turf being as elastic as a Turkey carpet. These walks, running in different directions, with their immense hedges, at all times in the day afford an agreeable shade, softening the glare of the bright noonday sun in a way most refreshing to the eyes, and producing that peculiar softened condition of the air always experienced when it has passed through the fresh green leafage of a Beech hedge. Near here is the bowling green, as perfect in its way as anything could be imagined, the surface as smooth as a billiard table—a condition only attainable where the nature of both the turf and the under soil is such as to preserve the verdure in even the driest seasons. It is enclosed by Beech and Holly hedges, and beautifully shaded, without being overhung on the south side by tall Beeches and Limes. Not far from this is a large space, intersected by grass walks, devoted to Pears, Apples, and bush fruits. The trees are grown as large bushes, but this season are, as in many other places, thinly furnished with fruit, the neighbourhood having been visited in the spring with 22° of frost, which, as always, was more disastrous in its effects in the sheltered valleys.

The glass erections here are a secondary consideration; they consist of several ordinary span-roofed houses, devoted to the growth of plants and Vines, the latter bearing even crops. The plants grown are of a general decorative character, amongst which I noticed some nice Camellias, Azaleas, Palms, Phœnocomas, Yuccas, Ferns, Lycopodiums, a nicely-bloomed Hoya bella, Begonias, and a well-flowered example of Hydrangea paniculata grandiflora—a most desirable and telling plant, and one that deserves growing generally; the flowers, which are white, are produced freely in long panicles, quite distinct from anything else. Lilies are largely grown. Mr. Craig has raised numbers from L. auratum crossed with others, but so far they have been mere repetitions of the ordinary type. In a corner of the lawn is a fine collection of hardy Ferns, partially screened from the sun by some tall Lime trees at a short distance. Here are most of the approved forms of the best varieties of Athyrium, Polystichum, Asplenium, Polypodium, Cystopteris, Lastreas, Scolopendriums, and Blechnums. How many nooks we often meet with about a garden where something is wanted to be grown, and the attempt made to induce things that require naturally either more light or some other condition not existent, the lack of which causes failure, wherein, if the stronger growers of these lovely races of hardy Ferns had the preparation they require made for them, they would amply repay the little labour they need.

The walled kitchen garden lies at some distance from the house, and is well-stocked with vegetables and fruit trees, but in the selection of the latter it is necessary to keep to the hardiest varieties of both Apples and Pears, as many kinds that will do well even some distance northward of the midland counties will not succeed here, the naturally humid atmosphere seriously interfering with the ripening of the wood, which suffers correspondingly from the keen late spring frosts. On the other hand culinary vegetables are obtainable through the driest seasons in a condition not possible in the drier southern portion of the kingdom.

Eastward from the mansion lies the finely-wooded, beautifully-undulating park, with its herds of deer and black polled cattle. The general appearance of the trees here and the way they are planted would lead to the supposition that the park was laid out about the same time as the garden, as it now exists, was made. There is an avenue about a mile in length of Oaks, fine large even timber, with straight clean trunks. I noticed that some had evidently been grafted about a foot from the ground, for what purpose it would be difficult to surmise, as they are only the common British varieties. In addition to this avenue there is a profusion of fine timber, consisting of Oak, Sycamore, Beech, Chestnut, Elm, and some splendid Spruce on the lower parts where the soil is rich and deep near the edge of the river; here, where these trees are perfectly sheltered, they form magnificent objects, especially when viewed from the opposite side of the river, following the windings of which, yet still high above it, at every turn is met some distinctly beautiful view. At one point are seen easy slopes of grass, the surface diversified by a scattered group of broad-headed trees, the growth of centuries, that in their isolation exemplify the natural habit of their species when existing under conditions favourable to their free development, at once showing the mistake committed by those who overcrowd trees in the first years of their existence. A little further on we come to a precipitous rock in the bed of the river over which the water dashes headlong, throwing up a continuous cloud of white spray, like the mist from a lowland stream on a still cool autumn evening.

The garden and park with its surroundings at Levens offers more that is strikingly different to each than is to be met with probably in any other place in the kingdom. In the one, with its acres of Bracken and Bramble, we see as little interference with Nature as is compatible with our ideas of an English landscape; in the other, we find every tree and shrub made to assume some individual form widely different from its nature. The fashion here exemplified came into existence at a period when the principles of gardening were little known or understood, consequently we should not be too harsh in condemning the taste of those with whom it originated. Doubtless there are many who would say it were no loss if all traces of it were obliterated. With this I cannot agree, and should look upon it as sheer vandalism if the few remaining examples of the style were destroyed. But so far as Levens goes, there is little to fear on this head. *T. Baines.*

Foreign Correspondence.

Bangalore lies in N. lat. 12° 58" and long. 77° 38", and is situated nearly halfway between the coasts of Coromandel and Malabar—an extensive tableland, the elevation of which is 3000 feet above the sea level. The proximity of the ocean in the S.E. and W. combine in making this one of the most pleasant and salubrious climates in India. The hot season is of short duration compared with that of India generally, and for eight months in the year the thermometer ranges from 60° to 80°. March, April, and May, are the hot months, and at that time the intensity of the heat is more perceptible from the want of air than from a very high temperature. During these months there is no rain, wells and tanks become dry, and the scarcity of water is generally felt; however, all things are well ordered. When our wells and tanks dry up, it is the season of rest and vegetation is asleep; this is the most favourable time for removing and transplanting trees and shrubs. When I arrived here on March 9, we commenced transplanting trees from 10 to 20 feet high, and the work went on successfully until the middle of June, but after that time it is not advisable to pursue the practice here. The prevailing soils in the neighbourhood are composed of—1, red soil mixed with loam and vegetable mould; 2, inferior red sandy soil; 3, black colton free from stones; 4, white stiff loam; 5, stony gravelly soil; 6, soil impregnated with salt. The Sal Bagh is a name which is not familiar to Englishmen; it is derived from the Hindostani language, and signifies red-as-ruby garden. The word Bagh in India means the same as the word garden in England, and this is the name by which the Government garden of Mysore is known here. I do not know why it has been named the Sal Bagh, unless, as some people assert, it is from the profusion of red Roses which grow in abundance here. In the days of Hyder Ali and his son Tippoo Sultan the present garden was a fruit jungle, and was a favourite resort for tigers and other beasts of prey, but there was little done to improve the garden from its wild state until the late Mr. New arrived from England, and became superintendent in 1858. Since that time it has been under the direction and superintendence of several gentlemen, who have laboured diligently and successfully in making it what it now is. Among these are most deservedly the late Mr. New, Dr. Cleghorn, the late Mr. Black, and Colonel Puckle. The garden covers an area of 50 acres of ground, the most of which is under cultivation; a large tank has been formed at the upper end of the garden, from which a supply of rain-water is conveyed throughout the grounds in brick channels. In addition to this there are six wells, the peculiarities of which I will explain at some future time. Several plant-houses have been erected suitable to the climate, and a few more are contemplated. An ornamental house for pic-nic parties is now being completed. A carriage drive surrounds the garden, and it is much frequented by Europeans. The growth of vegetation is wonderfully rapid. English fruits and vegetables do well; and we have all the ordinary ornaments of an English garden, such as Violets, Pansies, Myosotis, Antirrhinums, Larkspur, and Pelargoniums, &c. The common Box (Buxus sempervirens) grows as a bush, but fails as an edging. For this purpose we have a pretty substitute in the Alternanthera amabilis, and two other varieties, and also the Teleanthera, all of which form beautiful edgings for the walks and borders. The following species make splendid hedges, and are growing here as such:—Hibiscus, Hamelia, Meyenia erecta, Plumbago, Casuarina, Goldfussia, and Lantana, &c. The beautiful Eucharis grandiflora is a common bedding plant, and at present I have two beds in a mass of flowers, mixed with Caladiums. The effect is grand. Agapanthus umbellatus and Vallota purpurea also do well planted out. *J. Cameron, Bangalore, July* 20.

The Peach Trade in America.—Few of those who enjoy the flavour of the Peach are aware of the labour and excitement attending the transmitting of the fruit to the New York market. As it is necessary that the supply for the wholesale dealers should be on hand in time for the grocers and other retailers to purchase them with the usual market produce, a large portion of the night has to be employed; otherwise, when the fruit reaches the hands of the consignees it will be left on hand at the risk of suffering great damage through the rot, and thereby becoming a total loss. In order, therefore, to ascertain the method adopted by the large dealers in transporting the fruit from the cars to the city, a *Tribune* reporter recently visited the dépôt of the Pennsylvania Railroad and waited until the arrival of the Peach train.

At midnight there were few tokens of activity, with the exception of an occasional locomotive moving about, clearing the tracks of any cars that might be standing idle on them. Half an hour later, however, a few market waggons from Newark and New York appeared along Green Street, adjacent to the railroad. Every ferry-boat for the next two hours added to the number, until by 2½ A.M. this line of waggons was over one mile and a half in length. With the waggons came the representatives of the large wholesale dealers in Peaches and the consignees to whom stock had been sent; and they gathered about in groups discussing the probable time when the train would arrive and the quantity of Peaches expected. As the Peach train has to give way for other trains unless the line should have previously been cleared by orders from headquarters, nobody can tell when the train will arrive. Owing to this uncertainty, the carmen and consignees have to be on the ground soon after midnight, so as to take out the freight at the earliest moment; consequently many of them often waste two or three hours in waiting for the expected train, and if the morning be dark, cold, or rainy the tempers of these men are often not much improved, especially as the company provides no shelter for them. Again, no information as to the time of arrival, the quantity of Peaches, or the length of the train can be ascertained before the coming of the foreman of the Pennsylvania Railroad, in whose charge is placed the management of the market produce.

H. D. Symonds, the foreman, was at his post at an early hour on this occasion, and began to make a copy of the freight bill, which, when completed, was placed in a frame, and hung up outside of the office in plain view, so that every one could see the number of cars composing the train, the stations whence the fruit was shipped, the persons to whom it was consigned, and the numbers of the cars containing each special assignment. Every consignee and carman was able to learn at a glance the quantity of fruit that had been sent to each. The anxious watchers were not all willing to wait for the information to be written out, but, putting their heads in at the office window, first asked how many cars were in the train, to which Mr. Symonds answered "Fifty-four." "There is work for us, then," said one of the employing carmen to his subordinates; "so be in readiness. That is the longest train this season." "Where is the train from?" asked another. "Maryland and Delaware," was the answer. "When will it be in, Mr. Symonds?" was the next query, and a large number gathered round to learn the answer. "By three o'clock, I expect," replied the foreman, still busy with his writing. "Oh, yes," grumbled one; "we have heard that before. You mean five." Mr. Symonds merely smiled, for it was impossible for him to give any more definite information. When the copy of the freight bill was posted up, it showed that there were in the expected train fifty-four cars of Peaches, from the following places:—Clayton, eight; Wyoming, six; Middletown, six; Dover, five; Mount Pleasant, four; Felton, two; Morton, two; Townsend, one; various other stations, twenty. The names of the consignees showed that seven cars were sent to one, five to another, and so on. As each car load averaged 500 baskets, and the largest two-horse trucks would only carry from 150 to 180 baskets, and the one-horse

trucks less than 100, the large number of waggons necessary for the removal of the 27,000 baskets and crates may be easily calculated. Each basket contained about 200 Peaches, making the arrival by this one train of over 5,000,000 of Peaches.

The carmen, after satisfying their curiosity, gathered in groups, and some who had no special responsibility went to sleep in the waggons. Each carman carried a lantern, at this time unlighted and hanging on his arm. Finally a train quietly moved along the line; but as this was thought to be one of the "drilling" locomotives, little attention was paid to it until Mr. Symonds stepped out from his office, when one of the carmen ejaculated, "There she is after all, ahead of time." In an instant all was life and motion. As it was still dark the lanterns were quickly lighted, and in a few minutes a long line of lights could be seen darting about on either side of the moving train, each carman or consignee anxiously searching for the names over the doors of the cars in order to find out which one contained his portion of the freight. This fact ascertained, word was quickly sent to the carmen having charge of the market trucks.

After making the search, some of the consignees discovered that the train consisted of only twenty-five out of the fifty-four cars; that the train had been divided, and that their consignments had not yet arrived. This created some feeling, especially among those who were anxious to get the fruit early to market, and questions were quickly asked of the foreman when the remainder might be expected. After telegraphing, Mr. Symonds replied that the rest of the train had been sent on within twenty minutes after the other cars had started, and would soon be in Jersey City. This pacified the disappointed ones, while those whose cars had arrived began unlocking the car-doors and removing the fastenings.

The Peach trucks were fitted up with rails along the sides, and after one layer of baskets had been placed on the bottom of the waggon, movable boards formed a second floor, upon which was deposited another layer; while a third row gave a flooring for the upper tier. In this manner from 150 to 180 baskets were loaded on a long two-horse truck, without damage to the fruit.

The cars for Peaches are usually chartered for the season, and are specially fitted up for the business. Racks are made and fitted so as to support movable shelves, and the baskets are thus placed in four tiers. A grated door on either side admits the air, and keeps the fruit cool. A car-load is generally consigned, as a whole, to one person, and on its arrival at Jersey City is taken possession of by the representative of the firm, who relieves the railroad company of any further responsibility. A few market cars, called "pot cheese," are made up by the railroad company to carry small lots, and the consignees in these cases always give receipts for the fruit on delivery, a clerk taking charge of the cars when they reach the destination. None of the railroad officials are required to unload the chartered cars, consequently the work has to be done by *employes* of the consignees, and the number of men required for the transportation of the fruit from the railroad to market is therefore very large.

Between the arrival of the first and second portions of the Peach train, a New Jersey train arrived with fifteen cars of Pears, Apples, Blackberries, Whortleberries, and other fruit. A few cars, containing calves, sheep, &c., also arrived, and the large trucks required to remove this freight added somewhat to the confused mass of bulky vehicles engaged in the Peach business.

The sun was above the horizon, and the cartmen, who had been waiting for their loads since 1 A.M., had become very impatient, especially as the prospect of disposing of the fruit decreased with each passing minute. At last a body of them went to Mr. Symonds, and impatiently asked when the remainder of the train will arrive. "Pretty soon," was the reply. "Pretty soon," repeated the inquirers in a vexed tone; "that means an hour. What is the good of Peaches if they cannot be had when wanted?" Soon after 5½ A.M. word ran along the line, "The train is coming," and immediately the carmen rushed for their vehicles. Slowly the train of twenty-nine cars moved on the track, and as it was daylight, lanterns were dispensed with as the men ran along the side of the moving train to seek for the names that were conspicuously posted over the door of each car. Trucks were soon loaded, and a long line of vehicles was soon seen rapidly making its way to the ferry. The ferry-boats have a limited carrying capacity, and only run at certain intervals; consequently, a large number of trucks had to be left behind at every trip, the number increasing every minute. This delay at the ferry prevented many of the trucks from returning as quickly as might have been expected; consequently, after the first rush was over, a long interval was lost in waiting for their return, and it was after 9 A.M. before the last truck had left Jersey City. Those consignees who received supplies by the first train, and succeeded in getting the Peaches to market, obtained the principal portion of the trade, and also good prices for the fruit; while those who were belated had their consignments on hand late in the afternoon, and had to dispose of a large quantity at what they considered a "ruinously low price." *New York Tribune.*

The Farm.

Harvest, and After.—A more glorious week for harvest work than the one that has just past it would be difficult to conceive. Differences of all kinds seem to have been forgotten, and men might everywhere be seen working with a will, and looking as happy as though the hungry political agitator had never stalked through the fair country trying to stir up foul discontent. Well, then, we are thankful to say that much of the corn has been secured in first-rate condition, and we begin to contemplate what we have next to do. We are thankful to say that Barley harvest has shown us that much of the "seeds" which we thought had perished has come up, and though the young Clovers and grasses are still tender, we think that we shall be better off with regard to them than seemed at one time probable; still we cannot help observing that there are many vacant spots in our artificial grass fields, and we therefore propose to deal with them at once. It is quite clear that in many spots vacant of plant we shall ultimately have a plantation of weeds unless we occupy them with something better, and we therefore recommend seed of the Trifolium incarnatum and of the Lolium italicum to be at once procured, and broadcasted thinly one after the other in the bald places, and then, if a pair of light harrows be drawn across them they will be in a condition to germinate on the coming of the next rain.

Stubbles intended for Turnips next year may now be loosely broken up and sown with the Trifolium seed, at the rate of from 20 to 30 lb. to the acre. This will afford a good bite for sheep as early as April, or, if not wanted for these animals, it is well relished both by horses and cattle, and will even make a good amount of hay, though it cannot usually be said to be of first-rate quality.

Vetches, too, should be sown on most farms whether large or small, as they are always useful, and if not required for green food it is often profitable to seed them, and in either case they come off soon enough for late Turnips.

Where there is a bit of ground to spare near the homestead we would advise the drilling of a patch of Medicago sativa (Lucerne) as a good soiling plant for horses and stock; and as we predict that every available source of cattle food will be hard drawn upon during the coming winter and spring, and with short crops of Swedes and Mangels, it will be well for the farmer to cast about in order to see how he may be able to meet his requirements.

Lucerne is not only a useful but a very prolific plant, and if drilled a foot apart it will admit of its being hoed with the horse hoe, though usually it is in this country grown in such small quantities that the hand hoe is mostly available. This stirring of the soil encourages the growth of the crop as well as destroys weeds, and if done two or three times a year it will be found to pay. Lucerne will yield two or three cuts in the season, which may be given to all kinds of stock. If, however, the patch be big enough for sheep folding we would recommend its being mown and given in cribs when a little bit faded, and more especially for the first two or three foldings, as sheep coming fresh to succulent green food are too apt to get "blasted." These remarks are meant to make the farmer look forward to what may be, as a little forecast in the matter of cattle food is always a subject of consequence; and indeed judicious management in this respect, whether by the large or small farmer, often makes the difference between a profitable or disastrous year.

Apiary.

Judging Honey Supers.—So much dissatisfaction has been caused by the judges' awards for the best glass of honey and for honey supers, that I should feel much obliged to you if you could inform me through your journal of the different points to be considered for such prizes. Would the colour of the glass be taken into consideration, or the shape of it? *No. 8.*

[The conditions of the show must very much determine the action of a judge; *e.g.*, if the prize is for the honest super, weight must of course be taken into consideration; still the heaviest super should be disqualified if it has, or has had, brood in it. Quality is difficult of determination, specially if the judge is not allowed to taste, or apply other tests. Beauty is a matter of taste, though addressed to a different and a larger class of persons. Where two supers are of the same weight, and apparently of equal purity, the judge will have to depend entirely on his own appreciation of beauty, and it is therefore of importance that he should have had experience, and above all be above suspicion of partiality, for there ought to be no appeal from his decision when once given. The colour of the glass is of no consequence, but the shape of it should be taken into account. We have always, in our decisions, given the chief prominence to weight, when they were free from brood and of equal quality. *An Amateur Judge.*]

Natural History.

Water-Beetles.—In the numbers for January last there were notices of Dytiscus marginalis as a pet. Might I suggest that the most interesting way to acquire these water-beetles is to catch them one's-self, and the present is a very sure time to find them. The male is of a fine glossy black, and his forelegs are furnished with peculiar suckers. The female has her wing-covers ribbed.

As it is out of the question that these beetles can be allowed to fly, we kept ours in the cheapest confectioner's show-glasses we could procure, thus insuring them at least a good dive, and that they enjoyed this exercise was very apparent. After being fed (they knew the breakfast hour and feeding-stick perfectly well, and came bumping against that side of the vessel where they were fed), and on receiving their morsels of fresh meat they at once dived down to the bottom, from whence they rose with hind legs extended, and air bubble at their extremity, only to dash down again and again. I had a male Dytiscus for above two years, and he died when I was from home.

It is at night that beetles incline most to flying. I never happened to catch them attempting such darts in the daytime; but knowing that all beetles fly, we had rims of slight cardboard, which fitted exactly half an inch deep around the top of the glasses, and to these was gummed a piece of Brussels net of the coarsest make, and a very neat, convenient lid was the result, which came off and on readily, and yet fitted so firmly that no passer-by or thorough draught ever knocked or blew them off. We found them useful, too, for prawns and shrimps, or in weather when the fish were jumping. The rim of a Fern-dish was always taken advantage of by the Blennies of sorts, and we kept the water at a level to enable them to lie dry at pleasure.

Of the seven varieties of water-beetles that we kept the pretty little Gyrinus natator was the shortest liver, but they are so common and so easily caught, we usually had two or three like drops of quicksilver circling on the surface of the water.

The pretty dark blue and gold Phlorotius Hermanni, singing beetle, was very interesting. It is not a native of Scotland, and I do not know where it is plentiful in England. I captured our specimens in an unused clay pit in Herefordshire.

In one of my walks last month I came on a charming muddy hole, clear of overhanging herbage, and where I could conveniently watch Gyrinus sporting in the one patch of sunshine, three other sorts of bustling water-beetles, boat-flies, Notonecta glauca, and a pair of dragon-flies not long emancipated from their cases and poised on a fragment of stick on the surface of the water, never again to grovel in the mud below—the bright blue body of the male contrasting well with the sober brown of the female. Listening to the grasshoppers and watching the water-beetles, I was reminded of that charming fairy tale of Sara Coleridge, *Phantasmion*, so full of truthful allusions to insect life in particular and Nature in general.

I may add that after trying all water-weeds usually grown by the lovers of aquariums, it struck me that the evergreen and evergrowing water-moss, Fontinalis antipyretica, would be the very thing, as, like sea-weeds, it grows on stones, and you can select a suitable sized one for your dish, and no further trouble with mud or sand or injury to the plant. It was a perfect success, and we never used any other weed where we wished to have vegetation at all, but I never saw this moss employed, or for sale with other water-weeds. It is found in most clear running streams. *F. J. Hope, Wardie Lodge, August.*

ROYAL SCHOOL of MINES.
DEPARTMENT of SCIENCE and ART.

During the Twenty-fourth Session, 1874-75, which will commence on October 1, the following COURSES of LECTURES and PRACTICAL DEMONSTRATIONS will be given:—

1. Chemistry. By E. Frankland, Ph.D., F.R.S.
2. Metallurgy. By John Percy, M.D., F.R.S.
3. Natural History. By T. H. Huxley, LL.D., F.R.S.
4. Mineralogy. } By Warington W. Smyth, M.A., F.R.S.,
5. Mining. } *Chairman.*
6. Geology. By A. C. Ramsay, LL.D., F.R.S.
7. Applied Mechanics. By T. M. Goodeve, M.A.
8. Physics. By Frederick Guthrie, Ph.D., F.R.S.
9. Mechanical Drawing. By Rev. J. H. Edgar, M.A.

The Fee for Students desirous of becoming Associates is £30 in one sum, on entrance, or two annual payments of £20, exclusive of the Laboratories.

Tickets to separate Courses of Lectures are issued at £3 and £4 each.

Officers in the Queen's Service, Her Majesty's Consuls, Acting Mining Agents and Managers may obtain Tickets at reduced prices.

Science Teachers are also admitted to the Lectures at reduced fees.

For a Prospectus and information apply to the Registrar, Royal School of Mines, Jermyn Street, London, S.W.

TRENHAM REEKS, Registrar.

NOTE.—By order of the Lords of the Committee of Council on Education, the instruction in Chemistry, Physics, Applied Mechanics, and Natural History will be given in the New Buildings, in the Exhibition Road, South Kensington.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

MILDEW

May be entirely prevented as well as cured by

EWING'S INFALLIBLE COMPOSITION.

Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions for use.

SIMPSON'S RED SPIDER, THRIPS, and GREENFLY ANTIDOTE.—The following unsolicited Testimonials have been received among others regarding the *bona fide* character of this remedy:—

From Mr. DAVID THOMSON, *Gr. to the* Duke of Buccleuch.

"Dear Sir,—I consider your Antidote an invaluable remedy for Red Spider. Three washings have annihilated the pest on our Muscats, and the Vines look much more fresh and green since the application. No bad effects to the foliage whatever.

"Truly yours, D. THOMSON."

From Mr. SPREADBURY, *Gr. to the* Earl of Portsmouth.

"I like your Antidote better than any other insect destroyer I have used, being so very clean and efficacious."

In quarts, 6*s.* each. One quart diluted sufficient for 200 gallons of water as a preventive.

Supplied by JOHN KILNER, Wortley, Sheffield.
Sold by Seedsmen and Chemists.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes.

THE CHEAPEST AND MOST DURABLE
SHADING.
"FRIGI DOMO" CANVAS.

Two yards wide	.. ..	1*s.* 10*d.* per yard run.
Three yards wide	.. ..	3*s.* per yard.
Four yards wide	.. ..	3*s.* 10*d.* per yard.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.

E. T. ARCHER, Stanstead and Brockley Roads, Forest Hill, London, S.E. All goods carriage free to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Manures, Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of

POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing, Second sized Archangel, 100*s.*; Petersburgh, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices. at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.

87, Bishopsgate Street Without, E.C.

MARENDAZ AND FISHER, RUSSIA MAT MERCHANTS, 9, James Street, Covent Garden, W.C.

Large Stock of ARCHANGEL MATS, heavy and close-woven ST. PETERSBURG MATS, just arrived.

Scott's Wasp Destroyer.

J. SCOTT, SEEDSMAN, Yeovil, offers his well-known preparation to Fruit Growers at 1*s.* 9*d.* and 2*s.* 9*d.* per bottle, post free, on receipt of stamps. No one who has fruit to preserve should be without it. It is also useful in the destruction of Flies, Cockroaches, and Crickets. See testimonials. None Genuine except the Corks bear "Scott, Seedsman, Yeovil."

The Trade supplied. Prices on application.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of

CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),

Old Barge Wharf, Upper Ground Street, London, S.E., ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.

Price List on application, or six stamps for Catalogue.

HENRY ORMSON,
HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

GREENHOUSES, VINERIES, ORCHARD HOUSES, &c., erected in any part of the Country. Every description of HOT-WATER WORK and PLANTHOUSE FITTINGS made and fixed. PLANT PRESERVERS, neat, useful, and portable. PLANS and ESTIMATES supplied without charge.—WILLIAM JAMES RIVETT, Horticultural Builder, Stratford, London, E.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s.*

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

IN the ISLE of THANET, about 2 Miles from Margate and Ramsgate inland, a newly-erected EIGHT-ROOMED HOUSE, with about FOUR AND A HALF ACRES of first-class LAND. A skilful Nurseryman or Market Gardener could not fail to do well, as the neighbouring population of 35,000 (increased in the summer to 70,000), insures a ready sale for all garden produce at high prices. Walling and Glass would be erected on fair terms. Apply to

R. ALLSOP, Preston Farm, near Ramsgate.

NURSERY GROUND TO BE LET.—The PINESHAW NURSERY, in the neighbourhood of Inverurie, and for a long time occupied as Nursery Ground, is to be Let, with the Houses thereon, with Entry at Martinmas, 1874, for such number of years as may be agreed on. The Nursery is 15 miles distant from Aberdeen, and within one mile of the Inverurie Station, on the Great North of Scotland Railway. The ground measures 12 acres imperial, and there has been a very good and extensive business carried on for many years.

JOHN CLARK, the Forester at Keith Hall, by Inverurie, will point out the Boundaries, and offers will be received by Messrs. EDMONDS AND MACQUEEN, Advocates, Aberdeen.

To Gardeners and Seedsmen.

TO BE LET, and may be entered into on September 29, a HOUSE and GARDEN, with three Greenhouses, two Forcing-pits, Potting-houses, Seed Shop, and Warehouse, lately occupied by Mr. J. Edeson, South Retford, Notts. The above offers a very eligible opportunity to a young man of industrious habits, with a small capital, who is desirous of commencing business. The only reason for offering the above is the death of the proprietor and occupier, who has carried on a very profitable business for several years. The Plants, Pots, &c., to be taken to at Valuation.

For particulars, and to treat for the same, apply to Mr. EDESON, on the Premises, South Retford, Notts; or to Mr. C. EDESON, Painter, South Retford.—Retford, Aug. 25.

To Gardeners and Others.

TO BE LET, for a term of years, with immediate possession, within five minutes' walk of the Railway Station, very productive KITCHEN GARDENS, Stocked with choice Fruit Trees in full bearing—forty-eight Wall, fifty-eight Standard and Pyramid. Between 600 and 700 feet of Wall, from 7 to 12 feet in height. House and more Ground can be had, if required. Soil gravel. Apply on the Premises,

The Rectory, Ardleigh, near Colchester, Essex.

To Nurserymen and Others.

TO BE SOLD, or LET on LEASE, an old-established NURSERY, in an increasing and populous neighbourhood, containing the usual Nursery Stock of the most healthy and best description. The Greenhouses are substantial, and admirably arranged with all modern appliances for carrying on an extensive and lucrative business. Within ten miles of Covent Garden Market. For particulars apply to

Messrs. FRASER AND BENTON, Horticultural Valuers, &c., Romford, Essex.

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. JAMES FRASER, HORTICULTURAL and AGRICULTURAL VALUER and AUCTIONEER, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

SALES BY AUCTION.

Sale No. 4295.—Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, September 2, at half-past 12 o'Clock precisely, a quantity of First-class HYACINTHS, TULIPS, CROCUSES, and other BULBS, just arrived from Holland, in lots to suit private buyers and the Trade.

On view the morning of Sale, and Catalogues had.

Orchids, Ferns, and Specimen Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 3, at half-past 12 o'Clock precisely, a large importation of TREE FERNS just arrived in good condition, consisting of Dicksonia antarctica, Alsophilla australis, and A. Macartherii; a quantity of ORCHIDS, both established and imported; several Collections of specimen STOVE and GREENHOUSE PLANTS, a consignment of PALMS and other Plants from Ghent, &c.—in all about 400 lots.

On view the morning of Sale, and Catalogues had.

To Gentlemen, Nurserymen, Florists, Builders, And OTHERS.

CLEARANCE SALE of about 4000 feet of GLASS, 600 feet of PIPING, BRICKWORK, STAGING, &c.

MESSRS. PROTHEROE AND MORRIS, having sold the freehold land, are instructed to SELL, without reserve, on the Premises, Perseverance Nursery, Lytton Road, New Barnet, Herts, on MONDAY, September 7, at 3 o'Clock in the afternoon, the GREENHOUSES, PITS, FRAMES, HOT-WATER PIPING, BOILERS, BRICKS, and other effects.

View prior to the Sale. Catalogues had at 98, Gracechurch Street, City, E.C.; and Leytonstone, E.

Lea Bridge Road.

EXTENSIVE ANNUAL TRADE SALE of FINE WINTER FLOWERING HEATHS, EPACRIS, CYCLAMENS, TREE CARNATIONS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, without reserve, on the Premises, The Lea Bridge Nurseries, Lea Bridge Road, Leyton, Essex, on WEDNESDAY and THURSDAY, September 16 and 17, at 11 for 12 o'Clock precisely each day, about 30,000 Winter Blooming HEATHS, remarkably well grown, and including about 10,500 hyemalis, 2500 gracilis, 2500 Willmorei, 7500 caffra, 500 ventricosas of the best varieties; also large quantities of gracilis, vernalis, regerminans, colorans, Linnæa superba, melanthera, pyramidalis persoluta alba, and others; 1500 fine EPACRIS, of the choicest kinds; 1500 CYCLAMEN PERSICUM; 500 AZALEA INDICA, to name; 1500 CYTISUS FRAGRANS and ATLEANA; 1000 TEA-SCENTED ROSES in pots, to name; a large stock of SOLANUM CAPSICASTRUM, full of berries; TREE CARNATIONS, ACACIA DRUMMONDII, and a quantity of MISCELLANEOUS GREENHOUSE PLANTS, including Phœnocomas, Aphelexis, Pimeleas, Boronias, &c.

May be viewed any day prior to the Sale. Catalogues had on the Premises; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Consignment of New Zealand Ferns
For UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS beg to announce that in Mr. John Fraser's great ANNUAL SALE of WINTER-BLOOMING HEATHS, to be HELD on SEPTEMBER 16 and 17 NEXT, at the Lea Bridge Nurseries, there will be included 20 fine trunks of ALSOPHILA AUSTRALIS, 4 to 8 feet high; and 324 TODEA SUPERBA, nearly the whole of which have started into growth.

NEW PLANTS.

The Three best New Plants of the season are:—
CROTON MAJESTICUM,
DIPLADENIA BREARLEYANA,
CROTON SPIRALE.
Price, 2 and 3 Guineas each.

Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Choice Flower Seeds.

CHARLES TURNER is now offering NEW SEED of the following:—

AURICULA, stage and alpine	CYCLAMEN PERSICUM
CALCEOLARIA	PANSY, English and Belgian show.
CARNATION, tree	PELARGONIUM, fancy, and zonal
CINERARIA	

PRIMULA, in distinct colours.
The Royal Nurseries, Slough.

To the Trade.

F. SANDER AND CO., SEED GROWERS, St. Albans, offer, in strong crowns—

HEPATICA, Single Blue, 20*s.* per 1000.
" Single red, 30*s.* per 1000.
" Single White, 8*s.* per 100.
" Double Red, 8*s.* per 100.
HELEBORUS NIGER, Christmas Roses, 6*s.* per 100.
IRIS IBERICA, 75*s.* per 100; second size, 50*s.* per 100.
" GERMANICA, mixed, 20*s.* per 1000.
LILIUM CANDIDUM, £4 10*s.* per 1000.
" TENUIFOLIUM, true, £5 per 100.
" MONADELPHUM SZOVITZIANUM, £10 per 100.

Noteworthy Horticulturists and Botanists.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6*d.* each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.	JAMES BATEMAN, F.R.S.
W. WILSON SAUNDERS, F.R.S.	BERTHOLD SEEMANN, Ph.D.
Rev. M. J. BERKELEY, F.L.S.	ARCHIBALD F. BARRON.
M. DECAISNE.	Hon. MARSHALL P. WILDER.
G. F. WILSON, F.R.S.	JOHN GIBSON.
Dr. MOORE, of Glasnevin.	Professor ASA GRAY.
Professor REICHENBACH.	I. ANDERSON-HENRY.
Rev. S. R. HOLE, M.A.	Professor KARL KOCH.
E. J. LOWE, F.R.S.	Baron VON MUELLER.
JAMES MCNAB.	JOHN SMITH (Kew).
ROBERT HOGG, LL.D.	Professor WESTWOOD.
Dr. REGEL.	Dr. THWAITES.
	Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5*s.* 11½*d.* | Six Months .. 11*s.* 11*d.*
Twelve Months .. £1 3*s.* 10*d.*

FOREIGN SUBSCRIPTION.

£1 6*s.* *for* 12 *months, including postage to*—

AUSTRALIA	CANADA	JAMAICA	WEST INDIES
BELGIUM	FRANCE	NEW ZEALAND	UNITED STATES

£1 10*s.* 4*d.* *for* 12 *months, including postage to*—

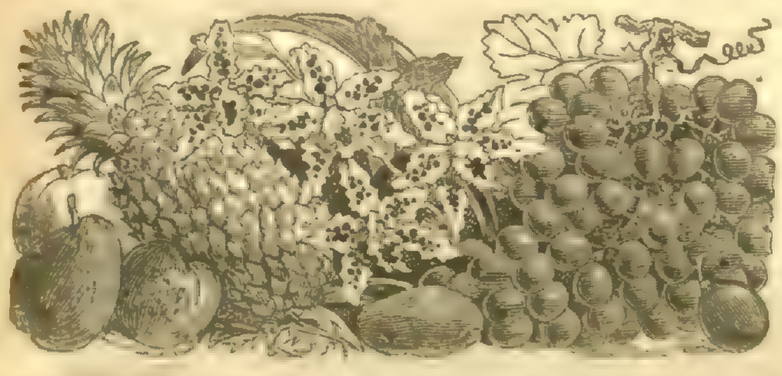
AUSTRIA	HOLLAND	PORTUGAL	SPAIN
CHINA	INDIA	PRUSSIA	SWITZERLAND

£1 14*s.* 8*d.* *for* 12 *months, including postage to*—

RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.



THE

Gardeners' Chronicle.

SATURDAY, AUGUST 29, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	Sept. 1	Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Sept. 2	Royal Horticultural Society: Meeting of Fruit and Floral Committee, at 11 A.M. Sale of Dutch Bulbs, at Stevens' Rooms.
THURSDAY,	Sept. 3	Airdrie and Coatbridge Horticultural Society's Exhibition. Flower Show at Great Yarmouth. Sale of Orchids, Tree Ferns, and Specimen Stove and Greenhouse Plants, at Stevens' Rooms.
FRIDAY,	Sept. 4	Sale of Dutch Bulbs, at Stevens' Rooms.

HORTICULTURE is in the crisis of a LABOUR DIFFICULTY. Its head has shot far in advance of its hands. The greatest trouble arises from these two not being more nearly abreast of each other. The Press is held by many to be largely responsible for this state of things. It has nourished, strengthened, enlarged the head, and of necessity done but little for the hand, — for gardening as a subtle handicraft cannot be taught by broadsheets, however skilfully filled,—and we can hardly be said to have any other school of horticulture of sufficient potency to cope with and smother the great evil of ignorance in workmen. True, almost all arts and sciences have passed through a similar crisis. At one time surgery was far ahead of its mechanical instruments. Scarcely half a century ago scholars were tortured by the incompetency of typefounders and compositors to keep pace with the depth of their learning or with the soaring height of their genius ; scholarship was far ahead of the printing press. Even in modern times philosophy and science have had to wait in the workshop while labour has been educated up to cope with and help, master and make known their discoveries. The thermo-electric pile and the galvanometer are hardly more wonderful for the revelations they unfold than as illustrations of subtle chemical research and mechanical invention. And it is so over the wide fields of industrial art and scientific research—philosophical knowledge and mechanical invention, the head and the hand, linked together to reveal the mysteries of matter, and bend it to our purposes.

Horticulture is no exception to the general law. It, too, is moved by the forces—the head and the hand, and the former cannot rise very high or far in the end above what the latter will allow. Imagination, genius, taste may plan a paradise, but unless licked into shape and dressed and kept afterwards by human hands, it will remain the "baseless fabric of a vision," or revert to a wilderness of thorns, briars, weeds, and rank confusion, worse confounded through the wreck of paradise mingling its *débris* with the tangled skein of the wilderness. Ignorance leagued with sloth is ever on the side of the wilderness. Paradise has no charm for these two monsters that block every avenue of life that leads out into a paradise of beauty and plenty.

Horticulture, as the child of knowledge and of culture, is perforce obliged to fight against ignorance without and within the ranks. Of the former we would make no complaint ; an open foe can be met and mastered, and if any portion of society frowns on horticulture we know the frown is born of its weakness and ignorance, so we pity them and pass on. But when helps become hindrances, when those who are given to be with us turn out against us, when the hand thwarts the head through ignorance or wilfulness, which is but another form of ignorance, then are we bound to seek and find a remedy if we would be true to horticulture. The evils of unskilled labour are written out more or less at large on the surface of almost every garden. For example, a beautiful parterre on gravel or Box is marred by the inability of the men to keep the surface even and the lines of Box true to pattern or of one uniform width. A smooth lawn is left uneven for lack of the ability of the men to see straight or adjust the ground to a nicety between two rows of stakes even with each other. A turf slope is ruined for lack of the workmen—in this case their master, who had risen from the ranks—understanding the angle of repose for soils or of possible life for grass. Another—but it is needless to multiply what may be called structural or groundwork blunders—through ignorance and incompetence ; let us to those that are cultural or appertain to the everyday management of gardens. Bad potting, training, watering, are so common that many of our leading cultivators do most of it with their own hands. Then as regards the control of temperature and the practice of ventilation, almost every stokehole is a stronghold of ignorance where extravagance and waste run riot between fuel and fire, and a minimum of heat is sent forth into our houses at the price of a maximum consumption. As to ventilation—red tape, routine, indifference, turn the crank by turns, and recklessly too, with some right and much wrong for the result. Even in such common matters as digging, hoeing, raking, sweeping, mowing, how woefully do we find ignorance rather than knowledge using the tools to the least purpose. Within a few months we have seen men picking off Verbena buds for Verbena seed, and stopping Alternantheras that were too low, instead of Iresines that were too high ; staking Gladioli and Dahlias right through their fleshy roots and tubers, and placing stakes almost as thick as one's wrist to Carnations and mere twigs to Lilium auratum. But probably the worst example of serious results of unskilled labour is that now to be noted. Peach trees with a heavy crop were ordered to have their borders soaked with sewage. The master's eye went round this late in the evening to see how refreshed they looked after being sewaged below and well syringed with clean water above. The trees had formerly been mulched, and as they were approached the master was delighted at what he put down as an exercise of intelligent thought on the part of an old workman. Each tree had the appearance of a thick mulching of semicircular form for a short distance round the stem. It is impossible to describe his consternation when getting up to the trees he discovered that this appearance was caused by the ground being broken up in huge clods all round the bole of each tree, the tops of the said clods being covered with the finest and best roots. On demanding an explanation, it was answered the water did not go very well ; the fork was used to let it in ; and, as for the roots, they certainly did not belong to the Peaches, "that's sartain, master, anyhow"—and we question, notwithstanding that pains were taken to convince him, if the man will ever believe the contrary ; and, as to the water, of course, it went down and found the roots. Where could they be if not there?—and, though he was not told to fork the border at all, he wanted to let the water in. Thus an hour's ignorance on the part of an old workman has marred, if not ruined, what had taken the labour and skill of years to produce—covered walls of well-shaped, fruitful trees, and borders filled with surface roots.

It is not needful to multiply examples. The end is all too familiar to English gardeners. It is not so common in Scotland, where gardens are largely worked by the skilled labour of journeymen, though even here there are no lack of complaints that the journeymen are not what they used to be ; but in England horticulture is largely dependent on the labouring labourer—any labourer. On a few estates the garden has the pick of the men ; on more, perhaps, it has the leavings of the farm. The old, the odd, the infirm, go to the garden. Labour is also becoming more scarce ; we have less choice than we had. The miserable squabble over a shilling a week, and the right of Englishmen to join any lawful Union that they think likely to promote their own interest, has made matters much worse for horticulture and all trades or professions that employ skilled labour. We hear, indeed, that the battle of labour has been fought and lost by the labourers ; we only know for certain that skilled labour for horticulture will be more scarce in the eastern counties and throughout the kingdom in the future than it has been in the past. Hundreds of the best labourers have left the country rather than relinquish the Union—hundreds more are likely to follow. The chances are, that few will be left but the old and the incompetent. Even the young that remain are being drawn off into other channels. Trades and manufactures offer stronger allurements and greater freedom and independence. We question if even the higher wage that has now become inevitable will draw more manual skill to horticulture. Money can purchase bodily strength, muscle—mere working power of machinery or of men, but it cannot buy nice manipulation and the careful, loving thought that are the bases of manual skill in horticulture. That skill is a curious compound of knowledge and of love, made fit for use by long and patient practice. At large nurseries it may perhaps be purchased indirectly by holding out greater inducements to young men to enter and remain in our gardens. To this end garden labourers or journeymen must have a clear and well-defined position. They should rank in pay and in *status* with or above other journeymen tradesmen, such as bricklayers, carpenters, blacksmiths and mechanics. By such means we might sweep the cream of

working rural life into our gardens, instead of, as at present, getting a marvellously large proportion of sky-blue milk. Perhaps others will favour us with their views on this matter, which is a vital one to the present stability and future prospects of horticulture.

BY no means the least successful part of the proceedings of the British Association at BELFAST was the FLOWER SHOW, held under the auspices of the North of Ireland Horticultural Society and the directors of the Botanic Gardens. We were enabled to insert a brief telegraphic despatch in our last issue relating to this exhibition, and we now supplement that notice by a more detailed account from our special correspondent. We must own that on the receipt of the telegram stating the weight of the bunch of Black Hamburgh Grapes shown by Mr. HUNTER, gr. to the Earl of DURHAM, at Lambton Castle, we suspected some error on the part of the telegraph clerk. It appears, however, that the figures were quite correct, and that a monster bunch weighing 21 lb. 12 oz. was really shown. We believe nothing approaching this has been shown in the case of a black Grape, although in the case of white Grapes, Syrian or White Nice have been shown of the respective weights of 17 lb., 18 lb., 19 lb. 5 oz., and 19½ lb. In reference to this matter we find in our records the following details relating to black Grapes, which it may be of interest to cite in this place. Several instances of 5 lb. bunches of Black Hamburgh Grapes are noted. In 1858 it is recorded that Mr. DAVIS, gr. at Oakhill, East Barnet, exhibited the finest bunch of Black Hamburgh that had up to that time ever been produced in the country. This bunch weighed 8½ lb., and was a symmetrical, well-shaped bunch, with the individual berries measuring 4½ inches round. In 1860 Mr. PAYNE, gr. to J. B. BEDELL, Esq., of Chelmsford, showed a bunch of the same variety weighing 8 lb. 14 oz., but this was a conglomerate of four bunches all from one eye. In 1865 Mr. MEREDITH showed a bunch of Black Hamburgh weighing 9½ lb., and in 1873 Mr. HUNTER showed at Manchester one bunch of Black Hamburgh weighing 9½ lb., and another weighing 13 lb. 2 oz.—a weight now thoroughly eclipsed by the monster shown at Belfast. The Manchester show in September of last year was, it may be remembered, specially remarkable for the exhibits of Grapes, the weights being in many cases quite extraordinary.

It would be interesting to know what circumstances of soil or treatment have led to this result, or whether this is, as is usually the case, an "accident"—that is to say, an individual variation dependent on some inner cause which we are not able to fathom. The removal of all the other bunches on the cane—even were that to be practised—would not very materially increase the size of the remaining bunch. An unusual number of flowers are produced and set in the first instance, and removal of the other bunches would not increase the number of berries in the one left, though it might possibly, together with judicious feeding, increase the size of individual berries. In general, however, in these big bunches the berries are small. Curious and interesting as these monsters are, their production is not a thing to be generally desired—an even crop of well finished bunches of average weight being far more useful than such phenomenal bunches as we have been alluding to.

—— A CORRESPONDENT sends us the following remarks on the POPULAR NAMES OF COLOURS, which is deserving of attentive consideration :—"There is a crying want of a good system of names for colours, a want that is felt by ladies, gardeners, decorators, and everybody. Scarcely two people agree in calling any given shade by the same name. Take, for instance, the Anemone japonica. PAXTON in his *Botanical Dictionary*, calls it 'rose,' and so I think would most botanists, but certainly no lady would do so. As a case in point I lately took a Dahlia to the Taunton flower show, and got thirty-two people to write me down their opinions each unknown to the other. These were, for majenta 6, mauve 5, pink-mauve 3, pink 3, dark pink 3, puce (flea colour !) 2, rose 1, solferino 2, prune 3, pale plum 1, violet 1, lilac 1, purple 1. I have since been informed that it is amaranth. Enclosed is a Dahlia from the same plant. A work on the plan of WERNER'S *Nomenclature of Colours*, by PATRICK SYME, where each shade is illustrated by reference to some object in the animal, vegetable, and mineral kingdoms, would best answer the purpose required. SYME'S book having been published in 1814 is become scarce, and the colours much faded and altered. Names taken from flowers are very indecisive, unless we know what species is assumed for the typical one. Mauve, so popular with the ladies, if it were taken from the beautiful Malva moschata of our Somerset hedges, would mean 'pale pink,' if from the Malva sylvestris, 'purple.' Could you induce a competent person to undertake an illustration of the subject ?"

—— We have received the following from M. DECAISNE, the *chef* of the Jardin des Plantes :—"Lovers of horticulture will doubtless be pleased to hear that the Xanthoceras sorbifolia introduced to the Paris Museum, and of which I have sent this winter some seeds to the Royal Gardens at Kew, has just produced twenty fruits, which have furnished us with more than 190 seeds, by means of which our establishment can grow the charming shrub of which M. VAN HOUTTE has given a plate in the fifteenth volume of the *Flore de Serres*. I was surprised to see the Xanthoceras classed in the Chinese works among the edible trees; but the French Minister at Pekin, M. GEOFROY, to whom I applied to obtain some information on this subject, told me that the Chinese eat the seeds of Xanthoceras as nuts, of which they have somewhat the taste. M. GEOFROY has introduced to us, by the Chinese name, a large tree similar to the Ailantus in the general shape and foliage, the Cedrela sinensis, of which the Chinese eat the young shoots either raw or cooked; prepared in the latter way these shoots, it is said, resemble Asparagus. But we know that the inhabitants of the Celestial Empire are not very particular, inasmuch as that they make their delicacies of the young stalks of the Lucerne (Medicago sativa), which they eat as we do Spinach. Without mentioning the culinary use of Cedrela sinensis, the principal use of it to us is to have it in our plantations—a large tree, moreover, and belonging to an exotic family of which the Melia is here at present the only representative in our southern gardens."

—— We were lately prevented, at the last moment, from dining with a botanical friend, who has wreaked his vengeance by sending us the following BILL of FARE, showing what we "didn't have for dinner !" As it seems to have been a nice light repast for a hot day in August, when the vegetable kingdom is a more healthy "hunting-ground" for eatables than the animal kingdom, we print it as we received it, merely giving expression to our surmise that the first word is probably phonetic for oysters (*huîtres*), and that Eugenia ice ought to be uncommonly delicious. He had better not ask us again, if he does not want us to come. We appreciate fully the compliment paid us, in the priority given to Flora :—

Wheat.
Fines Herbes à la Consommé.
Champignons aux Filets de Soles.
Olives aux Anchois.
Petits Pois à la Jambon.
Haricots verts aux Filets de Canctons.
Salade à l'Italienne.
Feuilles de Vigne aux Cailles.
Tomates à l'Espagnoles.
Compote d'Abricots à la Richelieu.
Glace de Eugenia Ugni.
Pailles de Parmesan.

—— The SHRUBBY VERONICAS, V. Andersoni and its variegated prototype, V. Andersoni variegata, are at all times handsome and ornamental plants for our conservatory decoration. To see them in all their beauty, however, one must needs go to the South or some sheltered nook by the sea coast, where such plants as these and the Fuchsias form the common shrubs of the gardens. At Cairntoul, a seat of the Marquis of LONDONDERRY, some 25 miles north of Belfast, on the sea coast, we were particularly charmed with a magnificent mass of the Veronica Andersoni variegata in a full blaze of flower. The plants were some 6 or 7 feet in height, and growing like Laurels. At a distance, the beautiful purplish colour of the flowers gave it the appearance of a mass of Rhododendron ponticum in full blossom. At the same place, at the foot of the walls of the Castle, we also observed the older, but scarcely so common or so pretty as a flowering plant, Veronica speciosa, growing with the greatest luxuriance. Its broad, shining leaves render it a very handsome evergreen shrub.

—— The fine appearance of the old FUCHSIA RICCARTONI in mild situations on the sea-coast has often been remarked. All along the coast of Antrim, from Larne to Fairhead, the Fuchsia plants are particularly pleasing, partly perhaps because they are the only flowering plants, with the exception of a few Monkshoods that find a place in Paddy's Potato gardens. The odd incongruity of beautiful hedges of Fuchsias in full bloom enclosing pigstyes and equally filthy gardens of Potatos and Drumhead Cabbage is very striking. At Cairntoul, the imposing residence of the Marquis of LONDONDERRY, a hedge of Fuchsia globosa, some 200 yards in length, was particularly elegant and pretty a few days ago.

—— Writing to the *Times* on the 26th inst., "W. S. E." says, "It is a well-known fact that MOSQUITOS have been NATURALISED IN ENGLAND (to his knowledge in London) since 1870. He would advise all who are troubled by them at night to place near them a fresh piece of the pale-green leaved Pyrethrum [Golden Feverfew], so general now in all gardens as a border to flower-beds."

—— We are requested to state that Professor REICHENBACH'S address for the next fortnight, is The Herbarium, Kew, W.

—— The general appearance of the POTATO CROP throughout IRELAND is wonderfully promising, there being as yet but very little trace of the disease. In several fields, however, in the county of Antrim, between Glenavon and Ballycastle, we were sorry to see it making sad havoc. The owners did not seem to be much afraid of it, remarking that never since its first appearance had the Potatos been so free from it.

—— Growers of SHOW AURICULAS may be interested to know that a variety called Howard's Eclipse has been in cultivation for about thirty years, and during that time has only made two cuttings. The only plant of it in the country now is believed to be in the hands of an enthusiastic amateur at Grahamston, Falkirk—Mr. THOMAS JEFFREY. This gentleman has a collection of 250 varieties, in first-rate condition, which he grows for the pure love of them, never exhibiting or in any other way letting the world know of the floral treasures which his small but well-kept garden contains.

—— Few shrubs are more attractive during the months of August and September than the old VIRGINIAN RASPBERRY—Rubus occidentalis, yet it is very seldom seen. In the shrubbery border leading to the kitchen garden at New Tarbet, Ross-shire, there is a fine plant, from 6 to 7 feet high, which was flowering most profusely a week or two ago. The foliage is pinnate and ternate, large and handsome, and the flowers white and rosy-tinted, the fruit black, not so large as the garden Raspberry, and of poor flavour. It is perfectly hardy, and in MILLER'S time was commonly propagated in the nurseries, as might with advantage be done again.

—— The following paragraph, taken from the *Sun* newspaper of June 6, 1794, may be of interest to collectors of information about old and REMARKABLE TREES :—

"This spring a maiden Oak tree was felled on an estate called The Green, the property of Mr. ADAMS, of the Redwood, near Tenbury, in Worcestershire, of which the body only measured—girth, 5 feet 5 inches; length, 46½ feet; contents 27 tons; the butt, exclusive of the spurns, measured 14 feet through. This remarkable tree was formerly rented at two guineas per annum, on account of its bearing Mistleto which was celebrated for its virtue in curing fits, and generally sold at a high price."

—— While those gardeners who can get a few days' grace at this season are busy picking up HINTS at the various public and private establishments, with a view to their next season's operations in the FLOWER GARDEN, we may be excused for calling attention to a system devised by Her Grace the Duchess of SUTHERLAND and Countess of CROMARTIE, and ably carried out at New Tarbet by Mr. LAING, and at Dunrobin by Mr. MELVILLE. The one great objection to ribbon borders is the want of variety. No matter how choice the plants used, or how successful the combinations or contrasts in colour may be, the fact is the same—that when you see one end of the border the eye takes in all that is of interest so that what ought to be a considerable source of interest furnishes only a momentary pleasure. True, this is all that is desired in many places, and against the system practised under those circumstances we have no right or desire to declaim. With those, however, who do not desire to see all they have at once, and care more for individual beauty than for massive colouring, the case is different, and to such what we may call the STALL SYSTEM of BEDDING-OUT may give some pleasure until something better

has been devised. The plan carried out at New Tarbet may be stated as follows:—In the walled-in kitchen garden there is a long border, divided in the centre by a span-roofed greenhouse. This border has to be filled with flowers in such a manner that from one end to the other there must be something to claim the attention, so that to a true lover of plants the interest may never be allowed to flag. Along the back, then, about 3 feet from the wall, there is a row the entire length of Hollyhocks (which the Puccinia has not yet found) and Dahlias, planted alternately; and along the front a corresponding row of Dactylis glomerata variegata. The first half is then partitioned off with hedges, about 3 feet high and 6 feet apart, of Fuchsia Riccartoni. In the second half the old dwarf purple Dahlia Zelinda is employed instead of the Fuchsia. The spaces thus partitioned off are then filled in almost entirely with dwarf-habited plants, the following subjects being employed this year, in the order given:—Gnaphalium mixed with Perilla nankinensis, growing under the shade of two fine Walnut trees, and admirably suiting the situation; the old Heliotropium peruvianum, which also does well under trees, and stands a little frost; mixed Zonal Pelargoniums; Sparkler Calceolaria, crimson, flowers well, and stands drought; Fuchsia Rose of Castile, 2 feet high; globe-flowered Asters; a Pompon Chrysanthemum, with rosy purple flowers; Bijou, silver-edged Pelargonium; purple-flowered Pentstemon; Calceolaria amplexicaulis; Verbena Lord Raglan, rosy scarlet, with a white eye; Myosotis palustris, true; Zonal Pelargonium Vesuvius, one of the best here; Bicolor and Tricolor Pelargoniums; Purple King Verbenas; Chrysanthemum-flowered Asters; Cuphea platycentra; the old Pearl of England Fuchsia; Calceolaria Indian Chief, dark orange-crimson; Chrysanthemum Golden Nuggett, now in flower; scarlet-flowered Pentstemons; mixed Pæony Asters; scarlet Verbenas; Calceolaria erectum, yellow, an old but too much neglected plant, in the style of Kayi; and Lobelia cardinalis, mixed with Polemonium cœruleum variegatum. There is scarcely any limit to the sorts of plants that best suit this style of bedding; nor is there any reason why summer or autumn flowering plants should be entirely used, so that any gardener with an ordinary amount of inventive capability might make a border so planted an object of recurring interest, with a less amount of labour, and at a less charge for the winter storage of ordinary bedding plants.

—— The Belgian *Official Journal*, referring to the ignorant conduct of those who destroy all kinds of Birds and Insects indiscriminately, insists on the necessity of children in primary schools being taught to distinguish between useful and noxious insects, and thus to exercise their destructive faculties against the latter only. The writer proceeds to say that the ant, which is very disagreeable and inconvenient in many respects, does excellent service in chasing and destroying caterpillars with relentless energy. A farmer who had noticed this fact, and had had his Cabbages literally devoured by caterpillars, at last hit upon the expedient of having an ant-hill, or rather nest, such as abound in Pine forests, brought to his Cabbage plot. A sackful of the Pine points, abounding in ants, was obtained, and its contents strewn around the infested Cabbage plants. The ants lost no time, but immediately set to work; they seized the caterpillars by their heads. The next day heaps of dead caterpillars were found, but not one alive, nor did they return to the Cabbages. The value of the ant is well known in Germany, and although their eggs are in great request as food for young partridges, pheasants, and nightingales, there is a fine against taking them from the forests. The ant is indefatigable in hunting its prey; it climbs to the very tops of trees, and destroys an immense quantity of noxious insects.

—— Malaga, celebrated for its fruit crops, such as Raisins, Figs, Almonds, Grapes, Lemons and Oranges, also for its olive oil and wines, but more recently for being the city where plots and conspiracies against King Amadeus' Government first broke out into open rebellion, has been during the past few years cultivating the Sugar-cane and manufacturing sugar with some success. We are told that within the last ten or twelve years extensive tracts of irrigable land, ranging east and westward along the coast from Marbella to Adra, have been planted with Sugar-cane, and there are at present no less than seventeen large mills and refining works engaged in this important branch of industry, which produced in the year 1872 as much as 90,000 cwt. of sugar. A new factory and plantation upon a colossal scale is now being established on the banks of the river Guadiaro.

—— The French Government has recently adopted some strong measures to endeavour to rid the country of the Phylloxera Pest. On July 26 last a law was promulgated instituting a prize of 300,000 francs for the discovery of a means of destroying it or preventing its ravages. The prize is to be awarded by a Commission nominated by the Minister of Agriculture and Commerce, who will also issue the conditions upon which it is to be competed for. This sum of about £12,000, together with other sums which may be offered by any of the communal departments, or from other sources, will no doubt be the means of bringing out some valuable suggestions.

THE OLD WALLS AT KEW.

By an Old Kewite.

When I first knew Kew I was always fond of exploring the shrubberies and arboretum, and the old walls had an especial attraction for me, as they sheltered many things I had never met with in the gardens and nurseries I had worked in or visited. Returning to Kew, after an almost uninterrupted absence of seven years, I have visited all my whilom haunts, admired my favourite trees, and sought out the solitary specimens of many rare things scattered over the extensive grounds. Many fine trees, alas! have disappeared, and many more show signs of decay. Doubtless the two dry summers we have experienced in succession have hastened the doom of some. However, whilst deploring the loss of some things, the great accession to the number of species and varieties of trees and shrubs to be found in the gardens is a source of gratification, and promises well for the future. Not forgetting the walls that had afforded me so much pleasure in former days, I turned my steps towards them. A few things are replaced by others, as might be expected, but in the main the original plants still exist. I propose giving you a hasty sketch of the principal subjects, some of which have enjoyed the protection of these old walls for many years. There may be nothing very remarkable about some of the species I shall mention, as they have now become widely dispersed; but as original plants, or amongst the first of their species in this country, they possess a more than ordinary interest. There is a history attaching to most of them—a history known to nobody so well as to Mr. John Smith, the late curator, during whose term of active life so many of them were introduced. And here I may mention—and I am sure I shall be pardoned for the digression—that this gentleman is still enjoying good health and the full use of his faculties, though afflicted with almost total blindness; but, as he remarked to a friend recently, many of his old acquaintances seem to have forgotten him, or to be unaware of his continued presence amongst us. His memory is so perfect, and his stores of information so inexhaustible, that whoever pays him a visit is instructed and entertained; and doubtless many more would go to see him if they knew how pleased he is to receive them. To return to my walls, it is scarcely necessary to say where I shall begin with my gossip on the plants, because those who know the place will soon discover for themselves, and it would be of little use to strangers. My first is a Bramble, Rubus spectabilis, a native of the north-west coast of North America, from about 40° to 52° N. lat. It is rather tender, and needs the shelter of a wall to protect it against late spring frosts. This, and the fact that it is scarcely so handsome as some of the varieties of the native Brambles, especially the double pink, usually called Rubus discolor flore roseo-pleno, debar it from special recommendation, though its large, deeply coloured flowers are showy. Passing by some few small specimens of recently planted species, we come to a fine old example of Parrottia persica, one of two plants introduced about thirty-five years ago. It belongs to the same family as the Liquidambar, and like the latter is remarkable for the brilliant tints its foliage assumes towards the end of summer. It is a perfectly hardy deciduous tree, a native of northern Persia, and the trans-Caucasian provinces of Russia. The leaves are simple and somewhat oblong in outline, and the flowers are small, and appear before the leaves are put forth. Although small and destitute of petals, their bright red stamens render them conspicuous. The second plant, already alluded to, was planted out in the open ground, and this produced flowers a few years ago, from which the plate in the *Botanical Magazine* was taken. The beautiful Rhodoleia Championi, remarkable for the large highly-coloured bracts surrounding the terminal heads of small flowers, is another member of the curious family called the Hamamelideæ. Hamamelis and Corylopsis are amongst the more recent introductions from Japan. Zanthoxylon alatum, our next subject, is an extremely interesting plant from more than one point of view, but especially on account of its being one of those plants asserted to illustrate the curious phenomenon in the vegetable kingdom termed parthenogenesis, meaning the production of perfect seeds without the interposition of pollen as a fertilising agent. Mr. John Smith, mentioned above, was, I believe, the first to call attention to this unexpected, and still contested, deviation from what is supposed to be the ordinary course of Nature. It was the female plant of Cœlebogyne (literally unmarried woman) a genus of Euphorbiaceæ, which is supposed to be strictly diœcious—that is, having the sexes on different plants. The male plant was unknown in Europe; in fact, I think had not been discovered in Australia at the time when this occurred [?]. Though diœcious plants, as the Willows, for instance, occasionally produce both sexes on the same stem, search was made in vain year after year to discover a stamen. Naturally other botanists took up the subject, but the results of their experiments were contradictory, and up to the present time it cannot be said to be satisfactorily settled. Mr. D. Hanbury, a gentleman noted for the care he exercises in his investigations, reported a "presumed" case of parthenogenesis in our plant about ten years ago. It was first observed in a greenhouse. Afterwards the plant was transferred to the open air against a wall, where this strange phenomenon was repeated. Naturally much time was devoted to an opportunity for strengthening or upsetting the theory of parthenogenesis, but no male flowers or stamens in the female flowers were discovered. Plants were actually raised from the seeds produced by both plants. The Kew specimen is in fruit, but the seeds examined were imperfect. Zanthoxylon, with a few other genera, forms a small family, or, as held by some botanists, a sub-order of Rutaceæ. They are aromatic trees or shrubs, and their leaves are usually furnished with transparent glands, like the Oranges and their allies. The plant in question has pinnate leaves and large flat spines, and its flowers are inconspicuous. It is decidedly of more interest to the botanist than to the gardener, who is more devoted to useful and ornamental than to curious plants. Northern India is its home, and it may possibly be identical with Z. planispina, a native of Japan. There are two Japanese species, Z. piperitum (Japanese Pepper) and Z. schinifolium, which will probably prove hardy or nearly so; and they are of a more ornamental character. Our next plant, Vitis antarctica, carries our thoughts to quite a different part of the world. But this name was given under a misapprehension as to its native habitat, and is inappropriate, inasmuch as the plant in question comes from New South Wales and Queensland. It is therefore too tender, even for a wall, without extra protection in winter.

(*To be continued.*)

THE GRAPE PHYLLOXERA.

(*Continued from p. 226.*)

Practical Considerations.—*The more manifest and External Effects of the Phylloxera Disease.*—The result which follows the puncture of the root-louse is an abnormal swelling, differing in form according to the particular part and texture of the root. These swellings, which are generally commenced at the tips of the rootlets, where there is excess of plasmatic and albuminous matter, eventually rot, and the lice forsake them and betake themselves to fresh ones—the living tissue being necessary to the existence of this as of all plant-lice. The decay affects the parts adjacent to the swellings, and on the more fibrous roots cuts off the supply of sap to all parts beyond. As these last decompose the lice congregate on the larger ones, until at last the root system literally wastes away.

During the first year of attack there are scarcely any outward manifestations of disease, though the fibrous roots, if examined, will be found covered with nodosities, particularly in the latter part of the growing season. The disease is then in its incipient stage. The second year all these fibrous roots vanish, and the lice not only prevent the formation of new ones, but, as just stated, settle on the larger roots, which they injure by causing hypertrophy of the parts punctured, which also eventually become disorganised and rot. At this stage the outward symptoms of the disease first become manifest, in a sickly, yellowish appearance of the leaf and a reduced growth of cane. As the roots continue to decay these symptoms become more acute, until by about the third year the Vine dies. Such is the course of the malady on Vines of the species vinifera, when circumstances are favourable to the increase of the pest. When the Vine is about dying it is generally impossible to discover the cause of the death, the lice, which had been so numerous the first and second years of invasion, having left for fresh pasturage.

Mode of Spreading.—The gall-lice can only spread by travelling, when newly-hatched, from one Vine to another; and, if this slow mode of progression were the only one which the species is capable of, the disease would be comparatively harmless. The root-lice, however, not only travel underground along the interlocking roots of adjacent Vines, but crawl actively over the surface of the ground, or wing their way from Vine to Vine, and from vineyard to vineyard. Doubts have been repeatedly expressed by European writers as to the power of such a delicate and frail-winged fly to traverse the air to any great distance. "On a calm, clear day, the latter part of last June, it was my fortune to witness a closely-allied species (Phylloxera caryæfoliæ, Fitch), of the same size and proportions, swarming on the wing to such an extent that to look against the sun revealed them as a myriad silver specula. They settled on my clothing by dozens, and any substance in the vicinity that was the least sticky was covered with them. With such a sight before one's eyes, and with full

knowledge of the prolificacy of these lice, it required no effort to understand the fearful rapidity at which the Phylloxera disease has spread in France, or the epidemic nature it has assumed. Imagine such swarms, mostly composed of egg-bearing females, slowly drifting, or more rapidly blown, from vineyard to vineyard; imagine them settling upon the Vines and depositing their eggs, which give birth to fecund females, whose progeny in five generations, and probably in a single season, may be numbered by billions, and you have a plague, should there be no conditions to prevent that increase, which, although invisible and easily unnoticed, may become as blasting as the plagues of Egypt."*

As early as 1871 I showed with what facility and power the species referred to in the above extract can take wing when the atmospheric conditions are favourable; and on September 27 last, the weather being quite warm and summer-like, with much moisture in the atmosphere, I witnessed the same power of flight in the Grape Phylloxera. Some 200 winged individuals, which I had confined, became very active and restless, vigorously vibrating their wings and beating about their glass cages. Upon opening the cages, the lice began to dart away and were out of sight in a twinkle. They have been caught in spider-webs in Europe, and I have repeatedly captured them on sheets of paper prepared with bird-lime and suspended in an infested vineyard; and am satisfied that they can sustain flight for a considerable time under favourable conditions, and, with the assistance of the wind, they may be wafted to great distances. These winged females are much more numerous in the fall of the year than has been supposed by entomologists. Wherever they settle, the few eggs which each carries are sufficient to perpetuate the species, and thus spread the disease, which, in the fullest sense, may be called contagious. Whether in a state of Nature these winged females show a preference for any one part of the Vine in the consignment of their eggs, is not yet known. It is quite certain, however, that they do not re-enter the ground. Neither do we know whether—in the light of Balbiani's discoveries regarding the European Oak Phylloxera—the young hatching from these eggs produce the diminutive sexual individuals already described. In confinement I have had such eggs deposited both on the leaves and on the buds, and from the preference which, in ovipositing, these aërial mothers showed for little balls of cotton placed in the corners of their cages, I infer that the more tomentose portions of the Vine, such as the bud, or the base of a leaf-stem, furnish the most appropriate and desirable nidi. On this hypothesis it is quite possible for the insect to be introduced from vineyard to vineyard, or from country to country, as well upon cuttings as upon roots.

The young lice from the unimpregnated winged females hatch in ten or twelve days after the laying of the eggs, under favourable conditions of temperature. It is possible, however, that the later deposited eggs remain unhatched throughout the winter. The few young, from such eggs, which I have had, were neglected through absence from home, and unfortunately (Balbiani's discovery was unknown to me at that time) none were preserved. I cannot say positively, therefore, that they were not mouthless and sexual, but a superficial examination revealed no characters which would distinguish them from the young of the apterous females.

Susceptibility of Different Vines to the Disease.—As a means of coping with the Phylloxera disease, a knowledge of the relative susceptibility of different varieties to the attacks and injuries of the insect is of paramount importance. As is so frequently the case with injurious insects, and as we have a notable instance in the common Currant aphis (Aphis Ribesii), which badly affects the leaves of some of the Currants, but never touches the Gooseberry, which belongs to the same genus, the Phylloxera shows a preference for and thrives best on certain species, and even discriminates between varieties; or, what amounts to the same thing, practically, some varieties resist its attacks and enjoy a relative immunity from its injuries. It would, I fear, be useless, and certainly unnecessary here, to attempt to ascertain the reason why certain Vines thus enjoy exemption while others so readily succumb; but, in a broad way, it may be stated that there is a relation betwen the susceptibility of the Vine and the character of its roots—the slow-growing, more tender-wooded and consequently more tender-rooted varieties succumbing most readily, the more vigorous growers resisting best.

I have already given, in my fourth report, Dr. Engelmann's classification of our different species of Vitis, and in the appendix will be found the synopsis kindly prepared for me by that well-known botanist, with additional remarks, and embodying his latest opinions and observations. [In this place we may allude to what Mr. Riley says of the Southern Fox Grape (Vitis vulpina). From the investigations of Professor Planchon it results—as was anticipated from the great differences in character which it presents compared with the others—that this species is entirely free from Phylloxera in any form. The root is not only very tough, but has a perceptibly bitter taste, which, doubtless, renders it obnoxious to the insect. Professor Planchon examined it thoroughly in North Carolina, where other Vines in the vicinity were suffering from the insect.]

From the enumeration we may gather that, with the exception of Vitis vulpina, no species of cultivated Vine is entirely free from the attacks of either the gall-making or root-inhabiting types; nevertheless, vinifera is least and riparia most subject to the former, æstivalis least and vinifera most subject to the latter.

Of vinifera, a few varieties under certain conditions seem to exhibit a degree of resistance in this country, and it is singular that some relative immunity has not as yet been noticed among the varieties of this species in Europe.

Prophylactic Means of Coping with the Disease.—It occurred to me that by grafting the more susceptible on to the roots of the more resistant varieties, we might, in a great measure, counteract the disease, even if all others remedies failed. In the Grape growing districts of France, where the disease is so sweeping, and where the Grape is so exclusively grown that its failure affects whole communities, the people may be obliged, and can afford, to go to much labour and expense in the use of insecticides to save their Vines. Such insecticides may also be used in this country, where it is desired to save a few choice Vines regardless of expense and time. But I greatly fear that no direct remedy for such an underground enemy will ever be discovered that will not entail too much labour and expense to be used, to any great extent, by our own Grape growers, who will either prefer to confine their attention to varieties which resist, or abandon the business entirely. Yet if it shall once be demonstrated that varieties which now fail may be grown when grafted on to those which resist, I see no reason why it should not become as much a custom and a maxim among Grape growers to use some other Vine as stocks for such varieties, as the Catawba, for instance, as it already is among Pear growers to use the Quince, or among Cherry growers to use Mahaleb, Mazard, or Morello, as stocks.

In the course of a year or two we shall be able to fairly judge of the efficacy of the plan, for, aside from the trials that I am making in this country, others are being made on an extensive scale in France. Quite a number of plants, for the purpose of experiment, were sent over there from this country in the spring of 1872; and the demand has now become so great that a single firm (Isidor Bush & Co., of St. Louis), has lately received orders for about 400,000 cuttings to be consigned to one place, Montpellier, and consisting of such varieties as have been recommended by Professor Planchon and myself as best resisting the disease. There is every reason to hope for the best results from these importations, as those Vines, such as Herbemont, Cunningham, Concord, Clinton, &c., which best resist here, and which were planted there in 1871 and 1872, in Phylloxera-infested districts, have, thus far, done surprisingly well, as MM. J. Leenhardt-Pomier, V. Pulliat, and others testify.

As bearing on this subject we have seen that the Southern Fox (Vitis vulpina) is the only species that is totally exempt from both leaf and root-lice. This species is of no value whatever in the latitude of St. Louis, and does not flourish above latitude 35°. It cannot, therefore, be made of any avail here, and it is doubtful whether they will be able to profit by its immunity in the blighted French vineyards. It may grow and ripen its fruit in the extreme southern portion of that country, but its requires a special mode of culture, and the lateness and irregularity of its ripening are no advantage; while the great difference between its wood and that of the other cultivated species must render it difficult to successfully graft them upon it. I mention these things because M. Le Hardy de Beaulieu, of Augusta, Georgia, supported in his views by Mr. Berkmans of the same place, has lately published a pamphlet highly extolling the Scuppernong as the Vine of all others to redeem the blighted French Vineyards. It is well to consider possible drawbacks, and often save sore disappointments.

Other Preventive Measures.—In planting a new vineyard the greatest care should be taken not to introduce the Phylloxera on the young plants, and a bath of weak lye or strong soap-suds before planting will, perhaps, prove the best safeguard. Remembering that the lice are spreading over the ground from July till fall, and principally in the months of August and September, a thorough sprinkling of the surface with lime, ashes, sulphur, salt, or other substance destructive to insect life, will, no doubt, have a beneficial effect in reducing their numbers and preventing their spread.

The insect has been found to thrive less, and to be, therefore, less injurious, in a sandy soil; while a mixture of soot with the soil has had a beneficial effect in destroying the pest. I have, therefore, recommended for the more susceptible varieties, that they be planted in trenches first prepared with a mixture of sand and soot. An addition of lime will also prove beneficial. There is every reason to believe that Vines are rendered less susceptible to the disease by a system of pruning and training that will produce long canes and give them as nearly as possible their natural growth. At Mr. Thos. Meehan's, Germantown, Pa., I could find no lice on Clinton or Concord grown in sward against a wall and unpruned; while on the shorter cultivated Clintons in the vineyard the lice were found without difficulty.

Natural Enemies.—There are a number of different predaceous insects which serve to keep the leaf-lice in check, but, as the injury is mostly done underground it will suffice to enumerate the principal of these in this connection. The most efficient is a black species of fringe-wing or thrips with white wings (Thrips phylloxeræ of my MS.).

The next most efficient aid in the destruction of the leaf-lice is found among the lace-wing flies, one species of which, more especially, viz., the weeping lace-wing (Chrysopa plorabunda, Fitch), I find very frequently within the galls devouring the contents. These flies are known as well by their brilliantly golden eyes as by the peculiarly offensive odour, as of human ordure, which some of them emit.

Next in order, as Phylloxera enemies, may be mentioned the ladybirds (Coccinella), especially certain small, dark-brown species belonging to the genus Scymnus, and whose young, thickly covered with white and evenly-shorn tufts of a cottony secretion, are frequently found at their good work within the galls. Following these may be mentioned, as auxiliaries, certain Syrphus-fly larvæ, which, being blind, go groping about among the eggs and young lice, which they seize and suck to death. Also certain Orange larvæ of a smaller, two-winged fly (Leucopis); a few genuine bugs (Heteroptera), and notably the insidious flower-bug (Anthocoris insidious), and certain smaller Hymenopterous parasites.

The enemies known to attack the Phylloxera underground are, naturally enough, fewer in number. In one instance I have found a Scymnus larva at the work 6 inches below the surface, and there is a Syrphus-fly (Pipiza radicum, W. & R.) whose larva lives underground and feeds both on the Apple-tree root-louse and on this Grape root-louse. Wonderful indeed is the instinct which teaches this blind larva to penetrate the soil in search of its prey; for the egg must necessarily be laid at the surface. But though the underground enemies of its own class are few, I have discovered a mite which preys extensively upon this root-inhabiting type, and which renders efficient aid in keeping it in check in this country. This mite (Tyroglyphus phylloxeræ, Planchon and Riley), belongs to the same genus as the cheese and meal mites (T. siro, Linn.), and the species (T. entomophagus, Laboulbène) which infests preserved insects, and is such a pest in cabinets. As is the rule with mites, it is born with but six legs, but acquires eight after the first or second molts. It varies considerably in form, with age; and in studying it, with a view of distinguishing it specifically from other described species, I have noticed all the different tarsal characters, and on which distinct genera have been founded. Mites present themselves in such different forms that the adolescent stages of the same species have been made to represent distinct families by authors who never studied the development of these beings. Thus the genera Astoma, Leptus, Caris, Myobia, &c., are now known to be but the larval forms, some of them commonly met with as such, but not yet connected with the more perfect and mature forms. The different species of Tyroglyphus, so far known, prey on vegetable and animal substances, particularly when these are in a decaying or putrescent condition. In one of their forms (Hypopus) they are also known to be externally parasitic on living animals. The species under consideration combines both habits, as when young it mostly contents itself with the altered sweets of the roots which rot from the punctures of Phylloxera, while when older it preys by preference on the lice themselves.

A singular feature in the life-history of many of the species of the genus Tyroglyphus is the fact that under certain conditions an entirely different form, with a hard brown chitinous covering or shield, and characterised by Dugès as a new genus by the name of Hypopus, developes within the softer body, and finally issues from it by splitting open the softer skin. Claparède,* who believed this form to be the male, has carefully described and figured the process of change in the European Hypopus Dujardinii, and that Tyroglyphus phylloxeræ has its Hypopus form was independently proved by Professor Planchon and myself—the letters announcing the observations on either side having crossed *en route*.

Hypopus, as already stated, has been found preying upon living animals. Tyroglyphus is a slow

* Fifth Rep., pp. 72, 73.

* *Studien an Acariden*, Leipzig, 1868.

traveller, and with its soft body cannot endure exposure to the air, or resist the attacks of other minute animals. Yet it is ubiquitous, living both above and below ground, and swarming on decomposing animal and vegetable substances. When these have once been consumed, or reduced to dry powder, what becomes of the swarming mites? M. Maguin has, I think, rightly answered the question. All adults and old mites, together with the young hexapod larvæ, perish; but those in the adolescent stage, the octopod pupæ, are preserved by their power of putting on a coat of mail which protects them against external influences until they can attach themselves to some living and moving animal (flies, beetles, spiders, millipedes, and larger animals), which become their carriers and transport them to places which they could otherwise never reach, and where, finding appropriate food, they throw off the disguise and breed as Tyroglyphs, with their well-known fecundity.

Associated with this predaceous mite I have found another (Hoplophora arctata, Riley), of very curious form, reminding one strongly of a mussel; and I refer to it in this connection because I once strongly suspected it likewise to be, in some way, related to the soft-bodied Tyroglyphs. In studying these mites and their habits, I had frequently filled vessels with Grape roots from which all but Tyroglyphs and Phylloxeræ had, to all appearance, been carefully excluded, only to find, on subsequent examination, a number of these mussel-like Hoplophoras and a corresponding decrease in the number of Tyroglyphs. This happened more especially in the fall of the year, and I could not help suspecting that the former might prove to be a winter or hibernating form of the latter. There is so much yet to learn of the polymorphism of mites that the suspicion may yet prove justifiable. But with our present knowledge it is safest to explain the facts above stated on the ground that the Hoplophoras were at first buried, and consequently invisible, within the roots examined, and that the decrease in the number of Tyroglyphs was owing to death and other causes—an explanation which is all the more plausible from the fact that I subsequently found the same narrow-bodied Hoplophora swarming in decaying cotton-wood logs.

Since the discovery of this Phylloxera-feeding Tyroglyph in America numerous sensational and exaggerated newspaper articles have appeared, glowingly describing how the French vineyards are to be saved from Phylloxera ravages by the introduction into France of this its enemy; and I have received several orders from Europe for supplies of the cannibal. Professor Planchon, it is true, will attempt to introduce it, and, we may hope, with success; but from what is here said, it is evident that the enthusiasts who expect so much are doomed to disappointment.

Direct Remedies.—The leaf-lice, which do not play such an important part in the disease as was at first supposed, may be controlled with sufficient ease by a little care in destroying the first galls which appear, and in pruning and destroying the terminal growth of infested Vines later in the season. The root-lice are not so easily reached. As the effort will be according to the exigency, we may very naturally look to France for a direct remedy, if ever one be discovered. But of all the innumerable plans, patented or non-patented, that have been proposed—of all the many substances that have been experimented with under the stimulus of a large national reward, no remedy has yet been discovered which gives entire satisfaction or is applicable to all conditions of soil. Nor is it likely that such a remedy ever will be discovered. A large majority of the remedies proposed, such as the planting of Madia sativa among the Vines to catch the insect by its viscous property, or inoculating the Vines with the essence of Eucalyptus globulus, are, upon their face, unworthy of practical consideration, or absurd. These we will pass by, and briefly mention only those which have been more or less productive of good.

Submersion, where practicable, and where it is total and sufficiently prolonged, is a perfect remedy. This is what even the closest student might expect, as he finds that excessive moisture is very disastrous to the lice. M. Louis Faucon, of Graveson (Bouche du Rhône), France, has abundantly proved its efficacy, and has, by means of it, totally annihilated the insect in his vineyard, which was suffering from it four years ago. From his experience we may draw the following conclusions:—

1. The best season to submerge is in autumn (September and October), when the lice are yet active and the Vines have ceased growing. Submergence for twenty-five to thirty days, at this season, will generally rout the lice. 2. A submergence of forty to fifty days, in winter, is required, and even where the water is allowed to remain during the whole of the season, the vineyard does not suffer. [I should consider this very doubtful.] 3. A vineyard should never be inundated for a longer period than two days in summer, or during growth; and though these brief inundations at this season affect only the few lice near the surface, and are by no means essential, they are, nevertheless, important auxiliaries to the more thorough fall or winter submersion, as they destroy the few lice which are always invading a vineyard in infested districts. These summer inundations will be necessary only after the winged insects begin to appear, and three or four, each lasting less than two days, made between the middle of July and the fall of the leaf, will effect the end desired. 4. An embankment should be made around the vineyard in order that the water may evaporate and permeate the earth, but not run off and carry away any nutritive properties of the soil.

The varied success which has attended the different attempts to rout the enemy by inundation is owing to the lack of thoroughness in many of them. The ground must be thoroughly soaked for a sufficient length of time. Temporary irrigation does not accomplish the end, for the reason that it does not reach all the lice, and does not break up the numerous air bubbles which form in the soil and prevent the drowning of many of the insects.

On our best hilly Vine land thorough submersion is impracticable, but on our bottom lands some of the Grapes which fail now may be made to succeed by its means.

Of 140 different applications made by an intelligent and competent commission in the Department of Hérault, France, most of the pure insecticides proved valueless. Many of them, such as carbolic acid, oil of cade, arsenious acid, sulphide of calcium, sulphide of mercury, arsenate of potash, &c., will effectually kill the insect when brought in direct contact with it, but in field practice they can either not be brought in this direct contact, or else cannot be used strong enough to kill all the lice without injuriously affecting the Vine. Carbolic acid, added to water at the rate of about one per cent., applied by pouring into deep holes made by a crowbar or auger, has given satisfactory results; and a thorough application of soot has also been strongly advocated by those who have tried it. In the experiments that I have been able to make in a small way, a thorough mixing with the soil of a cheap carbolic powder has given good results.

The latest insecticide that has attracted attention and given great hopes in France, is the bi-sulphide of carbon. It seems to have been used as early as 1869 by Baron Thénard, but was brought prominently before the public last autumn by Messrs. Monestier, Lautand & d'Ortoman, who first proposed to introduce it at a great depth in the soil, so as to utilise its vapour. A vapour will naturally have the advantage over a liquid, as it will more effectually permeate the soil and reach the lice. The simplest method of applying the sulphuret or bi-sulphide is by making three holes, 2 to 3 feet deep, around the foot of the Vine, then quickly pouring in the liquid and plugging them up. The holes may be made by a pointed bar driven by a maul. About 2 oz. of the liquid to each of these three holes are recommended.

Soon after the announcement of this method I employed it as a test on three Vines which I knew to be infested with Phylloxera, using 3 oz. to the first, 6 oz. to the second, and 9 oz. to the third—the soil being a light clayey loam. At the end of twelve days I found plenty of living lice on the first and second Vines, and such were found long afterwards, though in small numbers, up to the time of the freezing of the ground. On the third Vine all the lice were evidently charred, but the Vine was also evidently injured, as the leaves wilted as though they had been scorched, though whether from the vapour issuing from the ground or from injury to the root, it was impossible to determine. I think, however, from the former, as the larger roots were yet alive late in the season, and the Vine seems at this writing to be living. After very careful and laborious experiments made in France at different points and on different kinds of soil, by a commission especially charged with studying the action of this chemical, under the method proposed by Messrs. Monestier, Lautand & d'Ortoman, it fails to fulfil the sanguine expectations of these gentlemen. The liquid is costly, its application is labourious, and there is great difficulty in reaching and killing all the lice without injuring the Vine. Great caution must also be had in its use, as it is extremely volatile and explosive—the vapour igniting at a great distance from the vessel containing it.

While, therefore, not very satisfactory results have followed the use of pure insecticides, the application of fertilisers intended to invigorate the Vine, and at the same time injure the lice, has been more productive of good. Especially has this been the case with fertilisers rich in potassic salts and nitrogenous compounds, such as urine. Sulphuret of potassium, dissolved in liquid manure; alkaline-sulphates, with copperas and Rape seed; potassic salts, with guano; soot and cinders, are, among other applications, most favourably mentioned.

Why the Insect is more Injurious in Europe than here.—Without going into particulars several good reasons may be given to explain the fact that the Phylloxera is more devastating in the vineyards of France than in our own. There exists a certain harmony between the indigenous fauna and flora of a country, and our native Vines are such as, from their inherent peculiarities, have best withstood the attacks of the insect. The European Vine, on the contrary, succumbs more readily, not only because of its more tender and delicate nature, but because it has not been accustomed to the disease—there being, doubtless, a parallel between this case and the well-known fact that diseases and parasites which are comparatively harmless among people long accustomed to them, become virulent and often fatal when first introduced among hitherto uncontaminated peoples. Then the particular natural enemies of the insect which belong to its own class, and which in this country help to keep it within due bounds, are lacking in Europe; and it will require some time before the closely allied European predaceous species will prey upon and check it there to the same extent. The Phylloxera will, also, all other things being equal, have an advantage in those countries where the mildness and shortness of the winter allow an increase in the annual number of its generations. Finally, the differences in soil and in modes of culture have no insignificant bearing on the question in hand. Though Phylloxera, in both types, is found on our wild Vines, it is very doubtful if such wild Vines in a state of Nature are ever killed by it. With their far-reaching arms embracing shrub and tree, their climbing habit unchecked by the pruner's knife, these Vines have a corresponding length and depth of root, which render them less susceptible to injury from an underground enemy. Our own method of growing them on trellis approaches more nearly these natural conditions than that employed in the ravaged French districts, where the Vines are grown in greater proximity and allowed to trail on the ground, or are supported to a single stake. Their soil is also, as a rule, poorer than ours. *From Riley's Report on the Insects of Missouri.*

(*To be continued.*)

COPAL.

The following extract is taken from an article in the *Geographical Magazine* relating to the products of eastern and tropical Africa:—

The *Msandarusi*, or Copal tree (Trachylobium sp.), according to Captain Elton, is largely scattered over an extensive tract of country, in the Mrima or coast region. This tract lies along both banks of the Lufiji, and extends from the mountains to the sea, a belt from 30 to 35 miles wide. Throughout these limits immense quantities of the semi-fossil are dug up by the natives, and this constitutes the most lucrative commerce of the Indian settlers at the small trading ports. Further south, beyond the Lufiji, there is a break in the supply, attributed by Captain Elton to the surrounding slave traffic, which rapidly drives legitimate commerce out of its course, but also affected by the increased difficulties of communication caused by the marshy swamps which here fringe the coast more deeply than above the Lufiji. Beyond Kilwa copal again appears, and is largely bought up, in tranquil times, at the numerous trading stations which dot the seaboard down to the Rovuma River.

The Copal tree is described by Burton as a large tree, the towering bole of which has formed canoes 60 feet long. The bark is smooth, the trunk of a yellowish white tinge, rendering the tree conspicuous amid the dark African jungle growths, and is dotted with exudations of raw gum, which is also found scattered in bits about the base. The forests, called *kiregesi*, contain many *msandarusi* or Copal trees, and between them, in the broad transverse glades which always intersect African woodlands, some of the finest fossil-gum is dug. This never reaches the trader, however, without a large admixture of the copal from the neighbouring trees, and the contents of the digger's basket are made up with wet sand and small stones, in order to give it a little extra weight. The chief centre of supply is the Kwale district, where there are eleven stations for carrying on the copal trade. In the early morning strings of natives are seen on the paths, each party led by a few men armed with old muskets and bows and arrows, and consisting of women and lads, carrying copal baskets. Except during the very dry season, these arrivals take place daily, but there is no organised system of working. The Indian traders do not venture to send out parties of their own, for each village and each working is represented by a head man, and the natives are only too ready to unite against the slightest encroachments on their monopoly. The "trade union" system is here represented in its strongest form.

Below 4 feet no gum is found worth taking, and very few diggers go beyond 3 feet in search of it. The trade appears to be surrounded by many difficulties. The Indian trader, on the Mrima coast, has many extortions to contend against, and heavy duties to pay; besides the continual haggling with the natives, competition with his neighbours, and a perpetual round of coast fevers. The local village head-

man extracts a ground rent from him; and he has to pay an arbitrary percentage on his profits and twenty out of every hundred *frasilahs* of copal shipped as an export duty. The cost is from 3 to 5¼ dolls. per *frasilah* of copal, varying according to the season of the year, and at Zanzibar the merchants buy at from 7 to 8 dolls. Yet, in spite of all difficulties, the trade prospers; and Captain Elton is of opinion that the inexhaustible supply of copal, under a settled rule, and with systematic working, would furnish the means of supporting a far larger community than that which is now sparsely scattered along the coast.

In old days the trees would appear to have lined the shores, but the extent of the ancient forests can now only be estimated by the area of the present workings, and by the positions of the existing *msandarusi* which are found away towards the foot of the low hills bordering the Mrima, and on all the terraced lands sloping down from the ridges to the present sea-beach. *Msandarusi* is the true or ripe copal, the produce of vast extinct forests, and buried at depths beyond atmospheric influence. The raw or tree copal is called *chakazi*. It is little valued in European markets, but is exported to Bombay and China. A most interesting account of copal and the copal trade is given by Captain Burton in his *Lake Regions*.*

GREENHOUSE PLANTS.—XIV.

THEIR CULTURE AND MANAGEMENT.

Adenandra fragrans.—This plant is a native of the Cape, and is the best of the Adenandras. It produces its bright, pink, fragrant flowers in compact bunches, on the points of the shoots of the preceding season's growths. This is a plant that of late years has somewhat seldom been seen, for reason's difficult to explain, as, when in good condition it is very attractive, the grateful fragrance of its flowers, good foliage, and distinct appearance, make it a general favourite. The fact of its being much easier to grow than many hard-wooded plants, possibly, may have had something to do with its not being so often seen on the exhibition stage, yet its comparative easy culture should rather be looked upon as a recommendation than otherwise, so far as being generally useful as a decorative subject. It is also, by reason of its being less susceptible to injury from a deficiency in cultural skill, or a little inattention, a plant commendable to new beginners, or those who have not had an opportunity of mastering the cultivation of the most difficult hard-wooded plants; and even if looked at from the most fastidious point of view by exhibitors, this and others that may be considered of a second-rate character are vastly preferable when well flowered and in general good robust health to such as are placed in the extreme van of select plants, unless these latter are in good condition.

Adenandras are strong rooted plants, much more so than the generality of greenhouse hard-wooded subjects, that also are natives of the Cape, or such as are indigenous to New Holland, consequently they are not so delicate in the matter of water as the finer rooted plants—that is, their receiving it a short time before it is absolutely required, or in a little larger quantity than necessary, is not so likely to have a fatal effect; neither are they so liable to injury from being used for general conservatory decoration, as is the case with such as are naturally less vigorous in constitution. The usual trade-sized plants, in 6 or 8-inch pots, are obtained in the autumn, such being selected as are in a free vigorous condition, young, and that have not been too long in the pots they occupy, and quite free from brown scale. In the case of any greenhouse plant it is necessary to avoid such as are at all affected with this insect, especially when commencing with them, for although it is quite possible to destroy the pest, yet it requires labour to do it, and the operation can in no case be of any benefit to the plant, but often the reverse. Winter them in a temperature such as the general young stocks of hard-wooded plants require—from 40° to 45° at night is about the range that suits most species best whilst in a young state. So treated their roots will be early in action, and admit of their being potted by the middle of March. Some growers use loam for Adenandras, others prefer peat; the latter I consider more in accordance with the requirements of the plants, as they will last and keep in good condition longer in it than in loam. I have also found them grow quicker in peat, which should be of a good fibrous nature; but if a little harder for these plants than is required for some, it will be all the better. Break it, as usual for young plants, about the size of acorns, and add one-seventh sand, which mix thoroughly with the peat. Give them a 3-inch shift; drain well. This is the more necessary, as when in full growth they require more water than some others. Nip out the points of all the shoots at the time of potting, so as to induce them to break freely; place in a house where they can for a few weeks be kept a little closer, standing them on the usual bed of damp, moisture-holding fine ashes, which will prolong the time of their not requiring the water after the shift, enabling the roots to take to the new soil, yet do not allow them to become too dry so as to flag at all, or their leaves, which are more ample than many plants of similar nature will most likely suffer. Shade slightly for two or three weeks, and tie the strongest shoots well out, bringing them right down to the rim of the pot: it is necessary to see to this early, as these plants are more disposed to an upright habit of growth than many others, and if the most vigorous branches are not brought down sufficiently low from the first, they not only become too stiff to bend freely, but the weaker shoots are not able to get on more equal terms with the strong—a necessary condition in hard-wooded plant growing that should never be lost sight of. Adenandras are very even growers, and do not usually require any stopping or training through the season after this spring tying; but if any of the shoots have a tendency through the summer to outgrow the others, despite the tying down, they may be shortened back a little so as to equalise their growth.

As the spring advances give more air, syringe the plants freely every afternoon, close the house early, damp the material on which they stand in the mornings, which will assist them through the hottest weather. Shade slightly during the middle of the day. By the end of June their roots will have taken complete possession of the new soil, and will require more room. Move them on into pots 3 inches larger, using soil in every respect similar to that they were removed into at the earlier shift. Give extra shade for a few weeks, with abundance of water thrown about the house, and continue the use of the syringe until the end of August, when it will be well to dispense with it, and also allow the house to become considerably drier, to ripen up the growth. Give plenty of air during the day, and leave some on at the top lights during the nights through the autumn, so long as there is no danger of frost. Winter them similarly to the previous season, and give just as much water as will keep the soil in a healthy condition. The roots of these plants are rarely, when in health, quite at rest. Pot again in spring, about the time recommended the preceding year, giving a 3 or 4-inch shift, according to the strength of the plants. Use the soil in a little coarser state, adding sand in similar proportions as heretofore advised. Pot hard, and train the shoots well out, as before. It is not likely the plants will show much flower this spring, on account of their non-exposure to the open air the summer previous; neither is it well they should, as it would somewhat interfere with the coming season's growth, when, if all goes well, they will make progress such as to bring them up to a useful decorative size. Take out the points of the shoots, as recommended last season, but not before the end of April; if done before this time they will set bloom sooner in the winter than they should, and would come into flower before the time when they are required the following spring. When the shoots are shortened back let it be evenly done all over the plants, so that they may be able to make a regular growth, which encourage by maintaining a moist growing atmosphere, through applying water freely to the paths and stages. Give air early in the morning, and in abundance through the day. Syringe the plants well in the evening, and close the house whilst the sun is yet upon the glass; shade slightly in very bright weather in May, June, and July, during which latter month they should be gradually inured to more air, given through the nights, with less shade in the day-time.

At the beginning of August turn them outside in the open air, giving them for a week or so a little protection from the sun in the middle of the day, after which fully expose them, protecting the pots from the direct rays of the sun. Syringe overhead every evening in bright weather, but do not allow the plants whilst out to get too much drenched with rain. They may remain out-of-doors until the middle of September, after which it will not be safe to risk them for fear of frost; give them a good light situation through the winter, during which time they should be nicely tied, applying new sticks, and training them into proper form. They are not difficult plants to manage in this respect, from their natural even habit. In the spring they may be expected to show flower from every shoot, which will open through April or May, when they will make useful decorative plants, which can be removed to the conservatory or show-house. After their flowering is over cut the shoots back about half way between the extremities and the point they were cut back to last year. If only just the points of the shoots are removed the plants soon get too tall, and have an unsightly appearance. Give them a good syringing so as to remove any dust that may have accumulated upon the leaves during their flowering time; remove them back to the hard-wooded house, and assist them to break by slight syringing in the afternoons, keeping them a little closer. When the young shoots have grown half an inch or so repot, giving a 3-inch or 4-inch shift according to the amount of roots they are found to have when turned out of the old pots, and encourage them to grow freely by keeping the atmosphere moist, and a little shade during the middle of the day. Inure them to more air, and decrease the shade through July, after which turn them out-of-doors, and treat similarly as advised the preceding season. It must be borne in mind that Adenandras require this open-air exposure to insure their flowering. By the end of the season they will have arrived at a nice specimen size, and will, if required, do well for exhibiting. Treat through the autumn in accordance with the directions previously given; but now winter them in a temperature some 5° cooler, or they may flower earlier than required. Let their subsequent spring treatment be the same as last year, except that they will not require potting this season. Give them a shift after flowering the next year, after which, when they require it, they should be assisted with weak manure-water whilst making growth. Adenandras, so treated, will last for some years, if kept free from red-spider, which must be diligently sought for during the growing season, as, if it gets to a head, the leaves will be destroyed, spoiling both the health and appearance of the plants. *A. speciosa* is worth growing, and requires similar treatment to *A. fragrans*, to which plant it forms a nice companion. *T. Baines.*

* *Royal Geographical Society's Journal*, xxix., p. 435.

Home Correspondence.

Casuarinas.—Some friends, recently returned from the South of India, seemed exceedingly pleased at recognising in my greenhouse what they called "Casuarinas." On closer inspection, however, they were not at all certain about them; the fact being that they were young specimens (4 to 5 feet high, in pots) of Cupressus Lambertiana, which have a cheerful and light appearance amongst common, half-hardy plants. The conversation naturally led to the inquiry, what are Casuarinas? And the reply was that they are trees of exceedingly quick growth, much used on the Malabar and Madras coasts for firewood; that they form plantations of them, as screens from the wind, on exposed Coffee estates; that, from their very ornamental foliage, they are planted in clumps, in avenues, and as single specimens; that they are surface feeders, their large roots extending for long distances; and that they seem to delight in the very poorest of soils. As a proof of the rapidity of their growth, it was mentioned that some seedlings, 3 feet high, pla[illegible] by Mr. R. H. Peirce, at Cochin, near the chur[illegible] 1863, are now 75 feet high. Botanical dictiona[illegible] refer to several species of Casuarinas, but none ex[illegible] 18 feet in height. What is this tree? *W. Ta[illegible]*

Veitch's Ashleaf Kidney Potato.—We have lifted to-day a piece of the above Potato, 9 yards square. The produce weighs 646 lb., or close on 6 cwt. We gave them no special treatment—unless good sets, planted on well pulverised ground late in February, giving each trench as we went along a good dressing of charred refuse from the rubbish heap, can be called such. I have grown many varieties of early Potatos, but for general purposes have found none to come up to this one. I may add there is no sign of disease, and that some of the largest tubers weigh close on half a pound each. *H. J. C. Grimston, Aug.* 19.

Mont d'Or Butter Bean.—There are very few kinds of culinary vegetables which are really more useful than the Scarlet Runner and the various varieties of the French or dwarf Kidney Bean. The latter sorts are all easily forced, and by this means can be had in season at almost any period of the year, while their season in the open air extends over a very considerable portion of the same; and let the season (as regards weather) be what it may, it seldom happens that the French Bean crop proves a failure. Both the dwarf sorts and the Runners will succeed in any ordinary garden soil, although, generally speaking, it is the same with them as with most other vegetables—that is, the better the soil the better the yield; and the Scarlet Runners are generally found to succeed best when sown in trenches prepared as if for Celery. That the French Bean is much appreciated by gardeners is sufficiently shown by the great interest which is usually taken by them in any newly-introduced or meritorious variety; but as novelties do not always realise the expectations which growers are sometimes led to entertain respecting them, when they really do so, it is only but justice to give publicity to the same; so that I would beg to call attention to the variety named above, which I have this season found to be all that could possibly be desired, having proved it to be a free bearer, with pods of excellent quality, perfectly free from stringiness, of fine flavour, and which may be used when nearly full sized, and which may also be cooked whole or otherwise, as desired. When cooked the pods very much resemble butter, so that the name is by no means inappropriate. It is said to be largely grown and much esteemed on the Continent, and also in America;

but doubts were entertained as to whether the warmth of our climate would be sufficient to bring it to a state of perfection. But this it appears to have attained to here during the present season, which has been by no means a favourable one for tender vegetables of any kind. If this Bean has been tried during this season in any of the northern counties, it would no doubt be interesting to many readers to be told how it has succeeded. Here it has proved more hardy and much more productive than the Wax Runner, which this season has not done well. The Mont d'Or Butter Bean is a running variety, and requires to be staked, but does not appear to exceed 4 or 5 feet in height. There is also a dwarf variety which is said to be good, but this I have not yet tried. *F. Grieve, Culford, Bury St. Edmunds.*

Immoral Rose Exhibitors.—As a trade exhibitor of Roses, and one who is anxious that controversy should be carried on in a spirit of "impartiality" and "fair play," and also with the design of eliciting the "truth," I beg to enter my protest against the one-sided and incorrect view taken by Mr. W. D. Prior upon the subject of exhibiting. Will Mr. Prior kindly define the terms "colourable as to size," and "adventitious" [course of] treatment? Does the latter mean highly manuring, deep trenching, or what? I have plants on the seedling Brier 8 feet high, from dormant eyes this season, planted on land after an exhaustive Wheat crop, ploughed and subsoiled only, and without a particle of manure, from which I have cut all the blooms with which I have been so successful in taking prizes this season. Will Mr. Prior call this "adventitious" treatment? Mr. Prior's remark that the varieties of Roses selected by the public at these exhibitions do not attain the same amount of success in the hands of ordinary growers as that produced by our "adventitious" (?) treatment, and his statement, "that in ninety-nine gardens out of a hundred not a single bloom in any season, even of the best varieties, will be found equal to the samples on the strength of which purchase was made" is quite inaccurate. Do we not see it frequently contradicted by the beautiful stands of Roses shown by amateurs, and which sometimes even beat the nurseryman's "adventitious course of treatment"? In reference to the "disappointment, discouragement, and not seldom anger" to which Mr. Prior alludes, I had thought those feelings in connection with Rose purchasing were almost of the past now that Rose culture is so well understood. I never experience anything of the sort; my customers, many of whom constantly select at the exhibitions, order very regularly, and with the greatest zest, and their kindest expressions. And may I here add in reference to Mr. Prior's remark concerning Roses cut from plants grown under glass, that I think the finest and best quality of blooms are those cut from the open ground; consequently the amateur or ordinary grower has the same chance, in this respect certainly, as the "adventitious" cultivator of Roses. *George Prince, Oxford.*

Blackberries in the Garden.—I last year planted out two long rows of Blackberries, treating them somewhat like Raspberries, and they are giving so much pleasure and profit this year that I send an account of them for the benefit of others. They were supplied to me by Fisher Holmes & Co., Handsworth Nursery, Sheffield, and are a variety which they call "the Parsley-leaved Bramble." The foliage is sufficiently ornamental to make it worth growing in a garden. I planted them in rows, about a yard from plant to plant, and fixed stakes to them with a couple of wires also running the whole length. There is now an abundance of beautiful fruit, very delicious in flavour, either to eat or cook, which at this time of year is very acceptable. I gathered the first good dish August 19, and as it is full of fruit of all ages, as well as flowers, it promises to bear freely till frost arrives. I also had from Mr. Fisher Holmes a nice tree of the Imperial Crab—a most beautiful fruit—which I have never been able to get before, now in full beauty. *W. D. F.*

Pandanus longifolius Flowering at Lowther.—There is at present in the conservatory here a plant of Pandanus longifolius in flower. I should be very glad to know if the flowering of this plant is anything rare. [Yes.] The stem of the plant is 4 feet high, and the length of flower-stalk 6 feet, with a large branching pyramidal-shaped bunch of light yellow flowers on the top. It was bought at a sale at Coneshead Priory, near Ulverston, last winter, and seems a very old plant. *William Shand, Gr., Lowther, Penrith.*

The Dutch Way of Cutting Asparagus.—In Johnson's *Lives of the Poets* (Swift) I find as follows:—"Here he became known to King William, who sometimes visited Temple when he was disabled by the gout, and, being attended by Swift in the garden, showed him how to cut Asparagus in the Dutch way." Can any of your readers inform me what is the Dutch way? The French use a pointed knife slightly curved, the saw part being curved the reverse way to ours. I greatly prefer our common market gardener's knife. *A.*

The Potato Crop and the Disease.—As soon as I saw the observations in the *Gardeners' Chronicle* in reference to the supertuberation of the Potato, the vigorous growth of the haulm in my late crop induced me to examine a few of the tubers. Having observed in one or two cases some symptoms of further growth, I had the haulm of the entire crop carefully drawn with its roots, leaving the little hillocks containing the tubers undisturbed, to remain until the usual period for storing. I conclude, under such treatment, there is no danger of any growth progressing from the tubers, and shall be glad of any confirmation of that view which any of your readers may be able to afford in your notices to correspondents. *Charles Lawrence, Cirencester.*

Productive Apricot.—I send herewith a sketch of an Apricot tree (fig. 57), which has performed such a feat that, had I not personally been a witness of it, I could not have believed. During the third week in February, 1873, the tree was planted in its present position, upon an east-aspect wall. The dimensions of the tree are, roughly, 10 feet high, by about 8 feet wide. In moving it from one part of the garden to another, I scarcely need say, I had every possible trouble taken to exhume each root whole, and to maintain every rootlet in its entirety, knowing well what difficult trees aged, or moderately aged, Apricots are to move. The tree so taken up and replanted has borne this season no less than 151 fruits of the very

Fig. 57.—Productive Apricot.

largest size, which have ripened well, and are of full and excellent flavour. I know of no extra aid that I could have given to it, excepting it be that, knowing its predilection for chalky ingredients, &c., I had about one-fifth part of the compost formed of the stony siftings usually left by bricklayers when preparing lime and road-drift for mortar-making. The simple facts are, that in seventeen months a newly planted Apricot tree has borne a crop of fruit, of the first order, numbering more than twelve dozen. *Wm. Earley, The Gardens, Valentines, July 28.*

Myosotis dissitiflora.—I ought perhaps to apologise to Mr. Earley for not answering his inquiries sooner, but I am rather pleased now that I did not do so, for two reasons—it has brought others forward with their experience, and though by no means ashamed of what many have called my *protégée*, I am glad to have such good backers as have appeared in your able correspondents Messrs. Douglas and Alexander Dean. The latter always plays on one string, and that a seedy one; but of that I do not complain, as doubtless it yields him a sweet strain of blue that is quite satisfactory. It seems almost like persistent antagonism to repeat that I find cuttings or division equally fruitful in soundness of plant and profusion of bloom. But my second cause of satisfaction for not answering Mr. Earley at once I find in his second note, in which he reveals his cause of failure. He says he has patches of Myosotis dissitiflora in which a leveret might hide. Very well, leave them so, or anything like half or quarter, and I can ensure Mr. Earley another failure. Neither he nor any one else can have a multiplicity of bloom, heads level as a table, and dense enough to trundle a wheelbarrow across next spring, and tufts long enough to hide a leveret (head, tail, and all) in at the same time and place. Now is the time for Mr. Earley to elect which he will have. I have always advocated persistent sub-division as the way to success. Tufts 6 inches across are safer than tufts of a foot. Those beyond that, and in proportion to the size and number of their leaves, will, even should they pass safely through the winter's frosts, bloom sparsely. Small plants winter best, and flower most profusely. I will also admit that a bed, mass, or border of Myosotis dissitiflora, however well done, has not the density nor evenness of a similar bed of Myosotis sylvatica. This very evening the plant indicates what the most cursory inspection shows—that the flowers are far wider apart, and that, moreover, it continues flowering much longer. In comparing such in full beauty to an azure sea, it should be stated that the waves in M. disstiflora are more playful. The general effect of M. dissitiflora is grace, elegance—a bit of blue sky, a patch of cloud agitated by a zephyr. No one could think of trundling a barrow over it. The thought might occur to an intensely practical man bending over a closely packed, immovable mass of Myosotis sylvatica. Let Mr. Earley set to work on his huge patches at once, divide and subdivide down to single crowns, plant on rich ground, and push them through September; and if towards the latter end of the month they look anything like sheltering a leveret or young rabbit, divide again, and finally plant closely in blooming quarters in the middle of November or February 1. I think I can promise him a level head and a profusion of bloom that will make him love this Forget-me-Not best of all for ever after. But he may fail; like other beauties, this lovely plant has its weaknesses, its caprices, likes and dislikes. Some plants die without apparent cause everywhere. Its flowers blush into purple when hit too hard by the frost, large tufts husband moisture to their destruction; and in wet, low situations, the cold and the damp of our winters often prove too much for it. I can only add that with me it has been more than all I have or could ever write of it. *D. T. Fish.*

Bedding Pelargoniums.—Dr. Denny and myself are anxious to get up some good prizes, open to every one, for bedding Pelargoniums, subject only to the condition that the raiser's name be attached to each plant. Will any friends assist us? Any contributions to this object will be gladly received by me, and the names will be published in the papers. We are each prepared to give five guineas, and any assistance will be welcome. Our object is to gather together all the best varieties in the country, so that all may have an opportunity of seeing which are the best worth cultivation. *J. R. Pearson, Chilwell.*

Tropæolum speciosum.—At p. 197 you make mention of the beauty of Tropæolum speciosum growing on the walls of cottages in Scotland; I would recommend those in England who have rough clumps of Rhododendrons or other plants growing in a peaty soil to plant this Tropæolum. The effect of a scarlet topping on the dreary foliage at this season of the year is very beautiful, and once planted in the Rhododendron soil they will make a home of their own in the same way as the common Convolvulus does where it gets a hold. I have some plants here growing in the Rhododendrons and in the Holly, which are now getting to be very effective. *W. Culverwell, Thorpe Perrow.*

Royal Horticultural Society. — At the last meeting of the Floral Committee at South Kensington I brought forward a motion, "That when an award was made to any subject by the Committee, that the numbers who voted for it, and those who voted against it, should be recorded, and that the number of members present should also be recorded." This motion, being made in haste, is, I believe, like many other things done in a hurry, somewhat defective. After a very short discussion, it was put to the meeting, and was lost by a considerable majority. Although this motion was rejected, I confidently believe that there is a good, sound and salutary principle involved in it. As far as I can recollect, the objections to it were only two; one was that a really meritorious plant—a new Orchid, for example—would appear in the record to have but few supporters. This would arise from so few acquainted with Orchids being members of the committee. Another objection was the almost impossibility of getting the numbers of those in attendance correctly recorded, as many of the members have an unfortunate habit of perambulating the room and gossiping, instead of taking their seats at the table and performing their duties as committee-men in a proper and business-like manner. Now these objections appear to me to be very trivial, and very easily disposed of. The first may be met by having a column upon the book where those who do not vote may be recorded as neutrals; and the second is of no moment, the opinion of gossiping gentlemen being likely to do more harm than good. At the next meeting of the committee I purpose bringing forward another motion of a similar character to that previously proposed, and I hope in the meantime those inter-

ested will turn the matter over in their minds, so that the advance of horticulture, the object for which we are all striving, may have the benefit of their deliberations. Gentlemen not being members of the committee might kindly give their ideas through the medium of your paper. *John Fraser, Lea Bridge Road.* [We think all that is practicable in this direction would be to record in the books and on the certificate-cards whenever an award was unanimous; for without the names—and these it would be impracticable to record or publish—the mere number of persons voting would be no clue to the value of the vote. We should, however, be glad to learn the opinions of others. Eds.]

The Irrigation of the Kitchen Garden.—This very hot and dry summer has shown the advantages of having a thorough supply of water at command in watering vegetable crops and fruit tree borders. Having suffered much in the kitchen garden here in the dry, warm seasons of 1868 and 1870, the first opportunity was taken of having plenty of water in future, and fortunately it has been laid down this year. Nearly 4000 feet of iron piping of 4 inches in diameter has been used, with hydrants every 24 yards, to which hose can be fixed. The supply of water is from a small lake about a mile's distance, and the force is obtained by gravitation. The pipes are laid so as to command all the garden squares, the fruit tree borders, and the borders of the vineries and Peach-houses, the wall trees can likewise be well syringed, as the force raises it about 16 feet high. It was not till nearly the beginning of July that we could use all the hydrants, but even then the advantages were great, as I got Broccoli, Cauliflower, and other vegetables, planted out, that would have taken no end of labour to keep them alive and growing by watering them with garden pans. Peas, Beans, Turnips, French Beans, and Scarlet Runners, were likewise kept growing and succulent from being well watered. The soil in the kitchen garden here is very stiff, and cracks in very warm, dry summers so much, that getting seeds to vegetate is very difficult. In my opinion, no kitchen garden in a large establishment can be complete without having a supply of water laid on to be of use in dry, warm years like the present. *William Tillery.*

Carpet Gardening at Messrs. Ivery & Son's Nursery, Dorking.—Here is another instance of the increasing taste for this style of gardening—scarcely to be wondered at here when it is stated that Mr. Henry Drover, late gardener to Mr. Quilter, at Lower Aston, Birmingham, is the floral manager of the nursery. A flower garden close to the house is very bright just now, and two of the long beds are planted with Alternanthera amœna, A. paronychioides and A. paronychioides major, Echeverias, Golden Feather, Veronica incana, and Mesembryanthemum cordifolium variegatum in a handsome design. On the greenhouse border close to this garden is a veteran Erythrina crista-galli about sixty years old, with an enormous trunk, and with twenty enormous spikes of flower on it. This nursery has a celebrity for British Ferns, and the collection of specimens in good health, although the dry summer has been a trying one for them. Amongst the newer kinds, Polystichum diversilobum Iveryanum cristatum is a very handsome Fern, and Polystichum angulare congestum, P. angulare Pateyi, Polypodium cornubiense Whitei, and Polystichum angulare plumosum, all rank high amongst hardy ornamental Ferns. Athyrium Filix-fœmina. Girdlestonii, is a very graceful handsome Fern. Three new span-roofed houses are devoted to young Ferns, and in one house is a fine batch of Scolopendrium laciniato-cristatum, a distinct and handsome Fern. In another house is a large stock of Adiantum reniforme, and Pteris tricolor; the latter especially luxuriating here and in fine colour. The outdoor department is well kept, and a fine lot of Pentstemons and Phloxes made a good display, and amongst the latter Aurora borealis, salmon; Madame Standish, light, with dark eye; Madame Haste, a very fine white; Gloire de Neuilly, very bright; and Richard Wallace, light with large carmine centre, are especially noticeable. Judging from the preparation of stock, spring bedding out will be resorted to extensively next spring, for masses of bedding Pansies are bright and beautiful now. *Pteris.*

Reports of Societies.

The International Fruit and Flower Show at Belfast: *Aug.* 20 *and* 21.—This exhibition, as it deserved to be from the liberality of the prizes offered (over £1000), and the untiring efforts of the secretaries and managers, was a complete success in both the number and excellence of the exhibits. It filled four large tents, in addition to the permanent canvas-covered exhibition erection, which latter is 225 feet by 90 feet. Amongst fruits, Grapes were shown in large quantities and splendid condition, with fewer examples of an inferior description than are generally met with at large shows. The eight bunches with which Mr. Johnston obtained the 1st prize were magnificent examples of good Grape growing. Mr. Magee, who was 2d in this class, also showed well. Mr. Meredith, of Garston, showed a collection of Grapes possessing their usual excellence, the bunches of Madresfield Court being especially fine. Mr. Hunter, of Lambton Castle, exhibited a bunch of Black Hamburgh that not only eclipsed in size his former productions, but outstripped anything that has previously been seen, weighing, as it did, 21 lb. 12 oz. Even for those acquainted with the principles of good Grape culture, it is difficult to realise the condition and amount of accumulated strength stored up in a Vine necessary to enable it to produce bunches of such weight. Mr. W. Thomson, Clovenfords, exhibited his new Grape, Duke of Buccleuch, very fine, beautiful bunches, the berries enormously large, and even in size. It has all the appearance of having a strong, vigorous constitution. Mr. Johnston's twelve dishes of fruit were in every way good, his Grapes large in bunch and berry, and well coloured, as also were his Peaches and Nectarines. The Marquis of Londonderry and Mr. Hood also exhibited good, well-finished fruits in this class.

Plants were well and numerously shown, amongst the foliage especially were some specimens that have never been surpassed, and rarely equalled. In Mr. Magee's lot of sixteen, mixed foliage and blooming, which took the Mayor's very handsome £20 cup, was the finest example of Croton angustifolium ever produced—a perfect golden pyramid, 7 feet by 6, with others little inferior. Mr. Hood was a good 2d with smaller foliage than the winning lot, but his blooming plants were better, especially the two Ericas, retorta and Austiniana. Ferns, both tree varieties and others, were very fine. Zonal Pelargoniums and Fuchsias were produced in quantity, large and well-flowered

The whole were most effectively arranged, and reflected the highest credit upon the able curator, Mr. Johnson, especially the permanent exhibition tent, which is laid out similar to the Regent's Park show ground, but the raised beds are lower here, and so far have a better appearance; the ground is similarly sunk. The posts that support the roof are covered with Ivy and other hardy climbing plants. A few shrubs are planted round the sides for relief, and to form an irregular background. The place was designed and executed by Mr. Johnson, and when, as on this occasion, well filled with good plants, was pronounced by competent judges as equal to anything of the kind hitherto seen.

There was one omission through a considerable portion of the show—that was the absence of names to the plants and other productions shown. This is an injustice to the public who pay their money to see these exhibitions, and who have a right to be made acquainted so far with the different things in competition.

Ten Orchids: Mr. Bruce, gr. to J. Fieldes, Esq., Chorlton, Manchester, was the first and only exhibitor: in his collection were Epidendrum prismatocarpum, Vanda suavis, Vanda Batemanni, and Aerides quinquevulnerum.

Six Orchids: Mr. Hood, gr. to J. Leslie, Esq., M.P., Glasslough, showed the only lot. For the Mayor's £20 cup for sixteen plants, eight foliage and eight in flower, Mr. Magee, gr. to H. Hawkins, Esq., Kin Edar, was 1st, with a collection in every way worthy of the prize; amongst them was one, the Croton angustifolium already alluded to, large and finely coloured C. variegatum, Latania Borbonica, Phormium tenax variegatum, a nice Ixora coccinea, Allamanda Chelsoni, and Phœnocoma prolifera. Mr. Hood was 2d, and amongst others had three good Heaths—E. Marnockiana, E. Austiniana, and E. retorta, the latter past its best; a small and well flowered Ixora, Cycas revoluta, Cordyline indivisa, and a good Dicksonia squarrosa.

Ten stove and greenhouse plants, half in flower and half foliage (1st prize given by Mr. B. S. Williams, Holloway): 1st, Mr. C. Beaton, gr. to Mrs. Thomson, Low Wood, his best being Bougainvillea glabra, Stephanotis floribunda, Sanchezia nobilis, Alsophila excelsa, and Latania borbonica. Mr. Duncan, gr. to T. Sinclair, Esq., Hopefield, was 2d, and had splendidly-bloomed plant of Vallota purpurea, in addition to plants of Cordyline indivisa, Maranta zebrina, and Latania borbonica.

In the class for six foliage plants (prizes given by the Lawson Seed and Nursery Company, Edinburgh), Mr. Wadds, gr. to the Marquis of Drogheda, Kildare, was 1st, with a couple of good Crotons, variegatum and angustifolium, Maranta Veitchii and Pandanus ornatus. Mr. Magee was 2d, and showed amongst others Croton Weismanni, Cycas circinalis, and Dæmonorops palembanicus; 3d, L. M. Ewart, Esq., Glenbank. In his group was a good Cycas revoluta, and a fresh well-grown plant of Adiantum Farleyense.

For eight stove and greenhouse plants in 10-inch pots: Mr. Magee and Mr. Hood were equal 1st, both showing remarkably well-grown plants; 2d, T. Sinclair, Esq., Hopefield.

Six Tree Ferns: Thomas Valentine, Esq., The Moat, had a good half-dozen, not very long in the stems, but with fine heads, remarkably fresh. The Cibotium regale and Cyathea dealbata in this collection were very fine. 2d, Mr. Hood; 3rd, Mr. Sinclair. These were all good plants, and, standing well above the other occupants of the large tent, were very effective.

Six Cape Heaths: 1st, Mr. Magee; 2d, Mr. Hood. Most of these plants were getting a little past their best.

Eighteen miscellaneous plants: Mr. Magee was here again 1st, with a very interesting group, the plants not so large as those he exhibited in the cup class, but fresher. He had Ixora coccinea, Allamanda cathartica, and a nice plant of the old but effective Mussænda frondosa. W. C. Beaton was 2d, with smaller plants; Mr. Hood 3d.

Fuchsias were well and numerously shown, large and profusely flowered, with a nice assortment of colours. For six, Mr. Magee was 1st with Madame Cornillissen, Albert Memorial, Avalanche, Mrs. Marshall, Striata perfecta, and Rose of Castile, still one of the best; 2d, Miss Whitla, Ben Eaden, with plants somewhat smaller but equally well done. For four: 1st Mr. Beaton, who had Wave of Life and Empress, remarkably fine; 2d, A. D. Lemon, Esq., Edgecumbe; 3d, Mr. Duncan. Four Fuchsias (spring struck): 1st, Mr. Magee; 2d, A. D. Lemon, Esq.; 3d, Miss Whitla. All these were well-flowered, fresh young plants.

Caladiums in sixes were beautifully shown by Mr. Magee. His plants were both remarkably fresh and also stout, with an absence of that weak drawn condition the plants have when grown with insufficient light.

Six Yuccas, Agaves, and Aloes, were contributed by Mr. Hood, who was 1st. In his group was a splendid plant of Yucca Stokesii, 5 feet high, the colour beautifully fresh. 2d, Mr. Duncan, with smaller plants.

For four Dracænas Mr. Hood was 1st, with good plants, but there was great similarity in the varieties.

Coleus were exhibited in sizes, and, common and easily grown as the plants are, yet when really well done, as they were on this occasion, and shown in quantity, forming a bank under the shade of some permanently planted shrubs that occupied one side of the large tent, they were very effective.

Four Liliums were well shown, large, fresh, and beautifully flowered, consisting of auratum and the different varieties of lancifolium. 1st, Isaac Andrews, Esq., Seaview; 2d, T. Richardson, Esq.; 3d, Mr. Duncan.

Four Palms: Mr. Magee was again to the fore with Areca lutescens, A. Verschaffeltii, Chamærops stauracantha, large and fine; and a small fresh plant of Cocos Weddelliana, but which did not match well in size with the others, which were well grown, and some 12 feet in height. 2d, Mr. Hood, having four even, well matched plants of Areca Verschaffeltii, Caryota urens, Latania borbonica, and L. aurea. T. Valentine, Esq., was 3d, with good well grown plants; equal 3d, Mr. McIntyre.

Pelargoniums, eight Zonal: These were well shown, and the competition was very close betwixt Mr. Magee and Miss Whitla—Mr. Magee's plants were a little stouter in the foliage, which gave them the preference; both these lots were very large and well flowered. Six Zonals: 1st, Mr. Duncan. Four: 1st, J. Andrews, Esq.; 2d, Mr. C. Beaton; 3d, W. T. B. Lyons, Esq., Brookfield. Six double Pelargoniums: 1st, Mr. Magee; 2d, Mr. J. Andrews; 3d, Mr. Duncan. Tricolors were large, but not well coloured: T. Richardson, Esq., 1st; Mr. Magee 2d, Mr. Duncan 3d.

Six Ferns (tree varieties excluded): 1st, W. Valentine, Esq., with a well-done even lot, consisting of Adiantum Farleyense, A. cuneatum, Leucostegia immersa, and others.

Twelve dinner-table plants—prizes given by Messrs. T. Methven & Sons, Edinburgh: 1st, Mr. Magee; 2d, Mr. Duncan; 3d, Lord Lurgan. These were all nicely grown, and appropriate plants for the purpose.

For Mr. Bull's cup for twelve new plants (amateurs): Mr. Hood was 1st.

In the corresponding class for nurserymen, Mr. B. S. Williams, Victoria Nursery, Holloway, was 1st.

Set of plants, cut flowers and fruit, for the entire decoration of a dinner-table (1st prize, a silver cup, given by R. Atkinson, Esq.): Lord Lurgan 1st, with a very nice well arranged collection.

For amateurs who do not keep a gardener, two stove and greenhouse plants: 1st, Mr. D. M'Kee, Newtownards.

Nurserymen.—Group of miscellaneous plants: 1st, Messrs. Rodger, McClelland & Co., Newry; 2d, Mr. Hugh Dickson, Belmont Nursery, Belfast.

Twelve plants suitable for dinner-table decoration: 1st, Mr. H. Dickson; 2d, Messrs. Thyne, Glasgow; 3d, Messrs. Rodger, M'Clelland & Co.

Amateur's cut flowers: Roses were well shown, the season here being apparently much later for these flowers. For thirty-six, Mr. Magee was 1st,

with a fresh even lot; 2d, Mr. Coddington, Oldbridge, Drogheda; 3d, Mr. D. L. Coates, Clonallen, Belfast. Twenty-four: 1st, J. Cleland, Esq., Stormount; 2d, C. D. Yonge, Esq., Notting Hill, Belfast; 3d, M. E. Richardson, Esq. Twelve: 1st, Captain McCauce, Clifton, Belfast. Twelve Tea-scented: 1st, Mr. D. L. Coddington; 2d, Mr. Magee. Six Tea-scented: 1st, Mr. D. L. Coddington; 2d, Mr. E. Richardson; 3d, Mr. Magee. Eighteen Gladioli: These were splendidly shown, alike fine in spike and individual flowers—1st, Mr. A. Campbell, with a magnificent lot—his Celimine, Milton, Mons. Legouve, and Adolphe Brongniart were wonderfully fine; 2d, Mr. J. Witherspoon—Jupiter, Horace Vernet, and No. 20 seedling were beautiful; 3d, J. Torrens, Esq. Dahlias were well shown.—Twenty-four: F. W. Leland, Esq., Drogheda, was 1st, with very fine flowers; 2d, Mr. Hood. Twelve Dahlias: 1st, Mr. McFarlane. Hollyhocks, twelve: 1st, Mr. Leland.

Bouquets were shown in quantity, but not very well done—the flowers drawn together too closely. Two bridal bouquets: 1st, Mr. Hood; 2d, J. Andrews Esq.; 3d, the Duke of Manchester. Two hand bouquets: 1st, the Duke of Manchester; 2d, Mr. J. Hind; 3d, Mr. Magee. One hand bouquet: 1st, Mr. Hood; 2d, the Duke of Manchester; 3d, Miss Nicholson. Cut flowers, nurserymen — forty-eight Roses were here remarkably well done: 1st, Messrs. A. Dickson & Sons—in their collection Marie Baumann, Comte de Paris, Duc de Rohan, and Messrs. Dickson's Seedling, Alexander Dickson, were remarkably fine. 2d, Messrs. Campbell. In this lot Alfred Colomb, Etienne Levet, François Michelon, and Madame Boutin, were the best. 3d, Mr. Hugh Dickson, whose most noticeable varieties were Alfred Colomb, Madame Victor Verdier, and Prince of Wales. For twelve of one variety Messrs. A. Dickson & Son were 1st, and Mr. Hugh Dickson 2d—both showing Alfred Colomb.

Gladioli, twenty-four: 1st, Messrs. A. Dickson & Sons. These were magnificently done, amongst them being several of Messrs. Dickson's seedlings, both large and fine. 2d, Messrs. Robertson & Galloway, whose flowers were not so even as the winning stand; Albion, Milton, and Horace Vernet, were splendid spikes. 3d, Mr. H. Dickson. Dahlias, twenty-four: 1st, Messrs. Dickson & Sons; 2d, Mr. William Paul, Paisley. Hollyhocks, twenty-four: 1st, Messrs. Lindsay & Sons.

Fruit—Eight bunches of Grapes: 1st (Lord Lieutenant's cup), Mr. Johnston, gr. to the Earl of Strathmore, Glamis Castle, who showed Black Alicante, Burchardt's Prince, Black Hamburgh, Dutch Hamburgh, Chasselas Napoléon, Buckland Sweetwater, Muscat of Alexandria, and Bowood Muscat. These were large, well finished, and with not an indifferent bunch amongst them. Mr. Magee was 2d, with good large bunches, but his white varieties were deficient in colour. Four bunches of Grapes: 1st, Mr. A. Bruce, with good, well-finished bunches of Black Hamburgh, Pennington Hall Hamburgh, Bowood Muscat, and Muscat of Alexandria; 2d, the Marquis of Londonderry, Seaham Hall, Durham; 3d, W. Raffin, Esq., Edinburgh. Six bunches of Grapes, grown in Ulster (1st prize a silver cup, given by the officers of the Antrim Rifles): 1st, Mr. Magee, with good bunches, well finished; 2d, Mr. M'Laren, gr. to Sir T. Bateson, Belvoir Park; 3d, Mr. Hood. For a dessert of twelve kinds of fruit, not more than three varieties of Grapes, two of Melons or Pines, or one of any other fruit (the 1st prize given by C. M'Garell, Esq., £20): 1st, Mr. Johnston, who exhibited a really fine lot of fruit—not an inferior dish amongst them. They consisted of Black Hamburgh, Muscat of Alexandria, and Black Alicante Grapes; Queen and Charlotte Rothschild Pines; Lord Strathmore and Gilbert's Improved Victory of Bath Melons; Elruge Nectarines, Royal George Peaches, brown Turkey Figs, Morello Cherries, and a dish of Plums; 2d, the Marquis of Londonderry, whose Black Hamburgh Grapes and Royal George Peaches were wonderfully fine; 3d, Mr. Hood, in whose collection was a magnificent cluster of Banana. For a dessert of eight varieties of fruit, excluding Pines, and including not more than two sorts of Grapes (given by the Members for Antrim, Down and Belfast): 1st, Lady Stair, whose collection contained some fine Apricots and Peaches. Two bunches of Muscat of Alexandria: 1st (and Veitch's 1st special prize), Mr. Johnston, with two grand bunches; 2d, Mr. Magee; 3d, Mr. Bruce. Two bunches of any other White Muscat Grape: 1st, Mr. Bruce, with Bowood Muscat, well-coloured and finished, large in bunch and berry. Two bunches of any other white Grape: 1st, the Marquis of Londonderry, with Trebbiano; 2d, Mr. Magee, with White Tokay. Two bunches of Black Hamburgh Grapes: 1st (and Veitch's special prize), the Marquis of Londonderry; 2d, Mr. Johnston; 3d, Mr. Bruce. Two bunches of Madresfield Court Grapes: 1st, Mr. Magee; 2d, Mr. Hood. Two bunches of Black Alicante: 1st, W. Raffin, Esq.; 2d, Mr. Hood; 3d, Mr. Bruce. Two bunches of Mrs. Pince Grapes: 1st, Mr. M'Larren; 2d, the Marquis of Londonderry. Two bunches of any other black Grape: 1st, Mr. Bruce. One bunch of any white Grape: 1st, Mr. Magee. One bunch any black Grape: 1st, the Marquis of Londonderry. The heaviest bunch of any black Grape: 1st, Mr. Hunter, gr. to the Earl of Durham, Lambton Castle, for Black Hamburgh, 21 lb. 12 oz. This enormous bunch, completely distancing in weight anything hitherto seen, was, as might be supposed from its size, deficient in colour, which no doubt would have somewhat improved had it been fully ripe. It was a dense mass of closely packed berries, even in size; 2d, Mr. Goldie. For the heaviest bunch of white Grapes, Mr. Hunter was here again 1st, with Foster's Seedling, weighing 15 lb. This, although large, looked small beside its black companion. 2d, the Marquis of Londonderry. The best flavoured bunch of either black or white Grapes, not less than 1 lb. in weight (given by Mr. McIntosh, Edinburgh): 1st, the Earl of Ellesmere; 2d, Mr. Bruce; 3d, Sir T. Bateson. Two Queen Pines: 1st, J. Cleland, Esq. Two Pines, any other variety: 1st, Mr. Jones, the Royal Gardens, Frogmore. These were remarkably fine, large, and well finished, and deserving of the Veitch's special prize awarded to them; 2d, Mr. Bruce. For one Pine Mr. Jones was also 1st. Three dishes of Peaches: 1st, Mr. Johnston. Two dishes of Nectarines: 1st, Mr. Johnston. Twelve Peaches: 1st, Colonel Campbell. Twelve Nectarines: 1st, Colonel Campbell. Twelve Apricots: 1st, Lord Lurgan. Twelve Figs: 1st, J. B. Houston, Esq. Twelve Plums (green or yellow): 1st, C. Shaw, Esq. Twelve Plums (red or purple): 1st, Miss Hamilton. One green-flesh Melon: 1st, Mr. McHenry, Lambey. One scarlet-flesh Melon: 1st, D. L. Coates, Esq. Twelve dessert Pears: 1st, J. Andrews, Esq. Twelve dessert Apples: 1st, Major Hall. Twenty-four varieties of Apples, half for dessert and half culinary, six of each grown in Ulster (given by Mr. H. Dickson, Belmont Nursery): 1st, J. Cleland, Esq. Eight varieties of hardy fruit: 1st, Mr. Hood. Extra prizes: Mr. Hunter, for a bunch of Grapes; Mr. Meredith, Garston, for collection of Grapes; Mr. W. Thomson, Clovenfords, for two bunches of Duke of Buccleuch Grapes.

Vinery Prizes: 1st, W. Valentine, Esq., Glen Avona; 2d, Mr. Hood; 3d, J. Cleland, Esq.

Vegetables—For the best twelve varieties of Potatos, twelve tubers of each (prizes given by Messrs. Sutton & Sons, Reading): 1st, Mr. Niven; 2d, Mr. McKelvey, Downpatrick. For the best twelve varieties of vegetables, distinct (prizes given by Messrs. Sutton): 1st, Sir T. Bateson. Six varieties of vegetables: 1st, Major Hall.

Messrs. Veitch, of Chelsea, and Williams, of Holloway, each showed a very fine collection of new and rare plants, which were amongst the principal attractions of the show, and received extra prizes. A similar award was also made to Messrs. Barron, for a collection of new Conifers.

Reading Horticultural: *Aug.* 20.—This Society, that twenty years ago used to hold exhibitions that ranked on a level with some of the best provincial shows of the day; and which, in common with many other organisations of a like character, has had its days of adversity as well as of prosperity, now appears to be gradually but surely emerging from its hitherto clouded position into the clearer light of success.

In addition to the advantage possessed by the Society of holding its exhibitions in the prepared ground within the Abbey walls, there is also the promenade in the forcing gardens, which are maintained by the Corporation, and have at the present time a very gay appearance under the management of Mr. G. Phippen, the bedding-out arrangements being remarkably good. Access is gained to the gardens from the Abbey ruins under a fine old sunken archway, and the band is also stationed here, which prevents any undue crowding in the tent—the inevitable result of placing the band near there.

As is usual at Reading, stove and greenhouse and ornamental foliaged plants were leading features; the former were represented by Bougainvillea glabra, Ixora coccinea, Eucharis amazonica, white and rose-coloured Vincas, Rhynchospermum jasminoides, Franciscea confertiflora, &c. Conspicuous amongst these were two remarkably bright coloured Lantanas, well grown and flowered, viz., superba and Le Grudier. These quite put into the shade Rondeletia speciosa major, and they are well worth cultivating to come in as specimens at late summer shows. The best eight stove and greenhouse plants were furnished by Mr. G. Browne, gr. to E. Mackenzie, Esq., Fawley Court, Henley-on-Thames. The best collection of ten foliaged plants was furnished by a new exhibitor, Mr. W. O. Moore, gr. to H. J. Simonds, Esq., Reading—a remarkably good, clean, and well grown lot, the most noticeable being Dracæna Veitchii, Pandanus javanicus variegatus, Maranta zebrina, Alocasia metallica, Sanchezia nobilis variegata, Pandanus elegantissima, and two fine Palms. Mr. Higgs, gr. to Mrs. Crawshay, Caversham Park, who is generally strong in foliage plants, had to be content with second place; his best examples were Cyanophyllum magnificum, Croton pictum, Latania borbonica, Cyathea medullaris, and Maranta zebrina. The best specimen plant was an excellently grown Eranthemum, also from Mr. Morris.

Stove and greenhouse Ferns were finely shown by Messrs. Higgs and Morris, the former having some noble examples of fine culture; the collection furnished by the latter were more even in size and varied in character. Both groups deserved higher prizes than the judges were able to award them. Hardy Ferns were not so good as usual; Ferns in 6-inch pots, suitable for table decoration, were nicely shown, generally of a suitable size, without being too dense in growth.

High praise must be bestowed upon the six unusually fine examples of Lycopods shown by Mr. Morris, grown to a conical shape, and thoroughly well furnished with a dense growth of foliage, each plant averaging 3 feet in height. Perhaps even more striking were the six plants of Achimenes from the same exhibitor. They were grown in pans; the largest examples were 3 feet in diameter, the rest rather smaller, but all exceedingly full grown and flowered. The varieties were Dr. Hopf, Sir Treherne Thomas, Ambroise Verschaffelt, Meteor, Edmund Bossier, and Dr. Buenzod.

Cockscombs were well shown; Balsams, Liliums, Fuchsias, Pelargoniums, &c., only indifferently so. Groups of plants of a miscellaneous character, arranged for artistic effects, certainly cover a good space of ground, and enable moderate things, by a careful mixture, to be shown off to the best advantage. It is surprising how little of truly artistic arrangement comes into play in setting up these groups.

In the department for cut flowers a remarkably fine stand of twenty-four Dahlias was staged by Mr. J. Walker, nurseryman, Thame, full size, and of grand quality. James Cocker, J. Neville Keynes, Marquis of Lorne, Lady Jane Ellis, Surety, W. P. Laird, John Standish, Lilac Queen, and Mrs. Henshaw were all that could be desired. The fancy flowers shown by Mr. Walker were not so fine. Gladioli, Asters (French, German, and crown-flowered), Verbenas, Hollyhocks, and Roses were also nicely shown. There is a class for twenty-four bunches of cut flowers, and the same of twelve bunches, the prizes being awarded for artistic arrangement, but they are always shown in the form of hideous bouquets, the majority of them of a very common character. It would be much better if cut flowers of stove and greenhouse and hardy plants were asked for, to be shown in nice neat bunches of one variety.

The show of fruit was excellent, much above the average—Grapes and Peaches especially good; of the former thirteen dishes of Black Hamburgh alone were staged, and, with one or two exceptions, all very good. The 1st prize was awarded to Mr. J. Tegg, gr. to J. Walter, Esq., Bearwood, who had medium-sized bunches but immense berries and perfectly finished. The 2d prize went to Mr. J. C. Higgs, Caversham Park, who had much larger bunches with smaller berries, carrying a fine bloom. In the class for other black Grapes the competition was limited, Mr. Tomlin, gr. to Captain Wasey, Holyport, being 1st, with good Lady Downe's; Mr. Kneller, Malshanger Park, being 2d with the same. Black Prince was also shown, but none of the Grapes in this class were ripe, and ought not to have been cut. With Muscats Mr. J. Wills, gr. to R. Ravenhill, Esq., was placed 1st, having extra well ripened samples; Mr. Ross, gr. to C. Eyre, Esq., Welford Park, was 2d. Seven lots were staged. Mr. Kneller was 1st with very fine Buckland Sweetwater; and Mr. Tegg 2d. All the examples were good.

The best collection of eight dishes of fruit came from Mr. Higgs, Caversham Park, who had fine Peaches, Grapes, Nectarines, Melons, and Pears. Messrs. Wills and Parham were respectively 2d and 3d. There was a great competition in the class for four dishes, and all the fruit was of superior merit. Peaches were shown in quantity and in splendid condition, Nectarines were also good and well-coloured. Melons, with one or two exceptions, were wretched, the best was Bailey's Green-flesh; Meredith's Hybrid Cashmere, or Heckfield Hybrid, came next, then Orion. Apples were particularly good and well coloured. Plums were shown in quantity, and all very fine, though many unripe.

Vegetables were limited in quantity but first-rate in quality, a large number of the leading prizes going to Mr. Ross, of Welford Park. The finest Potatos were Lapstone, Early Red Emperor, Late Rose, Climax, Early Goderich, and Red-skin Flourball.

Devon and Exeter Botanical and Horticultural: *Aug.* 21.—This Society completed its floral festivities of the present season by holding its 137th exhibition on Friday last, the 21st inst., in the beautiful grounds of Polsloe, the residence of the worthy Mayor of Exeter. I do not know on which to bestow the palm—the beautiful park of Polsloe or the magnifi-

cent exhibition of plants held therein, both of which strongly reminded me of the great horticultural *fêtes* of Chiswick when in the height of their glory. Seven large tents were dotted in convenient places, all of which were rich and full to overflowing, with one single exception, and that the one in which the fruit was arranged as for dinner-tables, and although the fruit in most cases was very superior the whole had a naked and uninteresting appearance, due to the want of accessories usually found in a dining-room and on a dinner-table; a liberal admixture of vases with cut flowers or plants in pots usually grown for that purpose would have made all the difference. It is a matter worthy the attention of the committee of management, who, with their excellent hon. secretary, Mr. T. W. Gray, at their head had spared no trouble and thought to make their exhibition, as it was, almost faultless; so that I hesitate to venture a suggestion, that on another occasion it might be well to try the experiment in one of the spacious tents, of dispensing with the interior fittings, and arranging the plants in groups on the ground—not necessarily breaking up the ground, as in all cases this is not practicable—but if blocks and pots were used to elevate the smaller plants, and large Palms and Tree Ferns intermixed, the effect would, I am sure, be pleasing.

Space forbids my enumerating all the good things, and this must be my excuse for passing by many worthy of note. Perhaps the happiest person present, except the worthy Mayor (C. J. Follett, Esq.), the fair ladies, and the executive, was Dr. Woodman, who now represents the old-established firm of Messrs. Pince & Co.; and, though young to the trade, has proved himself an apt scholar. His exhibits were numerous, and examples of good cultivation, justly claiming for their owner the two premier prizes as well as numerous minor ones, the effect of which was to greatly brighten the hitherto genial countenance of the worthy Doctor, who, I trust, thinks he has yet much more to achieve before he attains perfection. His Palms were nice, healthy, and clean-grown specimens, and amongst foliage plants were remarkably fine examples of Croton Weismanni, Phormium tenax Veitchii (but wrongly named) variegata, Campylobotrys refulgens, besides many other fine things in the way of Alocasias, Marantas, Dracænas, &c. Mr. D. H. Sclater also staged some excellent plants, and in several cases trod closely on the heels of the former gentleman. Most worthy of note were fine examples of Crotons, Hookeri, multicolor, and irregulare. Mr. R. Veitch contributed Dahlias, Gladiolus, Asters, &c., in fair condition, amongst cut flowers; and nice healthy plants of Dieffenbachia Bausei, Selaginella Lyalii, Aralia Veitchii, &c.; and amongst his new plants were Ficus Parcellii and Abutilon Sellowianum marmorata, both charming additions to our beautiful-leaved plants.

Gladioli were shown in great perfection by Messrs. Kelway & Son, of Langport. I noted the following amongst others as being particularly good:—Agathea, Madame Krelage, Lord Raglan, Princess Clotilde, Le Poussin, Cuvier, Helvetia, Lord Bridport, Miss Solway, Daimia, Lady Bridport, Giota, and Oberon.

Fruit, though not abundant, was, on the whole, very fine. Grapes were remarkably well coloured; Peaches were very large, particularly Royal George; nearly all the Nectarines shown were Pitmaston Orange, so I concluded that this variety is best suited to the neighbourhood. The varieties of Plums were Green Gage, Kirke's Victoria, Magnum Bonum, and Apricot Plum, all of which were wonderfully large and fine. Vegetables were few, but remarkably fine. Strange to remark, that but one solitary example of an Orchid was shown, and that a medium specimen of Odontoglossum grande, which in that line carries one back thirty or forty years.

A novelty in the form of Nelumbium speciosum was shown in a large tub; this is the first I have seen in an exhibition tent.

I must not omit to mention some very fine boxes of Roses sent by Mr. James Waters, Mount Radford, really good for the season; and the same remark applies to those sent by Miss Lloyd, of Exeter.

Trachelium cœruleum occupied a prominent and very worthy place in several collections of greenhouse plants, and I also noticed the same plants in great variety in the small gardens of the city, where it is perfectly hardy.

A great and successful effort had been made to brighten the way from the centre of the city to the show ground, by planting evergreens on each side and clothing the lamp-posts with Laurels, &c. *J. S. T.*

Shirley and Millbrook Horticultural: *Aug.* 20.—This year the show was held on Aug. 20, in the charming park of the Blighmount estate, the residence of A. R. Nagthen, Esq., M.P. for Winchester, who is also the President of the Society. These grounds run down to the edge of the Southampton Water, and overlook a portion of the New Forest scenery. The subjects exhibited comprised the usual classes for stove and greenhouse plants, Ferns, Mosses, Fuchsias, Pelargoniums, cut flowers, fruits, vegetables, &c., and the exhibits were all of a good average quality. Mr. Kelly, gr. to W. S. Ginger, Esq., of Shirley, was the principal exhibitor of tender plants, invariably showing well grown specimens. Mr. Humber, gr. to A. Barlow, Esq., had some fine exotic Ferns; and Mr. Richards, gr. to Rolles Driver, Esq., of Crabwood, some superior pans of Mosses; he was also the leading exhibitor in black and white Grapes. Zonal, Nosegay, and double Pelargoniums are invariably strongly shown here, the plants being naturally grown, devoid of sticks and trellises—dwarf, compact, and full of flower. Mr. Helley was 1st in the classes for six Zonals and six Nosegays, having in the one case fine plants of Avocat Gambetta, brilliant scarlet; Jean Sisley, Cham, and Resplendent: and in the Nosegay section were Master Christine, very fine indeed, Madame Haste, blush and pink Nosegay. In other competing collections Wellington, Eclat, Grand Duke, Beauté de Suresnes, Limelight, Clipper, and Glow were admirably done. Some splendid plants of the double kinds were staged by Mr. H. Powell, gr. to Dr. Dayman, of Millbrook, and Mr. Clarke, gr. to — Phelps, Esq., Whitchwood Park—the former taking the 1st prize for the best bloomed specimens, but those of the latter were superbly grown but not yet full flowered. As a promise of what they would be in a week or two hence the branches were covered with enormous leaves and showing up flower buds profusely, whilst there were already developed trusses as large and perfect as show Dahlias. These plants will make a fine display in the conservatory all through the autumn months. Fruit generally was very good, Apples being specially fine. Warner's King, Lord Suffield, and Catshead Codlin were very good. Of Potatos there was a great display, classes for bushels and half bushels taking up considerable space. In the bushel class the 1st prize was awarded to a fine sample of King of Potatos, and in the half-bushel class to a grand sample of the Red Emperor. Dawe's Matchless, Late Rose, Bresee's Prolific, and Myatt's Ashleaf were also shown in good form. Altogether it was a good show for a small provincial society, the operations of which are confined to a limited area. *From a Correspondent.*

Sevenoaks Horticultural and Floral: *Aug.* 20.—This Society held its seventh annual show in Knole Park, and it would be difficult to have selected a prettier site. Those who have not been there must imagine a grassy dell curving to nearly a quarter of a circle, with sloping banks, and a drive through the bottom, with clumps of splendid trees and tents for the flowers on both sides of the road, the approach to it opening into the High Street of the town, within a quarter of an hour's walk of stations upon two lines of railway. The horticultural wealth of the neighbourhood displayed itself in great force. Perhaps the most striking plants for numbers were the Caladiums and Begonias, the former shown in fine style by Mr. J. E. Rose, gr. to J. Kitchen, Esq., Westerham, and by Mr. J. Burt, gr. to H. B. Mildmay, Esq., Shoreham Place. The foliage plants of the latter gentleman were also very fine, his six consisting of Latania borbonica, Dieffenbachia Bowmanni, Croton variegatum, Croton angustifolium variegatun, Anthurium magnificum and Rhopala corcovadense. Prizes were offered for collections of plants arranged for effect in spaces of 9 feet by 6 feet, and there were numerous competitors, who had grouped their plants on the ground very prettily. Fuchsias and Japan Lilies were plentiful, and some of them very well grown. Roses and Dahlias were but sparingly shown, but the blooms were good, especially those of the Dahlias. There were only two stands of Gladiolus, and those came from the neighbouring nurserymen, Mr. Cattell and Mr. Seale. Phloxes and Asters were as well represented as the dry season would allow. Fruit and vegetables came out strongly; amongst the former Grapes and Plums were particularly good and numerous. It is a pity that exhibitors do not more frequently dress their fruit, as it adds so much to their beauty. A good example of the advantage of so doing was shown by Mr. Jeal, gr. to Major Board, Westerham, who dressed his nice box (containing Melon, black and white Grapes, Morella Cherries, Green Gages, Peaches and Apricots) with sprays of the Ice-plant.

There was much better taste shown generally in the arrangement of the baskets of vegetables, some of which were very prettily grouped, while the products in most cases were highly creditable. Potatos were particularly fine. The competition for collections of twelve kinds of stove and greenhouse cut flowers was keen, those of Mr. Rose being exceedingly well arranged. At country shows one often falls in with flowers that rarely appear at the larger metropolitan exhibitions; and here we noticed further illustration of this fact in the presence of fine blooms of Æschynanthus splendens and of Cyrtanthera with large dark leaves and pale pink spikes of flower. In table decorations the only really good arrangement was that of a single vase exhibited by Mrs. Grant. Mrs. Seale had a dinner-table arranged in her usual style, with vases containing numbers of small flowers of many colours and such a paucity of foliage that the sand and the stalks of the flowers were much too conspicuous. A novel effect was produced by a lady from Riverhead, who laid on the tablecloth an oval of red leaves of Virginian Creeper. Possibly they might have lain flat had they been carefully pressed and dried, as it was they curled up and had a very unkempt appearance, which was not improved by their proximity to crimson Fuchsias in vases which were raised upon square blocks covered with red velvet! A very cleverly executed model of a Kentish cottage on the edge of a sandy lane, was shown by Mr. S. Corke of Sevenoaks. Mr. John Wood, gr. to W. Lamborde, Esq., had a well-arranged model garden, in which the lawn was represented by dwarf pale green Moss, and the shrubberies by seedlings of common wild Ferns. But the best model-garden was that shown by Miss Crisp, of Igtham; it contained a stream of real water, flowing through a rock-garden on one side, and verging the lawn on the other side of the garden—the arrangement affording an opportunity of displaying alpine, aquatic, and bedding plants and shrubs, all of which were cleverly illustrated.

Canterbury Horticultural: *Aug.* 20.—The show was held in the grounds of Tower House, kindly lent for the purpose by Mr. Howard. The various productions which went to make up the show were staged in two large tents, those sent for competition occupying the whole of one tent and part of the second, the remaining space in the latter being filled up by a fine collection of flowering and herbaceous plants, contributed from the greenhouses of various gentlemen and nurserymen in the neighbourhood. Mr. Councillor Mount sent a splendid collection of cut Roses, including a tray of twelve specimens of the favourite Maréchal Niel, a Rose which he cultivates with great success. Mr. Mount also sent a general collection of Roses, amongst which were Alfred Colomb, Sénateur Vaisse, Belle Lyonnaise, Charles Lefebvre, La France, Countess of Oxford, Madame Victor Verdier, &c., all beautiful examples, and perfect in colour.

Messrs. Masters & Kinmont had a stand, upon which they showed specimens of Gladioli, including some beautiful spikes; Dahlias, remarkable for their symmetry and purity of colour; a variety of specimens of herbaceous Phloxes, and a number of Roses, the most noticeable of which were Madame la Baronne de Rothschild, Countess of Oxford, Lord Macaulay, Paul Néron, and Reine du Midi.

Messrs. Bunyard & Sons, of Ashford, were also contributors to the show, being especially strong in Gladioli. They showed a remarkable collection of Souchet's hybrids, many of them new, and some of them especially admirable; for instance, Psyche, Addison, Elvire, Octave, and M. Legouvie.

The collections of flowering plants included many admirable specimens; but perhaps the strong feature of the show was the department for bouquets and table decorations. The ladies' prize fell very properly to Miss Holtum.

The Potatos were generally excellent. There were none of those overgrown monstrosities sometimes met with at local shows—and this remark applies with equal force to the productions generally—but the samples staged were those of a good, useful, and sound stock.

The eollections of vegetables and fruit were generallly good, that of Mr. Noble, who gained the City Member's silver cup, possessing much excellence, and the one sent by Mr. Green being meritorious and well arranged. Amongst the fruit, the Apples shown in the 1st class were very fine, in fact remarkable for the season; and those in class 2, though much behind, were also good. There were a few dishes of Plums, and, notwithstanding the late period of the season, a good collection of red and white Currants.

The judges were Mr. Hossack, gr. to the Earl of Mountcharles; and Mr. Adderley, gr. to M. Bell, Esq., of Bourne Park. Mr. Sendell acted as honorary secretary, and to his zeal the success of the show was argely due. (*From the "Kentish Gazette."*)

Isle of Thanet Floral and Horticultural: *Aug.* 26.—The nineteenth annual exhibition of this Society was held in the grounds of Latham Tomlin, Esq., at Dane Court, St. Peter's, near Broadstairs. The exertions of the committee were rewarded by an exceedingly fine display of plants, cut flowers, fruit, and vegetables, showing a marked improvement upon previous shows. Bearing in mind the plants that usually appear at the leading shows, it was quite cheering to notice the reappearance of several old "faces" that are not commonly seen at exhibitions. First there was Swainsona galegifolia, in a 24-pot, with numerous spikes of its lovely pink Pea-like flowers, each standard having the characteristic white spot in the middle. Then there was the brilliant Scutellaria Mocciniana, in a small pot, with sixteen

spikes of flowers, with their deep crimson tube and orange under-lip. Again there was a fine potful of the seldom seen Tritonia aurea, the deep orange flowers of which are conspicuous a long way off. Then, again, there was a good plant of Francoa ramosa, with fourteen flowering spikes from 3 to 4 feet high, covered with their pure white flowers. It was worth a long journey to see such old-fashioned plants shown again in good style. Much as we may admire foliage plants, of which there were several good collections, it is to the flowering plants that managers of shows look for their most telling effects; and in this respect there are few plants to beat Zonal Pelargoniums. These were shown in great numbers, and of exceedingly good quality. Achimenes also were numerous, and very creditable. Balsams and flowering Begonias put in an appearance, but did not contribute so much as some other plants to the general effect. Coleus were shown in good variety, and well grown. Two plants were exhibited, one 4 feet and one 7 feet high, of the singular Acalypha tricolor, with its brown and scarlet leaves. There were also a few good plants of single and double Petunias.

The foliage plants were numerous and well-grown, though not remarkable for size. The dark green colour of the Ferns generally was noticed by several, and is doubtless more attributable to purity of atmosphere than to any manurial causes. An interesting collection of foliage plants was exhibited by Messrs. Masters & Kinmont, of Canterbury, who brightened them by interspersing cut blooms of Gladiolus and Kniphofia, and surrounded them with large boxes of cut blooms of Roses, Phloxes and Dahlias, all of which would, had they been entered for competition, have robbed of their first prizes the leading exhibitors. Before leaving the plants, we must notice four seedling Gloxinias of fine form and substance, to which an extra prize was deservedly awarded; and also a fine plant of Miltonia spectabilis, with twenty-five flowers.

The cut blooms filled a large tent, and consisted of a good variety of well-grown flowers, mostly hardy. Dahlias were good and numerous, so also were orange and lemon African Marigolds. Boxes of twelve "species" of hardy flowers came from several exhibitors, though some of the best were disqualified owing to their showing two or three varieties of one flower. Roses were fairly shown, considering the season, and Zonal Pelargoniums in boxes of twelve and six distinct varieties, three trusses of each, formed a grand display. Verbenas, Zinnias, and Gladiolus were present, but not conspicuous for quality. Bouquets for the hand and for the table were of the usual heavy, crowded character, with scarcely any foliage, and with a very unfair proportion of scarlet Pelargoniums. A marked contrast to these was afforded by two much-admired bouquets for the hand, sent (not for competition) by Mr. T. Dickson, of Covent Garden Market. One was a daylight bouquet of blue Agapanthus and yellow Roses, relieved by light pieces of white Bouvardia, and interspersed with plenty of Fern fronds; the other was an evening bouquet of red Nerine Fothergillii and white flowers of various kinds, including Camellia, Eucharis, Gardenia, and Tuberose, with a similar quantity of foliage as compared with the other bouquet.

The fruit was a particularly fine collection, and covered upwards of 1100 square feet of stages. Grapes were exceedingly good, both black and white, both in bunches and in berries. Figs, Melons, Peaches, and Mulberries, were above the average in size and quality; while Plums, Apples, Pears, Currants (black and white), and Cherries, were very creditable. The show also contained a very large quantity of vegetables, amongst which the most conspicuous for quality were Onions, Potatos, Celery, and Cucumbers.

The Villa Garden.

The time of year is reached when the villa gardener begins to turn his attention to the propagation of bedding plants for next season. There are certain to be some favourite Pelargoniums among the zonal, nosegay, and variegated sections—employing the term variegated largely as including the bicolor, or gold-and-bronze section; and in order that a sufficient stock of any of these may be provided, cuttings should now be put in. The quantity to be propagated, and the mode in which the cuttings are struck, depends to some extent on the convenience for wintering the young plants. There is no readier task perhaps than to strike cuttings of these Pelargoniums. It simply requires that some fine sandy soil, such as the refuse of the potting bench, be got together, after being sifted, and with this form a bed in any spare spot of ground, however open and exposed it may be. The bed of soil should be about 4 inches in depth, and be flattened down somewhat firmly with the back of a spade. Then the cuttings may be taken off, and in doing this don't cut large ugly gaps in the beds, but thin out the wood so as to leave the plants a fair and even mass of branches. Have a wooden label or two written with the name of each variety on them; and as soon as the cuttings of any one sort are removed, tie the sorts separately into bundles, not forgetting the label with each. Wooden labels of various sizes, pointed and with smooth surfaces for writing on, can be obtained from any seedsman in small bundles; they are manufactured in Germany and other places abroad, and imported into this country at a cheap rate; then with the point of the second finger of the right hand rub a little thin white paint over the part to be written on, and write the name legibly on it with a soft lead pencil. The cuttings can be taken off in the cool hours of the morning, or in those of the evening, and laid aside for two or three days if necessary for a convenient time in which to strike them. The harder and more matured the wood from which the cuttings are made the better. On the other hand, soft succulent branches should be avoided, as they are apt to decay in the cutting bed. Cut the cuttings across evenly just below a joint, and remove a few of the lower leaves, and then they are ready to be inserted in the prepared bed. No harm will come to them if not put into the bed until two or three days after they are made; a week's exposure in a shady cool place would not harm them.

The cuttings ready, put them in close lines in the bed, each cutting an inch and a half apart in the lines, and the lines about 3 inches apart. The lines can be marked on the surface of the bed by means of pushing into it at regular intervals the side of a lath, or a thin strip of wood long enough to reach across the bed. By doing this order and regularity will be preserved, and the bed will have a finished and workmanlike appearance.

"Order is Heaven's first law" in the universe, and in the garden it is of prime importance. Cleanliness and order will soften down and screen many cultural defects. A slovenly gardener and a disordered garden are anomalies that should not be temporised with any more than the mildew, red-spider, Potato blight, and other pests. Commence to put in the cuttings at the left-hand corner of one end of the bed; put in the cuttings of one variety, and then the label, with the name facing outwards, and so on till the bed is completed. Then give a sprinkling of water, enough to thoroughly moisten the soil, and occasionally sprinkle during hot dry weather. In a few weeks the cuttings will take root, and if there be a conservatory or greenhouse with some upper shelves near the glass, the cuttings should be finally potted singly into small 60-sized pots, stood out-of-doors for a time in a shady place till wet weather sets in; or put into a cold frame if one is available, and finally placed on the upper shelves of the greenhouse to winter. Only occasional waterings are required during the winter. The drier they are kept the better is their chance of wintering safely. This method can only be carried out where there is the necessary convenience, and where a fairly high order of villa gardening is observed. It also supposes that some warmth can be given to the house in which the plants are stored during the winter. To those having only limited convenience for wintering Pelargoniums, the best plan that can be recommended is to put their cuttings in what is termed store pots; that is, a number of cuttings inserted in a 48-sized pot. There should be an inch depth of crocks at the bottom of the pots, over these lay a few decaying leaves; then press some fine light sandy soil firmly in them, set them out-of-doors and sprinkle them with water to moisten the soil. Then six or eight or more cuttings can be placed in each, according to their soil; a label bearing the name of the variety be stuck in the centre of each pot, and then the pots may be put away under a wall in an open and sunny position, standing them on a bed of ashes to prevent the worms working through into the soil. The cuttings will strike readily enough, and by-and-by, when stress of weather makes it necessary, the pots can be removed to the driest and airiest place in a cold house, kept nearly dry, and be looked over occasionally to cut away decaying parts, or remove any withering leaves. Damp is much more injurious to such plants during winter than cold. If no artificial warmth can be given to the house, and there is danger from frost if the plants remain in it, let them be carried away to a dry spare room, where protection is more secure, till the danger is past, when they can be taken back to the house again. Where gardening is carried on under difficulties, and in the face of positive disadvantages, little shifts must be had recourse to, in order to conquer the difficulties. They are not without their uses, for they help to maintain the interest in the garden during the dull winter months; and give occupation to spare moments at the tame season of the year. And it is surprising how many tender plants can be safely wintered when such attentions are constantly paid them; it is the little acts of careful oversight that conquer many reverses during the difficult season of maintaining plant life; and as they are successfully put forth they give birth to many pleasurable emotions in men's and women's hearts.

Shallow boxes can be employed in the same way as that recommended for cuttings in pots. They economise space, and also allow of a little more root room. We have seen in winter, when the frost was fierce without, and keen enough to penetrate almost into the most guarded recesses, boxes of cuttings put away in an odd corner on a layer of soft hay, and the same covered over them, till the danger has passed. Many such little contrivances will suggest themselves in times of need, and when their employment may furnish the only means of safety.

Calceolaria cuttings can be treated in the same way as recommended for Pelargoniums; perhaps the shallow boxes will be found best for these. What with the valuable Pyrethrum Golden Feather, and the equally useful new yellow dwarf bedding Marigold, both of which can be raised from seed in the spring, Calceolarias are not nearly so much relied upon as they used to be; and such a dry summer as that we are now passing through is sadly destructive to whole beds of these. Yellow Pansies and Violas are fast taking their place in the garden also, and seeing that they are thoroughly hardy plants, which can be propagated indefinitely by division of the roots, their increase need cause the villa gardener no anxiety at the present time.

Good strains of the blue Lobelia can now be obtained from seed in the spring, so it is scarcely worth while troubling about wintering plants of any varieties. The charming dwarf trailing Mesembryanthemum cordifolium variegatum can be wintered with ease in a cold house without fire-heat, except in times of very severe frost, when they should be removed within doors. There is nothing like cuttings struck now, and about six or eight should be put round the rim of a 48 pot, in some light sandy soil, with plenty of crocks at the bottom. Cut them off immediately below a joint, as one would Pelargonium cuttings, and press them firmly into the soil; put them anywhere for the present and keep them sprinkled, and they will strike root quickly. Young struck cuttings winter much better than old plants lifted from the ground and potted. If the plants are kept perfectly dry during wet and frosty weather, and have a little water in mild and open weather, they will bear several degrees of frost with impunity. Damp is their greatest enemy during winter. With the first signs of the awakening spring, the charming Mesembryanthemum will begin to put forth the leaves of its young growth, and as soon as these shoots are large enough they should be made into cuttings, and put three or four in a small pot, and struck under a bell-glass; by this means a good number can be obtained by the time the bedding-out season comes round. By such simple methods many bedding plants can be propagated and preserved through the winter, if only the proper care be taken, and the necessary precautions used when trying seasons of bad weather come in the order of time.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Plant Stove.—*Achimenes* that have nearly done flowering and are getting shabby are often thrust at once into sheds, or under shelves in cool houses, or other out-of-the-way place, where they are allowed to remain until the weather becomes cold, so that it is considered unsafe to leave them longer in such situations; they are then removed to some place a little warmer, yet, when the time for starting them arrives, they are found small, weakly, and in poor condition, if not dead altogether: and this is not to be wondered at. Instead of removing the plants when the height of the flowering season is over into a cooler, unsuitable situation, they should be kept in a temperature as warm as requisite to grow them in, where they can

receive water until their scale-like roots are fully ripened and the tops gradually die down. Plants so treated will grow and flower very much better the following season, and there is not nearly so much danger of their decaying through the winter.

Gloxinias.—The same treatment holds good with these plants; they should always be placed where they can receive sufficient warmth and light, with as much water as will keep the soil just a little moist until the bulbs are matured and the tops have gradually died down. If any varieties of *Gloxinia* are required to be increased, it is a good time now to propagate them; when the leaves are matured and in their hardest state there is less likelihood of their damping than when younger and softer. There is no better way of increasing these plants than the old method of making cuttings of the leaves, by inserting them four or five round the sides of a 6-inch pot, well-drained, and filled with sandy loam or peat, with half-an-inch of sand on the surface. The latter is not absolutely necessary, but it helps to exclude the air from the base of the cutting, thereby accelerating the bulb formation. Of any sorts that are very scarce, three or four bulbs can be obtained from a single leaf by laying it flat on the surface of the pot and half severing the midrib with a knife on the underside, placing a small stone on the top of the leaf over each incision. Give attention to winter flowering *Begonias*, which, if suffering for pot-room should at once be removed into a larger size, but this should not be resorted to unless the soil is so full of roots as to render the foliage liable to suffer. Much can be done in the way of assistance with manure-water applied weak and often.

Amaryllis.—Many of these fine plants will now be fast completing their growth, and although they will bear a comparatively low temperature they must not be kept too cold, or the evergreen section will not flower freely. They require a small house or pit where they can have an intermediate temperature with plenty of light and air, so as to not only thoroughly ripen the growth when further extension has ceased, but to ensure that which is of still greater importance, either with a view to the increase of the plants or their freedom in flowering, that is, a continuous solidifying of the growth all through the course of its formation. This is a matter of vital importance, not only in the case of these exceptionally light-requiring plants, but it holds good with almost everything grown under artificial conditions. The extreme drying *régime* which plants that are natives of hot countries frequently are subjected to after their season of growth is completed, with a view to imitate that which they receive in a state of Nature, is too often a mistake, the conditions under which their growth has been made being such as not to prepare them for such a trying ordeal.

Amongst undeservedly neglected stove plants may be enumerated the *Bilbergias*. These Bromeliads include some beautiful subjects, they are easily grown, and do not occupy a great deal of room. *B. Moreliana*, *B. vittata*, *B. thyrsoidea*, and *B. splendida* are plants worth a place in any collection; even when not in flower they are very effective, the stately vase-like *B. Moreliana*, with its long strap-like leaves banded with white, and gracefully curving at the extremities, is always a handsome object, still more beautiful when in flower; its rose-coloured bracts and deep violet petals, hanging in racemes a foot long, have a most distinct and striking effect. These plants always require stove treatment. They do not need large pots, 8 or 10-inch is big enough in which to grow the largest-sized single-crowned plants up to a flowering state. The pots must be well drained, fibrous peat with one-sixth sand added grows them well; the soil must always be quite porous, or their roots will rot, on account of the considerable quantities of water they require. They increase by suckers, which the plants throw up after flowering. The suckers should be allowed to remain on until they have acquired considerable strength, when they can be stripped off and will then root freely, after which the old stools will push any back eyes they have; these, when large enough, can be taken off and rooted.

Euphorbias that have been some time since removed from heat into cooler quarters must not be allowed to remain in such situations too long, or they will suffer at the root, and if such occurs they will be of little use. A house or pit where they can be kept at a temperature of 55° in the night, with plenty of air and all the light possible, will suit them. *Poinsettias* that have been placed out-of-doors or planted out in a warm border must at once be removed indoors. In the case of plants that have been turned out, they must be lifted with as little mutilation of the roots as possible, and potted into well-drained pots in good open sandy soil, loam, or peat; give a little water, just sufficient to keep the leaves from flagging, and place them for a short time in a close pit until the roots have begun to move, when they may have air given, but after this time they must have a little warmth. Grown in this way they make beautiful dwarf plants, but it is only in the south of the kingdom they can be expected to do so well so treated.

Medinilla magnifica.—This plant, when grown in a stove where a deal of moisture is kept up, such as required by most subjects from the hottest parts of India, grows freely enough, but does not often flower well; it does better where it can receive drier treatment, flowering, not only from the current season's growth, but from the old wood even down to the pot. Where there is not the convenience of growing the plant in an atmosphere thus suited to it, an effort should be made to give it drier treatment for the remainder of the season, ceasing to syringe overhead. *Æschynanthuses*, now coming into flower, must be well attended to with water, especially if they are grown as basket plants, but in this case they ought always to be in shallow pots plunged in the baskets, the space nicely filled up with sphagnum. If in these a few bits of *Selaginella Martensii* and *S. uncinata* [*cæsium*] are introduced among the sphagnum it will much improve the appearance of the baskets. With plants so grown it is necessary to examine the soil as to its condition in respect to moisture more closely than when they are grown in pots where more accessible, for if allowed to get too dry when the flowers are showing they are liable to drop. *Ixoras* that have been used through the last two months for conservatory decoration must now be moved into warmer quarters, or they will receive injury from the decrease in temperature. They may at once be placed in the warmest part of the stove; the rest they have had for the last two months whilst out of heat will be sufficient for them, these plants not requiring to have active growth long suspended. Cut off all their old flowers, and, if any of the worst species of pests, such as mealy-bug or scale, exist upon them, give a good washing with insecticide. They will now, when somewhat hard in their wood and leaves, bear it stronger than at any other time in the year; 8 oz. to the gallon will not be too strong. Dip and syringe until every minute crack in the bark and other hiding-place is reached with the solution. *Bougainvilleas*, *Clerodendrons*, and similar plants, that also have for a time been in cooler quarters must now be removed to a warmer situation. These should not be placed where they will receive so much heat as to excite growth, but should have a drier atmosphere, so as to harden them up. Do not completely withhold water, so as to destroy the foliage prematurely, but gradually harden it up. *T. Baines, Southgate, N.*

Succulents.—Stapelias will be flowering and growing finely now, they therefore require more moisture and full exposure to the sun. Cuttings will strike fairly if taken at a joint and put into sandy soil and kept well exposed; those taken last month will now be rooted. Any Mesembryanthemums not put in should be so treated at once, and kept close in a frame near the light, where they will soon strike, and should be potted off at once, as, if left in the stock-pots till spring, the roots get matted and spoil the plants. Treat Aloes, Agaves, and Cacti freely, and if insects get about them, as they are apt to do at this season, give them the benefit of a strong dose of tobacco-smoke. There need be no fear of its damaging the plants. Seed of Echeverias, Aloes, and Stapelias should be looked after, and sown in gentle heat as soon as collected. *J. Croucher, Hammersmith.*

FRUIT HOUSES.

Vines.—Where former directions with regard to the starting of late houses have been followed winter Grapes will now be well advanced, and instead of having to keep the Vines excited by sharp firing, as is the case with houses that were started late in the spring, atmospheric moisture may now be gradually reduced, and well-ripened wood with highly finished fruit will be secured by the application of just sufficient artificial heat to keep up a circulation of dry, warm air. The Vines will go to rest before the long damp nights set in, and the perfect keeping of the bunches in a suitable room after they are cut is reduced to a certainty. My Lady Downe's grown under the above treatment kept fresh and plump this year up to May 24, more than four months after they were removed from the Vines. Vines from which the Grapes have been cleared must not be overlooked. All laterals may now be kept closely stopped, with a dry, warm atmosphere to ensure perfect maturation of the wood. The old foliage must be preserved as long as possible, and if traces of dirt or red-spider still remain an occasional washing with the engine on fine evenings will be found beneficial. Where early forcing is contemplated the Vines should be pruned, washed, and dressed by the middle of September; the houses cleansed, repaired, and painted, if necessary; the borders should also be cleared of old mulching and loose surface soil, and assuming that the drainage is in a satisfactory state this should be at once replaced with a good dressing of maiden loam to which 12 per cent. of bone-dust has been added. *W. Coleman, Eastnor Castle.*

Peaches and Nectarines.—The fruit in the latest houses will now be about cleared all off; and for the purpose of properly maturing the wood thin out all shoots not required, to get all the sun and air possible to those left. Go over the trees with the garden engine to keep the red-spider in check, and water the inside borders well, removing the lights, if this can be done, as soon as the wood is getting ripe. The trees in the earliest forced houses will soon be shedding their leaves, and as soon as they are all fallen the shoots may be loosened from the trellis on purpose to get it painted in the autumn, if required. When any planting or adding fresh soil to the borders has to be done, this is a good time to procure and stack it for future use. I find Peaches and Nectarines do best in a rather strong turfy loam, and if of a chalky or calcareous nature all the better. Here I use the turfy soil from the top of a magnesian limestone rock; and without adding manure of any kind to it the trees are always healthy, and produce fruit of the finest quality and size. The planting time for early forced Peaches and Nectarines should never be delayed longer than the end of September. *William Tillery, August* 24.

Pines.—Those suckers which were obtained from the summer-fruiting plants will soon be ready to be repotted; before that operation is performed the course of treatment to which they are to be subjected should be determined. The method adopted here with this batch of plants is to shift a portion of the strongest into their fruiting pots as soon as they are ready, using 10 and 11-inch ones according to the variety. These plants are afforded a position near the glass in a light, airy house, and are kept gradually growing throughout the winter months. Under such conditions the plants start into fruit readily about the following May or June, and provide a good supply of early autumn fruit. The remaining portion of the plants referred to above are wintered in 7 and 8-inch pots and are transferred to the fruiting ones as soon as they are ready for the operation in the spring. These, in conjunction with strong suckers of Charlotte Rothschild and smooth-leaved Cayenne—the two best varieties extant for fruiting at an early age (which were started last March)—will without much difficulty provide a successional supply of ripe fruit throughout the winter months, which will be supplemented by Queens and other varieties which were started with those already referred to in March. See to the state of the soil which will soon be required for use in potting, as at this season, if fully exposed to sunshine, it will become very dry; if it be necessary it should be brought to a proper condition by being moistened. Give every attention to details in management as before directed. *G. T. Miles, Wycombe Abbey.*

KITCHEN GARDEN.

The continuance of a long period of dry weather has been very prejudicial to the well-doing of all plants of the Brassica tribe, and considerable attention as to watering must be given to all not yet established, so as to get a well-matured growth before cold weather sets in, as when the plants are late in making growth they are much more liable to injury from frost than when the plants are well matured in due season. Young and healthy plants of *Cauliflower* may yet be planted, and if on good ground and well attended to, they come in very useful if the early winter season keeps mild. *Turnips* of the earlier kinds may also be sown, and the last sowings of *Onions*, *Carrots*, *Lettuce*, *Spinach*, &c., should be made as soon as possible. Continue to plant out successional crops of *Endive* and *Lettuce*, and where pits or frames are at command, these should be prepared for getting in a good batch to be protected in hard weather. *Artichokes* which have been two or more years on the ground will now have ceased bearing, and should be removed, where young plants were planted, as recommended, early in spring; these, now in bearing, will give a good early crop next season, and also furnish young suckers for next spring; but it is a good practice to retain a few old roots to take up late in autumn, and lay-in in a sheltered corner, so as to furnish suckers in case of a hard winter. Where not already done, a good supply of annual herbs, as *Basil*, *Knotted Marjoram*, *Summer Savory*, and perennial kinds, as *Mint*, *Thyme*, &c., should be cut, and placed to dry under cover for winter use. The planting out of *Strawberries* should now be completed as soon as possible, so as to get them established before winter, otherwise it is better to plant out runners in nursery beds, and transplant in March or April to permanent quarters. *W. Cox.*

Variorum.

THE GERMINATION OF SEEDS.

The last number of the German periodical entitled *Die Landwirthschaftlichen Versuchs-Stationen* (1874, vol. xvii., No. 2, pp. 104-116), as cited in the *Journal* of the Société Centrale d'Horticulture, from which we take the following extracts, contains an important article in which Professor Fr. Haberlandt reports the results of the numerous experiments which he has made for the purpose of determining the two extremes of temperature beyond which the seeds of numerous cultivated plants will not germinate. These results have a great interest from a cultural point of view.

M. Haberlandt reminds us first that M. Jul. Sachs had already made, during the winters of 1857-1858, 1858-1859, similar experiments, of which the principal results in the case of five species were summarised in the following table, which indicates the minimum, that is to say, the temperature below which germination is impossible; the maximum, that is to say, that above which seeds cannot germinate; and finally the "optimum," that is, the degree of heat which is most suitable to the accomplishment of the same phenomenon.

	Minimum.	Optimum.	Maximum.
	Cent.	Cent.	Cent.
Maize (Zea mais)	9°.25	33°.75	46°.25
Spanish Haricot (Phaseolus multiflorus)	9°.25	33°.75	46°.25
Pumpkin (Cucurbita Pepo)	13°.75	33°.75	46°.25
Wheat	5°	28°.75	42°.50
Barley	5°	28°.75	37°.50

M. Sachs ascertained that the germination of the seeds of Clover (Trifolium pratense) is effected at 5°, as also of Spanish Trefoil (Medicago sativa), of Radish (Brassica rapa), of Wheat, Barley, and Rye; that the germinating power of Beans and Peas ceased at 6°, while that of the Nasturtium (Tropæolum majus) and great Sunflower ceased at 7°.

The experiments of M. Haberlandt have been managed differently to those of M. Sachs; the results have been explained by him in several tables too long to be reproduced here. One of these tables shows the number of days which elapsed before the commencement of the germination in forty-eight different kinds of seeds each taken comparatively and in as many successive experiments at the temperature of 4°.75, 10°.50, 15°.65, 18°.50. By this means is indicated sufficiently closely the lowest temperature at which the seeds can germinate. A second table shows out of fifty-four different kinds of seeds what percentage have germinated, and in how many hours the germination has been accomplished, at the temperatures of 16°.25, 20°, 31°.25. 37°.50, 43°.75, 50°. Finally, a third table shows, in centimetres, the length which the radicle of thirty-six sorts of seeds attained in forty-eight hours in a stove kept at a uniform temperature, starting from the moment when it first appeared under the influence of the temperatures of 16°.25, 25°, 31°.25, and 37°.50.

The first of these tables shows—1, that the greater part of the seeds experimented on, notably those of winter and spring Wheat, Rye, Barley, Ray-grass, Buckwheat, Beet-root, Spinach, Hemp, White Mustard, Cress, Peas, Lentils, Beans, &c., germinate at 4°.75, and that consequently a lower temperature is necessary to prevent their germination; 2, that amongst those that require more heat the seeds of Tobacco, Gourds, Cucumbers, Melons and Paradise Apples do not germinate at 10°.5; and 3, that amongst those the Apples, Tobacco and Gourds have their lower limit of germination between 10°.5 and 16°, whilst the Cucumber and Melon have theirs between 16° and 18°.5. The examination of the second table proves that the highest temperature under the influence of which seeds can germinate is between 25° and 31° for Camelina, Coriander and Marjoram; between 31° and 37°.50 for Wheat, Rye, Barley, Oats, English Ray-grass, Beans, Cabbages, Turnip Radishes, large Garden Sunflower, Parsley, Cumin, Poppy, Flax, Tobacco, and Burnet, &c.; between 37°.50 and 43°.75 for Haricots, Lupins, Clover, Spanish Trefoil, the Erfurt Cabbage Cauliflower, Buckwheat, Chicory, Asparagus, &c.; finally, that it varies from 43°.75 to 50° for Maize, round Radishes, Hemp, Teazle, Gourds, Cucumbers, and Melons.

On comparing the third table with the first, we find a certain resemblance in some particulars, and in others certain differences, in that the high temperatures retard the lengthening of the radicle more than they delay the commencement of the germination as characterised by the first appearance of the radicle. Finally, to gain an idea of the space of time occupied by different seeds of the same species during germination under the influence of different temperature, the case of the Maize may be taken. The germination of the seeds of this plant occupied 144 hours under the influence of a temperature of 16°; fifty-six hours sufficed with a temperature of 25°; forty-eight hours with one of 31° and of 37°.50; whilst eighty hours were required when the temperature was 44°.

Exhibiting Roses.—During the last few weeks a spirited contest has been carried on in the horticultural and gardening papers as to the best way of exhibiting Roses. The gauntlet was thrown down by the redoubtable Mr. William Paul, who exhibited a collection of 6000 trusses in groups, and arranged in geometrical patterns according to colours. Under certain conditions we can see no objection to a great Rose grower exhibiting the superabundant riches of his gardens in this way; and in our opinion it is certainly an advance on the usual way of exhibiting the same masses of flowers in rectangular green boxes margined with ragged Moss. Such a blaze of symmetrical beauty reminded one of a royal night at the Opera in comparison with a "Foresters' Day" at the Crystal Palace, or the "Hallelujah Chorus" after an energetic German band, or the Shah of Persia after King Koffee. When masses are at hand who can object to their being arranged in pleasing forms? Geometrical patterns are not objected to in flower-beds, or Roses in wreaths, and in both of these the individual forms of the flowers are lost. We incline to the opinion that both disputants are more or less in the right, for whilst Roses are perfectly lovely when arranged in devices or scrolls, they are equally (or still more) lovely when isolated. But because the isolated face of one of Raphael's heavenly Madonnas transfixes us by its unearthly beauty, is that any reason why we should rip up Michael Angelo's "Last Judgment"? Because we are charmed by Mozart's "Minuet," are we not to be spellbound by the involved beauties of Beethoven's "Pastoral Symphony"? There can be no doubt that, to æsthetically enjoy Roses the flowers should be isolated, so that every quality of the bloom is made manifest; and to most rosarians we imagine that ten perfect flowers would be more satisfying than ten thousand. We have had more mental enjoyment whilst contemplating three or four perfect Roses on our own table than in all the "Rose shows" at South Kensington. One is like classical chamber music, the other like a contest of brass bands at the Crystal Palace. One who loves the angel-faces of children would never quite appreciate a "baby show," nor because he happened to be served by a pleasant waitress would the same individual go to a "barmaid show" at North Woolwich. We must take Roses for their own value, and they are never so exquisite as when seen singly in slight transparent flower-glasses, as used for the table; but when they are wanted in masses, pray let us give a preference to pleasant curved lines over square deal boxes. *W. G. S*, *in "Floral Magazine."*

Judging from Appearance.—Some advoocate the doctrine that the fully ripened appearance of fruits always indicates the presence of flavour and fitness for table, and in the case of Melons especially, exhibited for prizes, it is often urged that it would be safe to judge from appearance, and not to cut them to test their flavour. The fallacy of such reasoning was shown in a somewhat striking manner at the exhibition of the Reading Horticultural Society on August 20. It is the practice of Messrs. Sutton & Sons to give a silver cup as a special prize at each of the annual exhibitions of the Society, and on this occasion it was offered for the best six sorts of Melons, two fruit of each, including Sutton's Duke of Edinburgh, and either Sutton's Royal Horticultural Prize, or Read's new hybrid. The judges selected to test the merits of the competing collections were those two well-known Melon cultivators, Mr. Thomas Bailey, of Shardiloes, and Mr. W. Wildsmith, of Heckfield. One collection contained fruit that had the appearance of being perfect, as far as appearance went; another had some apparently ripe and well-finished fruit, and some looking as if not yet ripe; the other had generally small, and to all appearance unripe fruit. The judges agreed to cut the most likely looking fruit of each variety, or both, if thought advisable, and to give one, two, or three points, according to the quality of each. The second of the collections just named was first tested. It consisted of Duke of Edinburgh, S.F., poor; Golden Queen, G.F., one point; Ward's Crystal Palace Prize, S.F., poor; seedling S.F., from Malvern Hall, crossed with Bailey's Green-flesh, worthless; another S.F. seedling from Malvern Hall, crossed with Golden Perfection, poor; and Read's new hybrid scarlet-flesh, awarded one point; in all two points. This lot was shown by Mr. C. Ross, gr. to C. Eyre, Esq., Welford Park, Newbury. The most attractive-looking collection came from Mr. T. Lockie, The Gardens, Oakley Court, Reading. This contained Royal Ascot, S.F., one point; Golden Gem, W.F., poor; Duke of Edinburgh, S.F., poor; Hybrid Cashmere, W.F., two points; Suttons' Royal Horticultural Prize, G.F., one point; and Read's new hybrid, S.F., poor; in all four points. The collection to which the cup was awarded was staged by Mr. J. Read, Asley Hall Gardens, Northwich. This consisted of Read's hybrid, S.F., poor; Duke of Edinburgh, S.F., poor; seedling No. 1., G.F. (Read), three points; Horticultural Prize, G.F., one point; seedling No. 2, G.F. (Read), two points; and Cox's Golden Gem, W.F., poor; in all six points. Of the three collections this was the least likely to be selected for the appearance of the fruits. Though coming from three different distrcts, a general inferiority prevailed. Something has perhaps to be laid to the charge of injudicious crossing by some of our raisers, and especially did inferiority characterise the two seedlings from Malvern Hall, staged by Mr. Ross. After all the very fact of the fruits competing in the foregoing class could not compare with the quality of luscious flesh and rich fulness of flavour possessed by Bailey's Green-flesh, which was awarded the 1st prize in the class for green-fleshed Melons. The flesh is of a bright green, melting, juicy, and of the most exquisite flavour, and the rind very thin. In this particular variety there seemed to be summed up all the properties that could be desired in a first-class Melon.

A Shabby Trick.—"Hocussing" is not, it seems, a sin especially of the trainer's stable and prize-ring. At Airdrie, where a floricultural competition is to take place shortly, some would-be prize winner has sought to increase his chances of success by breaking into a neighbour's greenhouse and destroying about £20 worth of fine flowers with vitriol. *Northern Whig, Belfast.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, August 26, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 30 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall
Aug.	In.	In.	°	°	°	°	°	°			In
20	30.21	+0.41	80.9	54.7	26.2	65.9	+6.1	58.5	75	E.S.E.	0.02
21	30.30	+0.49	74.2	49.6	24.6	60.0	−0.7	54.7	83	E.N.E.: E.S.E.	0.00
22	30.25	+0.43	74.1	46.2	27.9	59.9	−0.8	52.1	75	E.N.E.: S.E.	0.00
23	30.16	+0.33	79.9	45.7	34.2	62.6	+2.0	54.7	75	variable	0.00
24	30.07	+0.24	72.9	44.0	28.9	57.6	−2.9	49.5	75	N.E.: S.W.	0.02
25	29.89	+0.05	76.1	53.0	23.1	61.3	+0.8	55.9	82	SW: E	0.11
26	29.87	+0.02	74.2	46.0	28.2	59.4	−0.9	52.7	79	E: S.W	0.02

Aug. 20.—A very fine day; generally cloudless throughout.
— 21.—A fine day; generally cloudy; small amounts of light cloud prevailed during the afternoon; cloudless evening.
— 22.—A little cloud prevailed in the morning; cloudless during the remainder of the day. Very fine.
— 23.—Hazy and misty in early morning; cloudless and very fine till 3 P.M.; overcast at night.
— 24.—A very fine day. The amount of cloud varied. Solar halo between 4 P.M. and 4.30 P.M.
— 25.—Rain fell heavily between 6 A.M. and 6.30 A.M.; fine afterwards; cloudless at night.
— 26.—A very fine day: generally cloudless till afternoon; light clouds were at times prevalent afterwards.

—— In the vicinity of London the reading of the barometer at the level of the sea increased from 30.09 inches at the beginning of the week to 30.41 inches by the morning of the 19th, decreased to 30.35 inches by the afternoon of the same day, increased to 30.42 inches by 9 A.M. on the 20th, decreased to 30.37 inches by 3 P.M. on the same day, increased to 30.49 inches by noon on the 21st, and decreased to 30.39 inches by the end of the week. The mean reading for the week was 30.32 inches, being 0.60 inch higher than that of the preceding week, and it is worthy of remark that whilst the mean reading for the week ending August 15 was 0.22 inch below the average, that for last week was 0.34 inches above.

The highest temperatures of the air in the shade were 81¼°, and 81° on the 19th and 20th, but on the 17th the maximum temperature was only 69¼°, the mean of the highest daily values being 74½°. The lowest temperatures at night ranged from 58¼° on the 19th to 46¼° on the 22d, with a mean for the week of 51°. The average daily range of temperature was 23½°.

The mean daily temperatures of the air, with departures from their respective averages were as follows:—16th, 61°.6, + 0°.3; 17th, 58°.3, −2°.8; 18th, 59°.3, −1°.7; 19th, 67°, + 6°.1; 20th, 66°.9, +6°.1; 21st, 60°, −0°.7; 22d, 59°.9, −0°.8; showing that the weather on the 19th and 20th was unusually warm, and on the other days the values differed but little from their averages.

The highest readings of a thermometer with blackened bulb in vacuo, placed on the grass in the full rays of the sun, were 139° and 142° on the 19th and 20th respectively. The lowest temperatures at night by a thermometer placed on grass with its bulb fully exposed to the sky, were 39° on the 22d, and 40° on the 17th and 18th, while on the 19th the lowest reading was 52°.

From the 16th to the 18th W.S.W. winds were prevalent, and from the 19th to the end of the week the general direction was east. The strength of the wind was generally gentle, and at times the air was nearly calm.

The weather was fine, though large amounts of cloud prevailed during the earlier portion of the week. On the 20th the sky was generally cloudless, and on the 21st and 22d small amounts of cloud were for the most part present. No rain fell during the week.

In England the extreme high day temperatures ranged from 92½° at Sunderland to 75° at Liverpool, with a general average over the country of 81¾°. The extreme low night temperatures varied from 50½° at Liverpool to 40° at Nottingham and Hull, the general average being 45¼°. The mean range of temperature in the week was 36½°. The mean high day temperatures ranged between 80° at Sunderland and 69¼° at Liverpool and Leeds, with an average value of 72¾°. The mean low night temperatures varied from 55¾° at Liverpool and Bradford to 50¾° at Hull, with an average amount of 52¾°. The mean daily range of temperature was 20°, being as large as 26° at Sunderland, and as small as 13¾° at Liverpool. The mean temperature for the week was 61°, the highest being at Sunderland, 65½°, and the lowest at Hull, 58¾°.

Rain fell on the first two days in the week at most stations, the amounts varied from four-tenths of an inch at Nottingham and Hull to one-hundredth of an inch at Sheffield, but at Portsmouth, Blackheath, and Leeds no rain was measured; the average fall over the country was two-tenths of an inch. The weather during the week was fine, warm, with light clouds.

In Scotland, the highest temperatures ranged from 78° at Dundee, to 73° at Perth; the lowest temperatures varied from 49° at Greenock and Paisley, to 42° at Aberdeen, their averages being 75° and 47° respectively. The mean range of temperature in the week was 28°. The mean temperature for the week was 59¼°, the highest being at Paisley, 60½°, and the lowest at Aberdeen, 58°. The fall of rain ranged from half an inch at Greenock, to one-tenth of an inch at Aberdeen and Leith. The average fall over the country was a quarter of an inch.

At Dublin, the highest temperature was 80°, the lowest 45¾°, the mean 61¾°, and the rainfall 0.06 inch.

JAMES GLAISHER.

Notices to Correspondents.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. We should also be obliged by such communications being posted as early in the week as possible. Letters relating to advertisements should be addressed to the Publisher.

AMERICAN POTATOS: *C. O.* Bresee's Climax and Vermont Beauty, being intermediate forms, will be most appropriately classed as rounds.

ANNUALS FOR AUTUMN SOWING: *J. D.* Collinsia verna and bicolor; Nemophila insignis and maculata; Erysimum Peroffskyanum; Saponaria calabrica; Silene pendula and pendula alba; Godetia rubicunda and Whitneyi; Lasthenia californica; Eucharidium grandiflorum.

APPLES, A SELECTION OF, FOR SURREY: *J. R. P.* Suitably arranged for entire season: dessert—Red Astrachan, Yellow Ingestre, Kerry Pippin, Scarlet Nonpareil, King of the Pippins, Rosemary Russet, Cockle Pippin, Cox's Orange Pippin, Braddick's Nonpareil, Adams' Pearmain, Court-pendu-plat, Dutch Mignonne. Kitchen—Lord Suffield, Stirling Castle, Cellini, Cox's Pomona, Blenheim Pippin, Beauty of Kent, Reinette du Canada, Alfriston, Golden Noble, Mère de Ménage, Yorkshire Greening, Dumelow's Seedling.

BOOKS: *E. T.* You ought to have Brown's *Forester* (Blackwood), Ewart's *Land Improver's Pocket Book* (Lockwood & Co.), and Horton's *Complete Measurer*, same publishers.—*B.* Mr. B. S. Williams' *Choice Stove and Greenhouse Plants.*

CAMELLIA STOCKS: *Tyro.* Take cuttings of single Camellias for stocks in September, when the wood is ripe; put them in pots, in sand, and set them in a cold frame or house, protecting from frost. Give gentle heat, bottom-heat, in March, and pot them off in single pots in July and August, when rooted.

DISEASED MELON: *W. W., Belair.* The warty growth on Melons is not very uncommon, but we believe the cause is quite unknown.

INSECTS: *J. P. M'M.* Your insect, frequenting beds of Ajuga genevensis, is a small species of saw-fly. Your Onion bulbs are attacked by the larva of a dipterous insect.—*J. K.* The protuberances on the Cattleya roots are caused by the larva of some small dipterous insect.

LILIUM AURATUM: *T. Cripps & Son.* The band is deeply-coloured and well marked, but not more so than others we have seen where a large batch is grown, as at Knap Hill; but we have not previously noticed the marginal line of colour towards the base of the petals. This, however, is a feature which is not very obvious at first sight.

NAMES OF PLANTS: *Appley.* The Lily-of-the-Valley tree, mentioned by "H.," is Clethra arborea.—*F. E. T.* Digitalis lutea.—*Mrs. Rowland.* Lycium barbarum, nat. ord. Solanaceæ.—*C. W. D.* Simply the old Ribbon-grass.—*N. M.* 2, Drynaria propinqua.—*J. P. M.* Athyrium Filix-fœmina pyramidale.—*Holmbury.* Polypodium pulchrum.—*H. H.* Bromus secalinus.—*P. H. G.* Acampe Wightiana, Lind.—*W. Brown.* Watsonia rosea.—*Mrs. A. Bartlett.* The Begonia seems to be B. boliviensis, which has a green stem; but if the stem is coloured, it will be B. Chelsoni. The other plant is Scheeria mexicana, var. cœrulescens.—*J. E. Barnes.* Francoa sonchifolia.—*C. Klofron.* 1, Tecoma radicans; 2, Ceanothus americanus; 4, Æsculus Pavia; 6, Ledum latifolium; 5, perhaps Rhododendron ferrugineum—you sent no flowers.—*A. P.* Circis siliquastrum.—*W. E.* Cuscuta europæa, Dodder.

NITRATE OF SODA: *Alpha.* We should think not.

NOTICE TO LEAVE: *R. McL.* In the absence of any distinct agreement, we should say, Yes. That, at least, is the custom in such cases.

PELARGONIUMS *v.* GERANIUMS: *C. W. F.* The differences are technical, one of the most obvious being that Pelargonium has a spur adnate to the flower-stalk, while Geranium has not. You will find the hollow of the spur by cutting across the foot-stalk of the flowers. French Pelargoniums are simply a race of the show varieties with a brilliant and distinct style of colouring.

STEPHANOTIS FRUITING: *R. C.* This is not of common occurrence, though we have seen it so on more than one occasion.

VINE BORDERS—OUTSIDE *v.* INSIDE: *Malden.* This is a point that can be decided, to a great extent, by the situation of your vinery. If the situation is an open one, and warm and well drained, your Vines will succeed best if planted in an outside border. Outside borders have this advantage also, that they require little or no attention as to watering, whilst inside borders require almost continuous attention in this respect. The advantages of inside borders are these: In cold damp situations you can secure a warmer and drier medium for the roots. This is an advantage for early forcing, and for the ripening of some of the Muscat Grapes; but, for all general purposes, and for all those who are not skilled in the requirements as to water, &c., of the Vine, we should only recommend outside borders.

VINE ROOTS DISEASED: *Riding E.* We have frequently seen Vine roots in precisely the same condition as those you have sent. Had all the Vines been in equally bad condition, we should have thought that there was something wrong about the soil, or the peculiar situation of those which are diseased. It should seem rather that there was something wrong about the plants originally. Out of fifty Apple trees, forty may succeed, and the other ten become cankered without any assignable cause. You may feel, at least, sure that there is no Phylloxera in the case. *M. J. B.*

CATALOGUES RECEIVED: James Carter & Co. (High Holborn, W.C.), Catalogue of Dutch Flower Roots, Fruit Trees, Roses, &c.—Hooper & Co. (Covent Garden Market, W.C.), Catalogue of Autumn Bulbs, &c.—Thomas S. Ware (Hale Farm Nurseries, Tottenham), A B C Bulb Guide, to which is added a Collection of Spring Flowers and Florists' Flowers.—Stephen Nairn & Sons (62, Pilgrim Street, Newcastle-upon-Tyne), Descriptive Catalogue of Dutch Flower Roots.—J. Schwartz (43, à la Guillotière, Lyons), Catalogue of Roses.—Dick Radclyffe & Co. (129, High Holborn), General Catalogue.—A. Legerton (5, Aldgate, London), Wholesale Catalogue of Dutch and other Flower Roots.—Pine-apple Nursery Company (Maida Vale, Edgware Road, W.), Catalogue of Dutch Bulbs and other Flower Roots.—W. B. Smale (89, Lower Union Street, Torquay), Autumn Catalogue of Hyacinths, Tulips, and other Flower Roots.

COMMUNICATIONS RECEIVED:—D. T. F.—G. F.—J. B. J.—D. L.—M. J. B.—J. D.—O.—W. L. B.—T. B.

Markets.

COVENT GARDEN, *August* 27.

Markets generally are well attended, and there is a full supply, especially of rough Apples, Pears, and Plums; the latter have not been so abundant for several years. West India Pines are over; English very good. Imports are heavy, especially in common descriptions of Grapes, ranging in price from 6*d.* to 1*s.* 6*d.* per lb. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Melons, each	2 0– 5 0
Apricots, per doz.	2 0– 4 0	Nectarines, per doz.	3 0– 8 0
Cherries, Morellos, per lb.	0 6– 2 0	Nuts, Cob, p. lb.	1 0– 1 6
Currants, p. ½-sieve	4 0– ..	Oranges, p. 100	16 0–20 0
Figs, per doz.	2 0– 4 0	Peaches, p. doz.	2 0–10 0
Filberts, per lb.	1 0– 1 6	Pears, p. doz.	2 0– 3 0
Gooseberries, p. qrt.	0 4– 0 9	Pine-apples, p lb.	3 0– 6 0
Grapes, English, p. lb.	2 0– 6 0	Plums, ½-sieve	1 6– 2 6
— Muscats, do.	2 6– 6 0	Strawberries, p. lb.	..
Lemons, per 100	16 0–24 0	Walnuts, p. bush.	16 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Beans, Broad, English, per bush.	3 0– 3 6	Mint (green), p. bun.	0 6– ..
— French, per bush.	5 0– ..	Mushrooms, per pott.	1 0– 2 6
Beet, per doz.	1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle	0 9– 1 6	Parsley, per bunch	0 4– 0 6
Cabbages, per doz.	2 0– 3 0	Parsnips, p. doz.	0 9– 1 0
Carrots, new, p. bun.	0 9– ..	Peas, per quart	1 0– 2 0
Cauliflowers, per doz.	2 0– 6 0	Radishes, per bunch.	0 2– 0 4
Celery, per bundle	1 6– 2 0	— black, Turnip, do.	– 0 6
Cucumbers, each	0 6– 1 0	Shallots, per lb.	0 3– ..
Endive, per doz.	1 0– 2 0	Salsify, per bundle	1 6– ..
Herbs, per bunch	0 2– 0 4	Spinach, per bush.	2 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Tomatos, per doz.	1 0– 3 0
Leeks, per bunch	0 2– 0 4	Turnips, per bundle	0 3– 0 4
		Veg. Marrows, doz.	1 6– 2 0

New Potatos:—Round, 60*s.* to 100*s.* per ton; Kidneys, 0*s.* 9 to 120*s.* per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Carnations, per doz. bunches	3 0– 6 0	Pelargoniums, per 12 sprays	0 6– 1 0
Corn-flower, p. doz. bunches	2 0– 6 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Eucharis, per doz.	4 0– 9 0	Pinks, mixed do.	2 0– 4 0
Escholtzia, p. 12 bun.	2 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Gardenias, p. doz.	3 0– 9 0	— Outdoor, do.	0 4– 1 0
Gladiolus, doz. sprays	0 6– 1 6	Spiræa, per 12 sprays	1 0– 2 6
Heliotropes, per doz. sprays	– 0 6	Stephanotis, 12 sprays	3 0– 9 0
Mignonette, 12 bun.	2 0– 6 0	Sweet Peas, 12 bun.	3 0– 6 0
		Tuberoses, p. doz.	1 0– 2 0

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Balsams, p. doz.	3 0– 9 0	Geraniums, dbl., doz.	4 0– 9 0
Begonias, do.	6 0–12 0	Heaths, in var., do.	12 0–30 0
Bouvardias do.	9 0–18 0	Hydrangea do.	9 0–18 0
Calceolarias, shrubby	6 0–18 0	Liliums, in var., each	1 0– 3 6
Coleus, p. doz.	3 0– 9 0	Mignonette, per doz.	4 0– 6 0
Cyperus do.	6 0–12 0	Myrtles do.	3 0– 9 0
Dracæna terminalis	12 0–30 0	Pelargoniums do.	6 0–18 0
„ viridis doz.	12 0–24 0	do, Scarlet do.	3 0– 9 0
Fuchsia do.	4 0–12 0	Rhodanthe do.	6 0–12 0

SEEDS.

LONDON: *Aug.* 27.—The agricultural seed trade has exhibited little change during the past week. For those descriptions needed for present sowing a steady demand still continues. Trifolium incarnatum is in good request at full rates. In white Mustard seed we have also a brisk inquiry. New samples of English growth have now put in an appearance, but the prices asked, as is usual at first, are very high. For sowing Rape seed the trade keeps quiet. In winter Tares, owing to the improved supply, values are temporarily weaker. In both red and white Clover seeds the business as yet passing is too limited to offer any matter for remark. For new English Rye we have a lively demand. Canary seed finds buyers at the extravagant prices now reached. In Linseed there is not much doing. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

There was but a thin attendance at Mark Lane on Monday, and Wheat especially was flat; the new descriptions were as much as 6*s.* per quarter cheaper than on the preceding Monday, the current quotation for white being 48*s.* to 52*s.*, and that for red, 44*s.* to 48*s.*, while foreign produce was hard to move, although offered at a reduction of 2*s.* per quarter on the week. There was not much inquiry for Barley, but the value of malting was well supported. Malt was dull; Oats were 6*d.* per quarter lower, but no appreciable change took place in Maize. Beans and Peas were steady, on former terms. In flour the top price of town made was further reduced 3*s.*, or to 47*s.* per sack, American barrels being nominally 1*s.* cheaper—Trade on Wednesday was again dull and prices excessively weak, foreign Wheat and the inferior descriptions of new being obtainable at a further reduction from Monday. Barley was about the same in price, but malt had a downward tendency, and Oats in some instances were slightly cheaper. Maize was neglected, and there were but few purchases effected in either Beans or Peas. Flour was quiet at the late decline. The following are the average prices for the week ending Aug. 22:—Wheat, 57*s.* 2*d.*; Barley, 46*s.* 5*d.*; Oats, 32*s.* For the corresponding week in 1873:—Wheat, 60*s.* 3*d.*; Barley, 39*s.* 6*d.*; Oats, 39*s.* 9*d.*

CATTLE.

The number of beasts on offer at Monday's market was rather smaller than on that day se'nnight, and without improvement in quality, consequently prices were not lower, but in a few instances late quotations were exceeded. There were a few more sheep, but the supply is still scanty, and late quotations were readily obtained. The lamb season is nearly over, and there was little demand for them. Choice calves were rather dearer. Prices ranged between, for beasts, 4*s.* and 6*s.* 4*d.*; for calves, 4*s.* and 5*s.* 6*d.*; for sheep, 4*s.* 6*d.* and 5*s.* 8*d.*; and for lambs, 5*s.* 6*d.* and 6*s.* 8*d.*—Choice beasts were scarce at Thursday's market, and Monday's prices were readily obtained. With a short supply of sheep there was a good demand, and the tendency of prices was upward. Lambs and calves sold at about Monday's prices. Trade still continues bad for milch cows.

HAY.

The supplies of fodder are reported as being short at Whitechapel, and the trade continues active at hardening prices. Prime Clover realises from 100*s.* to 130*s.*; inferior do., 75*s.* to 85*s.*; prime meadow hay, 90*s.* to 118*s.*; inferior do., 55*s.* to 75*s.*; and straw, 33*s.* to 45*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 112*s.* to 120*s.*; inferior do., 80*s.* to 100*s.*; superior Clover, 120*s.* to 130*s.*; inferior do., 100*s.* to 112*s.*; and straw, 45*s.* to 50*s.* per load.

POTATOS.

According to the Borough and Spitalfields report, moderate supplies of English Potatos are on sale, but the arrivals of home-grown descriptions have been altogether unimportant. The trade has been dull, and prices are rather lower, as follows:—Regents, 70*s.* to 110*s.*; Shaws, 80*s.* to 90*s.*; Kidneys, 100*s.* to 130*s.*

COALS.

The market on Monday was firm, at fully last prices. On Wednesday a brisk business was transacted, and Hartleys fell 1*s.* per ton. The latest quotations to hand are—Bebside West Hartley, 21*s.* 3*d.*; Hastings Hartley, 21*s.* 3*d.*; Walls End—Harton, 22*s.* 9*d.*; Hetton, 25*s.*; Hetton Lyons, 22*s.* 9*d.*; Darlings, 22*s.* 6*d.*; Kelloe, 23*s.*; East Hartlepool, 24*s.* 9*d.*; Original Hartlepool, 25*s.*

THE AGRICULTURAL GAZETTE,
SATURDAY, AUGUST 29, 1874,
Contains—
ORIGINAL ARTICLES on Early Wheat Sowing—Precautions in case of Potato Blight—British Association Meeting at Belfast—Influenza among Horses—Geese—The Gag Bearing Rein—Challis' Turnip Thinner (Illustrated)—Poor Law Relief—Notes from Basingstoke (Illustrated)—Milk in Paris—Howard's Balance Horse Plough (Illustrated)—The Farmers and Labourers—Improvements in Sutherlandshire (Illustrated)—Estate Improvement—Peasant Farming—The Underley Sale—Shorthorn Breeding in France—and over Eighty
Reports on the French Corn Crops.
HOME AND FOREIGN CORRESPONDENCE on Two Year Old Beef—The Farm Labourer—Emigration—Cocking Barley—Broad Blunsden Farm, Wilts—Horse Breeding in Hungary (Illustrated).
FARM NOTES AND MEMORANDA from English, Welsh, Scottish, and Irish Counties, &c.
REPORTS OF SOCIETIES AND FARMERS' CLUBS.
ALSO—
The Veterinarian—The Poultry Yard—The Weather—Notes of the Week—Garden of the Farm—Agricultural Machinery—Markets—Recent Fairs—Ram Sales—Notices of Books, &c.
Price 4d.; post free, 4½d. Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

Two Coloured Plates Monthly. Price 1s.
THE FLORIST and POMOLOGIST for SEPTEMBER contains COLOURED PLATES of LILIUM AVENACEUM and CAMELLIA THOMAS MOORE. Besides articles on the following topics :—
Garden Lilies, Chap. 6 (Illustrated). By T. Moore.
Ne Plus Ultra Pea. By M. Saul.
Lagerströmia indica. By W. Miller.
New Bedding Violas. By W. Earley.
Olearia Haastii (Illustrated). By T. M.
Culture of the Gooseberry, Chap. 1. By J. Cox.
Pachyphytum bracteosum. By R. Dean.
Notable New Plants and Flowers.
On Bedding-out. By A. Forsyth.
The Guelder Rose. By W. Earley.
Actinidia Kolomikta (Illustrated). By T. M.
Lisianthus Russellianus. By J. Douglas.
Greenhouse Daphnes. By G. Westland.
Croton spirale (Illustrated). By T. M.
Double Primroses. By A. Dean.
Garden Gossip. Garden Work for September.
The FLORIST and POMOLOGIST is published Monthly at 171, Fleet Street, London, E.C.

Just Published, imperial 8vo, on fine toned paper, with eleven Illustrative Plates,
THE NATURAL PRINCIPLES of LANDSCAPE GARDENING. By JOS. FORSYTH JOHNSON (Landscape Gardener), Curator, Royal Botanic Gardens, Belfast.
Price 7s. 6d., post free 7s. 9d., from the Author.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.
Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.
This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.
Advertising charges, 8d. per square inch, Translation included.
Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.
Address, The Editor of the *Cultivator*, St. Michael's, Azores.

WANTED, a GARDENER (HEAD WORKING), single, age about 35, for a Gentleman's Family in the country, where two or three Under Gardeners are kept, must thoroughly understand Early and Late Forcing, Kitchen and Flower Gardening, and all branches of the profession. Good personal character from last situation indispensable. Wages 30s. per week, without residence.—Apply, by letter, to A. F. BURRUPS, Royal Exchange, E.C.

WANTED, a good GARDENER, thoroughly up in the management of Kitchen and Flower Gardens, and the general Superintendence of a Gentleman's Place, including the management of about 60 acres of Grass Land for cows and sheep. Applicant should not be less than 40 years of age.—Apply to M. G., Post Office, Golding, Maidstone.

WANTED, as GARDENER, a middle-aged, married Man.—He must be a good Vegetable Grower, and the Wife must be a first-class Dairy and Poultry Woman.—Address, B., Timothy Brigden, Seedsman and Florist, 52, King William Street, London, E.C.

WANTED, in a Clergyman's Family in Surrey, a single Man as GARDENER, who is practically acquainted with the management of a Kitchen and Flower Garden, including Budding, Pruning, &c., and the care of a Greenhouse and Pits; he would also have the charge of two Cows and two or three Pigs. A boy helps regularly in the garden. Wages £1 a week and comfortable lodgings in the village.—Address, THE RECTOR, Titsey, Limpsfield.

WANTED, as GARDENER (UNDER) and IMPROVER, in a large Establishment, a respectable young Man, as Second in the Houses, where he will have great opportunities of improvement. He must have had some experience under Glass, and be a Churchman and of good moral character. He will be comfortably lodged in a house in the grounds. Wages 15s. a week with lodging, light, fuel, and vegetables.—Apply by letter, stating full particulars and references, to THE GARDENER, Sir Philip Rose, Bart., Rayners Penn, Bucks.

WANTED, a MAN and WIFE, without family. Wife as thorough Laundress, Man in Garden. Wages (the two), £70 per annum and cottage.—Mrs. RESTON, Harold Court, Romford, Essex

WANTED, a first-class PROPAGATOR and GROWER of Camellias, Greenhouse Plants, and Ferns.—Apply, stating wages and with references, to WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

WANTED, a young MAN, to Grow Hardy, Herbaceous Plants and Bulbs. Must be well experienced in this department.—Apply, with all particulars and references, to JAMES DICKSON AND SONS, Newton Nurseries, Chester.

WANTED, a TRAVELLER, thoroughly acquainted with the Value of General Nursery Stock both indoors and out.—THOMAS CRIPPS AND SON, The Nurseries, Tunbridge Wells, Kent.

Wholesale Seed Trade.
WANTED, a thoroughly experienced and energetic Man as TRAVELLER and SHOPMAN. One possessing the necessary qualifications will find this a good opening.—State amount of experience and salary required, to Y. Z., *Gardeners' Chronicle* Office, W.C.

WANTED, a SECOND SHOPMAN, in Seed Department.—Apply, by letter, to THOMAS McKENZIE AND SONS (Limited), 34, Dawson Street, Dublin.

DICK RADCLYFFE AND CO. REQUIRE the services of a young Man, to fill the post of ASSISTANT SHOPMAN. He must have a general knowledge of the profession, and be a good Salesman.—Apply, by letter only, stating age, experience, references, and salary expected, to DICK RADCLYFFE AND CO., 129, High Holborn, W.C.

Clerk and Traveller.
WANTED, in a Wholesale Seed Warehouse, a Man well acquainted with the Trade, as CORRESPONDING CLERK and TRAVELLER; must be thoroughly energetic and of good address.—State wages required, and give full particulars of experience and qualifications to M., *Gardeners' Chronicle* Office, W.C.

MESSRS. BARR AND SUGDEN, 12, King Street, Covent Garden, REQUIRE a PACKER; he must be a steady, respectable Man, and a good general Packer. Wages 25s. per week.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD), where three or four are kept.—Age 28, single; thoroughly experienced in Early and Late Forcing of Fruits, Stove and Greenhouse Plants, Flower and Kitchen Gardening. Thirteen years' good character.—W. SEDGLEY, 7, Gunnery Terrace, Milverton, Leamington.

GARDENER (HEAD), age 32, married; understands Stove and Greenhouse Plants, Vines, Melons, &c. Good Kitchen Gardener.—H., 41, Mountash Road, Sydenham, S.E.

GARDENER (HEAD).—Age 37, now disengaged; well acquainted with his duty in all branches, Early and Late Forcing, Fruit and Vegetables. Also the Management of Land, &c., and Private Nursery. State wages, &c. Five years' character from last situation.—B. G., Post Office, Cassington, Bridgewater.

GARDENER (HEAD, WORKING).—Married, with one child; understands the profession in all its branches.—R. F., The Gardens, Woodcote, Epsom, Surrey.

GARDENER (HEAD, WORKING).—E. COOLING can recommend a married Man (age 33, with two children), as thoroughly competent in every branch of the profession.—E. COOLING, Mile Ash Nurseries, Derby.

GARDENER (HEAD, WORKING).—Age 35, married; practical in the Cultivation of Vines, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Five years in last situation; leaving on account of selling the Garden.—E. R., No. 1, Lewis Place, Fulham Road, Fulham, S.W.

GARDENER (HEAD), or FOREMAN.—Age 25, married; thorough good practical knowledge of the profession in all its branches. Good references, &c.—State particulars to S. H. W., 290, Fulham Road, Brompton, S.W.

GARDENER, where two or three are kept.—Age 39, married, one child (five years). A GENTLEMAN wishes to recommend his Gardener to any Lady or Gentleman. He thoroughly understands Vines, Stove and Greenhouse Plants, and has a general knowledge of Stock. Six and a half years' good character.—T. N., Church and Son's, Stationers, &c., Mitcham, Surrey, S.

GARDENER, where one or two are kept; or SECOND in a large place.—Six years' good character.—A. B., Combermere Abbey, Whitchurch, Salop.

GARDENER (SINGLE-HANDED), or where a Lad is kept. A Second place not objected to where three are kept.—G. APPLETON, Mr. Carpenter, Morden, Surrey.

GARDENER (SINGLE-HANDED).—Age 24; understands Vines and Greenhouse, Flower and Kitchen Garden. Good character.—Address, stating wages given, A. B., Churchgate Street, Harlow, Essex.

GARDENER (SECOND, or SINGLE-HANDED).—Age 26, married, one child. No objection to take the Management of Horse or Cow. Good character from present and previous situations.—A. B. C., 4, Nunhead Grove, Peckham, S.E.

GARDENER, or GARDENER and BAILIFF.—Aged 47, married, no family; thoroughly practical and experienced, well up in all branches of Gardening, as well as the Management of Land and all kinds of Stock. Wife first-class Dairywoman. Good references.—X. Y., 56, North End, Croydon.

GARDENER (SECOND), in a Nobleman's or Gentleman's Establishment.—A young Man. Has had good experience in Stove and Greenhouse Plants, &c. No objection to Bothy.—C. W., Post Office, Long Benton, Newcastle-on-Tyne.

GARDENER (SECOND).—A single young Man; understands Hothouses, and Flower and Kitchen Gardening. Three years' good character.—R., Post Office, Penshurst, Kent.

GARDENER (SECOND).—Has a practical knowledge of the profession in all its branches. A good character can be given.—State wages and full particulars to T. O., Northend Road, Fulham, S.W.

GARDENER (SECOND), in a small Establishment, or UNDER in a large one, where Fruit Forcing and Plant Growing are carried on extensively. Age 24. Good character.—E. F., Post Office, Chelsfield, Kent.

FOREMAN or GARDENER (UNDER), in a first-class place.—Five years' good practical knowledge and good references.—C. H., Park Road, Penge Park, S.E.

GARDENER (UNDER, or SINGLE-HANDED, good).—Age 23; understands Vines, Flower and Kitchen Gardening, Forcing, &c. Change of Establishment cause of leaving.—J. H., Post Office, Nightingale Lane, Clapham, S.W.

GARDENER (UNDER), in a Nobleman's or Gentleman's Establishment, where he may be able to gain some experience in House Work, &c.—A young Man. Can have four years' good reference. No objection to Bothy.—S. WELSTEAD, Benton Park, Newcastle-on-Tyne.

GARDENER (UNDER).—Age 20. Good reference.—T. ANKCORN, 1, Lily Place, Owen Street, Birmingham.

FOREMAN, or FOREMAN and PROPAGATOR.—Twenty-five years in the profession.—G. SMITH, Ashford Nursery, Ashford, Middlesex.

PROPAGATOR (under a Foreman).—Ten years in the profession.—T. FELSTEAD, Ashford Nursery, Ashford, Middlesex.

PROPAGATOR (UNDER).—An industrious young Man. Ten years' experience in first-class Nurseries. Good references.—H. H., General Post Office, Altrincham, Cheshire.

To Florists and Nurserymen.
SHOPMAN, FURNISHER, or FOREMAN (UNDER), in a Nursery.—Age 22; is well acquainted with the West End Furnishing and Retail Trade. Good references.—W. C. S., *Gardeners' Chronicle* Office, W.C.

SEED, BULB, and PLANT TRADE.—Wanted a Situation by a young Man, age 24, who has a thorough practical knowledge of the above, and is a good Bouquetist.—S. M., *Gardeners' Chronicle* Office, W.C.

CLERK in a Nursery or Seed Establishment.—A well-educated young man, who has a knowledge of Gardening. Excellent references.—W. B., Post Office, Sherborne, Dorset.

To Nurserymen and Seedsmen.
ORDER CLERK, with SALESMAN, or GENERAL NURSERY ASSISTANT.—Good references.—A B., Post Office, Upper Holloway, London, N.

KINAHAN'S . LL . WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES,
in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.
EPPS'S COCOA, BREAKFAST.
"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*
MANUFACTURE OF COCOA.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*
Made simply with boiling water or milk.
Sold by Grocers, only in packets, labelled
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS, 48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, N.W.

PURE AERATED WATERS—ELLIS'S RUTHIN WATERS—Soda, Potass, Seltzer, Lemonade, Lithia, and for GOUT, Lithia and Potass.
Corks Branded "R. ELLIS AND SON, RUTHIN," and every label bears their trade mark. Sold everywhere, and Wholesale of R. ELLIS and SON, Ruthin, North Wales.
LONDON AGENTS:—W. BEST AND SONS, Henrietta Street, Cavendish Square.

DINNEFORD'S FLUID MAGNESIA.
The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD AND CO., 172, New Bond Street, London, W., and of all Chemists throughout the World.

THE AGRICULTURAL GAZETTE

AN ILLUSTRATED JOURNAL FOR

LANDOWNERS AND TENANT FARMERS.

PRICE FOURPENCE.

AFTER thirty years' association with "*THE GARDENERS' CHRONICLE*," *THE AGRICULTURAL GAZETTE* now stands alone, and the double space at its disposal is occupied with matters strictly Agricultural.

Full Market Reports.

FULL MARKET REPORTS, both Metropolitan and Provincial, accurate Accounts of Prices, Sales, and Business Transactions of all kinds, are published every week.

Prices, Sales, &c.

Universal Intelligence. and Correspondence.

INTELLIGENCE in any way affecting Agriculturists, or interesting to them, is carefully collected and made known. Correspondents have been secured in every county. Separate editorial departments have been established for Scotland and Ireland. Reports are periodically received from Canada, Australia, India, France, Germany, and Hungary, and from the United States of America.

Proceedings of Agricultural Societies.

The PROCEEDINGS of AGRICULTURAL SOCIETIES, Farmers' Clubs, and Chambers of Agriculture—their Meetings, Exhibitions, and Discussions—are reported fully and with promptitude.

Estates and Farms.

EVERY DEPARTMENT OF THE ESTATE OR FARM receives attention—Land Agency, Estate Equipment, Forestry, Farm Buildings, Roads, Fences, Cottages—Live Stock, Plants, and Implements of the Farm—Drainage, Tillage, and Manuring of the Soil.

A Veterinary Editor.

A VETERINARY EDITOR has been secured.

The Poultry Yard, Apiary, and Garden.

Departments relating to the POULTRY YARD, the APIARY, and the GARDEN of the Farmyard under separate professional direction.

Reviews of Books.

REVIEWS are published of all Books claiming a place in the library of the Farmer.

Special Reports.

REPORTS of noteworthy Estates, Farms, Herds, Flocks, and Factories are given from week to week.

Botany, Chemistry, Physiology, Entomology, Natural History, &c. &c.

Teachers and students of the several sciences in which the Agriculturist is interested—BOTANY, CHEMISTRY, PHYSIOLOGY, ENTOMOLOGY, NATURAL HISTORY—are constant contributors.

Agricultural Machinery.

Especial attention is given to AGRICULTURAL IMPLEMENT manufacture. Improvements in Machines are reported—New Inventions made known—Patents discussed—and the Implement Factories of the country described—Engravings, always necessary in such cases for intelligible description, being given without stint.

Patents and Inventions.

Illustra ions.

No expense is spared in ILLUSTRATIONS—wherever they can be of use. Not only Implements, but Plants, Weeds, varieties of Cultivated Crops, &c.; and animals—breeds of Horses, Cattle, Sheep, and Pigs; also Poultry, Insects, General Natural History; and Buildings—Farmhouses, Homesteads, Cottages; Photographs Illustrative of Country Life and Occupations, whether at home or abroad:—all these provide subjects for the Engraver. Portraits and Memoirs of Noteworthy Agriculturists are also occasionally given.

THE AGRICULTURAL GAZETTE professes no Party Politics; but it does not hesitate to discuss any subject affecting the Position or Relations of those whose Professional Organ it desires to be. It will be found absolutely Independent, excepting only of such rules as govern honourable men. And nothing that affects the interests, whether of the Landowner, the Tenant-Farmer, or the Labourer, is excluded from its Columns.

SUBSCRIPTIONS PAYABLE IN ADVANCE,

Including postage to any part of the United Kingdom:

Three Months, 5s.; Six Months, 9s. 9d.; Twelve Months, 19s. 6d.

P.O.O. TO BE MADE PAYABLE AT THE KING STREET POST OFFICE, W.C., TO WILLIAM RICHARDS.

Publishing Office, and Office for Advertisements:

7, CATHERINE STREET, STRAND, LONDON, W.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, August 29, 1874.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 36.—Vol. II. { New Series. } SATURDAY, SEPTEMBER 5, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Alder, notes on the (with cuts) 294
Bauera rubioides .. 303
Belfast, horticultural show at 301
Books, notices of .. 299
British Association .. 298
Carnation, the old Clove 306
Carnivorous plants .. 293
Chatsworth 291
Clematis, Duke of Connaught 303
Convolvulus althæoides .. 306
Cryptogamic botany, report of the laboratory of 302
Draining, thorough, and its results 305
Early Pears 306
Farm, the 299
Fuchsia procumbens (with cut) 291
Fungi, tests of the wholesomeness of .. 297
Gardeners without incumbrance 302
Garden operations .. 310
Grape Phylloxera, the .. 295
Gymnogramma triangularis 303
Horticultural heresies .. 307
Hydrangea, a blue .. 307
Ireland, woods of .. 302
Kew, the old walls at .. 304
Mandrake, the (with cuts) 289
Man-eating tree of Madagascar, the 305
Masdevallia polysticta .. 290
Melons, nodules on the roots of (with cuts) .. 302
Nepenthes 293
Pear crop, the 297
Pinus insignis 303
Plant gossip 294
Plants, new, certificated at the Royal Botanic Society's exhibitions .. 298
Plants, new garden .. 290
Potato crop of 1874 .. 308
Rhexia virginica .. 303
Romance of natural history, the 304
Roses and Rose shows .. 306
Snow Apple, the 305
Societies :—
Bishop Auckland Floral and Horticultural .. 309
Eastleigh and Bishopstoke Horticultural . 309
Royal Horticultural .. 308
Thuja semper-aurea .. 303
Typha latifolia 305
Violas and Pansies .. 296
Weather, the 310
Wistaria sinensis, the way to grow 306
Zygopetalum Sedeni .. 290

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION *to the* GARDENERS' CHRONICLE, *including postage to the United States, is £1 6s.*

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth,* 16*s.*
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

CRYSTAL PALACE.—The AUTUMN SHOW of FLOWERS and FRUIT will be held on TUESDAY, WEDNESDAY, and THURSDAY, September 8, 9, and 10, on which days also the FIRST EXHIBITION of BEES and their Produce, Hives, and Appliances, will take place.

CRYSTAL PALACE.—BEES and their PRODUCE, HIVES, and APPLIANCES.—The FIRST EXHIBITION will be held on TUESDAY, WEDNESDAY, and THURSDAY NEXT, September 8, 9, and 10, in conjunction with the AUTUMN FLOWER and FRUIT SHOW.

THE BRIGHTON and SUSSEX HORTICULTURAL SOCIETY will hold their Twenty-second Grand Autumn FLOWER and FRUIT SHOW, at the Royal Pavilion, Brighton, on WEDNESDAY and THURSDAY, September 9 and 10. Over £260 in Prizes, including the Railway Cup, value £10, offered for the best eight varieties of Exotic Ferns, and the Ashbury Cup, value £8 8*s.*, offered for the best 36 varieties of Gladioli.
Schedules can be obtained on application to the Secretary, 96, St. James' Street, or E. SPARY, Superintendent, Queen's Graperies, Park Street, Brighton.
August 26, 1874. EDW. CARPENTER, Sec.

NORTHAMPTON FLORAL FETE.
FRIDAY, September, 18, 1874.
INTENDING EXHIBITORS are reminded that Ten Days' Notice of the Class or Classes, and if possible the average diameter of the Plants to be exhibited, should be given. Forms of Entry can be obtained on application to
Mr. JOHN PHIPPS, or } Hon. Secs.,
Mr. T. L. CORDEUX, } Northampton.

GIBSON TESTIMONIAL.
For full particulars, see *Gardeners' Chronicle*, p. 204.
Amount already promised, £400 10s. 6d.
Subscriptions are received by
Mr. THOMAS MOORE, Treasurer, Botanic Gardens, Chelsea, S.W.; or,
Mr. HARRY J. VEITCH, Hon. Sec., Royal Exotic Nursery, King's Road, Chelsea, S.W.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

DOWNIE, LAIRD AND LAING beg to intimate that all the popular VIOLAS of the present day may NOW be SEEN in FULL FLOWER in their Flower Garden at their Royal Winter Gardens, Edinburgh, near the Haymarket Station.

Lily of the Valley.

ROBERT NEUMANN, The Nurseries, Erfurt, begs to offer large quantities of strong flowering roots, for forcing, of the above, at 45*s.* per 1000.
Also strong clumps of SPIRÆA (HOTEIA) JAPONICA.

Now ready, Gratis and Post-free,

CARTER'S Illustrated CATALOGUE of BULBS for 1874. It contains full descriptions of the best kinds of Hyacinths, Tulips, Crocus, and other Bulbs, with full directions for the guidance of amateurs desiring to be successful cultivators of these beautiful spring flowers.
CARTER'S, the Royal Seedsmen, High Holborn, London, W.C.

New August Catalogue.

PAUL AND SON, The "Old" Nurseries, Cheshunt, have now ready their new LIST of DUTCH BULBS, SPECIALITIES for FORCING, including Azaleas and Camellias, Strawberries and Vines.

Spring Flowers.

THOMAS S. WARE'S NEW BULB CATALOGUE contains a selection of all the best spring flowering Perennials in cultivation. A section requiring to be planted in the autumn to ensure a good display the following spring. Hale Farm Nurseries, Tottenham, London, N.

Dutch Bulbs.

CHARLES TURNER'S large importations have arrived in excellent condition, and he is prepared to execute Orders on receipt. CATALOGUES on application.
The Royal Nurseries, Slough.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s.* carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete every published.
Hale Farm Nurseries, Tottenham, London, N.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

Standard Tea Roses from Paris.

LEVEQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer for next autumn a splendid and large stock of TEA ROSES, comprising all the best sorts, Maréchal Niel, per hundred. The price will be £5 per 100. LIST of sorts on application.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

Spiræa japonica.—To the Trade Only.

H. B. SMITH is now booking orders for strong Flowering Clumps, at 25*s.* per 100, and £12 per 1000, for cash.
H. B. SMITH, Ealing Dean Nursery, Ealing, London, W.

PRIMULA JAPONICA, good plants, 2*s.* per doz., 12*s.* per 100.
Twelve New CHRYSANTHEMUMS of 1874 for 4*s.*
JOSEPH LEIGH, Sandy Lane Nursery, Lowton, near Newton-le-Willows.

To the Trade.

NEW WINTER TARES and RYE.
Samples and prices on application to
Messrs. J. AND G. McHATTIE, Seed Merchants, Chester.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB; Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WANTED, LARCH FIR, from 1½ to 2 feet high. State price and quantity.
GEORGE TOWNSEND, Nurseryman, Fordham, near Soham.

WANTED, transplanted ASH, 3 to 4 feet; also transplanted CHESTNUT, 3 feet. Price and quantity to
LOTT AND HART, Whitehall Nursery, Faversham.

WANTED, CUTTINGS of Mrs. Pollock, Sophia Dumaresque, or other good TRICOLOR PELARGONIUMS. State price per 1000 to
W. G. CALDWELL AND SONS, The Nurseries, Knutsford, Cheshire.

WANTED, CUTTINGS of GERANIUMS, Tricolors and Bronzes in quantity, also choice Zonals, &c. State lowest cash price to
THOMAS MILNER, Nurseryman, Bradford.

WANTED, CUTTINGS of BRONZE GERANIUMS. State price per 100 to
G. T. STEWARD, Nurseryman, Pontnewydd, near Newport, Monmouthshire.

Wheeler's Superb Herbaceous Calceolaria.

GEO. WHEELER is prepared to offer packets, post free, at 1*s.* 6*d.*, 2*s.* 6*d.*, and 3*s.* 6*d.* each, of his very superior Strain. Being dwarf and robust the habit of the Plants is all that can be desired, and may generally be grown without the aid of sticks to support the flower-stems.
Young plants of the above may be sent safely by post, when ready, at 3*s.* per dozen.
The Nurseries, Warminster, Wilts.

Splendid Herbaceous Calceolaria.

LUCOMBE, PINCE, AND CO., can offer good packets of their superb strain at 2*s* 6*d*, 3*s.* 6*d.* and 5*s.* each; also their celebrated strains of CINERARIA, PRIMULA and CYCLAMEN, at 2*s.* 6*d.*, 3*s* 6*d.* and 5*s.* each. PRIMULA JAPONICA, new seed, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d* and 5*s.* per packet. Exeter Nurseries, Exeter.

CINERARIAS.—Seedlings of the finest Strains, including Dark and Light Blues, Strong Plants from Seed Pans, 1*s.* 6*d.* per dozen, 10*s.* per 100.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

British Fern Catalogue.

ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Strawberries.

CHARLES TURNER can now supply strong Plants of all the leading varieties; the new kind, "LA GROSSE SUCRÉE" is highly recommended for early forcing. CATALOGUE on application.
The Royal Nurseries, Slough.

Strawberries.

PAUL AND SON have now ready strong NEW transplanted RUNNERS, of leading sorts. Descriptive LIST post free.
"Old" Nurseries, Cheshunt.

NEW STRAWBERRIES, Exquisite and Traveller (First-class Certificate).—The best for flavour and transmission. See advertisement in *Gardeners' Chronicle* of the 8th ult. Strong plants now ready. Particulars post free from W. AND J. BROWN, Stamford.

Fine Strawberries.

CHARLES TURNER recommends the following, to fruit in the order named:—La Grosse Sucrée, President, Vicomtesse H. de Thury, Sir J. Paxton, Royalty, Sir C. Napier, Frogmore Late Pine, and Elton Pine. These are all good growers and have fine flavour. CATALOGUES on application. The Royal Nurseries, Slough.

GRAPES for SALE.—The contents of four Glasshouses to be Sold. Several Hundred Bunches of White and Black Grapes, different varieties. Apply by letter, to Box A., Hearder & Son, Stationery Warehouse, Newton Abbot, Devon.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s.* to 60*s.* per dozen. Extra strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s.* each.
RICHARD SMITH, St. John's Nurseries, Worcester.

PINES for IMMEDIATE SALE.—About 150 Fruiting Pines, 240 Succession Pines, and 200 well-potted and rooted Suckers; the whole of the above being strong and healthy plants. Apply to the
GARDENER, Palace Gardens, Weybridge, Surrey.

The New American Potatos.

SNOWFLAKE, BROWNELL'S BEAUTY, | EXTRA EARLY VERMONT, COMPTON'S SURPRISE.

HOOPER AND CO. are large holders of these very choice sorts, and can give special advantages to buyers in the trade during the autumn. Prices on application.
HOOPER AND CO., Covent Garden, London, W.C.

Seeds for Present Sowing.

JAMES DICKSON AND SONS can supply, of best quality, all SEEDS, including Turnip, Rape, Mustard, Trifolium, Cabbage, Vetches, Italian Rye-grass; mixed Grasses and Clovers for permanent pasture; also all other Farm Seeds, as well as Garden and Flower Seeds of all sorts.
108, Eastgate Street, Chester.

New Turnip Seeds for Present Sowing.

H. AND F. SHARPE are now harvesting TURNIP SEEDS of 1874 growth, and are prepared to execute Orders from the Trade at very moderate prices, and on receipt of Letter or Telegram.
Seed Growing Establishment, Wisbech.

CABBAGE PLANTS.—Good strong autumn-sown Cabbage Plants, Enfield Market and Battersea, at 3*s.* 6*d.* per 1000; also Robinson's Champion Ox Cabbage Plants, at 3*s.* per 1000, can now be supplied. Remittances to accompany all orders from unknown Correspondents.
J. WOOBERRY, Nurseryman, Billingshurst, Sussex.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1*s.* per bushel, or 6*d.* per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

Now ready, Gratis and Post-free,

Beautifully Illustrated, and containing complete Cultural Instructions.

SUTTON AND SONS, The Queen's Seedsmen, READING.

WHEELERS' CHOICE SEEDS

FOR PRESENT SOWING.

POST FREE.

TOM THUMB LETTUCE.

TOM THUMB LETTUCE.

WHEELERS'

TOM THUMB LETTUCE.

A small compact Lettuce, of fine flavour and excellent quality; a capital variety for winter and early spring.

Large packet, 1s.; small packet, 6d.

"I am going to try how your Tom Thumb Lettuce will stand the winter. As a summer Lettuce it is invaluable, and not to be approached by any in cultivation."—CHAS. BRETTINGHAM, Goodwick.

"Please forward me two packets of your most excellent Tom Thumb Lettuce, the best Lettuce ever introduced into this country."—C. THURNALL, Whittlesford, near Cambridge.

"Your Tom Thumb Lettuce is the most tender and delicious of all Lettuces.—W. M. THOMAS, Fanfield, Bedale, Yorkshire.

"Having heard the fame of your Tom Thumb Lettuce I intend to make a trial of it, if you will kindly send me a packet by return of post."—JOHN CARLL, Streatham Common.

"Wheelers' Tom Thumb Lettuce is a capital variety for winter and early spring."—THOMAS RIVERS, Sawbridgeworth.

J. C. WHEELER & SON,
SEED GROWERS, GLOUCESTER, and 59, MARK LANE, LONDON, E.C.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED THEIR

ANNUAL SUPPLY OF HYACINTHS AND OTHER BULBOUS ROOTS

from Holland, and are pleased to say that they are in splendid condition.

J. V. & Sons were awarded the following Prizes for Hyacinths, &c., at the Spring Exhibitions:

1st Prize for 50 Hyacinths, distincts sorts, Royal Horticultural Society, March 18.
1st ,, 18 ,, ,, ,, ,, ,,
1st ,, 6 ,, new varieties ,, ,, ,,
1st ,, 12 pots Tulips, in 6 varieties ,, ,, ,,
1st ,, Collection of Crocus ,, ,, ,,
Extra Prize for Group of Hyacinths, Narciss, and Tulips ,, ,,
1st Prize for 12 Hyacinths, distinct sorts, Royal Botanic Society, March 25.
1st ,, 12 pots Tulips, in variety ,, ,, ,,
Extra Prize for Collection of Hyacinths ,, ,, ,,
Extra ,, Group of Hyacinths, Tulips and Narciss, Liverpool Horticultural Society.
Cultural Certificate for Group of Hyacinths, Tulips, and Narciss, Manchester Botanical Society.

In addition to the above 26 First and Extra Prizes for Hyacinths and Tulips were awarded to J. VEITCH & SONS at the Metropolitan Spring Exhibitions of 1871, '72, and '73.

JAMES VEITCH & SONS have also had the pleasure of supplying to the Commissioners of Her Majesty's Works the Hyacinths, Tulips, and Crocuses for the decoration of Hyde Park during the last four seasons.

Catalogues, Illustrated with upwards of Sixty Woodcuts, are now ready, and will be forwarded, Post Free, on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

LONDON. *Now Ready, Gratis and Post Free,* VIENNA.

DICK RADCLYFFE & CO.'S

ILLUSTRATED

AUTUMN CATALOGUE

OF

HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.,

FRUIT TREES, & HORTICULTURAL ELEGANCIES.

COLLECTIONS OF DUTCH BULBS, 10s. 6d. to 63s. each.

For DETAILED LIST see D. R. & CO.'s ILLUSTRATED CATALOGUE.

DICK RADCLYFFE AND CO., 129, HIGH HOLBORN, LONDON, W.C.

IMPORTANT ANNOUNCEMENT.

In compliance with the wishes of the Council of the Royal Horticultural Society

JAMES CARTER & CO.

BEG TO ANNOUNCE THAT

THE CARTER CUP, VALUE FIFTY GUINEAS,

WITH TWENTY-FIVE GUINEAS IN OTHER PRIZES,

FOR THE BEST COLLECTION OF VEGETABLES,

Will be competed for at the Provincial Meeting of the Royal Horticultural Society in 1875.

THIS MAGNIFICENT CUP TO BECOME THE ABSOLUTE PROPERTY OF THE WINNER.

For further particulars apply to

Carter's

THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

The Royal Seedsmen. The Royal Seedsmen.

PRETTY FLOWERS in WINTER and SPRING

ARE SECURED AT A LOW COST BY PLANTING

Carter's

COLLECTIONS OF HYACINTHS, TULIPS, CROCUS, &c.

NOW READY.

The following Collections are particularly adapted for Drawing Room or Conservatory Decoration:

COLLECTION No. 1	Packing and Carriage Free, excepting No. 5.	Price, 84*s.*
COLLECTION No. 2		Price, 63*s.*
COLLECTION No. 3		Price, 42*s.*
COLLECTION No. 4		Price, 21*s.*
COLLECTION No. 5		Price, 10*s.* 6*d.*

The following Collections are adapted for both Indoor and Outdoor Cultivation:

COLLECTION No. 6	Packing and Carriage Free, excepting No. 10.	Price, 84*s.*
COLLECTION No. 7		Price, 63*s.*
COLLECTION No. 8		Price, 42*s.*
COLLECTION No. 9		Price, 30*s.*
COLLECTION No. 10		Price, 15*s.*

The following Collections are for Outdoor Cultivation:

COLLECTION No. 11	Packing and Carriage Free, excepting No. 15.	Price, 84*s.*
COLLECTION No. 12		Price, 63*s.*
COLLECTION No. 13		Price, 42*s.*
COLLECTION No. 14		Price, 21*s.*
COLLECTION No. 15		Price, 10*s.* 6*d.*

Early Orders ensure the best Bulbs.

We Deliver all Dutch Roots, above 20s. value, Carriage Free.

DETAILED CATALOGUE GRATIS AND POST FREE.

CARTER'S,

THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

VALUABLE IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 8, at half-past 12 o'Clock precisely, an

IMPORTATION OF ORCHIDS FROM NEW GRENADA AND CENTRAL AMERICA,

consisting of ODONTOGLOSSUM WALLISII, O. HASTILABIUM, very fine, and ODONTOGLOSSUMS, unnamed varieties, very fine; MASDEVALLIA LINDENI, CYPRIPEDIUM LONGIFOLIUM, C. CAUDATUM, CATTLEYA MENDELLI; CATTLEYAS from CACHIRI, EPIDENDRUM VITELLINUM MAJUS, extra fine; LÆLIA SUPERBIENS; also some VANDAS from Java.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON W.C.

Dutch Flower Roots.

GEORGE POULTON begs to announce that his annual CATALOGUE of DUTCH FLOWER ROOTS, containing a Descriptive List of choice Hyacinths, Tulips, Narcissus, Crocus, &c., is now ready; post free to all applicants.

Fountain Nursery, Angel Road, Edmonton, London, N.

FOR SALE, a large ALOE, americana variegata, and a fine CAMELLIA. The Aloe is 7 feet 6 inches high, and 7 feet in width, very healthy. The Camellia (the old Double White), well set with bloom-buds, is 8 feet 9 inches in height, and from 7 to 8 feet through, in No. 1 sized pot. Apply to

Mr. WILLINGHAM, Florist, King Street, West Hammersmith, London, W.

To the Trade.—Spiræa japonica.

JEAN VERSCHAFFELT, having a large stock of the above, in strong clumps for winter forcing, begs to offer them at the following low prices, viz.:—

24*s.* per 100 clumps; £10 per 1000 do.

Orders are now being booked, and will be executed in the course of November.

The Nurseries, Ledeberg, Ghent, Belgium.

New Double Dwarf Sweet William
(DIANTHUS BARBATUS MAGNIFICUS).

THOMAS S. WARE is now prepared to send out the above new and distinct Dianthus, which has been so highly spoken of by the Horticultural Press. For description and figure of this charming novelty see my NEW BULB CATALOGUE, which can be had free on application.

Hale Farm Nurseries, Tottenham, London, N.

DOUBLE FLOWERED CINERARIA.—This Novel Strain has received *a Silver Medal at the International Horticultural Exhibition at Florence*; First-class Certificate from the Royal Horticultural Society, Kensington. Packets of Seed, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Also

PRIZE STRAINS

of Primula, Calceolaria, Pelargonium, Cyclamen, Gloxinia, Begonia, Cineraria, Fuchsia, Coleus, Auricula, Carnation, and Petunia; each 2*s.* 6*d.* per packet.

MR. WILLIAM BULL'S
Establishment for Choice Seeds and New and Rare Plants,
King's Road, Chelsea, London, S.W.

JOHN MALLER begs to call the attention of the Trade to his unsurpassed stock of winter-flowering HEATHS, which are in the finest possible condition; SOLANUM CAPSICASTRUM, unusually well berried; a fine lot of double white PRIMULA, BOUVARDIA of sorts, ACACIAS, CYCLAMENS, ADIANTUM CUNEATUM and FARLEYENSE, with a quantity of other popular plants; which will be SOLD by AUCTION by Messrs. PROTHEROE AND MORRIS, early in SEPTEMBER, at the Brunswick Nursery, Tottenham. Trains run every fifteen minutes from Bishopsgate to White Hart Lane. Station adjoins the Nursery.

To the Trade, &c.—Roses! Roses! Roses!

EWING AND CO. are offering very fine plants of the best varieties in cultivation. Twelve new varieties of 1874, in fine well-established plants, sent, carriage and package paid, to any Railway Station in the United Kingdom, on receipt of Post Office Order for 31*s.* 6*d.*

Descriptive and Priced CATALOGUES, and further information, gratis and post free on application.

The Royal Norfolk Nurseries, Norwich.

New Apple, Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now Booking Orders for this splendid Novelty, which obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, on November 12, 1873. Circulars with full particulars will be forwarded gratis and post-free to applicants. The price for strong maidens on and after November 1 next, is 7*s.* 6*d.* each, or three for 20*s.* The usual discount to the Trade.

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.

Newton Nurseries, **Chester.**

HUGH LOW & CO.

HAVE PLEASURE IN INFORMING THEIR FRIENDS AND THE PUBLIC THAT THEIR

STOCK OF WINTER AND SPRING FLOWERING PLANTS

Is this season unusually extensive in quantity and fine in quality, and well worth the notice of intending purchasers, who are very cordially invited to an inspection of the Plants, which comprise amongst other things:—

Many Thousands of ERICAS, of the best varieties, such as hyemalis, hybrida, Syndriana, Willmorea, grandinosa, caffra, gracilis, melanthera, barbata major, rubens, &c., &c.

Many Thousands of EPACRIS, in many varieties.

Many Thousands of GENISTAS.

Many Thousands of AZALEA INDICA, in variety.

Many Thousands of CAMELLIAS, in variety.

Many Thousands of SOLANUMS, well berried.

Many Thousands of BOUVARDIAS, red and white, all strong bushy plants, of blooming size.

Many Thousands of EPIPHYLLUMS, in many varieties.

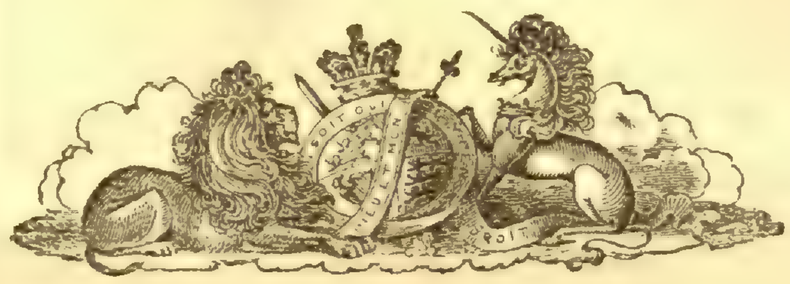
Many Thousands of the best GREENHOUSE PLANTS, such as Chorozemas, Aphelexis, Genetyllis, Dillwynias, Acacias, Statices, Polygalas, Boronias, Pimeleas, Cyclamens, Tree Carnations, Coronillas, Jasminums.

Also on hand, a very large Stock of

ORNAMENTAL FOLIAGE and DECORATIVE PLANTS, PALMS, DRACÆNAS, FICUS ELASTICAS, &c.

FERNS—Many thousands of the most approved kinds.

CLAPTON NURSERY, LONDON, E.



HENRY ORMSON,

DESIGNER AND BUILDER

OF

CONSERVATORIES AND WINTER GARDENS,

EITHER PLAIN OR ORNAMENTAL, CONSTRUCTED OF IRON OR WOOD,

OR A COMBINATION OF BOTH.

Plans and Estimates for Horticultural Buildings of all descriptions to suit any Garden, large or small.

Gentlemen waited on and Surveys made in any part of the country.

Estimates given from Architects' Designs.

BOILERS AND HEATING APPARATUS OF THE BEST DESCRIPTIONS.

HOT-WATER PIPES AND CONNECTIONS,

And a variety of the best BOILERS always kept in Stock.

PRICES AND ESTIMATES ON APPLICATION.

HENRY ORMSON,

HORTICULTURAL BUILDER AND HOT-WATER APPARATUS ENGINEER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

NEW PLANTS.
The Three best New Plants of the season are :—
CROTON MAJESTICUM,
DIPLADENIA BREARLEYANA,
CROTON SPIRALE.
Price, 2 and 3 Guineas each.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

M. Souchet's New Gladioli.—Gladioli, New Roses, &c.
EUGÈNE VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Gare d'Ivry, Paris, has the honour to announce to his numerous friends that his SPECIAL CATALOGUE of GLADIOLI is now to be had, free of charge, on application by letter (post paid); also that relating to the NEW ROSES of 1874.
The GLADIOLI will be sent out in the Autumn, in 50, 100, and 1000 of each variety, at the lowest possible price (for which, and conditions, see Catalogue).

Australian Seeds and Plants.
SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.
SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

To the Trade only.
A. M. C. JONGKINDT CONINCK'S WHOLESALE LIST, including a fine stock of Maiden Apples, Pears and Plums, Moss Roses, Dwarf, Half-standard and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants, is now ready, and will be sent, post free, on application.
Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

Camellias, Indian Azaleas, &c.
JEAN VERSCHAFFELT begs to offer the above, in fine healthy grown plants, at the undermentioned low prices, viz.:—
CAMELLIAS, with buds, 1 to 1½ foot high, £7 per 100; stronger, £10 to £15 and upwards; without buds, fine strong plants, £6 to £8 per 100.
AZALEA INDICA, fine plants, £5 per 100; stronger, £6, £8, to £12 and upwards.
NOTE.—Selection of sorts, which are all first-rate, to be left entirely to J. V.
OTAHEITE ORANGES, with fruit, 28s. per dozen.
JASMINUM GRANDIFLORUM, grafted, 28s. per dozen.
Early orders solicited by
JEAN VERSCHAFFELT, The Nurseries, Ledeberg, Ghent, Belgium.

To the Trade.
HEPATICAS and CHRISTMAS ROSES.
F. SANDER AND CO., SEED GROWERS, St. Albans, offer, in strong crowns—
HEPATICA, Single Blue, 20s. per 1000.
" Single Red, 30s. per 1000.
" Single White, 8s. per 100.
" Double Red, 8s. per 100.
HELLEBORUS NIGER, Christmas Roses, 60s. per 1000.
IRIS IBERICA, 75s. per 100; second size, 50s. per 100.
" GERMANICA, German Iris, mixed, 20s. per 1000.
LILIUM CANDIDUM, White Garden Lily, £4 10s. per 1000.
" TENUIFOLIUM, true, £5 per 100.
" PULCHELLUM, new and scarce, 35s. per doz.
" MONADELPHUM SZOVITZIANUM, £10 p. 100.
DIELYTRA SPECTABILIS, 8s. per 100.
LEUCOJUM VERNUM, Spring Snowflake, 15s. per 1000.

YOUNG PALMS.—The following are now disposable in large quantities, viz.:—
LATANIA BORBONICA, two to three divided leaves, £6 per 100.
CORYPHA AUSTRALIS, £6 per 100.
CHAMÆROPS EXCELSA, 1 foot high, strong, £5 per 100.
" FORTUNEI, 1 foot high, strong, £5 per 100.
PHŒNIX RECLINATA, 1½ foot, with dividing leaves, 40s. per dozen, £16 per 100.
" " Seedlings, 6 inches high, in store pots, 48s. per 100, £20 per 1000.
PTYCHOSPERMA ALEXANDRÆ.—This most beautiful new Palm, in store pots, £4 per 100.
ARECA MONOSTACHYA, in store pots, £6 per 100.
Early orders respectfully solicited by
JEAN VERSCHAFFELT, Nurseryman, Ledeberg, Ghent, Belgium.

Change of Title.
CURIO and NEW PLANT MERCHANTS.
MESSRS. TEUTSCHEL AND CO. desire to take this opportunity of thanking their Friends and Patrons for the liberal support hitherto accorded them. They desire now to inform them that, Mr. TEUTSCHEL having ceased to belong to the Establishment, business will, for the future, be carried on under the title of
"The NEW PLANT and BULB COMPANY,"
under the continued supervision of Dr. Wallace, and the active management of Mr. Fred. Horsman (late of Messrs. Osborn & Sons, of Fulham, and Messrs. Barr & Sugden, of Covent Garden).
Importations of the choicest Curios and Porcelain from Japan (*vide* their pieces on view in the International Exhibition, South Kensington), of Lilies and Hardy Bulbs from various parts of the world, of New Zealand Tree and other Ferns, and of New and Rare Hardy and Half-hardy Plants generally, will be continued as before.
Their Collectors are now busy in the Caucasus, India, Japan, North and South America, New Zealand, Jamaica, &c., and arrangements have been made for the introduction, during the season, of a large variety of New and Rare Bulbs, Seeds, Ferns, &c. Catalogues of these will be duly published at a later date.
All orders and communications from Customers and the naming of specimens will be attended to with the same diligence and attention as before.
Collectors of Ferns, Lilies, and Bulbous Plants, at the Cape and in other temperate countries, are invited to put themselves in communication with "The New Plant and Bulb Company," who will treat with them for the disposal of consignments with the greatest possible liberality.
All communications to be addressed to "The NEW PLANT and BULB COMPANY," Lion Walk, Colchester, England.
Colchester, Sept. 1.

SATURDAY, SEPTEMBER 5, 1874.

THE MANDRAKE.

"Teach me where the wondrous Mandrake grows,
Whose magic root, torn from the earth with groans
At midnight hour, can scare the fiends away,
And make the mind prolific in its fancies."
Longfellow's "Spanish Student."

THE remarkable legends attaching to certain natural objects offer interesting matter for contemplation both to the ethnologist and antiquarian. Almost endless in their number and variety—now clearly traceable to some old superstition, or dimly suggestive of a long past age, and not unfrequently altogether baffling the investigator into their origin and meaning—they may be looked upon as supplying the fiction and romance of natural history, and as bringing before the notice of antiquarian observers plants or animals which would otherwise never occupy his attention.

The Mandrake has from very early times occupied a prominent place among mystic plants. It is not our intention to enter upon a discussion as to the plant intended under the name of Dudaim (translated as Mandrakes) in the Book of Genesis, chap. xxx., 14—16. The passage to which reference is made has exercised all the ingenuity of commentators, and has been referred to very many and very different plants. Those who wish to follow up the subject will find ample material for so doing in the various *Dictionaries of the Bible* and *Scripture Herbals* which have appeared from time to time; on the present occasion we shall assume the correctness of the popular notion which identifies the Mandrake of Scripture with the Mandragora of botanists, especially as it is rather upon the superstitions connected with it than upon the plant itself that we would offer a few remarks.

The following account of the Mandrake, from a Saxon adaptation of the *Herbarium* of Apuleius, is supposed to date from about 1050, and is given in the late Mr. Cockayne's *Saxon Leechdoms*. As it embodies many of the old superstitions about this plant, we shall not apologise for quoting it :—

"This Wort, which is called Mandragora, is mickle and illustrious of aspect, and it is beneficial. Thou shalt in this manner take it when thou comest to it, then thou understandest it by this, that it shineth at night altogether like a lamp. When first thou seest its head, then inscribe thou it instantly with iron, lest it fly from thee; its virtue is so mickle and so famous, that it will immediately flee from an unclean man when he cometh to it; hence, as we before said, do thou inscribe it with iron, and so shalt thou delve about it as that thou touch it not with the iron, but thou shalt earnestly with an ivory staff delve the earth. And when thou seest its hands and its feet, then tie thou it up. Then take the other end and tie it to a dog's neck, so that the hound be hungry; next cast meat before him, so that he may not reach it except he jerk up the Wort with him. Of this Wort it is said that it hath so mickle might, that what thing soever tuggeth it up, that it shall soon in the same manner be deceived. Therefore, as soon as thou see that it be jerked up, and have possession of it, take it immediately in hand, and twist it, and wring the ooze out of its leaves into a glass ampulla [or pitcher], and when need come upon thee, that thou shouldst therewith help any man, then help thou him in this manner."

Here follows a description of various methods of employing the Mandrake in medicine, into which we need not enter; but a few notes upon the account of the plant will illustrate the various superstitions regarding it. Thus the reference to "its hands and feet" is accounted for by the circumstance that in the old representations of the Mandrake existing in various MSS. the figures here given (figs. 58, 59) which are especially interesting as representing not only the male but the female Mandrake, illustrate this. They are taken from a MS. in the Ashmolean Library at Oxford, and a similar one of the male Mandrake exists in the British Museum (Harl. MS., 1585). The female Mandrake is comparatively seldom represented in MSS.

The figure of the dog beneath the feet of the Mandrake points to the method in which the plant was to be procured, as indicated in the foregoing account. It was supposed that it shrieked when torn from the earth, and that this shriek caused the death of whoever should hear it; and the unfortunate dog fell a victim to this extraction. The shriek was supposed in the mining districts of Germany to be uttered by the Kobolds who watched over the plant. This method of obtaining the Mandrake is very ancient. Josephus mentions it as being practised by the Jews; and Dioscorides gives a figure of the Goddess of Discovery presenting a Mandrake root, with a dog in the agonies of death close at hand.

The notion of the Mandrake "shining at night like a lamp" seems to connect it in some way with the "hand of glory" of the middle ages; and it seems even to have been known by the same name. The old French title was Mandragloire, which Mr. Conway thinks is "simply a part of the Greek word Mandragora, blended with the name of the old French fairy Magloire." It seems, however, at least equally probable that it is a corruption of Main-de-Gloire. In many particulars the Mandrake showed the powers attributed to the mysterious "hand." It revealed treasures, and when placed in a box with a sum of money had the power of doubling it. Even in its origin it reminds us of the "hand of glory," which was that of some criminal who had been executed for his misdeeds, while the Mandrake was most efficacious when it had grown under a gallows, or where a criminal had been buried. This is well brought out in the following quaint description of the plant given by Newton in his *Herball to the Bible* (1587), in which, too, we have an early reference to the substitution of the tubers of the white Bryony for the true Mandrake :—

"The roote is blackish, cloven into two divisions or clefts, like legs, folding and wrapped one about another. Whereupon certain cosening makeshifts, deceitful pedlars, and hypocriticall lurdeins in times past, and yet still in some places, devise out of the root of this herbe, and Brionie, to make certain shapes and proportions like to the feature and phisnomie of a man, resembling sometime a man and sometime a woman, being neither afraid nor ashamed to persuade and beare the simple, ignorant people in hand that they grow naturally out of the earth in such forme, proportion, and making. Some of this lewd rabble of shifting mates and shameles deceivers impudently and boldly avouch and constantly affirme that this is a creature having life, and engendered under the earth of some dead person that hath beene convicted and put to death for some felonie or murther, and that they had [found] the same in such dampish and funerall places where the saide convicted persons were buried; by which persuasion they pitifully abuse the credulitie of silly people, and get from them by colour thereof no small sums of money. And some have beene made to beleeve that the apples and roote of this herbe hath had great vertue to procure fantasie (which they call love), and as it were to enchant, and [perforce] to cause the partie to whom it should be given to doate in amourous conceites, and to be foaded in a foole's paradise, as it is termed."

The use of Mandrake as an amulet or love-charm was formerly very common in France, and pieces of it are worn as such in Greece at the present day. It would take too long to recount all the different results which were produced by the use of the Mandrake; those wishing to investigate the subject further should refer to Mr. M. D. Conway's paper on Mystic Trees and Flowers in *Fraser's Magazine* for 1870. Some weirdly horrible stories are there given as to the development of the root into a living being; of the price which too often had to be paid for the possession of the awful creature, and of the impossibility of get-

ting rid of a Mandrake when it was once held in possession. It was even charged against the unfortunate Joan of Arc that she was possessed of one of these roots, although she denied the charge. The following letter, given by Mr. Conway, addressed by a burgess of Leipzig to his brother at Riga, in 1675, will show the wonderful properties attributed to the Mandrake at that comparatively recent date:—

"Brotherly love and truth, and all good to thee, dear brother! I have thy letter, and have made out from it enough to understand that thou, dear brother, in thy home affairs hast suffered great sorrow; that thy children, cows, swine, sheep, and horses have all died; thy wine and beer soured in thy cellar, and thy provender destroyed; and that thou dwellest with thy wife in great contortion; which is all grievous to hear. I have therefore gone to those who understand such things, to find what is needed, and have asked them why thou art so unlucky. They have told me that these evils proceed not from God, but from wicked people; and they know what will help thee. If thou hast a Mandrake [Allvuniken oder Erdmannikin], and bring it into thy house, thou shalt have good fortune. So I have taken the pains for thy sake to go to those who have such things, and to an executioner have paid sixty-four thalers, and a piece of gold drinkgelt to his servant, and this [Mandrake], dear brother, I send thee, and thou must keep it as I shall tell in this letter. When thou hast the Erdman in thy house, let it rest three days without approaching it; then place it in warm water. With the water afterwards sprinkle the animals, and sills of the house, going over all, and soon it shall be better with thee, and thou shalt come to thy own, if thou serve Erdmannikin right. Bathe it four times every year, and as often wrap it in silk cloths and lay it among thy best things, and thou need do no more. The bath in which it has been bathed is especially good. . . . And when thou goest to law put Erdman under thy right arm, and thou shalt succeed whether right or wrong. Now, dear brother, this Erdmannikin I send with all love and faith to thee for a happy new year. Let it be kept, and it may do the same for thy children's children. God keep thee!—Leipzig, Sunday before fastnight, 75. Hans N."

It is not easy to ascertain at what period the roots of the White Bryony (Bryonia dioica) were substituted for those of the true Mandrake, but it must have been at a very distant date. We have seen Newton's incidental reference to this; and Gerarde, in 1597, tells us how "the idle drones that have little or nothing to do but eate and drinke, have bestowed some of their time in carving the roots of Brionie, forming them to the shape of men and women; which falsifying practice hath confirmed the errour amongst the simple and unlearned people, who have taken them upon their report to be the true Mandrakes." The custom appears to have been very general, as we find it referred to by most herbal writers of the sixteenth and seventeenth centuries; and methods for making these Mandrakes are found in many books which are devoted to general subjects. Hill, in his *Natural and Artificial Conclusions* (1670), shows how it may be done; and the following method of forming a Mandrake is given in Lupton's *Thousand Notable Things* (1675):—

"To make the counterfeit Mandrake, which hath been sold by deceivers for much money, do thus as followeth: Take the great double root of Briony, newly taken out of the ground, and with a fine sharp knife frame the shape of a man or woman of the same, ... and when it is clean done, prick all these places with a sharp steel, as the head, the eyebrows, the chin, ... and put into the said holes the seeds of Millet, or any other that brings forth other small roots that do resemble hairs (which Leek seeds will do very well, or else Barley); after this, put it into the ground, and let it be covered with earth, until it have gotten upon it a certain little skin, and then thou shalt see a monstrous Idol, and hairy, which will become the parties well, if it be workmanlike or cunningly made or figured."

Occasionally these false Mandrakes were manufactured in another way. The earth was opened round a healthy young plant of Bryony, care being taken not to disturb the lower root-fibres, and a mould such as is used by makers of plaster figures was fixed close to the root, being fastened with wire into its proper situation; after which the earth was filled in round the root, which grew in the space of one summer to the shape of the mould.

The White Bryony root in many instances, even in its natural state, has a somewhat striking resemblance to the human figure—a peculiarity observed by Dr. Bromfield, and very noticeable in a specimen recently acquired by the Botanical Department of the British Museum. These roots are often of very considerable size; the author just quoted speaks of a specimen dug up

FIG. 58.—THE FEMALE MANDRAKE.

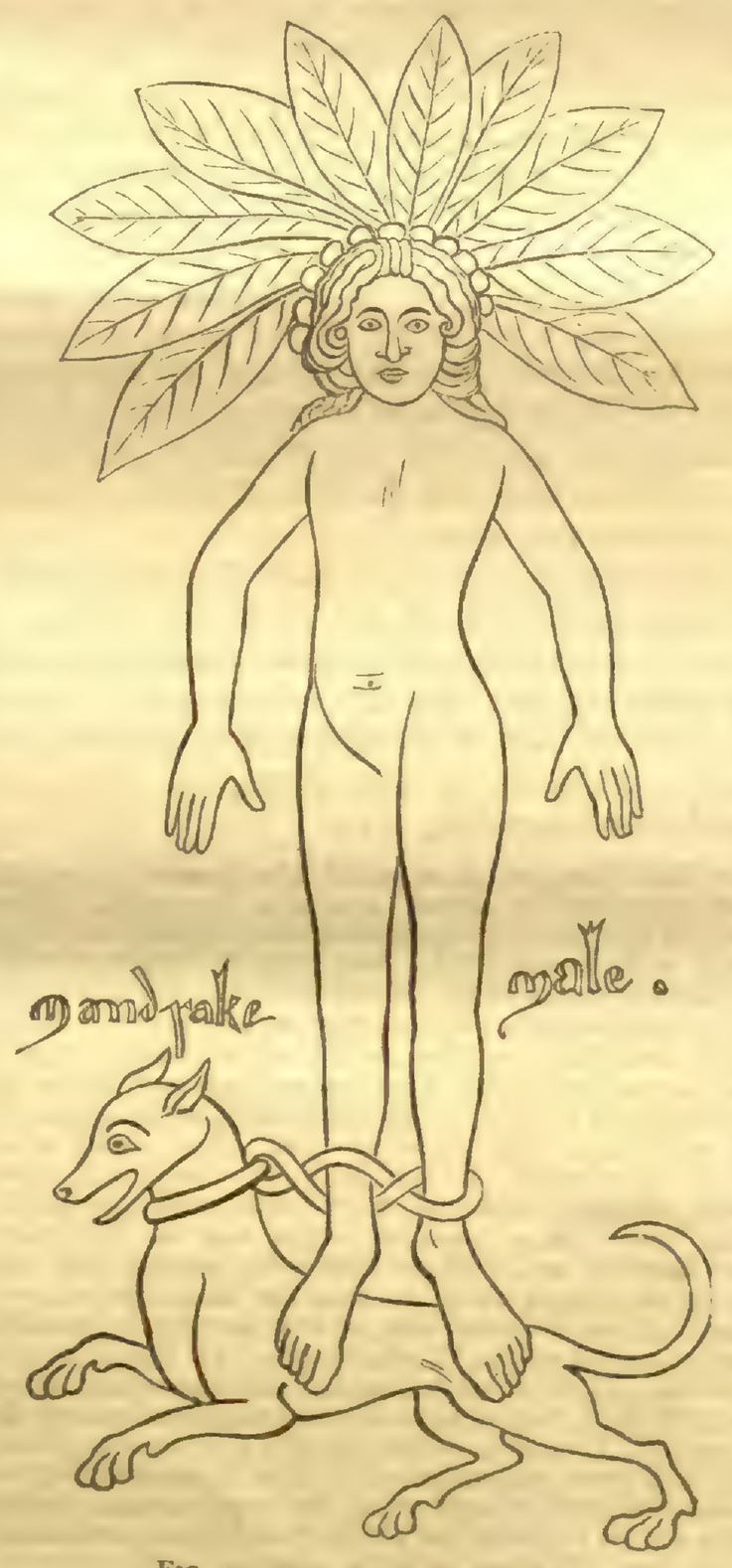


FIG. 59.—THE MALE MANDRAKE.

in Hayling Island which weighed 47 lb., and Gerarde says that "The Queene's chiefe chirurgion, Master William Goodorons, a very curious and learned gentleman," showed him a root "that waied halfe an hundred waight, and was of the bignesse of a childe of a yeare olde." The White Bryony, and especially its root, is still known in many parts of England, as in Yorkshire, Worcestershire, West Cheshire, Shropshire, Herefordshire, and Warwickshire, by the name of Mandrake; and Dr. Bromfield says that it is universally so called in the Isle of Wight, "probably in consequence of the roots having been formerly sold to the ignorant, by quacks, under that name, as endowed with virtues similar to the Mandrakes mentioned in Scripture." These fictitious Mandrakes do not appear to have been confined to England, for Matthiolus tells us that the Italian ladies of his time used to pay as much as twenty-five or thirty ducats for one of those made by travelling quacks; and he adds that their motive for obtaining them was the same as that of Rachel. The Bryony root may still be sometimes met with in herbalist's shops under the name of Mandrake. Other substitutes for the real plant were also employed. Sir Thomas Browne, in his *Enquiries into Vulgar and Common Errors*, speaks of "the roots of canes, Bryony, and other plants" as being "carried about by impostors . . . in several parts of Europe."

It appears from Mr. Conway's paper, from which we have already quoted, that there is a fine specimen of Mandrake in the Museum of the Royal College of Surgeons; and as he describes it as "a British specimen," it is probably Bryonia.

"It is the gift of Charles Hatchett, F.R.S., and we must suppose has not been tampered with, though this is difficult to believe, for nothing could bear a more quaint resemblance to two heavily-bearded human faces, the eyes, noses, foreheads, being traced upon the heads of the joined bulbs with a distinctness that requires no aid from the imagination. The roots in this specimen are short, and hidden by the long reddish-brown beard; but if, as would seem to be the case in other specimens, such faces should have human-like limbs projecting beneath them, the effect would be startling enough. We cannot wonder that Franciscus Imperatus and Fabius Columna should have both described the Mandrake they saw as 'a man in blossom.'" *B. M.*

New Garden Plants.

ZYGOPETALUM SEDENI, *n. hyb.**

A Zygopetalum with the habit of the old Z. Mackayi, but much smaller, with leaves as in Z. maxillare, and with a two-flowered raceme that will, no doubt, become richer with time. The flowers are equal to those of Z. maxillare (Gautieri); sepals and petals green outside, almost blackish inside, with a very few borders, and spots of light green, which are so thin and small that you must search for them; lip whitish, quite covered with bluish violet marbling; callus and columna of a very beautiful violet; anther conical, apiculate, yellowish; pollinarium fully developed, though there are many who pretend they are abortive in mules. This is (at least, to my knowledge) the first hybrid Zygopetalum. It is the product of Mr. Seden's most assiduous attempts, who well deserves that it should be dedicated to him. I have to thank Messrs. Veitch for it. *H. G. Rchb. f.*

MASDEVALLIA POLYSTICTA.†

This is a very promising Masdevallia, that may soon flower in England. The flowers are not large, exceeding, however, with their tails, a full inch in length. The ground colour would appear to be whitish. There are innumerable small purplish violet dots, changing their colour as they get older perhaps, since my three dried inflorescences show some differences as to the colour of those dots. The inflorescence has well been compared by the discoverer of the plant with that of Odontoglossum nævium and blandum for colours. A

* Mackayi × maxillare: "habitu Zygopetali Mackayi, rhizomate non ascendente." Foliis cuneato-lanceolatis acuminatis, "pedunculo ex cauliculo novello" (bifloro); bractea spathacea ovario breviori; sepalis ligulatis acutis, labello trifido; laciniis labelli lateralibus triangulis erectis callo adnatis, lacinia media dilatata flabellato lobulata subtilissime velutina, callo oblongo acuto novem carinato, excavato; pagina inferiori pro majore parte libera, ascendente; columna trigona supra basin utrinque augulata.

† (Amandæ.) Racemo plurifloro; floribus paulo distantibus; bracteis cucullatis uninerviis ovaria superantibus, cyatio (sc. (sc. perigonii externi parte coalita) abbreviato, mento obtusangulo, regione antementali intrusa, sepali supremi parte libera late triangula lateribus pilis fimbriata dorso carinata, cauda longius producta, sepalis lateralibus æqualibus minoribus, sepalis omnibus parce intus pilosis; tepalis ligulatis apice retusis cum apiculo, sursum serratis, trinerviis; labelli laciniis lateralibus angustis oblongis antice supra laciniam mediam insilientibus, lacinia antica quadrata apiculata; columnæ androclinio superne serrato.

splendid mass with many such spikes would offer a very agreeable and novel aspect. A great ornament of the flower is to be found in the hairs of the fimbriate margins and of the inner discs of the sepals. They may, however, not be compared with those of the grand M. Chimæra that will soon be more bespoken. I hear the plant has been miserably received at Mr. Stevens' rooms, but I hope it will gratify the more the lucky possessors and especially the nurserymen, who will understand how to make it pay better. It is one of the recent discoveries of M. Roezl. When one day there will be no more Orchids left, in consequence of the modern Vandalism which takes them all away, and sends them so miserably and so stupidly packed that the majority arrive dead, then we must have some grand gallery with the pictures of the most lovely species that have been destroyed, and statues in honour of those who are guilty of the destruction! Señor Benito Roezl will richly deserve one of the most prominent of these, but the very greatest and most predominant shall be that of a British gentleman. *H. G. Rchb. f.*

in length, with a linear-oblong ovary, surmounted by an orange-yellow funnel-shaped calyx-tube, which is divided at the throat into four linear-lanceolate reflexed segments, nearly as long as the tube, and of a deep violet colour edged with green. There are no petals, but the stamens are eight in number, about the length of the calyx-lobes and exserted beyond the calyx-tube. The style is also exserted.

Three species of Fuchsia are described in Hooker's *Handbook of the New Zealand Flora*, viz., F. excorticata, which is a tree with ovate-lanceolate leaves, silvery below, and flowers ¾—1½ inch long; F. procumbens, which is very slender, creeping or prostrate, with rounded ovate or cordate leaves; and F. Colensoi, with low-branching woody stems, and variable leaves, its flowers as large as those of F. excorticata. A fourth species has been since figured and described in Hooker's *Icones Plantarum*, tab. 1083, under the name of F. Kirkii, and which is stated to be so similar to F. procumbens, that by habit and foliage it is impossible to distinguish the species, but the flowers of F. procumbens are much more slender, with ellipsoid ovary, narrower longer calyx-tube, lanceolate-acuminate calyx-lobes, and the large capitate exserted stigma.

F. procumbens was shown by Mr. Kinghorn of Richmond, and will be appreciated as a rock-plant, it having the habit of Anagallis tenella, or Linnæa borealis, though on a larger scale. It may also prove valuable to the hybridiser. It is to be presumed that the plant in question will prove as hardy as the common Fuchsia. The shape of the pollen-grain, as observed and figured by Mr. Worthington Smith, is different from that of any other Onograd known to us. *M. T. M.*

FIG. 60.—FUCHSIA PROCUMBENS.

A, Section of flower, twi g natural size; B, Two views of the pollen and free raphides from the anther, enlarged 200 diam.; C, Pollen of Fuchsia globosa (typical of Fuchsia and all Onagraceæ), enlarged 200 diam.

POLYSTACHYA ABBREVIATA, *n. sp.**

A little thing imported with Lælia pumila (Cattleya marginata). It is allied to Polystachya purlensis, and like P. cerea. It differs, however, from any known species by the very curious lip, with its nearly obsolete anterior lobe. The cushions of fragile hairs are very original. I have to thank for it Mr. C. W. Strickland, Hildenley, Malton. *H. G. Rchb. f.*

FUCHSIA PROCUMBENS, *Hook. f.* (Fig. 60).

A plant of this interesting species was shown at a recent meeting of the Floral Committee. It is a shrubby species, with prostrate filiform branches creeping along the ground. The leaves are on long slender stalks, small, glabrous, or slightly ciliate at the edges, roundish and slightly toothed. The flower-stalks are solitary, axillary and erect, about half the length of the leaf-stalk. The flowers are about three-quarters of an inch

* Pseudobulbis pyriformibus diphyllis; foliis ligulatis acutis; pedunculo racemoso densifloro; bracteis triangulis acutis; ovaria dimidia non æquantibus, mento obtusangulo; sepalo dorsali triangulo acuto; sepalis lateralibus multo latioribus; tepalis linearibus acutis; labello flabellato antice trilobo; lobis lateralibus obtusatis, lobo medio brevissimo retuso, pulvinari cordiformi pilorum fragilium in basi, anteposito disco pilorum triangulo.

CHATSWORTH.

CHATSWORTH again! Yes: just as we have Shakspeare over again, and the Atlantic Ocean, and India, and the "Messiah," and the story of the enterprise and the achievements Old England. I have been there times how many I dare not reckon. That glorious lofty Weeping Ash, even with the new Orchid-house, unique among trees, I have known for at least a quarter of a century; also that noble Hornbeam, close alongside, the tallest I know of: and its other near neighbours, the Lime and the Spanish Chestnut, the trunk of each of which is so perfectly columnar that changed to marble it would stand well in the peristyle of an ancient Greek temple. Like a great poem, Chatsworth is inexhaustible. So much that is sweet; so much more that is princely; everywhere you have a sense of the gracefully consummate; everywhere you feel that if there has been a touch it has been to adorn; that further additions can only be like the light that falls on a diamond—the gem is there, pure and solid right down to the heart, it is now only for us to watch the sparkle and the play of colours.

The visit to Bakewell the other day of an old friend from London, a man who has known Chatsworth even longer than I have, and who has adequate eyes, impelled me once again to seek its delicious gardens and conservatories. Well assured, both of us, that when the old preacher said there was nothing new under the sun, he had no prescience of what lay in store for the botanists and the floriculturists of the nineteenth century; and that we should find plenty we had never seen before, embossomed though it might be in the familiar, we started as a couple of lads might do when going for a summer holiday in the woods. When well on in one's lifetime there is a very beautiful pleasure in thus revisiting ancient scenes of enjoyment derived from Nature. I do not mean enjoyment such as arises from the contemplation of Nature as a whole, but that which comes of learning how to feel and to see, which latter of course implies familiarity, more or less extended, with the parts and details, the history, the changes, and the reciprocal relations of the ingredients. To let our eyes fall once again upon the Oaks which first taught us the meaning of "gnarled and unwedgeable;" upon the Ferns, still occupying the self-same spots, though of annual fronds there may have been many many successions of growth, and still, like the gipsy women, carrying their produce on their backs, from which we first gathered our ideas of sori, and indusia, and sporangia; to let them fall upon the majestic Palms, and Bananas, and Bamboos, which, like these at Chatsworth, supplied our first precise notions of the vegetation of the tropics—this is the great charm in revisiting old scenes, and it conferred on the day of the visit I speak of a most thorough and beautiful pleasure. Everything nearly we found in its old-accustomed place;

everything that was forty years old, or older, seemed to nod to us as we passed along; it was like treading the thoroughfares of some sweet and comfortable little town, where every one knows everybody else. For trees, and shrubs, and handsome and substantial perennials have a wonderful amount of personality about them. They are not, as people sometimes fancy, all of a sort, like a flotilla of ducks upon a pond; they have their individualities quite as strongly marked as the great majority of human beings. It is this which enables us to enter them so readily and so pleasantly upon our lists of acquaintance. It gives a reality to their "how d'ye do" which becomes, as we grow into the better understanding of it, one of the most charming of the many sweet attributes of speechless Nature. One of the philosophers, a wise and a good man, was accustomed to say that trees and plants were a sort of cousins to us, a little further removed than those who monopolise the name, but still cousins—Dr. Hooker gave them this title at Belfast the other day; and I am by no means indisposed to accept his judgment.

Arrived in the gardens, after a cordial welcome from Mr. Speed, we first visited the vineries and the fruit-houses, where everything presented the richest appearance, save and except, of course, that the early crops of Peaches and Figs had disappeared. The show of ripe and ripening Grapes is exceedingly fine. Many of the bunches, both of Black Hamburgh and of Madresfield Court, it is utterly impossible to excel as regards beauty of form, colour, general condition, and qualities in the aggregate that render Grapes magnificent. I have seen larger clusters, but the same principle will apply in regard to dimensions that expresses itself in another quarter as "Handsome is that handsome does." It is interesting to observe that Mr. Speed makes immense use of dead-leaf litter. In one instance the needful moisture is supplied to the Vines by means of a vast heap of this material, which absorbs water from below in sufficient quantity to allow of a constant and steady supply, the roots taking it up at their own time and in their own way. In view of so splendid a crop of Grapes, it is very pleasant to hear that no inconsiderable quantity of the fruit finds its ultimate destination, not upon the dinner-table, but at the bedsides of the sick and suffering. This we take to be one of the most generous and thoroughly patrician ways of employing magnificent wealth that is possible to an Englishman of high station. A pound or two of first-class Grapes, ripened in such vineries as those of the Duke of Devonshire, often has the power of effecting more good quietly, feelingly, and unostentatiously, than would be done by the gift of five times their value in money. I speak from extended personal observation, and commend this truly Samaritan work to all who have the power and the opportunity. It may be well to add that the Grape-cure, technically so called, is winning favour in this country. To light up the countenance of a poor suffering fellow-creature with the present of a bunch of ripe Grapes is only one of the higher uses of this inestimable fruit. Upon the Continent it is tolerably well-known that the Grape-cure has long been practised with advantage. More than one of our London physicians sends patients to Germany, Bavaria, the Tyrol, and other places, expressly that they may become cured by a course of Grape-eating—so wonderfully medicinal is the result when proper methods and regulations are attended to. Of course it is not a specific; there is no occasion to claim for the Grape-cure more than is really deserves. We are very glad to find, however, that it is described as "an important instrument in the hands of the medical man" in the latest and to all appearance the most able and thorough work upon practical medicine which the present era has produced—the *Materia Medica and Therapeutics* of Dr. Charles Douglas F. Phillips. Mr. Speed placed in our hands, for the best of all experimental tests, a Grape which possibly enough may be known elsewhere. This we did not take note of, but which is certainly very singular in possessing the almost exact flavour of the Hautbois Strawberry. It is a hybrid, called Ferdinand de Lesseps, and in colour and form of bunch and berry exactly resembles a compact cluster of those old-fashioned "whites" that on the fronts of cottages in Somersetshire we remember as a charm of the by-gones, in company with Myrtle and monthly Roses and Virgin's Bower. The Plums, in many kinds, present just now at Chatsworth a most charming spectacle; the little trees, indoors of course, being loaded with their deep-hued produce, purple, green, and red, and every tree a perfect picture of health.

In the Victoria-house, that noble chamber of glass, the nearest approach to one of the enchanted palaces in the *Arabian Nights* I know of, the apartment in which so many illustrious inmates have found an abiding place, we observed on this occasion several novelties, all plants of great beauty, and pre-eminently that fine variety of Coleus called The Shah. The upper half of every leaf in this wonderful plant is of a lovely amber-straw colour, while the lower half is deep maroon, the division of the colours, which is right across the middle of the leaf, being as straight as if determined with a ruler. That other very lovely Coleus, called Golden Gem, likewise attains great perfection here; the edges of every leaf are curled and fringed in the most exquisite manner. It may be worth mentioning that a circle of these leaves laid upon a white tablecloth, the apex of every one touching the base of the next in succession, and with a nice edging of Selaginella, constitutes one of the most exquisite decorations that can be possibly resorted to when such a circle or ring is needed, round the base, for instance, of an epergne or other large centre-piece. One great recommendation is that the arrangement involves so little labour, it is simply to lay the leaves in their places. The water in the Victoria-house is covered in parts with the pretty rosettes of the Pistia Stratiotes, one of those curious aquatics which you may as well try to make wet as endeavour to moisten a globule of quicksilver, so swiftly does every drop of water glide away. Here, too, we found that rare and curious aquatic Fern, the Ceratopteris, the only one of the Filices which selects water for its abode. Here, too, were the sky-blue flowers of the Pontederia cordata. I wonder if the very beautiful structure of the hollow stalks of this plant has been scrutinised? Longitudinally divided, they present a long series of the most delicate transverse septa, reminding one of the cross partitions which render the common Juncus articulatus so interesting, only that in the Pontederia they are very much larger, though in truth not more obvious.

I have often noticed, with peculiar satisfaction, the obliging way in which our plain English plants, the weeds and flowers of the wayside, present in miniature almost every singular feature that occurs in exotics, so that we rarely need go to one of the latter as the sole and absolute trustee of a form or feature. The great pyxis of the Lecythis of South America, commonly called the Monkey-pot, is represented in the capsule of the Pimpernel; the woolly stamens of the Tradescantia again in the same little weed. A thousand other miniatures of a similar nature might be adduced, let it suffice to mention the leaves of the insignificant Hydrocotyle, which exactly represent those of the glorious Nelumbium. The last named plant, at the time of our Chatsworth visit, was superb. When was it, when can it be, anything else? I have stood by this marvellous Nelumbium at 10 P.M., contemplating it in the light of the full moon; I have contemplated it in the sunshine of mid-day; it is always the same, always the grand old vision of voluptuous and transcendent beauty that gave it thirty centuries ago a place among the things to be worshipped, and no wonder. The matchless configuration—Magnolia, white Rose, and white Water Lily, all in one; the proud height at which it stands above the water, not like a Sagittaria or even a Butomus, merely elevated above the surface, but lifted to an altitude with which nothing can compete; the lovely retiring concaves of white and blush colour that "petals" do not seem a name good enough for, and the strange, tessellated disc in the centre, which in time changes to seed-pod: what a wonderful compend of qualities! Then comes the great retinue of leaves, so thoroughly oriental—not common leaves, like those even of Roses and Lilies, but huge circular plates, balanced, as it were, horizontally, upon the tops of reeds. Well may those old Egyptians have wreathed the flowers with ears of corn and given them to their Isis. Had I lived in ancient Thebes, I am sure I should myself have worshipped both gardens and flowers, and with all my soul. What surprises me is, not anything I read in history of the consecration of the Nelumbium to religious purposes, but that a plant so unspeakably majestic should be so rarely seen in English hot-houses. Of course, it requires some sort of tank, but the culture is the easiest conceivable. A mere corner that can be left dry during the winter suffices for the rhizomes during their period of rest. Neither water nor heat are needed till the growing period in the spring. The tap is then turned; the green plates are aloft by midsummer; then come the peerless flowers, day after day renewing themselves as do those of the Victoria, and when over, during the dark months, again there is nothing to do. Seeing what immense sums of money are constantly expended upon Orchids, and many other things that in point of splendour will never beat the Nelumbium, it does seem a little strange that the latter should be ignored. The surface of the leaves of the Nelumbium, as with the Pistia, is absolutely inaccessible to wet. Another very curious particular is the vastness of the quantity of spiral vessels contained in the stalks. Snapped, and the two pieces pulled asunder, they still hold together by countless silvery threads, just like the broken stem of a Banana.

Nothing in this country could ever be more beautiful and astonishing than, in another house, the display of Fuchsia bloom. The plants are of considerable age, dimensions, and substance, and being left very much to themselves and never pruned, the branches spread in such a way over one's head that the atmosphere is completely saturated with the descending crimson. The conservatory in which they are established is a long one, the branches shoot out at various elevations, there is no sort of training or artificial arrangement, they go where they please—they do as they like, and the result is a rain of flowers that I can only compare to the slowly settling sanguine fires that come of the bursting of a thousand first-class rockets. The house set apart for the Amherstia and the various species of Nepenthes was, as usual, a little paradise of curious beauty. With excellent taste the ground below the Amherstia is well covered with the grand foliage of Calatheas and similar plants, so that all is in keeping. It is interesting, when in this house, to recall to mind the affrighting fable of the Upas-tree, which was reputed to poison the atmosphere so fatally that no living thing ever held it company. Here, alongside of the Amherstia, is a Upas some 20 feet in height, with a stem which near the base is little less than a foot in diameter—nothing poisoned, nothing corrupted nor hurt; we are reminded rather of the "happy family" exhibitors, in whose keeping lion and lamb lie down together, the lamb still outside the lion. It is curious that in those quaint species of Nepenthes which have the double lines of bristly hairs down the side of the pitcher next the peduncle, these hairs entirely disappear from the later or younger pitchers. What is the explanation of this? A house in which innumerable small Palms are kept, in readiness for decorative purposes, shows these plants in a condition of treatment quite different from what we are accustomed to meet with. They are placed in tanks of water, yet not so as to be wetted, empty pots being inverted, and put to stand upon bricks, the pot containing the Palm being itself placed on what is really the bottom of the inverted one, but which the inverting converts into a little platform. So treated, they secure abundance of the moisture Palms so delight in, but, absorbing it at their own convenience, there is never any risk of their being surcharged. In the Palm nursery are some very beautiful examples of Dipladenia and Allamanda; here too is a very flourishing Ouvirandra fenestralis, with Anthurium Scherzerianum, &c. What a remarkable likeness is presented in the spadix of the latter in combination with the spathe to the neck and body of a swan! Here again are grown in abundance the little fruits called Cape Gooseberries, reputed a specific for rheumatic gout by reason of their containing so much potash. The house devoted to ornamental-foliage plants is one where they are seen to immense advantage, the stages being so low that the visitor is enabled to view the surface of every leaf, instead of a mixture of foliage, stems, sticks, and flower-pots. The plants, moreover, are all of moderate dimensions, so that a considerable variety can be brought into near proximity, with results of a most sweet and pleasing kind. Surveying them under the conditions we did, one cannot but be struck with the exquisite heightening of the colours of the variegated Crotons when the leaves are wetted. Old Maximus Tyrius has a beautiful simile drawn from the charming aspect of certain descriptions of flowers when immersed in water; and every one who has strolled upon the shore has noticed along with the "crimson weeds"—

> "Those bright-hued pebbles that the sun
> Through the small waves so softly shines upon."

The Croton leaves, when the surface is moistened, may compare with either, the colours presenting every shade of green, crimson, and gold, and of brightness with which the unwetted leaf but faintly matches.

Where the tender Ferns and similar plants find their needful shelter there is much that is very interesting; conspicuously a more thriving and lively example of the famous flycatcher, Dionæa muscipula—now likely to become more celebrated than ever—than I remember ever to have seen before; with beautiful examples of Cephalotus, &c. The Ferns that attracted our special attention were Lindsæa Lowii, so curious in the diversity of the fronds and pinnules, which, were they not combined, one could hardly suppose to be brethren; Asplenium formosum, well-named, for assuredly in figure and hue it is excelled by none of its genus; Adiantum peruvianum, a new species of the trapeziforme type; Adiantum cumulatum, pinnate, and with broad leaflets that take root if placed in the earth, and the very curious Doodia media var. crispa. Associated with the Ferns are various Selaginellas; one, the S. Lyallii, a plant that every gardener who has to find a supply of material for bouquets should quickly possess himself of, the delicate green triangular frond being so stiff and enduring when it comes to be handled, that it serves just the purpose of the Cabbage leaf to a cottager's bunch of Roses. Another very pretty Fern grown at Chatsworth, and comparatively new, is the Cheilanthes pulchella. If there were not already a Cheilanthes fragrans, it would deserve the latter epithet, being one of the few species of the order which are in a certain measure fragrant, or perhaps more correctly aromatic. The most remarkable in this way is our own indigenous Aspidium, or Lastrea Oreopteris, the "Sweet Mountain Fern;" or, as I should prefer to

re-christen it, the Sweet Oreads' Fern, for assuredly, if ever the nymphs of the mountains looked after plants for pleasure's sake, they would never skip one so graceful and, as ladies say, so elegantly "worked" with the beaded sori. In the Orchid-house, of course, there was no great abundance of bloom, the season not being one of orchideous ascendancy. The most interesting plant we saw was a Phalænopsis grandiflora var. aurea, said to be the only example of it in cultivation.

The great Palm-house, that magnificent and wonderful conservatory which suggested the original "Crystal Palace" in Hyde Park, we were fain to content ourselves with simply admiring. If a man wants to see it, he must go and reside in it. Here, in full bloom, was the Renanthera coccinea, three or four stems like reeds bearing their flowers at 4 yards above the ground, and leaning for support against tall white pillars of Silver Birch. Here, too, was Lygodium, running spirally up strings, fastened at some imperceptible height above, and making columns that would do for the Saracen architects; while Bougainvillea, trained in a manner somewhat similar, and thrice the height of a man, was so marvellously full of bloom that, although a bushel or two of the dropped bracteas had only just been swept away, there seemed to be scarcely space for the envious foliage. A noble plant of Xylophylla was in full flower, with pleasing illustration, close alongside, in the shape of an Epiphyllum, of the very curious nature of the inflorescence—what seems to be great pinnate leaves in the Xylophylla, edged or ciliated with innumerable flowers, being really sprays of branchlets, flattened so as to give the semblance of leaves. A very pretty and plain distinction is given to the two kinds of flowers in the Xylophylla by the colour of the peduncles, which in the soon-falling males are yellowish, while in the females they are pink. To observe this satisfactorily a branchlet should be held between the eye and the light. What a pity it is that curious and beautiful plants like this—a fascination to every one to whom they are shown intelligently—should scarcely be known to the generality of English gardeners.

The pleasure grounds and arboretum, we were constrained to pass through rapidly. It was impossible, however, to overlook the beautiful Australian Nymphæa candidissima, a large pondful of which was a scene of struggle between leaves and snow-white flowers; or not to pause before the charming effect produced by the use of the variegated Negundo as a bedding plant, and for a low background edging to beds of brightly-coloured plants. In the borders Viola cornuta alba seemed a humble Calanthe vestita. No idea of Pansy or Violet is suggested by it, while for use in a wedding bouquet nothing lovelier can be found. In regard to bedding plants it may be added that a fine effect is obtained at Chatsworth by commingling the scarlet Cardinal-flower, Lobelia cardinalis, with the striped variety of Dactylis glomerata. The Royal Oak, planted by Her Majesty when the Princess Victoria, in 1832, is now a handsome tree, and is covered annually with Acorns. A veritable seedling from it, a *bonâ fide* child of the tree of '32, was supplied, very happily, for the Prince of Wales, when at Christmas two and a half years ago he planted the "Prince's Oak."

Mr. Speed, whose courtesy and hospitality to visitors run so thoroughly abreast of his immense horticultural knowledge, and superb skill in fruit culture most especially, makes Chatsworth even more than Chatsworth to the professional man. One thing he would like to learn is the time of the actual first introduction to England of the Black Hamburgh Grape. Can any reader of the *Gardeners' Chronicle* inform him? *G.*

CARNIVOROUS PLANTS.

THE full text of Dr. Hooker's address on this subject to the Biological Department of the British Association at Belfast unfortunately did not reach us in time for publication last week. We were, therefore, constrained to insert an abstract from which some of the most important points of detail were omitted.

The observations on Sarracenia and Nepenthes made by Dr. Hooker himself are so novel and so interesting that we insert now the full text of his observations concerning them, and trust that he may continue to prosecute these very interesting and important researches. A descriptive list of the species of Nepenthes in cultivation was given in our vol. for 1872, and several species have from time to time been figured in our columns.

SARRACENIA.

It is evident that there are two very different types of pitcher in Sarracenia, and an examination of the species shows that there must probably be three. These may be primarily classified into those with the mouth open and lid erect, and which consequently receive the rain-water in more or less abundance; and those with the mouth closed by the lid, into which rain can hardly, if at all, find ingress.

To the first of these belongs the well-known S. purpurea, with inclined pitchers, and a lid so disposed as to direct all the rain that falls upon it also into the pitcher; also S. flava, rubra, and Drummondii, all with erect pitchers and vertical lids: of these three the lid in a young state arches over the mouth, and in an old state stands nearly erect, and has the sides so reflected that the rain which falls on its upper surface is guided down the outside of the back of the pitcher, as if to prevent the flooding of the latter.

To the second group belong S. psittacina and S. variolaris.

The tissues of the internal surfaces of the pitchers are singularly beautiful. They have been described in one species only, the S. purpurea, by Auguste Vogl; but from this all the other species which I have examined differ materially. Beginning from the upper part of the pitcher, there are four surfaces, characterised by different tissues, which I shall name and define as follows:—

1. An attractive surface, occupying the inner surface of the lid, which is covered with an epidermis, stomata, and (in common with the mouth of the pitcher) with minute honey-secreting glands; it is further often more highly coloured than any other part of the pitcher, in order to attract insects to the honey.

2. A conducting surface, which is opaque, formed of glassy cells, which are produced into deflexed, short, conical, spinous processes. These processes overlapping like the tiles of a house, form a surface down which an insect slips, and affords no foothold to an insect attempting to crawl up again.

3. A glandular surface (seen in S. purpurea), which occupies a considerable portion of the cavity of the pitcher below the conducting surface. It is formed of a layer of epidermis with sinuous cells, and is studded with glands; and being smooth and polished, this too affords no foothold for escaping insects.

4. A detentive surface, which occupies the lower part of the pitcher, in some cases for nearly its whole length. It possesses no cuticle, and is studded with deflexed, rigid, glass-like, needle-formed, striated hairs, which further converge towards the axis of the diminishing cavity; so that an insect, if once amongst them, is effectually detained, and its struggles have no other result than to wedge it lower and more firmly in the pitcher.

Now, it is a very curious thing that in S. purpurea, which has an open pitcher, so formed as to receive and retain a maximum of rain, no honey secretion has hitherto been found, nor has any water been seen to be secreted in the pitcher; it is further the only species in which (as stated above) I have found a special glandular surface, and in which no glands occur on the detentive surface. This concurrence of circumstances suggests the possibility of this plant either having no proper secretion of its own, or only giving it off after the pitcher has been filled with rain-water.

In S. flava, which has open-mouthed pitchers and no special glandular surface, I find glands in the upper portion of the detentive surface, amongst the hairs, but not in the middle or lower part of the same surface. It is proved that S. flava secretes fluid, but under what precise conditions I am not aware. I have found none but what may have been accidentally introduced in the few cultivated specimens which I have examined, either in the full-grown state or in the half-grown, when the lid arches over the pitcher. I find the honey in these as described by the American observers, and honey-secreting glands on the edge of the wing of the pitcher, together with similar glands on the outer surface of the pitcher, as seen by Vogl in S. purpurea.

Of the pitchers with closed mouths, I have examined those of S. variolaris only, whose tissues closely resemble those of S. flava. That it secretes a fluid noxious to insects there is no doubt, though in the specimens I examined I found none.

It is not probable that three pitchers so differently constructed as those of S. flava, purpurea, and variolaris, and presenting such differences in their tissues, should act similarly. The fact that insects normally decompose in the fluid of all, would suggest the probability that they all feed on the products of decomposition; but as yet we are absolutely ignorant whether the glands within the pitchers are secretive or absorptive, or both; if secretive, whether they secrete water or a solvent; and if absorptive, whether they absorb animal matter or the products of decomposition.

It is quite likely, that just as the saccharine exudation only makes its appearance during one particular period in the life of the pitcher, so the digestive functions may also be only of short duration. We should be prepared for this from the case of the Dionæa, the leaves of which cease after a time to be fit for absorption, and become less sensitive. It is quite certain that the insects which go on accumulating in the pitchers of Sarracenias must be far in excess of its needs for any legitmate process of digestion. They decompose; and various insects, too wary to be entrapped themselves, seem habitually to drop their eggs into the open mouth of the pitchers, to take advantage of the accumulation of food. The old pitchers are consequently found to contain living larvæ and maggots, a sufficient proof that the original properties of the fluid which they secreted must have become exhausted; and Barton tells us that various insectivorous birds slit open the pitchers with their beaks to get at the contents. This was probably the origin of Linnæus' statement, that the pitchers supplied birds with water.

The pitchers finally decay, and part, at any rate, of their contents must supply some nutriment to the plant by fertilising the ground in which it grows.

NEPENTHES.

The genus Nepenthes consists of upwards of 30 species of climbing half shrubby plants, natives of the hotter parts of the Asiatic Archipelago from Borneo to Ceylon, with a few outlying species in New Caledonia, in Tropical Australia, and in the Seychelles Islands on the African Coast. Its pitchers are abundantly produced, especially during the younger state of the plants. They present very considerable modifications of form and external structure, and vary greatly in size, from little more than an inch to almost a foot in length; one species, indeed, which I have here from the mountains of Borneo, has pitchers which, including the lid, measures a foot and a-half, and its capacious bowl is large enough to drown a small animal or bird.

The structure of the pitcher of Nepenthes is less complicated on the whole than that of Sarracenia, though some of its tissues are much more highly specialised. The pitcher itself is here not a transformed leaf, as in Sarracenia, nor is it a transformed leaf-blade, like that of Dionæa, but an appendage of the leaf developed at its tip, and answers to a water-secreting gland that may be seen terminating the mid-rib of the leaf of certain plants. It is furnished with a stalk, often a very long one, which in the case of pitchers formed on leaves high up the stem has (before the full development of the pitcher) the power of twisting like a tendril round neighbouring objects, and thus aiding the plant in climbing to a great height in the forest.

In most species the pitchers are of two forms, one appertaining to the young, the other to the old state of the plant, the transition from one form to the other being gradual. Those of the young state are shorter and more inflated; they have broad fringed longitudinal wings on the outside, which are probably guides to lead insects to the mouth; the lid is smaller and more open, and the whole interior surface is covered with secreting glands. Being formed near the root of the plant, these pitchers often rest on the ground, and in species which do not form leaves near the root, they are sometimes suspended from stalks which may be fully a yard long, and which bring them to the ground. In the older state of the plant the pitchers are usually much longer, narrower, and less inflated, trumpet-shaped, the wings also are narrower, less fringed, or almost absent. The lid is larger and slants over the mouth, and only the lower part of the pitcher is covered with secreting glands, the upper part presenting a tissue analogous to the conducting tissue of Sarracenia, but very different anatomically. The difference in structure of these two forms of pitcher, if considered in reference to their different positions on the plant, forces the conclusion on the mind, that the one form is intended for ground game, the other for winged game. In all cases the mouth of the pitcher is furnished with a thickened corrugated rim, which serves three purposes: it strengthens the mouth and keeps it distended; it secretes honey (at least in all the species I have examined under cultivation, for I do not find that any other observer has noticed the secretion of honey by Nepenthes), and it is in various species developed into a funnel-shaped tube that descends into the pitcher, and prevents the escape of insects, or into a row of incurved hooks, that are in some cases strong enough to retain a small bird, should it, when in search of water or insects, thrust its body beyond a certain length into the pitcher.

In the interior of the pitcher of Nepenthes there are three principal surfaces; an attractive, conductive, and a secretive surface; the detentive surface of the Sarracenia being represented by the fluid secretion, which is here invariably present at all stages of growth of the pitcher.

The attractive surfaces of Nepenthes are two—those, namely, of the rim of the pitcher, and of the under surface of the lid, which is provided in almost every species with honey-secreting glands, often in great abundance. These glands consist of spherical masses of cells each embedded in a cavity of the tipue of the lid, and encircled by a guard-ring of glass-like cellular tissue. As in Sarracenia, the lid and mouth of the pitcher are more highly coloured than any other part, with the view of attracting insects to their honey. It is a singular fact that the only species known to me that wants these honey glands on the lid is the N. ampullaria, whose lid, unlike that of the other species, is thrown back horizontally. The secretion of honey on a lid so placed would tend to lure insects away from the pitcher instead of into it.

From the mouth to a variable distance down the pitcher is an opaque glaucous surface, precisely resembling in colour and appearance the conductive surface of the Sarracenia, and, like it, affording no foothold to insects, but otherwise wholly different; it is formed of a fine network of cells, covered with a glass-like cuticle, and studded with minute reniform transverse excrescences.

The rest of the pitcher is entirely occupied with the secretive surface, which consists of a cellular floor crowded with spherical glands in inconceivable numbers. Each gland precisely resembles a honey-gland of the lid, and is contained in a pocket of the same nature, but semi-circular, with the mouth downwards, so that the secretive fluid all falls to the bottom of the pitcher. In the Nepenthes Rafflesiana 3000 of the glands occur on a square inch of the inner surface of the pitcher, and upwards of a million in an ordinary sized pitcher. I have ascertained that, as was indeed to be expected, they secrete the fluid which is contained in the bottom of the pitcher before this opens, and that the fluid is always acid.

The fluid, though invariably present, occupies a comparatively small portion of the glandular surface of the pitcher, and is collected before the lid opens. When the fluid is emptied out of a fully formed pitcher that has not received animal matter it forms again, but in comparatively very small quantities; and the formation goes on for many days, and to some extent, even after the pitcher has been removed from the plant. I do not find that placing inorganic substances in the fluid causes an increased secretion, but I have twice observed a considerable increase of fluid in pitchers after putting animal matter in the fluid.

To test the digestive powers of Nepenthes I have closely followed Mr. Darwin's treatment of Dionæa and Drosera, employing white of egg, raw meat, fibrine and cartilage. In all cases the action is most evident, in some surprising. After twenty-four hours' immersion the edges of the cubes of white of egg are eaten away and the surfaces gelatinised. Fragments of meat are rapidly reduced, and pieces of fibrine weighing several grains dissolve and totally disappear in two or three days. With cartilage the action is most remarkable of all; lumps of this weighing 8 and 10 grains are half gelatinised in twenty-four hours, and in three days the whole mass is greatly diminished, and reduced to a clear transparent jelly. After drying some cartilage in the open air for a week, and placing it in an unopened but fully formed pitcher of N. Rafflesiana, it was acted upon similarly and very little slower.

That this process, which is comparable to digestion, is not wholly due to the fluid first secreted by the glands appears to me most probable, for I find that very little action takes place in any of the substances placed in the fluid drawn from pitchers, and put in glass tubes; nor has any followed after six days' immersion of cartilage or fibrine in pitchers of N. ampullaria placed in a cold room, whilst on transferring the cartilage from the pitcher of N. ampullaria in the cold room to one of Rafflesiana in the stove, it was immediately acted upon. Comparing the action of fibrine, meat, and cartilage placed in tubes of Nepenthes fluid, with other in tubes of distilled water, I observed that their disintegration is three times more rapid in the fluid; but this disintegration is wholly different from that effected by immersion in the fluid of the pitcher of a living plant.

In the case of small portions of meat, ½—2 grains, all seem to be absorbed; but with 8—10 grains of cartilage it is not so, a certain portion disappears, the rest remains as a transparent jelly, and finally becomes putrid, but not till after many days. Insects appear to be acted upon somewhat differently, for after several days' immersion of a large piece of cartilage, I found that a good-sized cockroach which had followed the cartilage and was drowned for his temerity, in two days became putrid. In removing the cockroach, the cartilage remained inodorous for many days. In this case, no doubt, the antiseptic fluid had permeated the tissue of the cartilage, whilst enough did not remain to penetrate the chitinous hard covering of the insect, which consequently decomposed.

In the case of cartilage placed in fluid taken from the pitcher it becomes putrid, but not so soon as if placed in distilled water.

From the above observations it would appear probable that a substance acting as pepsine is given off from the inner wall of the pitcher, but chiefly after placing animal matter in the acid fluid; but whether this active agent flows from the glands, or from the cellular tissue in which they are imbedded, I have no evidence to show.

I have here not alluded to the action of these animal matters in the cells of the glands, which is, as has been observed by Mr. Darwin in Drosera, to bring about remarkable changes in their protoplasm, ending in their discoloration. Not only is there aggregation of the protoplasm in the gland-cells, but the walls of the cells themselves become discoloured, and the glandular surface of the pitcher, that at first was of a uniform green, becomes covered with innumerable brown specks (which are the discoloured glands). After the function of the glands is exhausted, the fluid evaporates, and the pitcher slowly withers.

At this stage I am obliged to leave this interesting investigation. That Nepenthes possesses a true digestive process such as has been proved in the case of Drosera, Dionæa, and Pinguicula, cannot be doubted. This process, however, takes place in a fluid which deprives us of the power of following it further by direct observation. We cannot here witness the pouring out of the digestive fluid; we must assume its presence and nature from the behaviour of the animal matter placed in the fluid in the pitcher. From certain characters of the cellular tissues of the interior walls of the pitcher, I am disposed to think that it takes little part in the processes of either digestion or assimilation, and that these, as well as the pouring out of the acid fluid, are all functions of the glands.

PLANT GOSSIP.

THOSE who want a fine and effective hardy herbaceous plant for any permanent position in the shrubbery or flower borders, should not overlook the old but not half-known SPIRÆA ARUNCUS. When grown in a rather peaty soil, on a cool bottom, which is what suits it best, its inflorescence rivals if it does not excel that of the famous Astilbe (Hoteia) japonica, while its handsome tripinnate foliage completes the picture of one of the most elegant hardy perennials grown in our gardens. For cutting it is quite equal to the plant just named; while in the growing state, under favourable circumstances, since it reaches at least a height of 3 to 4 feet, it may be employed to occupy positions where that would be altogether ineffective.

—— CHIRONIA IXIFERA was finely shown at the annual exhibition of the Trowbridge Horticultural Society on the 26th ult. The plant was about 2½ feet through, and was literally covered with a mass of brilliant pink Linum-like flowers. It was said to be four years old, and it appears to grow free enough when properly managed. Beautiful as it is, Mr. B. S. Williams does not even give it a place in his book on *Choice Stove and Greenhouse Plants*, probably because it may be included in the list of plants that have gone out of cultivation. It is a suprisingly fine and effective exhibition plant notwithstanding.

—— EUCALYPTUS POLYANTHEMUS appears to be hardier than all other species with which we are acquainted. It is growing on a bank near the Museum No. 1 at Kew. In the late spring, when even forest trees were injured by frost and cold winds, the young and soft shoots were not in the slightest degree affected. This tree once grew near the present site of the Orchid-house, where it was planted about 1850, and attained a height of 20 feet. In 1865 the top part of the tree was killed by frost, but strong shoots were afterwards sent up from below. The original trunk (now dead) is 4 feet in circumference. When the leaves are in their best glaucous condition, the contrast between it and the dark foliage behind is good. If obtainable, it would certainly be worth the attention of planters, especially in the milder parts of the country. It is a native of North Australia, Queensland, New South Wales, and Victoria. EUCALYPTUS CORYNOCALYX and E. CALOPHYLLA are in flower in the temperate-house. E. robusta, E. globulus, and E. cordata are in bud, and will soon be open. They are all large trees, planted out in the beds. E. cornuta is bearing fruit, standing on one of the shelves; it, also, has young flower-buds.

—— SOLANUM VENUSTUM is an extremely elegant climber, flowering in the Palm-house at Kew. The branches hang down, bearing large panicles of light mauve-coloured flowers. The leaves are light green, pinnately 3—5-foliolate, except the first produced on young branches, which are usually simple. It is supposed to have been received from Brazil, and was figured in the *Bot. Mag.* of 1870. Cuttings are easily struck. It is very free flowering, and is worth a place in every collection.

—— GUNNERA SCABRA has attained fine proportions in the herbaceous ground at Kew. Its diameter is about 13 feet, and the height 6 feet. Some of the leaves are 4 feet across, with petioles of the same length.

—— NYMPHÆA TUBEROSA is flowering in the pond devoted to aquatics at Kew. Without investigation it might be mistaken for N. alba, which it much resembles in the leaves and flowers. Nuttall appears to have made this mistake. It may be distinguished by its "rootstock bearing numerous spontaneously detached, often compound, tubers." It is described in Dr. Gray's *Manual of the Botany of the Northern United States*, 1867.

NOTES ON THE ALDER.

THE Alder (Alnus glutinosa) is, next to the Willows, the most ubiquitous tree in England and Wales wherever brooks take their winding course through the country, or in marshy ground, where it forms dense leafy bushes. According to Loudon, it is the most aquatic of European trees, being found in wet swampy grounds throughout the whole of Europe. Many places in England have received their names from the Alder, as, for instance, the now familiar Aldershot, or properly Aldersholt—the wood of Alders—from their abundance in that boggy locality. The term Orle is the vulgar name for Alder in the midland and western counties, thus giving an appellation to Orleton and other villages. Numerous places in Wales and on its borders also show the prevalence of the Alder, its Celtic name being Wern. Both Shrewsbury, anciently called Pengwern, and the Malvern Hills, were so called from the Alder groves that encompassed them in early times; and a brook near Worcester that bears the name of Lawern is at the present day shrouded in Alder bushes. The adjunct "wern" is indeed attached to innumerable localities in Wales.

The Alder is mostly seen in its bushy form, for it is but seldom that it is allowed to rise into a tall branching tree, for wherever it grows near occupied ground it is certain to be hacked into stumps by the economical farmer, and as it is not much valued as a timber tree no one cares to interfere. Thus dwarfed by brook sides it often makes a good position for the angler to throw his line from, as, advantageously ensconced on a projecting bole, he has a better chance for good sport, while a sturdy branch may give a support to his back. An Alder, though reduced to bare poles, tenaciously retains its vitality, and often spreads and multiplies its roots below in a labyrinthoid manner when unable to grow upwards. It then sometimes forms a grotesque mass, such as I once saw and sketched by one of the rivers of South Wales near Pont-y-Pridd (see fig. 61). The association of Willows with Alders, and their contrasted foliage by the side of brooks, is a matter of general observation—

> "There by grey Willows almost hid from sight,
> Or by dark Alders overshadow'd quite."

But though the Alder is mostly seen in dwarf bushes, nevertheless, when within parks or in neglected marshy spots, it becomes a fine spreading tree, and rises to a great height. Some that I have noticed by the side of the River Mawddach, near Nannau, North Wales, were nearly 100 feet in height; and I have observed several really handsome spreading Alders on the borders of Clantham Woods in North Devon, very different to the denuded stubs commonly seen. So by secluded ponds, or the recesses of ornamental waters, this tree, notwithstanding its somewhat rigid aspect, might well be permitted to take an unimpeded growth.

But it is chiefly as a bush fringing brooks and streams that the Alder presents itself to view, and growing often in swampy ground, forming a dense underwood, there is but little in its composition to enter into the pictorial of landscape scenery, except as relieving the river banks where it grows from entire nakedness. In this respect Gilpin speaks of it as fringing the sluggish River Mole in Surrey, which, "what beauty it has," he says, "it owes greatly to the Alder, which everywhere fringes its meadows, and in many places forms many pleasing scenes." So in like manner Sir T. Dick-Lauder, in reference to Scotland, remarks, that "nowhere will the tree be found in greater perfection than on the wild banks of the River Findhorn and its tributary streams, where scenery of the most romantic description everywhere prevails." But this is praising the scenery rather than the tree, which, though appropriate to watery places, can scarcely be regarded as very ornamental in itself, even when left to grow at will, and its dark, stiff head is not so ready as the Willow to listen to the impulsive whispers of the breeze that give such animation to the silvery foliage of that pliable aquatic denizen. It is the association of the Alder with secluded scenes of rural beauty, among winding brooks—here forming silent reflecting reaches, or in other parts, vocal as the stream rattles joyously along over the obstructing boulders or a pebbly bed, where trout lurk under the arched projecting roots that undermining years have made, where in spring the splendid flowers of the Marsh Marigold brighten the scene, or in summer burnished dragon-flies flit swiftly over tall yellow Irises or clusters of blue Forget-me-nots, where all is peaceful and lovely, and old gnarled stooping trunks contrast with the shining water, that the Alder deserves the praise of creating pleasing poetical feelings. But it must be confessed that there are spots where crowded Alders inspire sterner thoughts from the gloom and solitude of the place they surround, and this has been well expressed by a German writer, Dr. Hermann Masius, in his account of the trees of Northern Germany, where he says:—"The morass with its vapours, the clouds, and the loneliness conspire to weave a traditionary poem round the silently-dreaming trees. A branch, a leaf falls whirling downwards; the cry of the bittern is heard in the rushes; the bull-frog answers from afar; a faint beam now and then throws its glimmer on the water, which twines like the arms of Polypi round the monotonous islands of brambles and bushes of Alder. Through the air a drearisome, oppressive, mouldy breath is everywhere moving; even the green of the water-plants is faded, or inclines to a poisonous yellow. A heavy, saddening gloom broods over the scene, and oppresses the heart." But here again it is the scenery of which the Alder forms only a part that inspires this sombre oppression, though some writers, and particularly Loudon, in his *Arboretum Britannicum*, has inflicted obloquy upon the tree itself, which he considers as "one of the most melancholy of deciduous trees." He says—"The loose negligent manner in which its dark dull green leaves are distributed over its branches gives the tree a dishevelled appearance, as if it were careless about itself; and if the Weeping Willow is to be considered as representing outward and simulated grief, the Alder, we should say, forms a good emblem of the grief of the heart." One of our poets echoes or rather exceeds the lugubrious view taken by Loudon:—

> "O'er the dark pond, whose sullen bosom shows
> No curling waves to greet the passing breeze,
> The rigid Alder its stiff image throws,
> Gloomy and sad, as though it scorn'd to please,
> Emblem of woe, too great to be express'd,
> Which broods in silence, and corrodes the breast."

But this gives the dark side of the Alder's influence, and carries the imagination beyond reasonable bounds, for it may be truly said that the mind of the contemplator colours the scene viewed in accordance with the sensations then experienced; and the same scene may impart different impressions to successive observers. Although I should not myself be impressed with "grief of the heart" from the contemplation of this tree, yet I would suggest that, if a contrast to light waving foliage is wanted in an extensive park, and a spot of irredeemable marshy ground wants masking, the Alder is well adapted for the purpose, while it allows various conspicuous moisture-loving plants to flourish beneath its canopy. An old English poet, Browne, has remarked this, and says:—

> "The Alder, whose fat shadow nourisheth
> Each plant set neere to him, long flourisheth."

Indeed, as far as wild plants are concerned, a marsh shadowed by Alders is always very prolific.

The Alder is very retentive of life, notwithstanding the hacking it so often receives, which of course dwarfs its growth; but it is an uncommon circumstance to come upon a dead tree. Left to itself it attains to a considerable age, and, as in the old tree that I have represented in an inclining position (fig. 62), as Goldsmith says of his good pastor—

"Sinks to the grave with unperceived decay,"

and forms an interesting object to those whose love of the finny tribe leads them with the enthusiasm of an Isaak Walton to linger out an enjoyable day by brook-sides, wiers, and waterfalls. Gilpin has well remarked that "an old tree of any kind is a curiosity, and even an Alder when dignified by age makes a respectable figure"; and this is instanced in the illustration I have given of the largest Alder that I have ever met with, though from having been pollarded it is not a lofty tree, but of very considerable bulk (fig. 63).

FIG. 61.—GROTESQUE GROUP OF OLD STUMPS AND CONJOINED ROOTS OF ALDER, BY THE SIDE OF THE RIVER TAAF, NEAR PORT-Y-PRIDD, SOUTH WALES (28 FT. IN LENGTH).

FIG. 62.—OLD ALDER, TEME SIDE (17 FT. GIRTH).

FIG. 63.—MONSTROUS HOLLOW ALDER NEAR SHRAWLEY, WORCESTER (45 FT. ROUND BASE).

It stands in the vicinity of Shrawley, Worcestershire, and measures 45 feet round the base of the hollow bole. It is, however, not improbable that this monstrous trunk is an amalgamation of two trees that have grown closely together, but even in that case it is a remarkable and curious dendrological object of very considerable antiquity. The largest Alder mentioned by Gilpin, and again by Loudon, is, or was, growing in the Bishop of Durham's park at Bishop Auckland, which is stated to have measured 11 feet in girth in 1818; and the late Rev. C. A. Johns mentions another that stands near a rivulet at Haverland, in Norfolk, that is about the same size; but no mention is made in either case of the supposed age of these trees. This same Haverland Alder is mentioned in Morton's *Cyclopædia of Agriculture*, and is there said to be 65 feet in height and 12 feet in circumference, and is regarded as "the largest recorded Alder in England," which it must now cease to be. Another large Alder is mentioned by Mr. Jesse in his *Scenes of Country Life*, and this he states to be 45 feet in height with a girth of 12 feet, perfectly sound and thriving, and the largest that he had "yet seen or heard of."

Having mentioned a notion of some writer's rather detrimental to the character of the Alder, that it is an "emblem of woe," it is only fair to quote the more favourable statement of quaint old Evelyn in his gossiping *Sylva*, though full of research as it is, that "the shadow of this tree does feed and nourish the very grass which grows under it: and being set and well plashed is an excellent defence to the banks of rivers." Pedestrians and ramblers in natural history club forays may also like to know that "the fresh leaves alone applied to the naked sole of the foot infinitely refresh the surbated traveller." As the Alder is of such general occurrence, this simple recipe can be easily tried. *Edwin Lees, F.L.S., Green Hill Summit, Worcester, August 2.*

THE GRAPE PHYLLOXERA.

(*Concluded from p. 273.*)

FALSE THEORIES.—It requires less time to make a false statement than to refute it, and there will ever be those who prefer to theorise and jump to conclusions, rather than ascertain facts by the more tedious and laborious inductive method. There exists a certain popular love of the mysterious—a willingness to rest with the vague and indefinite—which readily gives support to the wildest notions of things, especially if they be bruited about with a flourish of rhetoric and a semblance of reason.

The history of Phylloxera is a repetition of the history of many other like diseases. The hard and more weighty facts lay at first hidden by ignorance, and had to be jostled, by active investigators, through a superincumbent mass of opposing views and theories, which have either sunk out of view or been washed away by the resistless force of truth. Many of these theories are too absurd to be noticed, and I shall only briefly consider those which have, or have had, more or less influence with intelligent persons. Ever since the day when Planchon discovered the real cause of the Phylloxera disease in France, in the insect now known by that name, there has been a class of writers who have strenuously contended that the insect is the effect and not the cause of the disease. As a rule, the reasons given in support of this view are about as philosophical as that of the darkey who, being asked by his master why the sun goes to the south in the winter, replied: "Well, I don't know, massa, unless he no stand de 'clemency of de norf, an' so am 'bliged to go to de souf, where he speriences warmer longimitude!" In spite of the facts that the insect precedes but never follows the rotting of the roots; that it congregates on the most vigorous and succulent portions; that it is always coexistent with the disease, and is not found in the unaffected Vine districts; in face of the demonstrable hurtfulness of its puncture, and the isolated spots or centres of attack from which the disease often originates, and of the fact that total and prolonged submersion is an effectual cure—men still have the hardihood to compare it to scrofula in man; to attribute it to "divers circumstances," "meteorological perturbations," "pathological conditions of the Vine," "superabundance of sap too suddenly arrested by atmospheric influences," &c. The arguments are unsatisfactory and the explanations negative and vague, yet the partisans of these views number among them some good entomologists, as Signoret, Boisduval, and the late Guérin-Méneville—men, however, whose records have earned for them the title of impractical. When the Oidium first began to attack French Vines, the last-named gentleman maintained that it had nothing to do with the injury now so well known to be caused by it; but argued that the Vines were simply diseased from plethora of sap. So of that fearful silkworm disease known as Pébrine: long after the laborious and painstaking Pasteur had analysed it and shown that it is due to the presence and multiplication of certain corpuscular Psorospermiæ, Guérin-Méneville insisted that no importance could be attached to the presence of these bodies. It is not surprising, therefore, that he should have persisted in misconstruing the facts regarding Phylloxera, and in believing that it is a "pathological condition of the Vine which has favoured the increase of the insect." Yet the practical Grape-grower of to-day aims his sulphur remedies direct at the Oidium fungus, knowing well that if he can prevent its multiplication he will prevent the disease; while the silk-grower labours for the prevention or destruction of the Psorospermiæ, knowing that without them his worms will not suffer from

Pébrine. And so it will be with Phylloxera: keep off or destroy the insect and you avoid the disease. We have in all such cases a repetition of the noted itch controversy. For centuries the work of Acarus scabiei was supposed to be a constitutional malady, due to "thickened bile," "drying of the blood," &c., and long after Dr. Bonomo gave us its true *rationale*, there were not wanting those who denied any connection between the mite and the disease, or who explained the presence of the former by abiogenesis, or by other equivocal means.

The more plausible arguments that the Phylloxera disease is caused by drouth, by too long-continued cultivation of the same plant from cuttings, too severe pruning, exhaustion of soil, &c., have all of them fallen before the facts; and the poor Grape-grower who, influenced by them and regarding the Phylloxera with indifference, was led to replace his dead Vines by others, has been bitterly disappointed in seeing these in time destroyed and his labour and outlay lost.

If there were no other proof of Phylloxera being the cause of the disease than that which I have lately obtained, it would be overwhelming in contrast with the non-experimental views of the opposite school. Conceiving that the question could be settled by a very simple experiment, I planted in pots, in the spring of 1873, four 1-year rooted Catawba Vines, all of a size and vigour, and the roots of all ascertained to be free from Phylloxera. Two of these Vines were, during the summer, kept out of the reach of infection; while, from time to time, I buried, in the other two pots, pieces of roots heavily charged with Phylloxera in all stages. The result has verified my anticipation: the infected Vines became sickly, and passed through the conditions already described, which indicate the disease. After a brief period of rest, late in the fall, I brought all the Vines in a warm room. The infected Vines are now dead, and an examination showed their roots rotted and wasted; the non-infected Vines are living and growing finely. To the same effect is the experience of Mr. Malcolm Dunn, a gardener of Powerscourt, Ireland [now of Dalkeith], who, finding that the Vines in his grapery were suffering from Phylloxera, uprooted them and carefully cleansed the roots and freed them from the insect. After replanting in new earth he had the pleasure of seeing the Vines regain their vigour. "I am the last to deny that meteorological conditions accelerate or retard the multiplication of plant-lice, as they do of so many other insects; but I see no reason for presupposing a diseased condition of the plant first attacked by them, when, as every entomologist knows, they can flourish only on living vegetation, which they forsake when its life has been sapped. Conditions may be favourable to the increase of the plant-lice on our Hops, of cotton-worms, of the Army-worm, and of a thousand well-known insect pests; yet no one doubts that if, by increased effort, we, in some way or other, prevent or destroy these insects, we effectually overcome the (to us) unfavourable conditions, and our plants thrive.

"Whenever abundant enough to attract attention, these plant-lice have already brought the infested plants into a state of disease, and it is this fact which blinds so many persons, and makes them so ready to believe that it was the diseased condition which attracted, or as some more ignorantly put it, produced the lice."* That conditions of soil and atmosphere may favour or retard the multiplication of Phylloxera, will not, therefore, be doubted by any one; but that an insect which thrives most on the more vital and growing parts of the plant shows, in the winged state, a preference for a weak Vine over a healthy one, is in itself highly improbable; while the supposition that the wingless form, in its spread from Vine to Vine, shows any such preference, is entirely groundless.

Again, another set of writers maintain that the insect is not American, and that it has always existed in France, and is autochthonous wherever found. The facts already presented will, I hope, sufficiently refute this theory. We might naturally infer, *à priori*, that the insect was imported into Europe; for it requires a great stretch of imagination to suppose that it had remained dormant and unnoticed for centuries, to suddenly appear in several different and widely separated localities; but inference becomes certainty when we find that it is indigenous to America, where its dissemination is general over the country, within certain limits; that its origin in Europe may be traced to points where American Vines were introduced; and that its spread there from place to place has been carefully recorded, and still continues. It is not likely that all American Vines imported into Europe have carried with them the insect; but the fact is fully established that it has spread, whether in France, Austria, or Portugal, from centres where American Vines have been grown—a fact of the utmost significance. Intercourse between countries has always brought with it an interchange of products, whether intentional or otherwise. As a rule, the stream of the unintentional importations has been from east to west, and Europe has given to America many more noxious weeds and insects than it has received from us. Yet the European cultivator must charge us with a few of his very worst pests, among which may more especially be mentioned the Oidium Tuckeri, the Erigeron canadense, the Eriosoma lanigera, and the Phylloxera vastatrix.

The suppositions of M. Koressios, of Athens, Greece, and of M. Nourrigat, of Lunel, France—the former considering it the Phtheir of the Greeks, the latter the disease called "Gabel" by the Germans—have been demonstrated by Prof. Planchon to be false. The Phtheir is a mealy scale insect (Dactylopius longispinus), existing now, as it did in the time of the ancients, on the Vine, both above and below ground, in the Mediterranean region. It does much injury to Vines in the Crimea. The "Gabel" is altogether another malady, not caused by insects.

Other writers have maintained that the soil is full of Phylloxera, and that it occurs on all sorts of fruit trees. The Grape Phylloxera is peculiar to that plant as a genus, and all the rumours of its infesting other plants, or fruit trees, have been proved to be false, and arise from the inability of the observers to distinguish between different species and genera of root-lice.

Finally, since the discovery of Phylloxera on the roots of our American Vines, there have not been wanting those who either deny its existence, or who put forth the more sophistical argument that injury to our native or foreign Grape Vines does not result from its work, but is to be attributed to fungus growths. Others again believe that fungus growths, such as mildew, are indirectly caused by the injury done by Phylloxera to the roots. Without denying that Vines sometimes suffer from fungus growths independent of Phylloxera, and without expressing any opinion as to whether the insect is in any way concerned in the growth of these funguses, I can safely assert, and I think the facts here set forth will bear out the assertion, that our Vines languish or die more often from Phylloxera than from any other cause, whether in connection with or entirely independent of cryptogamic plant growth.

Conclusion.—We have in the history of the Grape Phylloxera the singular spectacle of an indigenous American insect being studied, and its workings understood in a foreign land, before its presence in its most injurious form was even suspected in its native home. The Franco-Prussian war, with all its fearful consequences to France, has passed away; the five milliards of francs (one thousand million dollars) have been paid as indemnity to her victors, in so short a time that the civilised world looked on in wonder and astonishment. Yet this little Phylloxera, sent over, doubtless in small numbers, by some American nurseryman, a few years since, continues its devastating work, and costs that unfortunate country millions of francs annually. The last German soldier has been removed—at terrible cost it is true—from French soil, but the Phylloxera army remains; and if another five milliard francs could extirpate the last individual of this liliputian insect host from her soil, "la belle France" would be cheaply rid of the enemy. Had the world, twenty years ago, possessed the knowledge we at present have of this insect and of its dangerous power, a few francs might have originally stayed its invasion of that great Vine-growing and wine-making country. Needs there any more forcible illustration of the importance of economic entomology? *From Riley's Report on the Insects of Missouri.*

* Fifth Report, p. 63.

VIOLAS AND PANSIES

AT THE ROYAL WINTER GARDEN, EDINBURGH.

THE excellencies of the modern flower garden have long and frequently proven a prolific theme for praise with horticultural writers, and I feel assured that the subject still merits the commendation of its most eloquent advocates. With such splendid colouring material as is found in the diversified and comprehensive family Geraniaceæ, independent of other aid, I have seen the details of a beautiful flower garden filled in—a garden whose features are well calculated to withstand the criticism of the most fastidious; a garden of simple beauty and harmony complete.

What the writer has now to describe is, not a garden of Pelargoniums, but a very nice companion to it—a garden of Violas and Pansies. Now, to be brief, I might instance for comparison the brilliancy of a bed of Cooper's Defiance Nasturtium, a ribbon of Lobelia speciosa, a clump of the golden Calceolaria, in the utmost flush of their glory, under the best conditions, and this in a season best calculated to develope their flowering properties to the utmost; and I have no hesitation in asserting that none of these can surpass in profusion the show of Violas and Pansies which may now be seen at the West Coates Nurseries, Edinburgh. Not the least commendable qualification to be noticed is the power to resist effectually the bad effects of rain and wind in those plants; a duck's wing is scarcely more waterproof than the enamelled blossoms of Blue King and Imperial Blue Pansy, as also the most of those Violas; and further, as regards flowering qualifications, it may be said some of them are perpetual in the full meaning of the word, flowering from January 1 to December 31 without a blossomless interval.

Allow me now to endeavour to describe this garden, and what I consider the best assorted beds for effect in it. Taking first the east boundary border, which stretches nearly the length of the whole, it is about 70 yards long by 9 feet broad, ribboned by means of lines of Violas and Pansies. The first line, next the Box edge, is Viola Golden Perpetual, which is, and will continue to display, an unbroken mass of flowers over winter if allowed to remain undisturbed. Second line, Viola cornuta Perfection. This I consider the most effective Viola either in a ribbon line or *en masse*. Distance adds to its brilliancy, and it has the further property of exhibiting an additional tone of blue—which becomes more clear as you retire further from it—hovering with hazy motion over the mass of colour. V. Purity forms the third line, certainly unsurpassed in the purity of its white by any other Viola, and although a shade less than some of the other whites in cultivation, none will afford a more compact mass of flowers; habit first-rate. Ribbon fourth is V. lutea major: I thought we had a rich acquisition in V. lutea des Massifs, and so we had at that time, but V. lutea des Massifs in two important respects is inferior to V. lutea major: these apply to habit of growth and hardiness in the flowers. V. purpurea forms the fifth row—not a bad thing, but assuredly more of a Pansy than a Viola; colour bright purple, habit compact, and promises well as a bedder. Pansy Blue King forms the back line.

A centre walk divides the principal portion of the garden into two oblong square plots of grass, broken by several beds and borders. Parallel with the centre walk extends a border on each side: these are planted with some of the popular varieties of Violas, to test their qualities as bedding plants, and to prove their respective value as ribboning plants. Here V. Lady Susan figures well, being all that is wanted to form a pretty line of rich solid yellow. The next row is composed of V. White Bedder—a fine Viola, of extra size, form, and substance; habit excellent, and the disposition of the flowers over the plant very regular; colour white with orange eye, and radiating streaks of maroon. V. Magnificent is a handsome flower, of large dimensions, held up on long footstalks; colour warm mauve, centred with an eye of orange. It is a fine thing. Next to V. Magnificent, and fully more telling from its distinguished look, is V. Sensation. I cannot too strongly recommend this variety; it supplies a valuable addition to our group of blues and purples, being deep mauve, furnished with a neat, clear eye of yellow bordered with white; habit, dwarf, densely compact, and its flowers disposed with nice precision over the plant. The last I shall enumerate from amongst these border groups is Princess Teck. This plant is of the most distinguished order in its qualifications; habit vigorous, yet compact; flowers unusually large; colour, upper petals deep violet, under petals pale violet, centred with an orange eye, gradually changing to lemon, and finally lost in the blue. Princess Teck is well worthy a conspicuous place in the flower garden.

On each side of the centre walk, as already mentioned, is a plot of grass. These are centred by large ovate beds furnished in this manner: the middle, Scarlet Pelargoniums, old plants, pegged down around these is a broad zone of Flower of Spring white variegated Pelargoniums: embracing those, a ring of yellow Calceolarias, and the margin-line is Lobelia speciosa, studded by plants of Centaurea argentea. The effect of these beds, surrounded by no other plants but beds and borders of the Pansy tribe, is really fine, scarlet being the chief want in their case. Besides these centre beds there are four large ones occupying the corners; on each side Blue King Pansy is conspicuous; indeed, nothing can excel the dense mass of flowers that now grace two of these beds of this variety, edged with Viola Golden Perpetual, and I may say the same of two other similar beds, centred with Imperial Blue Pansy, edged by the same Viola. The four beds situated at the extreme corners are planted alike; those are centred with V. cornuta Perfection, with a margin belt of V. Golden Perpetual—and four magnificent beds they have been all summer, and from all appearance are likely to continue for a long time to come.

Besides the above noticed there are other varieties of great pretensions, which are in the hands of the propagators, and I have not seen them in sufficient numbers to pass an opinion on them. In conclusion, I cannot do better than give a few remarks respecting their cultivation.

Cultural Hints.—It is of the first importance that for Pansies and Violas the situation selected for them in the flower garden should be naturally rather moist, but not moist through the want of drainage. The ground ought to be well dug, and free from lime, chalk, or any other compound in which lime abounds. There is nothing better than fresh loam, and if it is

poor, have it enriched with old reduced cow manure. Such a situation as would be considered too much shaded to grow Pelargoniums perfectly, and where they would exhibit a tendency to produce more wood than flowers, would prove most satisfactory to the bedding Pansies and Violas, if not over windy and under trees. Although I have seen Viola cornuta make a wonderful show of blossoms similarly placed, and do well for a season or two, still the drip from trees is prejudicial to their successful growth.

Propagation.—This may be accomplished all the year round if the growths are sufficiently ripe and of proper consistency, but the best time is in August and September. They can be multiplied both from the extremities of the old shoots and young offsets arising from the stools. After dressing off the lower set of leaves, insert the cuttings in a mixture of light sandy compost in which half-rotten leaves abound. Place the boxes, or whatever is used, on the shady side of a wall or hedge until the cuttings are rooted. The protection of a few mats in severe wintry weather is all that is required, and such protection ought to be dispensed with when the weather becomes more moderate in its temperature.

Plant in March into the beds. It is of the greatest importance to have this done before drought sets in. Nothing is more in their favour than to have them well established in their summer quarters early.

An abundant supply of water at the roots given in the evenings succeeding hot sunny days will prove of the greatest benefit both in preserving vigour and sustaining a succession of bloom on the plants. Finally, keep a sharp look out for greenfly in the early part of summer, as should these noxious insects once get a footing their effects are most hurtful. The best exterminator I am acquainted with is Pooley's tobacco-powder, puffed out of the elastic bottle made for the purpose. First walk along the line of plants, showering water over them through a fine rose, then at once repeat the journey with the puff bottle, diffusing a cloud of its contents over the plants; and in two minutes the plump little flies will have changed their green jackets for one of a "snuffy brown" colour, which fits them rather tightly, and they will be found in heaps at the base of the leaves, defunct, or at least quite sick of this world and the practical jokes of their natural enemies. *A. Kerr.*

PEARS.

[THE following varieties are those most recommended by our correspondents in various districts. EDS.]

ABERDEEN.—Jargonelle, Marie Louise, Bon Chrétien, Louise Bonne of Jersey, Beurré Diel, Beurré Easter, Beurré d'Amanlis, Chaumontel, Triomphe de Jodoigne, and Colmar. *G. Donaldson, Keith Hall.*

AYRSHIRE.—Hessle, Beurré de Capiaumont, and Moorfowl Egg, succeed the best as standards. Pears seldom mature in flavour here. *J. Gray, Eglinton Castle, Irvine.*

BERWICK.—Jargonelle, Beurré d'Amanlis, and Marie Louise, are our best and most regular croppers. *Peter Loney, Marchmont, Dunse.*

BUCKS.—Jargonelle, Williams' Bon Chrétien, Louise Bonne of Jersey, Beurré d'Amanlis, Bergamotte d'Esperen, Beurré Bosc, Beurré Diel, Beurré Rance, Brown Beurré, Comte de Lamy, Duchesse d'Angoulême, Easter Beurré, Gansel's Bergamot, Hacon's Incomparable, British Queen, Huyshe's Victoria, Joséphine de Malines, Knight's Monarch, Thompson's, Uvedale's St. Germains, Vicar of Winkfield, and Winter Nelis. *G. T. Miles, Wycombe Abbey.*

CAITHNESS.—The best Pears here are the Jargonelle, Green Yair, Muirfowl Egg, Swan's Egg, and Beurré Diel. *John Sutherland, Langwell, Berriedale.*

CARMARTHEN.—Nearly all kinds do well on a south wall, but indifferently so on other aspects. Citron des Carmes, Bon Chrétien, and Compte de Bary do well as standards, but Marie Louise will not. *J. Ticehurst, Dynevor Castle, Llandilo.*

CHESHIRE.—The Pears which do best here are Citron des Carmes, Jargonelle, Bon Chrétien, Marie Louise, Louise Bonne, Beurré d'Amanlis, Althorp Crassane, Aston Town (as a standard), Winter Nelis, Beurré Diel, Glou Morceau, Duchesse d'Angoulême, Easter Beurré, and Beurré Rance. *W. Whitaker, Crewe Hall.*

DEVON.—Chaumontel, Doyenné du Comice, Knight's Monarch, Williams' Bon Chrétien, Trout Pear, Jargonelle, Joséphine de Malines, and Glou Morceau. *J. Garland, Killerton.*

ESSEX.—We have very fair crops of Marie Louise, Williams' Bon Chrétien (almost a certain cropper), Chaumontel, Beurré Rance, Easter Beurré, Beurré de Capiaumont, and Louise Bonne of Jersey. These kinds generally succeed with us. *T. Simpson, Broomfield.*

HERTS.—Marie Louise, Beurré d'Aremberg, Hessle, Louise Bonne of Jersey, Winter Nelis, Passe Colmar, and the different varieties of Beurrés. *E. Bennett, Hatfield House.*

KENT.—Williams' Bon Chrétien, Jargonelle, various Beurrés, Louise Bonne, and Marie Louise. *Thomas Woodford, Eastwell Park, Ashford.*

LANCASHIRE.—Hacon's Incomparable does better here as a standard tree than any other dessert variety; Marie Louise, Beurré Diel, Beurré Rance, Glou Morceau, and Williams' Bon Chrétien, are amongst the best on walls. *W. B. Upjohn, Worsley Hall Gardens, Manchester.*

MERIONETH.—The varieties which appear to do best here are Beurré Diel, Beurré d'Amanlis, Beurré Rance, Duchesse d'Angoulême, Glou Morceau and Marie Louise. *James Bennett, Rhug Gardens, Corwen.*

MID-LOTHIAN (W., walls; S., standards).—Jargonelle, W. and S.; Williams' Bon Chrétien, W. and S.; Louise Bonne of Jersey, W.; Marie Louise, W. and S.; Brown Beurré, W.; Napoléon, W. and S.; Beurré Diel, W. and S.; Winter Nelis, W.; Easter Beurré, W.; Beurré Rance, W.; Hessle, S., for orchards. *M. Dunn, Dalkeith.*

NORFOLK.—Citron des Carmes, Beurré Bosc, Jargonelle, Marie Louise, Louise Bonne of Jersey, Winter Nelis, Beurré Diel, and Easter Beurré. *William Smyth, Elmham Hall Gardens.*

NORTHAMPTON.—The varieties which we have proved to be good here are Easter Bergamot, Brown Beurré, Beurré de Capiaumont, Beurré Diel, Beurré Bruneau, Williams' Bon Chrétien, Chaumontel, Beurré d'Aremberg, Althorp Crassane, Winter Crassane, Winter Nelis, Glou Morceau, Napoléon, Ne Plus Meuris, and Uvedale's St. Germains. *J. Worraker, Milton, Peterborough.*

—— All kinds do very well here. *John Smith, Althorp Gardens.*

RUTLAND.—Among varieties which seldom fail to yield good crops may be named Citron des Carmes, on west walls very early and useful; Jargonelle, Beurré d'Amanlis, always good here on a west wall; Winter Nelis, which on east and west walls seldom fails to produce good crops; Louise Bonne of Jersey, good on walls, and as pyramids on the Quince; Williams' Bon Chrétien; Hessle, small, but of splendid flavour; and Swan's Egg and Easter Beurré, which are invariably good here. *J. Smith, Exton.*

SOMERSET.—Green Chisel, Autumn Bergamot, Jargonelle, Bellissime d'Eté, Comte de Lamy, and a small round Pear from France which I do not know. *John Scott, Merriott.*

STAFFORD.—Citron des Carmes, Doyenné d'Eté, Jargonelle, Williams' Bon Chrètien, Jersey Gratioli, Louise Bonne of Jersey, Marie Louise, Glou Morceau, Joséphine de Malines, and Winter Nelis. *E. Simpson, Wrottesley, Wolverhampton.*

—— The following are among some we grow and find the best:—Autumn Nelis, Anna Nelis, Gansel's Bergamot, Autumn Bergamot (this Pear has a flavour quite peculiar to itself: it is very rich, and is a first-class little Pear; my employers are very fond of it), Beurré Diel, Easter Beurré, Beurré Bosc, Beurré d'Amanlis, Brown Beurré, Beurré Rance, Williams' Bon Chrétien, Colmar, Crassane, Glou Morceau, Doyenné d'Eté, Jargonelle, Joséphine de Malines, Forelle, Baronne de Mello, Marie Louise, Ne Plus Meuris, Passe Colmar, Uvedale's St. Germain (kitchen), Winter Nelis, Beurré Magnifique. *Owen Thomas, Drayton Manor.*

SUFFOLK.—Marie Louise, generally a shy bearer, is abundant, and the fruit is of a good size; Williams' Bon Chrétien and Louise Bonne of Jersey are the most regular croppers we have. *Thomas Blair, Shrubland Park.*

TESTS OF WHOLESOMENESS IN FUNGI.

IN a recent number of this journal there is a paragraph, taken from the *Bulletin* of the Société de Botanique de France, on the piths to be employed to make vegetable sections. In the same *Bulletin* is an article by M. Roumeguère, a learned mycologist residing at Toulouse, in which he endeavours to refute Mr. Smith's assertion (*Mushrooms and Toadstools: the Edible and Poisonous Fungi:* London, 1870) that all fungi with white spores are edible. [It will be seen by the letter appended, from the pen of Mr. W. G. Smith himself, that this assertion has never been made by him; so that M. Roumeguère is merely battling with a myth of his own creation in the *Bulletin.*] Such a statement, if correct, would induce, as its necessary consequence, the poisoning of some of those who believed it. Their simplicity, or credulity, or ignorance, would be punished with no less a penalty than acute bodily suffering and death. It may therefore be an act of kindness to the unwary (now that the Mushroom season has already commenced and the warm rains falling on the heated earth are likely to produce abundant crops of many species of fungi) to reproduce M. Roumeguère's article. It will be well worth the trouble of doing so if only one life be saved. But, unfortunately, accidents from fungus poisoning rarely occur in solitary cases; whole families suffer more frequently than single individuals. If Mr. Smith's theory be false, as M. Roumeguère insists, it would be dangerous and deplorable to allow it to pass current without strong protest. The public health and safety is too important to allow of any hesitation in the matter. His article is headed "Can the colour and form of the spores indicate, as has been asserted, the alimentary or poisonous properties of fungi? By Casimir Roumeguère."

An English mycologist—he writes—Mr. Smith, believes that he can point out a sufficiently decisive character by which poisonous fungi may be distinguished from those which are wholesome. He formally declares that all white-seeded fungi are edible, and that the spores of those fungi are generally round or oval, whilst those of poisonous fungi are ordinarily angular. This declaration has been published in France by different public papers, and notably by the agricultural journal which has the largest circulation. If it were true that Mr. Smith's revelation enabled us to distinguish, *à priori*, the venomous from the edible species, it could not be too widely spread. Unhappily, this revelation is as little founded on fact as the more or less erroneous indications which up to the present day people have fancied they could discover in certain characters, whether botanical or external (habit, colour, site, &c.), or even organoleptic.

The numerous section of white-spored Agarics (leucospores) contains, it is true, many species which are edible or capable of being made edible; but, alas! it also includes species which have been ascertained to be violent poisons. Beside the Oronge, is there not the False Oronge and the other Amanites, as deadly as this last-named species (A. ampla, Pers.; A. mappa, Batsch; A. phalloides, Fr.; A. umbrina, Pers.; A. insidiosa, Letel.; A. virosa, Paul)? Among the white-spored species which are venomous to a high degree, must we not also cite Agaricus echinocephalus (Vitt. A.), Vittadinii (Moret), A. nebularis (Batsch), A. urens (Bull.), A. flaccidus (Sow.), A. inversus (Scop.), A. geogenius (Paul), A. olearius (D.C.), A. stypticus (Bull.), &c.?

The list of species with coloured spores (chromospores), and which furnish excellent alimentary Mushrooms, would be lengthy if given in its full completeness. M. Roumeguère mentions only a few common species: the fungus of the Poplar, A. agerita (Fr.); that of the Apple tree, A. squamosus (Bull.); that of the Willow, A. cylindraceus (D.C.); the Mousseron, A. prunulus (Scop.), which is the object of an important trade; and the true Mushroom, A. campestris, whose employment is general. In the number of rarer species equally good to eat and furnished with coloured spores, must be mentioned the following Agarics:—A. sinuatus (Fr.), rhodopolius (Fr.), orcella (Bull.), involutus (Batsch), translucens (D.C.), cretaceus (Fr.), violaceus (L.), violaceo-cinereus, (Fr.), viscidus (L.), &c.

Poisoning by the Lactarii is much rarer and less formidable than that resulting from the Amanites; nevertheless, it is impossible not to regard as noxious Lactarius controversus (Pers.), necator (Bull.), plumbeus (Bull.), aspidius (Fr.), fuliginosus (Fr.), rufus (Fr.), scrobiculatus (Scop.), musteris (Fr.), and without doubt L. vellereus (Fr.), whose spores are white. The genus Russula, also furnished with white spores, comprises extremely venomous species; for instance, R. emetica (Schæff.), whose poisonous principle is destroyed neither by boiling nor by desiccation, besides fragilis (Pers.), pectinatus (Bull.), sanguineus (Bull.), &c.

In the genus Boletus only a very small minority is furnished with white spores (seven or eight in France, out of more than sixty), and it is in this minority that we find B. cyanescens (Bull.), fulvidus (Fr.), rubellus (Fr.), lacteus (Lev.), which are either venomous or legitimately suspect, whilst the edible Boleti belong to the division of chromospores. The section of eatable Boleti, and amongst these B. edulis (Bull.), so renowned for its excellence; B. luteus (L.), elegans (Fr.), granulatus (L.), bovinus (L.), subtomentosus (L.), scaber (Fr.), which are sought for as food in diverse districts and countries, all produce greenish or ochreous spores. But the same division of chromospores also shows us poisonous species—B. brachypus (Fr.), Satanas (Linz), Lupinus (L.), &c. The Fistulina hepatica is highly esteemed in England, where it is called the Vegetable Beefsteak. This fungus, nevertheless, has reddish spores. Finally the alimentary fungus *par excellence*, the Truffle, has brown or black spores, which are thorny or spiny when mature.

To know wholesome fungi, there are only two methods, as with other vegetables: either to distinguish empirically, as is the way with country people, the species employed or rejected in a region or district; or, to know with exactness and precision the botanical characters of the edible and the poisonous species respectively, and of the neighbouring or closely allied species whose properties are doubtful or little known. To do this is the task of the patient and enlightened observer, or of the medical practitioner.

M. Roumeguère's verdict, then, agrees with the opinion which the present writer has expressed elsewhere; namely, that the only security for Mushroom eaters to depend upon is a personal and practical acquaintance with the several species which have been proved to be wholesome as well as pleasant food. Other tests fail in numerous instances. The *Pall Mall Gazette* has told us that "Edible Mushrooms do not change colour when cut by the action of the air." But the Horse Mushroom, Agaricus arvensis, young and fresh-gathered, does turn yellow on its white portions when rubbed, bruised, or cut, which the true or cultivable Mushroom, A. campestris, as far as our experience goes, never does, and the peculiarity is so constant as to suffice to distinguish the two species. On the other hand, almost all the poisonous Agarics have a flesh that does not change colour, while several Boletuses, which are perfectly safe to eat, do so change.

Again; in the course of a trial last summer, Mr. Justice Denman broached the hypothesis that Mush-

rooms which grow under trees are dangerous, because, as he supposed, they feed on decayed roots, which are "perhaps" tainted with poison. That being so—perhaps—the learned judge advised everybody to beware of eating Mushrooms which grow under trees. But this rule also has so many exceptions, that they make it to be no rule at all. It is a net which is both too broad and too long, for it sweeps away the good together with the bad. According to it, everybody ought to beware of eating Truffles, because Oak woods are one of the Truffle's favourite habitats, and it is even doubted whether they are not parasitic on roots. The Horse Mushroom persists in growing under clumps of trees, in half-shady situations to which horses and cattle retire to doze and ruminate, year after year on the very same spot—unlike the true Mushroom, which is of a shifty nature as to its place of growth. The eatable Boletus is to be found in many a park and plantation, abundantly in autumn, and occasionally in spring and summer. Its favourite sites, indeed, are woods, and itself is a favourite dainty with squirrels, whose presence implies assemblages of trees close at hand. The Chanterelle, Cantharellus cibarius, grows profusely in Scotch Birch woods as well as under English Beech trees. All these more or less sylvan species are consumed in immense quantities, in different localities, without the slightest harm resulting.

The vulgar tests of the wholesomeness of fungi, such as cooking a piece of bright silver or an onion with them, are perfectly worthless and delusive. There is no infallible sign, the writer holds, whereby the unwholesomeness of any unknown species can be detected. Nothing can be depended on except practice, familiarity and experience; and even behind them lies a mystery. As remarked in the *Gardeners' Chronicle* of October 4, 1873, improper selection of species, ignorance or carelessness, will not account for all the phenomena—such as that certain persons can, and other persons cannot, eat with impunity particular fungi. Neither is there any accounting, as yet, for the fact that the same fungus under one set of circumstances is harmless, and under another poisonous, to the same individual.

The case exists, but it is rare; very rare indeed with true Mushrooms—so rare that they need excite no apprehension. But examples of a similar capriciousness as to their effects are much more frequently furnished by another article of diet, shell fish, as in the case of mussels. One member of a family will not be able to eat a single mussel without suffering, while all the rest will feast on them unharmed.

But other classes of vegetables, besides fungi, comprise both wholesome and deleterious articles of food. Even in the same vegetable or plant some parts will be harmless or nutritious, others medicinal or injurious. The capsule of the Poppy yields opium; the seed it contains furnishes excellent salad oil. Surely the knowledge which distinguishes good from bad — necessary in all cookery and alimentation —might be extended with advantage to the fungus family, if people would take the trouble to use their senses. *D.*

[This is so important a subject that, for its own sake no less than for the purpose of allowing our correspondent, Mr. Worthington Smith to clear himself from a false charge, we append Mr. Smith's reply to M. Roumeguère's article:—"I have glanced at the article by Casimer Roumeguère on the above subject, and at the proof kindly sent to me. Allow me to suggest to M. Roumeguère that he is very badly acquainted with fungi, and the literature of fungi. As to my "theory" that the properties of fungi are indicated by spore colour or form, I never had such a theory, and no such theory or suggestion is thrown out in my little pamplet on *Mushrooms and Toadstools* referred to by the "learned mycologist" of Toulouse. In the place of more modern books on fungi (with which our author is evidently quite unacquainted), let me advise M. Roumeguère to buy or borrow Fries' *Epicrises* (of which a new edition has just appeared), and if he looks at that he will find that Panus stypticus is not one of the Leucospori; and if he also procures a copy of my figures of edible and poisonous fungi (which he evidently knows nothing about), he will find this species on the latter sheet, with Agaricus phalloides, A. muscarius, A. vernus, and numerous other white-spored species. On my "poisonous" sheet of thirty-one species, seventeen have white spores; your readers will therefore imagine that it would ill accord with "my theory" or "declaration," that all white-spored species are edible, to publish seventeen figures out of the thirty-four with white spores on the poisonous sheet of the work.

Let me correct a few of M. Roumeguère's errors for him; the two first paragraphs are taken up with fighting an imaginary ghost. In the third paragraph, Agaricus ampl*a* (Pers.) should be A. ampl*us*, and is no Amanita at all, but a Clitocybe. A. umbrin*a* (Pers.) should be A. umbrin*us*, as it is, like the last, not an Amanita, but a Tricholoma. A. viros*a* should be A. viros*us*. In the same paragraph M. Roumeguère says A. nebularis is "venomous to a high degree;" this is an error, as A. nebularis is a well-known edible species with a delicious taste. In the next line he makes Marasmius urens an Agaricus, in the following A. olearius a white-spored Agaric, whereas it is a brown-spored one; and in the last he puts Panus under Agaricus.

In the fourth paragraph A. squamosus (Bull.) is given as an excellent alimentary Mushroom; this is the same with A. squarrosus (Fr.); it grows on stumps, has a disgusting taste and odour, and is undoubtedly deleterious in this country. I know it is eaten by Russian serfs along with A. muscarius, A. melleus, vinegar, and train oil; but all people cannot appreciate the "excellent alimentary" substances pertaining to either Russ or Russula. Then comes (as one of the "rarer species, equally good") A. sinuatus (Fr.), a well-known poisonous plant; then A. rhodopolius, twin brother to the last in poisonous qualities. This "learned mycologist" next makes Paxillus an Agaricus (in A. involutus), and calls it edible (I have tried it, but have reasons for not doing so again), and puts Cortinarius violaceus with Agaricus, with which it has nothing to do.

The fifth and sixth paragraphs are compounds of truisms and blunders unworthy of answer. As to the genus Russula being furnished with white spores, every beginner knows that in some species the spores are yellow.

In the seventh paragraph M. Roumeguère charges me with stating that the "seeds of poisonous fungi are ordinarily angular." I have never said or thought anything so absurd.

From paragraph eight to the end, the pen of a different writer (your correspondent, "D.") is manifest, but he needs to be told, for instance (in answer to paragraph nine), that the very best variety of the true Mushroom, and the one which produces the best ketchup, changes when bruised or broken to a bright red (see Berkeley's *Outlines*, p. 64). Lactarius volemum and other edible species also change colour. Again, many poisonous plants coming under the Agaricini do change colour; Hygrophorus conicus changes to black, Lactarius theiogalus changes to bright yellow, L. acris changes to red, and many other instances might be quoted. I should not like to subscribe to "D.'s" views as to the "several Boletuses which are perfectly safe to eat."

Justice Denman's remarks about fungi found growing under trees were perfectly correct in their way, and open to no objection whatever; he did not refer to Truffles in his oft-quoted remarks. "D." may be assured that Mr. Justice Denman knows how to fungologically take care of himself when he learns that the Justice is not unknown at the Hereford fungus meetings.

Let me conclude by two quotations from my own writings:—"There is no way of distinguishing a poisonous from an edible fungus than by finding out its name. There is no magic way of saving the trouble of learning" (*Mushrooms and Toadstools*, p. 17); and, under "Hyporhodii" (pink-spored Agarics) *Cooke's Handbook*, vol. i., p. 83—"The size of the spores varies greatly; a few are very small, others equally large, whilst the majority are remarkably irregular. Some of the species are edible, as in Clitopilus."

A very large majority of the species coming under Leucospori (white-spored Agarics) are edible, whilst an equally large majority of those coming under Hyporhodii (pink-spored Agarics) are poisonous; there is no rule without an exception, and no strong lines of demarcation in Nature.

M. Roumeguère must learn the genera of fungi before he ventures in print again about species. *W. G. Smith.*]

NEW PLANTS CERTIFICATED

AT THE ROYAL BOTANIC SOCIETY'S EXHIBITIONS, 1874.

**** B.C. stands for Botanical Certificate of Merit; and F.C. for Floricultural Certificate of Merit.*

Abutilon Sellowianum marmoratum	Veitch & Sons, April 22—B.C.
Acer japonicum vitifolium	Veitch & Sons, April 22—B.C.
,, pictum maculatum	R. Smith, May 20—B.C.
,, polymorphum flavescens	Veitch & Sons, April 22—B.C.
,, septemlobum bicolor	R. Smith, May 20—B.C.
,, ,, elegans	R. Smith, May 20—B.C.
,, ,, marginatum	R. Smith, May 20—B.C.
Adiantum gracillimum	Williams, May 20—B.C.
,, sessilifolium	Veitch & Sons, Mar. 25—B.C.
,, Zahnii	Veitch & Sons, June 10—B.C.
Aerides virens Ellisii	Williams, June 24—B.C.
Agave filifera superba	Peacock, May 20—B.C.
,, Leopoldii	Veitch & Sons, April 22—B.C.
,, marmorata	Peacock, May 20—B.C.
,, micrantha picta	Peacock, May 20—B.C.
,, Taylorii	Williams, March 25—B.C.
Ageratum Little Gem	Turner, June 10—F.C.
Amaryllis Mooreana	Williams, April 22—F.C.
,, virginalis	Williams, May 20—F.C.
Anthurium crystallinum	Bull, June 10—B.C.
,, hybridum	Williams, March 25—B.C.
Areca nobilis	Bull, June 10—B.C.
Asplenium schizodon	Veitch & Sons, Mar. 25—B.C.
Athyrium Filix-fœmina curtum cristatum	Ivery, May 20—B.C.
Azalea Duke of Edinburgh	Parsons, April 22—F.C.
Begonia Vesuvius	Veitch & Sons, June 24—F.C.
Betula alba foliis purpureis	William Paul, April 22—B.C.
Bollea Lalindei	Veitch & Sons, June 24—B.C.
Boronia elatior	Veitch & Sons, May 20—B.C.
,, megastigma	Williams, March 25—B.C.
Bowenia spectabilis	Bull, June 24—B.C.
Calamus ciliaris	Bull, June 10—B.C.
Cattleya gigas	Veitch & Sons, April 22—B.C.
,, Mossiæ majestica	Williams, June 24—B.C.
,, Veitchiana	Veitch & Sons, March 25—B.C.
Ceterach aureum	Williams, April 22—B.C.
Chysis Chelsoni	Veitch & Sons, March 25—B.C.
Cineraria Countess of Derby	James, March 25—F.C.
,, Lord Derby	James, March 25—F.C.
,, Right Hon. B. Disraeli	James, March 25—F.C.
Clematis Duchess of Edinburgh	G. Jackman, April 22—F.C.
,, Countess of Lovelace	G. Jackman, March 25—F.C.
,, Morikata Okó	G. Jackman, April 22—F.C.
,, Mrs. Moore	G. Jackman, April 22—F.C.
,, Sir Garnet Wolseley	G. Jackman, April 22—F.C.
,, Vesta	G. Jackman, March 25—F.C.
Coleus Duchess of Edinburgh	Chitty, June 24—F.C.
Croton Cooperii	Veitch & Sons, June 24—B.C.
,, ovalifolium	Veitch & Sons, April 22—B.C.
,, spirale	Bull, June 10—B.C.
,, volutum	Bull, June 10—B.C.
Curmeria picturata	Williams, March 25—B.C.
Cyclamen Meteor	Little, March 25—F.C.
,, Prince of Purples	Little, March 25—F.C.
,, Rose Queen	Little, March 25—F.C.
Cypripedium Argus	Veitch & Sons, March 25—B.C.
,, Harrisianum	Veitch & Sons, March 25—B.C.
,, Parishii	Bull, June 10—B.C.; Williams, June 10—B.C.
,, Roezlii	Veitch & Sons, March 25—B.C.; Williams, March 25—B.C.
Dendrobium amœnum	Bull, June 10—B.C.
Dipladenia Brearleyana	Bull, June 24—B.C.
Dracæna Baptistii	Veitch & Sons, March 25—B.C.
,, Goldieana	Bull, June 10—B.C.
,, Hendersoni	Veitch & Sons, April 22—B.C.
,, hybrida	Veitch & Sons, June 10—B.C.
Drosera capensis	Veitch & Sons, April 22—B.C.
Echeveria eximia	E. G. Henderson, May 20—B.C.
,, Peacockii	Peacock, May 20—B.C.
Eranthemum reticulatum aureum	Veitch & Sons, March 25—B.C.
Erythrina Parcellii	Bull, June 10—B.C.
Ficus Parcellii	Veitch & Sons, April 22—B.C.
Gloxinia Marquis of Lorne	Veitch & Sons, June 24—F.C.
,, Miss Hannah de Rothschild	Veitch & Sons, June 24—F.C.
,, Mr. Haines	Veitch & Sons, June 24—F.C.
Gymnogramma decomposita	Williams, March 25—B.C.
,, triangularis	Williams, April 22—B.C.
Hyacinth Anna	Veitch & Sons, March 25—F.C.
,, Minister Thorbeck	Veitch & Sons, March 25—F.C.
,, Sir Garnet Wolseley	Veitch & Sons, March 25—F.C.
,, Von Schiller	Veitch & Sons, March 25—F.C.
Hypolepis Bergiana	Rollissons, April 22—B.C.
Lælia flammea [Veitchii]	Veitch & Sons, March 25—B.C.
Lilium philippinense	Veitch & Sons, June 10—B.C.
Lobelia (pumila) magnifica	Bester, June 24—F.C.
Macrozamia plumosa	Bull, June 10—B.C.
Mammillaria longispina	Peacock, May 20—B.C.
Maranta leopardina	Bull, June 10—B.C.
Martinezia granatensis	Bull, June 24—B.C.
Nephrolepis davallioides furcans	Veitch & Sons, June 10—B.C.
Odontoglossum Roezlii	Bull, June 10—B.C.
Passiflora quadrang. variegata	Williams, March 25—B.C.
Pelargonium (decorative) Duchess of Edinburgh	Braid, May 20—F.C.
,, (fancy) Atlantic	Turner, June 10—F.C.
,, ,, Countess of Dudley	Turner, June 10—F.C.
,, ,, Mrs. Hart	Turner, May 20—F.C.
,, ,, Rosy Morn	Turner, May 20—F.C.
,, ,, The Shah	Turner, May 20—F.C.
,, (gold and bronze) The Czar	Pestridge, June 24—F.C.
,, (show) Archduchess	Foster, May 20—F.C.
,, ,, Crown Prince	Foster, June 10—F.C.
,, ,, Gipsy	Foster, June 10—F.C.
,, ,, Lord Nelson	Foster, June 10—F.C.
,, ,, Mrs. Andrew Mathews	Rev. H. Mathews, June 10—F.C.
,, ,, Sybil	Foster, June 10—F.C.
Pescatorea Dayanum	Veitch & Sons, June 24—B.C.
Phyllotænium Lindeni	Bull, June 10—B.C.
Pleocnemia Leuzeana	Bull, June 10—B.C.
Rapatea pandanoides	Veitch & Son, March 25—B.C.
Rose, H.P., J. B. Camm	Turner, June 10—F.C.
,, ,, John Stuart Mill	Turner, June 24—F.C.
,, ,, Perle des Blanches	William Paul, April 22—F.C.
,, ,, St. George	William Paul, April 22—F.C.
,, ,, William Ingle	Ingle, June 22—F.C.
,, Tea, Mdlle. Marie Arnaud	William Paul, April 22—F.C.
Sarracenia Stevensii	Veitch & Sons, June 10—B.C.
,, Williamsii	Williams, June 10—B.C.
Saxo-Fridericia subcordata = Rapatea	Veitch & Sons, March 25—B.C.
Scolopendrum vulgare cristatum viviparum	Williams, June 10—B.C.
Tillandsia musaica	Bull, June 10—B.C.; Veitch & Sons, June 10—B.C.
,, Zahnii	Veitch & Sons, June 24—B.C.
Vanda cœrulescens	Veitch & Sons, March 25—B.C.
,, limbata	Williams, June 10—B.C.
Viola cornuta Admiration	Williams, June. 24—FC.

BRITISH ASSOCIATION.

FOOD OF PLANTS AND ANIMALS.—In section D. Professor Redfern read a paper on this subject, of which the following is an abstract:—

Plants, he said, entirely uninfluenced by any but physical conditions, had long since taught farmers, and gardeners especially, that they must not only have abundance of food, but that they must have it in a condition in which they can readily make use of it. In proof of this, he need only refer to the known necessity for the regular use of highly nutritious liquid manure in the cultivation of perfect Roses, and to the care the agriculturist has learned to take in the application of the proper kind of artificially prepared manure for each crop, and in its use in a form in which the plant could most easily absorb and apply it. It was many years since that Mr. Ward gave a beautiful illustration of the influence of food on plants. He found a perfect speci-

men of the common Centaury half an inch high, with one or two pairs of most minute leaves and one flower, on the bare chalk at the border of a wood; on tracing it into the open parts of the wood it became a glorious plant, 4 or 5 feet high, and covered with hundreds of flowers. He (Professor Redfern) wished to show that it was not only important to supply plants with food, but to do this so that they could easily appropriate it, otherwise the supply would be lost and wasted. He had brought with him a series of specimens of common Rape, which would speak for themselves. The largest specimens measured 5 feet 6 inches high, they branched freely from the ground upwards at intervals of a few inches; their large leaves, thick and fleshy, measured 14 inches by 6 inches, and their flowers once covered the plants with their brilliant yellow colour. The middle-sized specimens measured 5 feet 2 inches high, but for 3 feet from the ground they had no branch at all; their leaves were very small, and the plants were little more than a fibrous stem with a few flowers at the top. The smallest specimens were only 3 feet high, having a few leaves not an inch long by three-sixteenths of an inch broad, and a few flowers at the top entirely useless for any purpose whatever. Other specimens of an essentially similar kind were grown on another spot of ground, under circumstances essentially similar. Of those specimens a large number only measured 15 inches high; they were furnished with a few almost linear leaflets and a few flowers at the top. Yet the larger specimens grown on this ground were 5 or 6 feet high, covered with large spreading branches, furnished with abundance of leaves, yielding a very large amount of good fodder compared with the amount of surface covered by them. With regard to the roots, those of all the poorer plants were straight, small, and but little branched; while those of the well-developed plants were thick, branched, and extended on one side only. For from 4 to 6 feet distant from the edge of the plot of Rape, on each side of the ground, had been trenched two spades deep for planting with trees and shrubs, and a quantity of bog earth with sand and manure had been mixed with it, the manure having been put at the bottom of the trench, and the mixed bog-earth and sand half-way down. The only well-developed plants grew near the edge of this trenched ground, and their one-sided roots spread into it for 2 feet, exactly in the position occupied by the mixed bog-earth and sand. There were only occasional smaller plants at this part, and the roots of every one of these were straight, short, and but little branched. They, in short, had not discovered that there was soft and spongy ground within so short a distance, ground in which their roots might have revelled in growth like those of their neighbour giants, if they had been equally fortunate in finding their way thither. None of the thick long roots on the trenched side of the plants penetrated deeply into the trenched ground. It was the loose and spongy condition of the soil that had attracted them, and not the manure, for not one root had attempted to penetrate to the depth of the manure; all had been content with the position of the mixed bog-earth and sand, thus affording an absolute demonstration of the necessity of attending to the mechanical condition of the soil as well as to its containing a sufficiency of the materials which plants needed for food. His plants of Rape had abundant nourishment in their immediate vicinity, but they could not avail themselves of it, the soft spongioles of their roots being unable to penetrate the tough clay which a great amount of labour had failed to render porous enough for roots of any kind to enter to any considerable extent.

Such was exactly the condition in which many persons were who had never applied their intelligence to the selection of their food or to the methods of cooking it. There were few social problems more important than this of acquainting the wife of the labourer and artisan, or even the wives and servants of the middle classes, how to spend a fair share of their income upon food to the greatest advantage, and how to prepare it without destroying its nutritive properties. A savoury dish of meat was often prepared by mincing or cutting the meat into small and more or less cubical blocks. It was then stewed or more frequently boiled; the outer surface of each little block had its albumen firmly coagulated, and the whole was converted into about as indigestible a mass as could well be imagined, the high priced and highly nutritious meat having been destroyed for the purposes of nutrition, and the action of the digestive organs probably injured for some time to come. Or good and valuable fresh meat was subjected to the process of salting, which, first of all, abstracted the juices of the meat, and then hardened the fibres, so as to destroy or greatly deteriorate its digestibility. No doubt it was convenient to have a hardened dry mass of meat incapable of much change for months, and ready to be used for the purpose of filling the stomach and effectually satisfying the appetite, but these were not the purposes for which food was intended to be used. It ought to be capable of supplying the waste of the body, and of being easily converted into heat and motion. If it failed in these particulars it would also fail in nourishing the brain and aiding in the evolution of intelligence, and thus intellectual and bodily power was lost to the community, and deterioration of race was promoted. His colleague, Dr. Gordon, said that he recollected running races, putting stones, wrestling, and other athletic exercises being the favourite amusements of the sons and servants of the farmers in the county Down. Now, nothing of the sort was heard of. These young men found a short day's work almost too much for them, and at the end of it they were to be seen lying about indulging in idle conversation. Coincidently with this, they imagined themselves the equals of their masters and mistresses, and that the heathful oatmeal porridge and buttermilk twice daily, with beans and bacon for dinner, was too strong and coarse; they insisted on a more delicate fare, and demanded a supply of tea and white bread. They were unconscious that persons in their position but a few years ago possessed amazing vigour, and performed twice the amount of labour with greater ease, and when the day's work was over actually revelled in the display of surplus strength, which nothing but their better and more rational diet could have yielded them.

THE FARM.

THE VETCH.—Various species and varieties of Vetch have been recommended for cultivation, but for our present purpose we may decide that only two sorts are recognised as agricultural plants, and these are known in the seed market as winter and spring Vetches or Tares, and are said to be varieties of Vicia sativa, which by a different time of sowing have come to be best adapted for different seasons; and though it is quite true that the spring Vetch will not withstand the rigours of a hard winter, yet we have in the South grown good winter Vetches from the spring sorts sown as late as October. The Vicia sativa is admitted to be a native wild plant by most authors; but we agree with Dr. Syme, who says of its habitat:—"On the margins of fields and amongst corn not unfrequent, but only in places where the Vetch is cultivated, and having no claims to be considered indigenous." (*English Botany*, vol. iii., p. 96). In sundry experiments with the seeds of V. angustifolia the seeds were gathered and preserved and sown in prepared ground, and the largest seeds of these plants chosen to carry on the crop. In a few years all the characters of V. sativa—the larger flowers and seeds and broader leaves—were established, and to us the evidence was conclusive. But such experiments also showed us that the larger the Vetch seeds sown the finer our plants, and we are convinced that good bold seed is more profitable to sow than the small ones, and they vary in this respect in some being twice the size and weight of others.

That the Vetch is a valuable farm crop may be gathered from the following analysis and remarks upon it. Its composition is similar to Clover, but it is not so difficult of growth, as in "Clover-sick" land, so-called, we have grown large crops of Vetches:—

General Composition of Vetches and Clover in a Green State.

	Vetch.	Clover.
Water..	82.16	76.00
Nitrogenous substances (flesh-forming matters)	3.56	3.12
Non-nitrogenised substances (fitted to support respiration, and for the formation of fat)..	12.74	19.03
Inorganic substances (ash)	1.54	1.85
	100.00	100.00

In Morton's *Cyclopædia of Agriculture* we find the following remarks upon the Vetch crop, which the foregoing analyses fully explain:—

"The common Vetch or Tare (Vicia sativa) may be reckoned, next to Clover, which occupies a greater breadth in our rotations, the most valuable of the artificial grasses, owing to its general serviceableness on the farm as an exceedingly nutritious food for all kinds of stock. Sheep fatten faster upon this than any other herbage, which occasions its constant use by ram breeders. Horses improve more rapidly upon it than on Clovers or other grasses. Horned cattle thrive surprisingly upon this fodder. Cows yield more butter from the Tare than from any other provender, and pigs voraciously consume and prosper on it without farinaceous food.

"Tares are easily cultivated, produce a great bulk of most valuable food, may be twice cut with due care, and the winter sort is sufficiently hardy to endure the severest season in this climate, growing rapidly in the early spring, so as to be ready for either the scythe or for grazing before any other crop."

We may here mention another advantage, and that is that Tares are used in time to allow of a crop of Turnips afterwards. With all these points in favour of the crop in question, it follows that both the large and the small farmer may do well by attending to it. Vetches may be sown almost anywhere, but we prefer a Wheat stubble that is destined for late Turnips, and we set about our work as follows:—If the stubble be dirty with the Couch-grasses, such as Triticum repens (common Couch), or Agrostis stolonifera ("benty squitch"), we move it by Bentall's cultivator, worked first one way and then crossed; drag up the stubs and weeds, chain-harrow, collect and burn, and then cart and spread a few loads of farmyard dung per acre, and plough from 5 to 7 inches deep. When ready drill one-third of the field in September, another third in October, and the last in November, choosing good seed and drilling two bushels to the acre. Some farmers mix a few winter Oats, a little winter Barley, Rye, or a sprinkling of Beans with the Vetches, but we prefer them by themselves. By this plan they come in in succession, and the plots can be used in succession for roots, in which case it is more easily managed.

The ordinary farmer will well know how to use green Vetches, or, if he should happen to have plenty of keep without, he may perhaps seed this crop; but it should be remembered that the yield of seed is very precarious, and we have known the price differ from 5*s.* to 15*s.* a bushel. The small owner near a town, if he does not want to use his Vetch crop, may always find a market for it at different stables, and if they have to be delivered thereto, manure or lower refuse may be brought back often to great advantage.

From all these circumstances, then, we recommend the growth of Vetches; and we would now only add, that as rooks and pigeons are remarkably fond of the seed, it needs to be guarded both in growing and sowing from their depredations.

Rabbits and hares, too, seldom neglect the Vetch field; but with all its drawbacks, a crop of green Vetches may usually be secured, although the amount of seed they may yield is altogether uncertain.

Notices of Books.

Hymenomycetes Europæi sive Epicriseos Systematis Mycologici. Editio altera. Scripsit Elias Fries. Upsaliæ, E. Berling. 1874. 8vo, pp. 756.

We have just received the concluding pages of this very important work. Greater interest exists every day as regards the higher fungi; and no one certainly, either by active observation or multiplied figures, has done more towards their accurate determination than the illustrious Swedish philosopher to whom we owe the present edition of the Epicrises. It is now fifty-nine years since he published his *Observationes*, his *Novitiæ* dating from a year earlier, and now at the advanced age of eighty, though unable any longer to take his accustomed excursions into the rich forests of his country, he is as active as ever in studying fungi, either communicated by younger mycologists, or in commenting on those which are described by authors—a task requiring the greatest acuteness and perseverance. The numerous exotic species which have been described in this country are not included, the task being left to those who either are in possession of the necessary materials in figures and specimens, or who may entrust them to others.

The Hymenomycetes are comprised in sixty-three genera, of which Tremellodon=Hydnum gelatinosum is adopted from *Mycologia Europæa*. Mucronella comprises two or three species of Hydnum in which there is no receptacle.

Solenia properly migrates from the neighbourhood of Peziza; Femsjonia is allied to Hirneola, and is very near if not identical with the North American Arrhytidia; while Apyrenium and Microcera are at least doubtful Hymenomycetes. The genus Polyporus returns to its own limits, Polystictus being included again in Polyporus—a circumstance for which we feel individually grateful, as we have never adopted it, and have in consequence escaped many synonyms.

In the genus Agaricus the subgenera remain the same, Mr. Smith's Claudopus being adopted—a measure in which we concur, though we cannot do so as regards Tubatia, as the characters on which it depends are very uncertain. Under Chitonia Agaricus coprinus is recorded, the subgenus being confirmed by two Ceylon species lately published in the *Journal* of the Linnean Society. The genus Agaricus alone comprises 1187 species, and had those of Ceylon, India, &c., been included, it would have contained more than 1400 distinct forms besides a multitude of varieties. Were it not for the grand distinctions afforded by the colour of the spores it would be quite impossible to recognise the greater part of dried specimens. Figures without specimens, however badly dried, are often deceptive; but with the aid even of imperfect specimens they are often easily referred to their proper place in the system.

The genus Polyporus, again, contains 227 species. Though so many of the exotic species are excluded, it must be remarked that our author includes almost everything that has been described as new to the British flora, and even in an appendix notices one or two of the most recently recorded species. The work is the more welcome, as it had become almost impossible to obtain the older edition. We trust that the book will be as widely dispersed as it deserves, and we conclude this short notice with the hope that our friend may enjoy for many years a "green" old age.

M. J. B.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

MARENDAZ AND FISHER, RUSSIA MAT MERCHANTS, 9, James Street, Covent Garden, W.C.
Large Stock of ARCHANGEL MATS, heavy and close-woven ST. PETERSBURG MATS, just arrived.

NURSERY GROUND TO BE LET.—The PINESHAW NURSERY, in the neighbourhood of Inverurie, and for a long time occupied as Nursery Ground, is to be Let, with the Houses thereon, with Entry at Martinmas, 1874, for such number of years as may be agreed on. The Nursery is 15 miles distant from Aberdeen, and within one mile of the Inverurie Station, on the Great North of Scotland Railway. The ground measures 12 acres imperial, and there has been a very good and extensive business carried on for many years.
JOHN CLARK, the Forester at Keith Hall, by Inverurie, will point out the Boundaries, and offers will be received by Messrs. EDMONDS AND MACQUEEN, Advocates, Aberdeen.

Burton, Westmoreland.

TO BE LET, with immediate possession, for a term or otherwise, the desirable FAMILY RESIDENCE, known as the "Mansion House," Burton, formerly occupied by the late James Carden, Esq. Rent £130 a year. The Ground Floor contains excellent Dining, Drawing, and Breakfast Rooms, Kitchens, Dairy and Larder, six good Bedrooms, and Nursery. The Outbuildings consist of Three-stall Stable, two Cow Houses, Coach House, and Harness Room.
The Gardens and Pleasure Ground contain about 3 acres, and have been beautifully laid out, regardless of expense, and replete with the choicest Fruit and other trees. There is upwards of 700 feet of Glass, constituting Vineries, Peach and other Houses, Conservatories, Greenhouses, Pits, and Frames, the whole being heated with 6-inch water-pipes, on an improved principle, by Combe & Sons, of Glasgow. The Kitchen Garden, which is detached from the Pleasure Grounds, contains, with two rich Meadows, about 8½ acres. The Mansion House is within fifteen minutes' walk of the Burton Station, on the Lancaster and Carlisle line.
Particulars and Cards to View may be had on application to Mr. M. DEROME, Estate Agent, Kendal; Mr. J. C. AMBLER, Solicitor, Preston; and on the Premises.

To Gardeners and Seedsmen.

TO BE LET, and may be entered into on September 29, a HOUSE and GARDEN, with three Greenhouses, two Forcing-pits, Potting-houses, Seed Shop, and Warehouse, lately occupied by Mr. J. Edeson, South Retford, Notts. The above offers a very eligible opportunity to a young man of industrious habits, with a small capital, who is desirous of commencing business. The only reason for offering the above is the death of the proprietor and occupier, who has carried on a very profitable business for several years. The Plants, Pots, &c., to be taken to at Valuation.
For particulars, and to treat for the same, apply to Mr. EDESON, on the Premises, South Retford, Notts; or to Mr. C. EDESON, Painter, South Retford.—Retford, Aug. 25.

To Nurserymen and Others.

TO BE SOLD, or LET on LEASE, an old-established NURSERY, in an increasing and populous neighbourhood, containing the usual Nursery Stock of the most healthy and best description. The Greenhouses are substantial, and admirably arranged with all modern appliances for carrying on an extensive and lucrative business. Within ten miles of Covent Garden Market. For particulars apply to
Messrs. FRASER AND BENTON, Horticultural Valuers, &c., Romford, Essex.

SALES BY AUCTION.

Tooting, S.W.

IMPORTANT SALE of extra NURSERY STOCK and GREENHOUSE PLANTS, the whole of which are in a very healthy and thriving condition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. R. Parker to SELL by AUCTION, without reserve, on the Premises, The Exotic Nursery, Tooting, Surrey, about fifteen minutes' walk from Balham and Tooting stations, on TUESDAY, September 15, at 11 for 12 o'Clock precisely, a large quantity of extra stock of choice STOVE and GREENHOUSE PLANTS, including Ananasa sativa variegata, Anthurium Scherzerianum, Stephanotis, Lapageria rosea, Phormium tenax and Colensoi variegatum, Yucca aloifolia variegata, Gardenias, Pandanus, and Crotons, in variety; a fine assortment of best named Camellias and Azalea indica, Epacris, a large number of selected Palms, fifty choice and valuable Orchids, specimen Adiantum farleyense, Gymnogramma decomposita, Gleichenias of sorts; Lomaria alpina and other Exotic and Hardy Ferns, a collection of Greenhouse Rhododendrons, together with some Herbaceous and Succulent Plants, Hardy Climbers in pots, &c.
May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, City, and Leytonstone, E.

Tottenham, N.

GREAT SALE of STOVE and GREENHOUSE PLANTS. Important to the Trade and other large consumers.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Maller to SELL by AUCTION, without reserve, on the Premises, the Brunswick Nursery, Tottenham, Middlesex, opposite the White Hart Lane Station, Great Eastern Railway, on TUESDAY, September 15, 1874, at 11 o'Clock precisely, 600 lots of unusually well-grown STOVE and GREENHOUSE PLANTS, consisting of 16,000 winter-blooming Heaths, in fine thriving condition, promising a profusion of flowers, including 3500 Hyemalis, 2500 gracilis, 1500 caffra, 1000 Wilmoreana, quantities of ventricosa rubra, hybrida, candidissima, 1800 remarkably well berried Solanum capsicastrum, fine Camellias, and Azalea indica, set with bloom buds; 750 Bouvardia of sorts, Acacia Drummondii and armata, 400 well furnished Adiantum cuneatum, 70 nice plants of A. farleyense, Eucharis amazonica, Ficus elastica, Epiphyllum in variety, 160 Poinsettias, Daphne indica rubra, 600 fine Cyclamens, 350 Genistas, 200 Fairy Roses, 500 double and single Primulas, and Cinerarias, Dracænas, Palms, &c.
May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, City, and Leytonstone, E.
N.B.—This Sale will commence punctually at 11 o'Clock, in consequence of the number of lots.

To Gentlemen, Nurserymen, Florists, Builders, And OTHERS.

CLEARANCE SALE of about 4000 feet of GLASS, 600 feet of PIPING, BRICKWORK, STAGING, &c.

MESSRS. PROTHEROE AND MORRIS, having sold the freehold land, are instructed to SELL, without reserve, on the Premises, Perseverance Nursery, Lytton Road, New Barnet, Herts, on MONDAY, September 7, at 3 o'Clock in the afternoon, the GREENHOUSES, PITS, FRAMES, HOT-WATER PIPING, BOILERS, BRICKS, and other effects.
View prior to the Sale. Catalogues had at 98, Gracechurch Street, City, E.C.; and Leytonstone, E.

Lea Bridge Road.

EXTENSIVE ANNUAL TRADE SALE of FINE WINTER FLOWERING HEATHS, EPACRIS, CYCLAMENS, TREE CARNATIONS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, without reserve, on the Premises, The Lea Bridge Nurseries, Lea Bridge Road, Leyton, Essex, on WEDNESDAY and THURSDAY, September 16 and 17, at 11 for 12 o'Clock precisely each day, about 30,000 Winter Blooming HEATHS, remarkably well grown and thickly set with bloom-buds, and including about 10,500 hyemalis, 2500 gracilis, 2500 Wilmoreana, 7500 caffra, 500 ventricosas of the best varieties; also large quantities of gracilis, vernalis, regerminans, colorans, Linnæa superba, melanthera, pyramidalis persoluta alba, and others; 1500 fine EPACRIS, of the choicest kinds; 1500 CYCLAMEN PERSICUM; 500 AZALEA INDICA, to name; 1500 CYTISUS FRAGRANS and ATLEANA; 1000 TEA-SCENTED ROSES in pots, to name; a large stock of SOLANUM CAPSICASTRUM, full of berries; TREE CARNATIONS, ACACIA DRUMMONDII, and a quantity of MISCELLANEOUS GREENHOUSE PLANTS, including Phœnocomas, Aphelexis, Pimeleas, Boronias, &c.
May be viewed any day prior to the Sale. Catalogues had on the Premises; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Consignment of New Zealand Ferns
For UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS beg to announce that in Mr. John Fraser's great ANNUAL SALE of WINTER-BLOOMING HEATHS, to be HELD on SEPTEMBER 16 and 17 NEXT, at the Lea Bridge Nurseries, there will be included 20 fine trunks of ALSOPHILA AUSTRALIS, 4 to 8 feet high; and 324 TODEA SUPERBA, nearly the whole of which have started into growth.

Lee, S.E.

FOURTH ANNUAL SALE. PRELIMINARY NOTICE.

MESSRS. PROTHEROE AND MORRIS have been instructed by Mr. B. Maller to SELL by AUCTION, without reserve, on the Premises, the Burnt Ash Nursery, Lee, on TUESDAY, September 22, many thousands of fine winter-blooming HEATHS, and numerous other choice GREENHOUSE PLANTS, more detailed particulars of which will appear next week.

Valuable Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 8, at half-past 12 o'Clock precisely, an importation of ORCHIDS, from New Grenada and Central America, consisting of Odontoglossum Wallisii, O. hastilabium, very fine; and Odontoglossums, unnamed varieties, very fine; Masdevallia Lindeni, Cypripedium longifolium, C. caudatum, Cattleya Mendelli, Cattleyas from Cachiri, Epidendrum vitellinum majus, extra fine; Lælia superbiens; also some Vandas from Java.
On view the morning of Sale, and Catalogues had.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, September 9, at half-past 12 o'Clock precisely, seven hundred lots of First-class HYACINTHS, TULIPS, CROCUSES, NARCISSUS, and other BULBS, just arrived from Holland, in lots to suit private buyers and the Trade.
On view the morning of Sale, and Catalogues had.

The Farnham Castle Collection of Orchids.

MR. J. C. STEVENS has received instructions from the Executors to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY and FRIDAY, September 17 and 18, at half-past 12 o'Clock precisely each day, the well-known COLLECTION of ORCHIDS formed by the late Bishop Sumner at Farnham Castle. Amongst other fine things will be found a magnificent specimen of Dendrochilum filiforme and glumaceum, Dendrobium Kingianum, the true Lælia anceps Dawsoni, Cymbidium eburneum superbum, Maxillaria venusta (very fine var.), Cattleya Trianæ Lawrenciana, a very fine lot of Calanthe Veitchii, Anæctochilus Dawsoni and Ordeana, very fine, &c. Also a few choice WORKS on ORCHIDS, viz., Bateman's "Monograph of Odontoglossum," Lindley's "Sertum Orchidaceum," and Linden's "Pescatore Iconographic des Orchidees," &c.
On view the morning of Sale, and Catalogues had.

Clearing Sale of the Meadowbank Collection of PLANTS.

MR. DOWELL has been instructed by the Executors of the late Mr. Thomas Dawson to SELL by AUCTION, at Meadowbank, the remaining portion of that well-known COLLECTION of PLANTS, on WEDNESDAY, THURSDAY, and FRIDAY, September 30, and October 1 and 2. It comprises many valuable Orchids (being the last of the collection), a magnificent assortment of Amaryllis, second to none in the kingdom; several splendid specimen Azaleas, comprising some of the best exhibition sorts; a select lot of Plants of fine foliage, including Crotons, Dracænas, &c.; some good Camellias, and a choice lot of Sikkim Rhododendrons, as well as a general lot of hardwood and softwood Stove and Greenhouse Plants.
Full particulars of which will be given in Catalogues, which will be issued on and after September 15, and may be had from Mr. DOWELL, 18, George Street, Edinburgh; or, from Mr. JAMES ANDERSON, Gardener, Meadowbank, Uddingstone.
All the plants will be sold without reserve, and may be viewed two days prior to sale. Meadowbank is 7 miles from Glasgow, and is within five minutes' walk of the Uddingstone Station, Caledonian Railway.
Edinburgh, 18, George Street, August 28, 1874.

ROYAL

HORTICULTURAL SOCIETY.

SHOW of DAHLIAS, GLADIOLI, &c.

SEPTEMBER 2, 1874.

AWARDS of the JUDGES.

CLASS 1.—36 DAHLIAS, cut blooms, distinct. (Open.)
1st, Mr. J. Keynes, Nurseryman, &c., Salisbury, £4.
2d, Mr. C. Turner, Royal Nursery, Slough, £2.
3d, Mr. J. Walker, Nurseryman, &c., Thame, £1.

CLASS 2.—24 DAHLIAS, cut blooms, distinct. (Nurserymen.)
1st, Mr. J. Keynes, £3.
2d, Mr. C. Turner, £1 10s.
3d, Mr. J. Walker, £1.

CLASS 3.—12 DAHLIAS, cut blooms, distinct. (Amateurs.)
1st, Mr. H. Glasscock, Rye Street, Bishop Stortford, £3.
2d, Mr. F. Miller, Gr. to J. T. Friend, Esq., Margate, £1 10s.
3d, Mr. T. Anstiss, Brill, Bucks, £1.

CLASS 4.—12 FANCY DAHLIAS, cut blooms, distinct. (Open.)
1st, Mr. J. Keynes, £1 10s.
2d, Mr. C. Turner, £1.
3d, Mr. W. Seale, Vine Nursery, Sevenoaks, 10s.
Equal 3d, Mr. J. Walker, 10s.

CLASS 5.—6 FANCY DAHLIAS, cut blooms, distinct. (Amateurs.)
1st, Mr. H. Glasscock, £1.
2d, Mr. T. Anstiss, 15s.
3d, Mr. H. Harris, Gr. to G. A. Ashby, Esq., Rugby, 10s.

CLASS 6.—24 GLADIOLI, cut spikes, distinct. (Open.)
1st, Messrs. Kelway & Son, Nurserymen, &c., Langport, £4.
2d, Mr. J. Douglas, Gr. to F. Whitbourn, Esq., Ilford, £3.
3d, Mr. W. Seale, £2.

CLASS 7.—12 GLADIOLI, cut spikes, distinct. (Amateurs.)
1st, Rev. Lord Hawke, Willingham, Gainsborough, £3.
2d, Mr. J. Douglas, £2.
2d, Rev. H. H. Dombrain, Westwell Vicarage, Ashford, £1.

CLASS 8.—6 GLADIOLI, cut spikes, distinct. (Amateurs.)
1st, Rev. Lord Hawke, £1 10s.
2d, Rev. H. H. Dombrain, £1.
3d, Mr. J. Douglas, 15s.

CLASS 10.—12 HOLLYHOCKS, cut blooms, distinct. (Nurserymen.)
1st, Mr. W. Chater, Saffron Walden, 10s.

CLASS 11.—12 HOLLYHOCKS, cut blooms, distinct. (Amateurs.)
1st, Rev. Lord Hawke, 10s.

CLASS 12.—24 FRENCH ASTERS, not fewer than 12 varieties. (Open.)
1st, Mr. J. Lakin, Chipping Norton, Oxon, 15s.
2d, Mr. W. Parrott, Gr., St. Winfred's, Reigate, 10s.
3d, Mr. J. Walker, 7s.

CLASS 13.—24 GERMAN ASTERS (quilled), not fewer than 12 varieties. (Open.)
1st, Mr. T. Benham, Bagnor, Newbury, 15s.
2d, Mr. J. Betteridge, The Common Hill, Chipping Norton, 10s.
3d, Mr. J. Lakin, 7s.

CLASS 14.—12 Pots of ASTERS, not fewer than 6 varieties. (Open.)
1st, Mr. R. Dean, Ranelagh Road, Ealing, £1.

CLASS 15.—12 DOUBLE ZINNIAS, cut blooms. (Open.)
1st, Mr. J. Lakin, 10s.
2d, Mr. W. Chater, 7s.
3d, Mr. J. Betteridge, 5s.

CLASS 18.—EARLY DESSERT APPLES, 12 fruits. (Open.)
1st, Mr. B. Porter, Gr. to Mrs. Benham, Isleworth, 15s.
2d, Mr. T. Benham, 10s.
3d, Mr. H. Harris, 5s.

CLASS 19.—EARLY DESSERT PEARS, 12 fruits. (Open.)
1st, Mr. B. Porter, £1.
2d, Mr. J. W. Moorman, Gr. to the Misses Christy, Kingston-on-Thames, 15s.
3d, Mr. D. Lumsden, The Gardens, Bloxham Hall, Sleaford, 10s.

CLASS 20.—12 TOMATOS. (Open.)
1st, Mr. F. Miller, 10s.

CLASS 21.—1 Basket of SALAD, in variety. (Open.)
1st, Mr. W. G. Pragnall, Gr. to G. D. W. Digby, Esq., Dorset, £1 10s.
2d, Mr. E. Clarke, Gr. to Mrs. J. R. Hall, Sutton, Surrey, £1.

CLASS 22.—12 ONIONS. (Open.)
1st, Mr. J. Betteridge, £1.
2d, Mr. A. Parsons, The Gardens, Danesbury Park, Welwyn, 15s.
3d, Mr. J. Walker, 10s.

CLASS 23.—12 Dishes of VEGETABLES, distinct. (Open.)
1st, Mr. W. G. Pragnall, £4.
2d, Mr. G. Bloxham, Gr. to Sir P. D. P. Duncombe, Bart., Bletchley, £3.
3d, Mr. G. T. Miles, Gr. to Lord Carington, High Wycombe, Bucks, £2.

CLASS 24.—20 Dishes of POTATOS, ten round varieties, ten kidney varieties. (Open.)
1st, Mr. R. Dean, £4.
2d, Mr. C. Ross, Gr. to C. Eyre, Esq., Newbury, £3.
3d, Mr. D. Lumsden, £2.

CLASS 25.—10 Dishes of POTATOS, five round varieties, five kidney varieties. (Open.)
1st, Mr. G. T. Miles, £2.
2d, Mr. D. Lumsden, £1.
3d, Mr. F. B. Bates, Temble Street, Aylesbury, 10s.

MISCELLANEOUS.—EXTRA PRIZES.

Mr. W. Bull, King's Road, Chelsea, for Group of Croton majesticum, Bronze Medal.
Messrs. Kelway & Son, for Collection of Gladioli, Bronze Medal.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. for 12 months, including postage to—

AUSTRALIA | CANADA | JAMAICA | WEST INDIES
BELGIUM | FRANCE | NEW ZEALAND | UNITED STATES

£1 10s. 4d. for 12 months, including postage to—

AUSTRIA | HOLLAND | PORTUGAL | SPAIN
CHINA | INDIA | PRUSSIA | SWITZERLAND

£1 14s. 8d. for 12 months, including postage to—

RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 5, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	Sept. 8	Autumn Fruit and Flower Show at the Crystal Palace (three days). Sale of Imported American Orchids, at Stevens' Rooms. Royal Caledonian Horticultural Society's Show. Brighton and Sussex Autumn Show (two days).
WEDNESDAY,	Sept. 9	Preston Horticultural Society's Show (two days). Sale of 700 lots of Dutch Bulbs, at Stevens' Rooms. Sale of several Importations of Dutch Bulbs, at Stevens' Rooms.

THE INTERNATIONAL FRUIT and FLOWER SHOW lately held at Belfast was of so remarkable a character that we feel quite justified in again reverting to it. As an autumnal display of horticultural produce it was altogether creditable, and would have done honour to any part of the United Kingdom. As an Irish display it stands quite unrivalled ; all honour then to Belfast, and to the promoters and managers of this exhibition, which has so clearly demonstrated the wonderful capabilities and resources of the Emerald Isle. The exhibition was a purely national one, indeed chiefly Irish, and not international, as that term is usually understood. It is a pity that this title should not be reserved for genuine international competitions. The arrangement of the exhibits in the show ground reflected very great credit on the Curator, Mr. JOHNSON. This gentleman stepped far ahead of the ordinary methods of arranging flower shows, introducing some quite novel features, and to a considerable extent accomplishing what is too often stated to be an impossibility in the harmonious arrangement and blending of the various exhibits as in the decoration of a conservatory—doing away with all those hard divisional lines, by some deemed necessary, but against which we have so often protested. Here the tall plants of one exhibitor were used to set off the smaller ones of his opponent, the one mingling with the other, both being thus better displayed, so that except to the eye of the expert the whole seemed as one. So with flowering and foliaged plants. This is the most effective arrangement for the public, for scarcely one in a thousand visitors ever understands clearly the limits of an exhibit, with all our straight and stiff lines. This method of arrangement, there can be no doubt, is surrounded with considerable difficulty. In the first place it requires the personal supervision of a man of considerable taste, who can at a glance tell the exhibitor where and how to place his plants, and it also gives the judges a little more trouble ; but that is of small importance. At Belfast it was well done, and yet it ought to be done even better elsewhere. Another of the novel features alluded to consists in planting the mounds with low-growing plants—the silvery-leaved Gnaphalium and variegated Dactylis. These plants, growing from 9 inches to 1 foot in height, served to hide the greater part of the pots of the plants which were set amongst them. This formed a pretty undergrowth and garnish for the fine specimen plants above, and was extremely pleasing and effective. Several other plants were used by Mr. JOHNSON, but none were so effective as those we have mentioned. Dense beds of Ivy, St. John's Wort, and Periwinkles, would perhaps prove still more effective, and these plants also would not be so readily injured by the trampling in the setting of the plants. One omission may be noted : due prominence was given, on a nicely printed card, that it was the Belfast Horticultural Show we were inspecting, and that the first or second prizes were awarded to such and such exhibit, but as to who the exhibitors were seemed a point of quite minor importance. This information was to be found on another card of very insignificant appearance, and not very distinctly written. In justice to exhibitors greater prominence ought surely to have been given to their names, though care must be taken that the labels do not prove a disfigurement, as was the case in some of the exhibits in the London International of 1866.

As for the exhibits themselves, apart from arrangement, the magnificent stove and greenhouse plants from Mr. HAWKINS and the Marquis of DROGHEDA were almost worthy of a BAINES. Fuchsias made a capital display, and were well grown ; and the same remark applies to Zonal Pelargoniums. A great number of these were shown, and in such order as to have suited a TURNER or a PEARSON. Some very good cut Roses and Gladioli, many of them seedlings, were shown by Messrs. DICKSON, of Newtonards ; while Mr. R. B. MATTHEWS, of Belfast, filled the whole length of one of the long tents with a choice and interesting collection of plants, including many of economic interest, such as the Eucalyptus globulus, Sugar-cane, many fine Palms, Ferns, &c., which procured for the exhibitor a "special extra prize."

Of vegetables, the display was not equal to expectation. The "Praties" (chief food of Ould Ireland) were of course strongly to the front, and the various prizes were eagerly contested—for Ireland, somehow or other, seems the chosen home of the Potato. Nowhere does it seem to grow with such luxuriance and with so little trouble. The enormous crops which are produced on their lazy-bed system were quite a sight to behold. It is gratifying, also, to know that this season but little disease is apparent.

This show will also be remembered as the show where the largest bunch of Grapes—and that a Black Hamburgh—that was ever grown was exhibited. Talk of SPEECHLY'S bunches, they were as nothing to this Brobdingnagian example of Mr. HUNTER'S—21 lb. 12 oz. ! Twenty-one pounds twelve ounces ! Let us repeat it again ! To be sure the glory of this monster production is only borrowed by Belfast from Lambton Castle, Durham, where big monster bunches seem to be the rule. It might be well to urge Mr. HUNTER to dare this kind of thing no longer. It would be but a fitting and proper compliment for the committee of this show to present Mr. HUNTER with some sort of medal to commemorate the event. Mr. JOHNSTON, gr. to the Earl of STRATHMORE, at Glamis Castle, Forfar, well maintained the spurs he so gallantly won at Edinburgh some six years ago as the champion Grape grower. Nothing could exceed the great beauty and perfect character of the Grapes he exhibited. The Muscats and Black Hamburghs were especially fine. From size of bunches we come to size of berries, and doubtless the big berry is better than the big bunch. The winning lot here was that grand new Grape, the Duke of Buccleuch, from Mr. THOMSON ; and truly ducal it looked. For eating a single berry is sufficient to fill one's mouth, and thus takes the place of a glass of wine. Pines were nobly shown by Her MAJESTY, and did Mr. JONES much credit. Peaches and Nectarines were inferior, some good ones, however, coming from Glamis as usual. Apples made a fine display, two Irish fruits heading the list, viz., Irish Peach and Eclinville Seedling—a large and very handsome variety, raised near Belfast.

A word of praise is due for the admirable arrangements made by Mr. YONGE, the indefatigable Secretary, for the comfort of the judges, and his attention and consideration. They manage these sort of things better in Belfast than in some other places which might be named, and make one fervently exclaim, "Erin-go-Bragh."

THE letters which have appeared in our columns from Dr. DENNY and Mr. PEARSON on the subject of exhibiting Pelargoniums, have resulted in the establishment of a PELARGONIUM SOCIETY, which held its first or inaugural meeting at South Kensington on the 2d inst. Amongst the more prominent of the members and promoters of this new Society may be mentioned the names of Messrs. DENNY, POSTANS, WEBB, KELLOCK, PEARSON, W. PAUL, KINGHORN, LAING, CANNELL, GRIEVE, PAWLE, GEORGE, SMITH, &c.

The object of this Society is, in the first instance, to encourage the cultivation and improve the quality of what is known as the Zonal Pelargonium, including under this general term the varieties which have resulted from the inter-breeding of *P. zonale* and *P. inquinans* ; and for this object funds are being collected, with a view to offer prizes at one of the exhibitions of the Royal Horticultural Society to be held in July, 1875. In order the more effectually to do this the contributions of those who are interested in this class of plants are desired. At the outset the following prizes have been agreed on :—

	1st Prize.	2d Prize.
For 12 Zona Pelargoniums, distinct varieties, of the florists' class, in pots not exceeding 8 inches in diameter ..	£8 0 0	£5 0 0
For 12 Zonal Pelargoniums, distinct varieties, of the decorative class, in pots not exceeding 8 inches in diameter ..	8 0 0	5 0 0
For the best collection of thirty distinct varieties of Zonal Pelargoniums, irrespective of class, in pots not exceeding 6 inches in diameter	6 0 0	4 0 0

Though the efforts of the Pelargonium Society are to be first brought to bear upon the race known as Zonal Pelargoniums, and though these may be considered as having been the immediate cause of its establishment, yet, we understand, its objects are to be more comprehensive, and gradually to embrace the other sections of the genus, if the growers and patrons of these do but lend the committee their countenance and support. We trust, indeed, that its efforts may be still more catholic, and that it may be the means of evolving out of the numerous decades of species which inhabit South Africa, and improving for garden purposes, some of the many distinct types which there exist, and thus securing some entirely new decorative subjects for our greenhouses and flower gardens.

The annual subscription to this new society has been fixed at one guinea per annum, so as to permit that all who are willing may join it. Dr. DENNY has been appointed hon. treasurer, and Mr. THOMAS MOORE, hon. secretary ; and it only remains for the growers and fanciers, both amateur and professional, of this grand family of plants—a family as varied as comprehensive—to

strengthen the hands of the provisional committee by sending in their names as members of the Society; and for those who become members to hand in their subscriptions to the Treasurer.

WE have received lately, by the kindness of Signor GAROVAGLIO, the report of three years' work at the LABORATORY of CRYPTOGAMIC BOTANY at the University of Pavia. The several appliances seem to be very good, the library sufficient if not perfect, and the collection of publications containing dried specimens excellent. There is also a very good collection of separate memoirs, amongst which we are glad to see that this country has not been neglected. The part of the work which is most interesting is that which relates to the fungi which affect Rice.

A short time since, when HALLIER was inclined to attribute the origin of cholera to some fungus with which the Rice plant was infected in India, in consequence of his inducing a diseased condition by watering with cholera excretions—which opinion, however, was founded on insufficient data—Mr. THWAITES took great pains to ascertain whether Rice was attacked by any fungus, and he was unable to find any except a minute superficial mould, which was clearly an aftergrowth, and had nothing to do with an unhealthy state of the plant. Signor GAROVAGLIO has figured a number of aftergrowths, which are interesting only as individual forms of moulds. He has, however, indicated one fungus which appears clearly to be the cause of disease. It belongs to TULASNE'S genus Pleospora, and is the more interesting as appearing under three distinct forms of fructification.

Valuable, however, as the work done in this laboratory during the short time it has been established is, it is no more than is done by individual zeal in this country, and much less than has been effected in France by the united efforts of the TULASNES. Still the example of this and of kindred laboratories in Germany, where admirable work has been realised, makes us hope that we shall soon have in our universities similar institutions. There are many observations which can scarcely be carried out fully except by persons who not only have the whole of their time at their disposal, but have communion with the best chemical assistance, which can scarcely be secured except in some public institution where there is every aid to be derived from books and the most perfect and expensive instruments. The great difficulty in this country, compared with Germany, is the impossibility of securing the very best scientific ability except at a very great expense; and we trust that in any future revision or distribution of the funds of our universities this will be kept in view. The expense would be principally confined, except as regards laboratories and their appliances, to the principals, as numbers of excellent assistants would readily work gratis or at very low remuneration under efficient heads. There was at one time a hope that something of the kind might be attempted at Chiswick, but the project fell through for want of the necessary funds. Both at Oxford and Cambridge there would be no difficulty as regards proper buildings, and we feel confident that the zeal which is displayed at either University in favour of natural science will soon supply the desideratum. The munificent gift of Mr. PHILLIPS JODDRELL to the University College, London, for the endowment of a Professorship of Physiology will, we trust, be the harbinger of a laboratory at which important work will be effected. At present it is, as has often been remarked in these columns, a scandal to us as a nation that we are so deficient in proper laboratories for the prosecution of researches in vegetable physiology and cryptogamic botany. *M. J. B.*

—— WE have frequently received ROOTS of MELONS and CUCUMBERS DISTORTED with NODULES somewhat resembling those which are so common on Cabbage roots. We originally detected in them a species of Vibrio, but on no future occasion were we able to do so, though the roots had always the same peculiar appearance and smell. We have now before us a very similar affection in Gardenia radicans (fig. 64), and in the very first nodule which we examined we found a gelatinous mass which looked at first like some larva cut across, but on placing it under a microscope we found it to consist of a mass of elliptic eggs in various conditions, sometimes filled with granules, sometimes with a Vibrio in different stages of development, and finally the Vibrios free, which we could not distinguish from those which occurred in the instance above mentioned (fig. 65).

FIG. 64.—ROOT OF MELON DISTORTED WITH NODULES.

The probability is that it is the same species, as the effect on the roots is precisely similar. The case is very instructive, and suggests caution in calling in question former observations. We know that the nodules in Cucurbits have been examined by others who could not find the Vibrios, and were in consequence inclined to believe that there had been some fallacy. The present case is, however, completely confirmatory of the correctness of our previous view. Our correspondent, "F. J.," cannot too completely

FIG. 65.—ONE OF THE NODULES, CUT ACROSS.

destroy by burning all affected roots, together with the surrounding soil. *M. J. B.*

—— Dr. HANCE, in the current number of the *Journal of Botany*, gives a list of plants found at Kinkang, a city of CHINA, in lat. 29° 54′ N., and long. 116° E., on the south bank of the river Yangtz', a district hitherto unknown to botanists. The most interesting plant, horticulturally speaking, is LILIUM SPECIOSUM, var. Kæmpferi, of which Dr. HANCE says:—"I am not aware that this beautiful plant, which SIEBOLD believed to have been introduced into Japan from Korea, has heretofore been met with wild in China. It is a great favourite in Europe, and M. SPAE (*Mem. sur les Espèces du Genre Lis*, p. 38) expresses a hope that an accomplished horticulturist he names will succeed in producing varieties which will differ entirely in form from the type! The passion for ultra-hybridised races is unfortunately (from a botanist's point of view) so strong that it is now-a-days almost impossible to determine accurately plants under cultivation. He who attempts the task finds, as CHARLES LAMB said, when teaching a young lady Latin, that 'SISYPHUS, his labours, were as nothing to it!'" We congratulate Dr. HANCE on his interesting discovery, but we think that, even from a botanical stand-point, the inconveniences he alludes to, and which are real, are, or might be, amply compensated for by the increased knowlege we obtain of the life-history of the plants in question.

—— We learn from an Irish contemporary that the extent of land at present under WOODS AND PLANTATIONS IN IRELAND, as reported in the official returns, amounts to 325,173 acres. Of these the province of Leinster yields 101,693; Munster, 111,830; Ulster, 61,033; and Connaught, 50,617. Strange to say, Leinster and Ulster, the most prosperous provinces, show a decrease,—the former of 874, and the latter of 1971 acres; whilst Munster and Connaught have an increase,—the former of 3078, and the latter of 714. The acreage of woodland in England has, according to the return obtained in 1872, slightly increased; it then stood at 1,325,675 acres, at 126,823 for Wales, and at 734,490 for Scotland. In the Irish bogs, which were formerly much more extensive than at present, though still covering 4,258,973 acres, fallen trees of various kinds, Oak, Ash, Elm, &c., are found in abundance, at a depth of from 10 to 20 feet. Up to the close of the last century, or nearly so, there remained a sufficient supply of timber to enable a very large number of the Irish farmers to utilise it as fuel for smelting iron, a branch of industry which was cultivated with great success. The exhaustion of the timber and consequent failure of charcoal, and the want of other fuel to compete with coal, necessitated the suspension of that industry, but many causes, independent of smelting, combined to strip Ireland of its extensive forests. During the many petty warfares between the English power in Ireland and the native chiefs, extending from the close of the eleventh to the close of the seventeenth century, the woods, impenetrable to a disciplined force, gave shelter to the native refugees, and thus for strategical purposes many of them were purposely destroyed. A large importation of Irish Oak, which was highly prized, was encouraged for centuries. Wood, as long as its abundance supplied a cheap, and in all seasons accessible fuel, was extensively consumed; but planting was discouraged, the lord of the soil alone had a legal right, even to the trees which had been reared by the tenant for shelter and ornamentation. Thus Ireland, which from time immemorial was clothed with the glories of the forest, became as treeless as "Caledonia, stern and wild."

—— We have noticed with pleasure for some time past that our advertising columns have contained fewer applications than formerly for the services of GARDENERS WITHOUT INCUMBRANCE. There are still, however, some of the nobility and gentry who consider the olive-branches of gardeners as cumberers of the (ir) earth, and for their special benefit we put on record the fact that on a recent Sunday evening the infant son of the Duke of WESTMINSTER was baptised in the parish church of Eccleston, near Chester, the font for the occasion being profusely and artistically decorated with Jasmine, Clematis, Tea Roses, Passion-flowers, &c., and that the infant daughter of Mr. SELWOOD, the Duke's head gardener at Eaton Hall, was also christened at the same time. All honour to the Duke for administering such a well-deserved rebuke to those who treat their gardeners like old clothes, and the poor bairns as incumbrances, not to be tolerated.

—— We learn from the daily papers that Mr. ALBERT GRANT, to whose munificence the public owes the Leicester Square Garden, has offered to lay out the ground in Soho Square and endow it with an annual income of £150, invested in the names of a committee to be appointed by the inhabitants, the ground to be free to the public for ever. The Square will be railed in and the ground laid out in flower beds and walks, with statues or busts of men illustrious in their several capacities, and who were connected with the Square. Among these will be EVELYN, Bishop BURNETT, Sir JOSEPH BANKS, KNIGHT, COLMAN the dramatist, BEAZLEY, and HAZLITT the essayist. We trust there will be no difficulties in the way of carrying Mr. GRANT'S noble offer into execution. The pleasure and real good afforded already by the opening of Leicester Square are sufficient evidence of the benefits that are likely to arise from throwing open another Square in the midst of one of the localities of London where such a boon is most needed. We trust that the experience gained in Leicester Square may be turned to good account, and that the Square may be, what it ought to be, a town garden—not an architect's plan executed in stone and gravel picked out with turf and flower-beds. Specially do we plead for the preservation of the trees. We may again refer to the Square at Amiens as a model to be followed; and we may point out that a Square laid out in an appropriate manner is a much less costly affair than one where the ideas of the

architect, rather than of the landscape gardener, are followed too exclusively.

—— Writing some time since in the *Florist and Pomologist* of the PINUS INSIGNIS, Mr. JAMES BARNES states that for forming shelter in bleak, cutting situations near the coast he has not met with any other tree so valuable and so noble, not only on account of its rapid growth, but also from its beautiful and distinct colour. As an illustration, he refers to a hedge which he has watched for years, and which in a few years has grown so thick, though in a very bleak and exposed situation, that it cannot be seen through. This hedge consists of a row of Pinus insignis, alternating with Cedrus Deodara, which was some years ago planted on the side of a very steep, high, brashy, dry hill; a cutting through the base of the hill had formerly been made for a road, a heavy stone wall had been built against the side of the hill some 16 feet or 18 feet high; and it was a few feet from the top of this wall that the trees in question were planted. They grew well for several years, but at length the P. insignis completely met, overgrowing the Cedars, so that the tops only of some three or four of the latter are now to be seen. The Pinus, on the other hand, has made a thick and formidable hedge—as thick as could possibly be desired—from the earth's surface to a height of 30 feet or more, and this within a few hundred yards of the open sea, and in a draughty, cutting vale. Hence Mr. BARNES concludes that this tree is most valuable as a quick-growing shelter-tree, in bleak situations round our coasts from south-east to north-west.

—— Baron FERD. V. MÜLLER has obligingly forwarded to us specimens of a variety of BAUERA RUBIOIDES from Tasmania with DOUBLE FLOWERS. The doubling is caused apparently by a multiplication of the petals, there being no trace either of stamens or pistils. The case is interesting as adding another to the scanty list of double-flowered plants found in the southern hemisphere. The single-flowered form has been cultivated in our gardens for many years, but the double-flowered variety would be an acquisition for small coat-bouquets, &c.

—— A correspondent of the *Scotsman*, writing on the subject of the CHANGE OF CLIMATE IN SCOTLAND, gives the following table of temperatures:—

"The figures in the first column are based on an induction of thirteen years, and include the year 1801, and from 1804 to 1815 inclusive. The intermediate years were not accessible.

	Mean Temperature for 13 years from 1801, &c.	Mean Temperature for 13 years from 1857 to 1869.
Warm Months.		
June	57°.6	55°.6
July	61°.0	58°.3
August	59°.9	57°.7
Average of Three Warm Months	59°.5	57°.4
Cold Months.		
December	37°.9	[illegible]
January	36°.8	36
February	39°.0	[illegible]
Average of Three Cold Months	37°.9	38°.4

These comparative statistics, so far as they are reliable, do certainly afford countenance to Mr. M'NAB's contention for a diminished summer heat. There is a difference, it will be observed, of almost 2½° in the summer months, which is a tangible diminution, equivalent to the difference of mean annual temperature at Edinburgh and Great Malvern. In the winter months, again, the heightened temperature of the later period shows itself almost entirely in December, the variation in which month in the two tables is over 2°—a result entirely according with the general experience of many recent years."

—— At an exhibition held the other day by the Ludlow Horticultural Society, within the walls of the picturesque old castle of Ludlow, the President of the Society—R. JASPER MOORE, Esq., of Linley Hall—addressing those present, remarked that "the exhibition was a graceful tribute to the memory of those Knights of Downton who, at the beginning of the century, reformed the taste of the country with respect to landscape gardening, and perpetuated their name in horticulture, that so beautiful a show should be held in the neighbourhood of Downton, within those historic walls. The same care of giving public prominence to the beauties of art or nature is, unfortunately, not so generally characteristic of English as of foreign provincial towns. Take for instance of the latter the town of Metz. He had found there that most of the great battles between Germany and France could be seen from the most beautiful gardens of the town of Metz. In Continental towns the inhabitants frequented such gardens as if every one had a private and personal interest in them. Take, in contrast, such a magnificent walk as the Quarry in their own capital town of Shrewsbury. It was a matter of common remark that not one in a hundred visitors to Shrewsbury ever knew there was such a place as the Quarry walk. He wondered if many of those who had read the best books on gardening, or, what was better, knew it from practical experience, had ever had the curiosity to read Lord BACON's essay on "Gardening." It was interesting to know that the most scientific man (Lord BACON) considered gardening the first of all pleasures; but it might excite a smile to read in his essay on "Gardening" his list of flowers which, to the best of the knowledge of his day, were thought sufficient to constitute a perfect garden. He was very severe on figures made of different coloured earths being placed in gardens; and he sometimes wondered what Lord BACON would think of the different coloured gravels now in use. He felt it very presumptuous of himself to make a remark on high gardening; but he felt it had a weak point, which was that the effects produced by the high art of gardening were too much alike. It seemed to him that the requirements of fashion and taste had become so stringent that too little variety was observable in their results. There were three desirable attainments of science and industry that seemed to him cast too much in the same mould, viz., Oxford first-class men, good gardens, and good dinners. Mr. DISRAELI, in his novel of *Lothair*, represents a lord going to a ball supper in a grand house, and saying to his friend, as surveying the supper-table, "Look at the Ortolans peeping out of the jelly! How safe one is to find Ortolans in this house." So of a show garden we may say, "Look at this Orchid-house; how safe one is to find Orchids here." But with this exception he thought it might be safe to say that, given men of fortune, who do not practically exercise their own taste in all their establishment, and then people of experience could generally form a pretty exact estimate of what their dinner or their garden will be like. It is satisfactory, therefore, to find that some of the best gardeners do not repudiate the old-fashioned plan of planting flowers without any particular view to effect, but only a general one, trusting to the grace and beauty of the flowers to commend them if the garden is criticised in detail. He felt, that, before he concluded, he ought to offer some prize, as an acknowledgment of the honour they had done him in asking him to distribute the prizes. He found every conceivable subject pre-occupied by a prize, but, as he had spoken in favour of originality in gardening, he would endeavour to give a prize for a new class of competition, and, with the permission of the Society, would offer a prize next year for the best cultivated garden at any railway station on the Shrewsbury and Hereford line. He felt that station-masters were great public benefactors by the taste shown in beautifying the small plots and gardens at their stations. If the company thought well of the object they would, perhaps, grant a free pass to any gardener who would be good enough to act as judge."

—— GYMNOGRAMMA TRIANGULARIS, a recent introduction from Vancouver's Island, is growing freely planted out at the rockwork at Kew. Among gold and silver Ferns it has the advantage of requiring no more than greenhouse temperature. It has a neat dense habit, the fronds are deltoid 3—4 inches each way, with a dark brown shining stipe. The upper surface is dark green, and the powder, which varies in different plants from dark orange to white, is found underneath only. Loamy soil should be used for its culture, and when at rest the plant should be kept drier than Ferns usually are. The stock is being distributed by Mr. B. S. WILLIAMS.

—— We hear and see a good deal, observes Mr. FLEMING in the *Florist*, of the French productions in the way of WHITE LILAC, but the French plants are large before they are fit for their method of forcing. In the variety called Dr. Lindley, however, he remarks, we have a sort that will supersede the old form with all persons who require to force, since it sets it buds on small plants, and opens freely; plants 18 inches high bear a dozen thyrses of bloom, and if forced in a shady house the flowers come a good white; when it is more plentiful, and the plants get up to 3 feet or so in height, there will be no more showy plant for a greenhouse. A good deal more has been made of the French practice of forcing white Lilac than it deserves. In fact, if a demand were to spring up for it in our markets, a good supply would soon follow, because if the tops are cut off, and put in with bloom-buds well set and ripened, they will push their bloom as fine and as good as whole plants, supposing always they are in some sort of dark house, such as a cellar-like Mushroom-house.

—— Among the finer DOUBLE-FLOWERED CLEMATIS—a class now becoming rather numerous—which have not been exhibited, but which we have had an opportunity of seeing, is one called DUKE OF CONNAUGHT, which is a seedling from lanuginosa, having the same broad foliage, but with compact semi-double flowers of a delicate mauve colour, which on the starved seedling plant measured about 5 inches across. The structure of the flowers in this variety is somewhat novel. There is first the outer whorl of six ovate sepals, and then within this, diminishing in size inwards so as to form a flattish bloom, are four or five other whorls of sepals of the same colour, the centre being occupied by a tuft of whity-brown stamens on white filaments. If constant to this form, as there is no reason to doubt, since several flowers have been produced this season, we have here a new type, of distinct character, and of great beauty, the flowers being spread out as in the single form, yet compactly filled with petaloid sepals in the centre, so as to form a stiff firm, solid-looking flower. It bloomed last June with Mr. G. JACKMAN, of Woking. It may here be remarked that there is a manifest improvement in the newer double forms of Clematis, the stalked sepaled sorts, which produce loose open flowers such as can be seen through near the centre, being replaced by others in which the centre is filled up compactly in consequence of the sepals being stalkless. This character is well shown in Duchess of Edinburgh, the best of the whites, in Countess of Lovelace, which has been shown exceedingly fine this season, and in the Duke of Connaught above cited.

—RHEXIA VIRGINICA (Meadow Beauty) is now flowering on the rockwork at Kew. It is very rare, and besides being pretty, is of much interest as the only species of Melastomaceæ in cultivation that can represent the order in herbaceous collections. In habit it is neat, erect, and bushy. The petals are rosy purple, in contrast to which are the curious and characteristic yellow anthers. It is very impatient of pot culture, and should be planted in a deep bed of sandy peat in a moist position. It is a native of North America, from New York to Carolina.

—— Plants sometimes present themselves to our notice, growing in peculiar positions and under manifest disadvantages. At Aldermaston station, on the Reading and Newbury line of railway, can be seen a plant of Corydalis lutea peeping out from just underneath the edge of the kerb of stone which edges the station floor. The passenger by rail can catch sight of the plant when the train stops on the "up" side. Beds of the red Lavatera were very striking objects in the station garden a short time since.

—— Among hardy evergreen ornamental plants, THUJA SEMPER-AUREA deserves a very high place. Its branches have ever present on them that rich golden glow so characteristic of T. aurea at a certain season of the year. It is by contrast with the old that the worth of the new variety is so strikingly seen; and where the former is of a dull green hue, the latter is brilliant with an auriferous sheen. By some of the Continental nurserymen it is considered hardier than the ordinary form of T. aurea. What is known as Fisher and Holmes' Golden Yew is an invaluable hardy evergreen ornamental tree, and when grown as a pyramid is extremely handsome. At the Old Cheshunt Nurseries Messrs. PAUL & SON have formed a kind of half pinetum, half arboretum, in which they have planted out examples of a few of the best "pictorial" trees, as they are well termed. This golden variegated Yew can be seen there in very fine condition, and it is pre-eminently an ornamental shrub for choice collections in small gardens, where the selection has to be rigidly made. In order to complete a desirable trio, Chamæcyparis sphæroidea aurea should be added. This is a pure and fine golden form, handsome in growth and striking in appearance.

—— The TUBEROUS-ROOTED BEGONIAS are flowering beautifully on the rockwork at Kew, and are likely to continue for several weeks. They are a great attraction. We hope that next season they will be tried for bedding purposes. In proper positions there is every prospect of success. They appear to like moisture and shade, so that, with these conditions, they may prove to be the most successful. The finest of those above referred to, are B. Sedeni, B. carminata, B. intermedia, B. Anacreon, and B. Stella. Increase must be effected by means of cuttings to reproduce the best kinds.

—— The *Daily News* comments, and we think with justice, on the impropriety of some of the rules for the ELSHAM and WORLABY COTTAGER'S HORTICULTURAL SOCIETY. According to our contemporary the Society was established for the purpose of encouraging "useful and neat cultivation of cottage gardens," and among the rules is one to the effect that "No person in the Agricultural Labourers' Union on or after June 1, 1874, will be allowed to compete at this show." We make no comment on the good or ill effects of Unions, but we protest emphatically against introducing such a regulation. A Cottage Garden Society has nothing whatever to do with politics. Gardening is neutral territory, where all parties may enjoy the amenities and substantial benefits which well tilled ground, be it of peasant or peer, affords. Another rule, it appears, runs thus—"Any persons obtaining entrance without payment, or in any way misbehaving themselves, will be ducked in the pond."

What penalty, we may ask, is to be enforced against those who would mar the usefulness of a society like this by stupid and injudicious regulations like those we have quoted?

THE OLD WALLS AT KEW.

(*Continued from p. 271.*)

WHEN speaking of parthenogenesis, in connection with Cœlebogyne and Zanthoxylon, I stated that I believed the male plant of the former had not even been discovered at the time of the occurrence of the first recorded instance of presumed parthenogenesis in this plant. An editorial query is placed after that statement, and I have since ascertained that my memory was at fault. The dried specimens collected by Allan Cunningham, in 1824 and 1825, include both male and female plants. But all three of the living plants, sent by him to Kew in 1829, proved to be only pistilliferous flowers. [We lately saw in the herbarium of Prof. Baillon plants of this species with flowers of both sexes on the same plant, and other flowers that were structurally hermaphrodite. EDS.]

A very curious plant of the Rhamnus family, Colletia discolor, is the next to engage our attention. It belongs to a genus confined to the Southern hemisphere, and, like the species of the closely allied genus Discaria, is more remarkable for its peculiar appearance than for the beauty of its flowers, which are small and inconspicuous. They are almost leafless shrubs, or their leaves are very small, as in the common Furze or Whin, and the branches are more or less spiny. In some species, C. cruciata for instance, the branches are very much thickened and flattened out in a manner not unusual in the Southern hemisphere, and especially in Australia, but unknown in this country, unless we take the scarcely analogous case of Ruscus, in which the flowers appear to be borne on the leaves, though in reality these are flattened branches, technically termed cladodes. Colletia discolor is a native of Patagonia, indeed the genus is confined to South America and the Galapagos Islands, whilst Discaria is represented by one species in Australia and New Zealand. One of the easiest characters by which the plants of this family may be recognised is the position of the stamens opposite, and often enclosed in the hood-shaped free petals. The same character distinguishes the Primrose family, save that the petals are united, forming what is called a gamopetalous corolla.

Forsythia suspensa, an elegant deciduous shrub that puts forth its clusters of yellow flowers in early spring before the leaves are developed, brings us to the Olive family, in which the stamens are reduced to the unusual number of two. More familiar members of this group are the Lilac, Ash, and Privet. There are two other species of this genus in our gardens, and they are all natives of China or Japan. When speaking of the more recently introduced species, F. Fortunei, I shall say something about their distinguishing characters. One peculiarity exhibited by all three species is the production of simple and trifoliolate leaves on the same plant. The species under consideration appears to have been imported from Japan into Holland in about the year 1833, but it did not find its way into this country until some years later.

A double-flowered variety of the Pomegranate, Punica granatum, comes next in order. It has Canation-like flowers of a yellowish white, sparingly striped with pink. The Pomegranate is a native of Asia Minor and North Africa, and was introduced into England upwards of three centuries ago—that and the Orange and Myrtle being the principal wood ornaments of noblemen's conservatories in days gone by, when such luxuries could only be indulged in by the very wealthy. There is only one species of this genus, but the anomalous structure of its flowers and fruit has led to some differences in opinion as to its position in the natural system. It really does not fit into any family, and would, doubtless, be admitted as the type of a distinct family, if it had only some relatives to help to support the family name. But although this has been proposed it has not found favour with botanists generally. It was formerly associated with the Myrtle family, but Bentham and Hooker, in their useful *Genera Plantarum*, have placed it in the Lythraceæ. I may here remark that we must not form our idea of this family from the Purple Loosestrife, from which it derives its name. There are several very singular shrubby and arborescent genera in tropical countries belonging to the same family. The lovely Lagerstrœmia indica is one of the most familiar in cultivation. But I must dismiss this classic tree with a description of the peculiarity in the structure of its delicious fruit, which is represented as being exceedingly refreshing in hot countries, where it matures in the open air. It is rarely produced in this country, even under glass. The fruit there is a kind of pome, about as large as a medium-sized apple, and inferior, that is, with the flowers borne above it, like it is in the latter; but, instead of having a circle of carpels on one plane only, it has them in two circles or whorls, one above the other, forming a two-storeyed seed-vessel. The tough skin varies in colour, but is usually yellow, tinged with red.

Rhamnus oleifolius, a rather uninteresting North-west American shrub, whose specific name gives a very good idea of its general appearance, is succeeded by the attractive Prunus triloba of Lindley. This, like the double-flowered Cherry and other allied plants, frequently developes three or four, or even seven or eight carpels, whereas in the Cherry, Plum and Peach, there is normally only one. Accepting this as a constant character, Carrière described it as a new genus, under the name of Amygdalopsis Lindleyi. It is a native of China, and was introduced by Fortune about 1857. Against a wall it blooms most profusely, and its showy pink flowers are beautifully set off by the pretty bright green foliage which is just far enough advanced to peep through here and there between the clusters.

From China to Australia, the home of Callistemon rigidus, is a long stride. Callistemon belongs to a tribe of Myrtaceæ, almost exclusively Australian, and including many exceedingly showy flowering shrubs and trees. These Myrtaceous shrubs and trees form a very large percentage of the vegetation of West Australia more particularly, though the gum trees are found all through the country. There are two tribes of this large family, numbering about 600 species, almost restricted to Australia. The group to which the genus in question belongs is characterised by having very numerous long, brilliantly-coloured stamens, and relatively small inconspicuous petals. The flowers, moreover, are quite sessile or stalkless, or sometimes even embedded in the branch; and the fruit, seated in the indurated calyx, remains on the tree for many years, opening, however, at the top to allow the seed to escape. These indurated or woody seed-vessels form a striking feature in the fruits of Australian trees and shrubs; and some of them have received very inappropriate names from the colonists, on account of some fancied or real resemblance to our home productions. In Calothamnus, an allied genus, the seed-vessel assumes some strange forms, one of which, where only two of the calyx lobes are developed and indurated, strongly resembles a parrot's beak. Unfortunately these singular shrubs are few of them sufficiently hardy to bear our winters, even with the protection of a wall. But the species under consideration has flowered, as the persistent seed-vessels testify, though I have not actually seen the flowers myself. I am inclined, however, to think that it is C. salignus and not C. rigidus, as the latter, from its geographical position in New South Wales, is probably not so hardy as the former, which is found in Victoria, South Australia, and Tasmania, &c. These two species are very much alike in general appearance; but salignus has yellow, and rigidis scarlet stamens. The generic name is from two Greek words having reference to the beautiful stamens. Probably many of these Australian plants would succeed in the south-west of England and Ireland.

Our next plant, Jasminum revolutum, carries us back to China and North India. Jasmines are widely dispersed in the Old World, and a few species extend to South America and Australia; but not one of them excels in fragrance and quiet beauty the common white Jasmine from the south of Europe. Though so common, it is not really indigenous in Europe, having originally come from India. J. revolutum is a robust-growing species with yellow flowers, appearing in summer. It is a little tender, but succeeds well near the sea; in fact, it is in great demand in the South. This genus with three or four others forms a small family, having the character of two stamens in common with the Olive family, but the attachment of the seed is at the base of the seed-vessel, whereas in the Oleaceæ it is at the side or top. The corolla here, too, is frequently more than 5-lobed. The leaves are simple or pinnate, and the blade and stalk, or petiole, are jointed as in the Orange. J. revolutum was introduced in 1812, and flowered for the first time the following year.

Heimia, or Nesæa, salicifolia is a widely distributed South American shrub, with Willow-like leaves, as its specific name denotes, and small, axillary, yellow flowers. It belongs to the Lythraceæ, and blossoms in August and September. This shrub has nothing to particularly recommend it, especially as it needs additional protection in sharp weather. It is singular in the family for its yellow flowers. The variety, or distinct species, grandiflora, makes a pretty greenhouse shrub.

A Japanese fruit tree, the Loquat, next demands a few words. I may say at once that it is not nearly so hardy as many other plants we have under cultivation from that country. It rarely produces its flowers, even against a wall, according to my experience, and its fruit can only be secured by something like stove treatment. It bears a small Apple-shaped fruit with a yellowish skin, said to be of an agreeable sub-acid flavour. It is cultivated in Southern India, and preserved. The foliage is large and ornamental, but it is frequently injured by frost in spring. Eriobotrya japonica is the name given to it by Lindley, but Bentham and Hooker unite it with Photinia, from which it differs only in its larger fruit. The name Eriobotrya is from the Greek *erion*, wool, and *botrys*, a cluster, in allusion to the woolly inflorescence. Before leaving Japan I have another of its contributions to our gardens to describe, and this time a much more widely-known plant, namely the Japan Allspice, Chimonanthus fragrans of Lindley. Formerly it was included in the American genus Calycanthus, which, with it, constitutes a small though very peculiar family (Calycanthaceæ), whose affinities are rather wide. The flowers have no distinct calyx and corolla, but the sepals and petals are numerous, arranged in several series, and pass gradually from one into the other, so that it is impossible to distinguish them. The fruit is very much like that of the Rose, having a number of 1-seeded carpels contained within a tubular, urn-shaped receptacle, easily mistaken for the seed-vessel itself. Chimonanthus is derived from *cheima*, winter, and *anthos*, a flower, in allusion to the time of flowering, a peculiarity of many Chinese and Japanese deciduous shrubs—Jasminum nudiflorum, Lonicera Standishii, for example. The flowers of the Japan Allspice are yellow, sometimes tinged with red, and very fragrant. It flowers freely, and requires no other protection than that afforded by the wall. The variety grandiflorus is superior to the ordinary form; 1766 is the date given of its introduction, and it flowered for the first time in this country in Lord Coventry's garden.

(*To be continued.*)

THE ROMANCE OF NATURAL HISTORY.

THIS title of a readable little book upon natural science is capable of a twofold interpretation: one referring to that truth which is "stranger than fiction," which is to be elicited from so many natural phenomena, and the other to the ingenious and fictitious accounts of imaginary occurrences which appear in the columns of our newspapers, especially during the "silly season." There are certain subjects which are sure to turn up in the papers during the autumn months. It is true that "enormous Gooseberries" have gone out of fashion, and even the sea-serpent is said to have terminated its existence, but mosquitos are lively, and other natural phenomena (not to mention the "man-and-dog" fight) are putting in an appearance. Mosquitos, however, are likely to be altogether eclipsed by a "small fly," of which the following account is going the round of the papers:—

"A DEADLY INSECT.—Amongst the insects injurious to man, there is one which is better known from its effects than from its peculiar structure. Every now and then, in hot summers, people are bitten in England, France, and in Germany, by a small fly. A complaint is soon made, for the bite is fierce, and it is usually in a tender part, like the lip or finger. After a few hours, the person bitten becomes feverish, and the spot where the bite occurred swells up and becomes very painful and throbbing. The fever continues, and there is great depression of the powers of life; fainting and vomiting come on, and very often severe shivering. The bite having swollen up to the size of an Apple, becomes less painful, but all the veins leading from it look turgid. After from thirty-six to forty-eight hours the unfortunate person dies almost putrid."

The *Gardeners' Chronicle* numbers entomologists among its readers, and it is to be hoped that some of them may be able to give further information about this "deadly insect," the bite of which produces such rueful symptoms and such fatal results. But as it is more especially with the vegetable world that we are concerned, it may be well to direct attention to a paragraph which appeared in the *Graphic* of August 22, which runs as follows:—

"The dangers of the Paris Jardin des Plantes for children are being complained of by anxious mothers. In one corner is *a fine Deadly Nightshade tree, covered with magnificent red berries*, naturally of the most poisonous nature. The tree bears no warning placard, and is not surrounded by a railing, so that children are tempted to pluck and eat the berries, without any knowledge of their fatal effect. Last year no less than fourteen children fell victims to this cause."

On reading this account one is forcibly reminded of the famous definition of a lobster as "a red insect that walks backwards," which, as Cuvier remarked, was quite accurate except in three trifling particulars: firstly, a lobster is not red; secondly, it is not an insect; thirdly, it does not walk backwards. Similarly, the Deadly Nightshade is not a tree; and its berries, however magnificent, are not red.

But this is a mere trifle to what may be done in the way of romancing. The fictitious history of the Upas tree, which found its way into so many books, and is still implicitly believed in by a large number of people, was a good illustration of this; but it is entirely eclipsed by a new phenomenon, which has occupied the attention of some most respectable country news-

papers. It was, indeed, hardly to be expected that the wonderful discoveries which have lately been made with regard to carnivorous plants would be thrown away upon newspaper writers; but one was not prepared for the remarkable development of these discoveries which has been lately published. Some of our readers may be inclined to consider that the space bestowed upon the subject might be better employed; but there is an air of *vraisemblance* and circumstantiality about the account which is very attractive, and as a specimen of German, or, it may be, American fiction, it has its interest. It will be observed that the "Man-eating tree"—for it is nothing less—has received a generic name, and that "details of the most interesting examination" and dissection of "one of the minor trees" are promised. Awaiting these, which will no doubt occupy the attention of our learned societies during the coming winter, we give the account as we find it in the *Bristol Times and Mirror* for Saturday, August 1:—

"THE MAN-EATING TREE OF MADAGASCAR.—The following description of this singular tree, found in the Island of Madagascar, is copied from the *New York World*. It was originally published in the last *Graefe and Walther's Magazine*, of Carlsruhe, together with notes upon it by Dr. Omelius Fredlowski, to whom the letter of Carl Leche, the discoverer, from which the following is extracted, was addressed:—'The Mkodos are a very primitive race, going entirely naked, having only faint vestiges of tribal relations, and no religion beyond that of the awful reverence which they pay to the sacred tree. They dwell entirely in caves hollowed out of the limestone rocks in their hills, and are one of the smallest of races, the men seldom exceeding 56 inches in height. At the bottom of a valley (I had no barometer, but should think it not over 400 feet above the level of the sea), and near its eastern extremity, we came to a deep tarn-like lake, about a mile in diameter, the sluggish oily waters of which overflowed into a tortuous reedy canal that went unwillingly into the recesses of a black forest, jungle below, Palm above. A path, diverging from its southern side, struck boldly for the heart of the forbidding and seemingly impenetrable forest. Henrick led the way along this path; I followed closely, and behind me a curious rabble of Mkodos, men, women, and children. Suddenly all the natives began to cry "Tepe! Tepe!" and Henrick, stopping short, said "Look!" The sluggish, canal-like stream here wound slowly by, and in a bare spot in its bend was the most singular of trees. I have called it the Crinoda, because when its leaves are in action it bears a striking resemblance to that well-known fossil the Crinoid lilystone, or St. Cuthbert's beads. It was now at rest, however, and I will try to describe it to you. If you can imagine a Pine-apple 8 feet high, and thick in proportion, resting upon its base and denuded of leaves, you will have a good idea of the trunk of the tree, which, however, was not the colour of an Anana, but a dark, dingy brown, and apparently hard as iron. From the apex of this truncated cone (at least 2 feet in diameter) eight leaves hung sheer to the ground, like doors swung back on their hinges. These leaves, which were joined at the top of the tree at regular intervals, were about 11 or 12 feet long, and shaped very much like those of the American Agave, or Century plant. They were 2 feet through in their thickest part, and 3 feet wide, tapering to a sharp point that looked like a cow's horn, very convex on the outer (but now under) surface, and on the inner (now upper) surface slightly concave. This concave face was thinly set with very strong thorny hooks, like those upon the head of the teazle. These leaves, hanging thus limp and lifeless, dead green in colour, had in appearance the massive strength of Oak fibre. The apex of the cone was a round, white, concave figure, like a smaller plate set within a larger one. This was not a flower, but a receptacle, and there exuded into it a clear, treacly liquid, honey-sweet, and possessed of violent intoxicating and soporific properties. From underneath the rim (so to speak) of the undermost plate a series of long, hairy, green tendrils stretched out in every direction towards the horizon. These were 7 or 8 feet long each, and tapered from 4 inches to a half inch in diameter, yet they stretched out stiffly as iron rods. Above these (from between the upper and under cup) six white, almost transparent, palpi reared themselves toward the sky, twirling and twisting with a marvellous incessant motion, yet constantly reaching upward. Thin as reeds, and frail as quills apparently, they were yet 5 or 6 feet tall, and were so constantly and vigorously in motion, with such a subtle, sinuous, silent throbbing against the air, that they made me shudder in spite of myself, with their suggestion of serpents flayed, yet dancing on their tails. The description I am giving you now is partly made up from a subsequent careful inspection of the plant. My observations on this occasion were suddenly interrupted by the natives, who had been shrieking around the tree in their shrill voices, and chanting what Henrick told me were propitiatory hymns to the great tree devil. With still wilder shrieks and chants they surrounded one of the women, and urged her with the points of their javelins, until slowly, and with despairing face, she climbed up the stalk of the tree, and stood on the summit of the cone, the palpi twirling all about her. "Tsik! tsik!" ("Drink! drink!") cried the men, and, stooping, she drank of the viscid fluid in the cup, rising instantly again with wild frenzy in her face and convulsive chorea in her limbs. But she did not jump down, as she seemed to intend to do. O no! The atrocious cannibal tree, that had been so inert and dead, came to a sudden, savage life. The slender delicate palpi, with the fury of starved serpents, quivered a moment over her head, then, as if instinct with demoniac intelligence, fastened upon her in sudden coils round and round her neck and arms; then, while her awful screams and yet more awful laughter rose wilder, to be instantly strangled down again into a gurgling moan, the tendrils, one after another, like great green serpents, with brutal energy and infernal rapidity, rose, retracted themselves, and wrapt her about in fold after fold, ever tightening, with the cruel swiftness and savage tenacity of anacondas fastening upon their prey. It was the barbarity of the Laocoon without its beauty, this strange, horrible murder. And now the great leaves rose slowly and stiffly, like the arms of a derrick, erected themselves in the air, approached one another, and closed about the dead and hampered victim with the silent force of an hydraulic press and the ruthless purpose of a thumbscrew. A moment more, and while I could see the bases of these great levers pressing more tightly toward each other, from their interstices there trickled down the stalk streams of the viscid, honey-like fluid, mingled horribly with the blood and oozing viscera of the victim. At sight of this the savage hordes around me, yelling madly, bounded forward, crowded to the tree, clasped it, and with cups, leaves, hands, and tongues, got each one enough of the liquor to send him mad and frantic. Then ensued a grotesque and indescribably hideous orgie, from which, even while its convulsive madness was turning rapidly into delirium and insensibility, Henrick dragged me hurriedly away into the recesses of the forest, hiding me from the dangerous brutes and the brutes from me. May I never see such a sight again. The indescribable rapidity and energy of its movements may be inferred from the fact that I saw a smaller one seize, capture, and destroy an active little lemur which, dropping by accident upon it while watching and grinning at me, in vain endeavoured to escape from the fatal toils. With Henrick's assistance and the consent of some of the head men of the Mkodos (who, however, did not dare to stay to witness the act of sacrilege), I cut down one of the minor trees, and dissected it carefully. Seid, however, is waiting for me, and I must defer to my next the details of this most interesting examination. *Karl Leche.*'" [Where, oh where, is Mr. Hullett? EDS.]

THOROUGH DRAINING, AND ITS RESULTS.

IN your issue for August 1, p. 134, you quote from Symons' monthly *Meteorological Magazine* two articles "On the Water Supply of France in the Summer and Autumn of 1874." Therein the belief is stated that in all probability "the water-courses and springs of the Seine will fall between now and the middle of next October to almost the lowest point yet observed." By Professor Raulin, the writer of one of the articles, it is said that the dearth of water during the last six months appears to have extended over the whole plain of South-west France, and to the Pyrenees. Since rainfall observations were commenced in 1714 similar drought has only occurred six times, viz., in 1750, 1768, 1781, 1864, and 1874. He states further that "there is reason for believing that in the eastern part of England the supply of water in wells, ponds, and streams will be very deficient, although not quite to the same extent as in North-eastern France." Of late years there have been periods of excessive drought, and corresponding times of unusual rainfall, but these have not been confined to one place or to one hemisphere, for they have extended to India as well as Europe and America. In this extensive range of experience may be found, in our opinion, a refutation of the theory which attributes all our recent periods of drought to the result of thorough draining. We do not believe that in Britain, or in any part of it, the rainfall has been diminished by the extension of draining operations. The laws which regulate the formation of cloud and the fall of rain are not materially affected by the limited area of drainage works in this country, and the fall of rain will vary in each year with the direction of the wind, over which cultivation of the soil can have no influence. The occurrence of a season like 1872 should be a convincing proof that we have not escaped from rainy seasons into a constant succession of dry years; and the fact that years as dry as the present have occurred long ago should be taken as a reason for believing that dry seasons come at any time, and are not dependent on operations upon the soil.

But while thorough drainage does not either increase or decrease the rainfall it does diminish the flow of water from the soil, but only within the area affected by the drainage operations. We have seen this practically tested in the Border counties, where large tracts are thoroughly drained, but other districts are not. The small river Leet, which falls into the Tweed near Coldstream, is the only outlet for the moisture of 30,000 acres, all arable. In former days there were several mills for grinding corn along its banks, but now there are times when all the water it discharges into the Tweed would pass easily through a 6-inch pipe. Were the Tweed dependent solely on streams like the Leet, its volume during summer would be extremely small, but fortunately there are hilly and undrained districts from which some of its feeders come, and these have a gushing stream of limpid water in periods even of excessive drought. It is certain, however, that partial inconvenience is experienced by arable farmers from the deficiency of water caused by draining. A tenant who occupied a large arable farm prior to the era of thorough draining had a water-power on it for threshing his crop; and during his first lease had a plentiful supply of water. But he obtained a new lease, and commenced to thoroughly drain his farm. Having the impression that the same quantity of water would still run off from the land, but that it would do so more rapidly, he had a large reservoir constructed, and the drains all so arranged that all the water on the farm should be gathered into it. Having completed the drainage of the land, however, he found the result different from his expectation, for the flow of water from the soil ceased to such an extent that he had to abandon water-power, and have his corn threshed by steam. From this and other instances the fact seems to be established that the more thoroughly any farm or piece of ground is drained the less water will be discharged from it, even after the surplus water which made it necessary to cut the drains has been carried off.

While the flow of water into streams and wells has been decreased by drainage, the crops have not suffered but have been improved, for it is observed that the roots of grain and grass as well as Turnips sink much deeper into the soil after it has been drained, obviously in search of moisture, and thus they draw sustenance from a larger portion of the soil. It has been generally believed that draining has increased the temperature of the soil; and it seems to be certain that it has increased the temperature of the air close to the soil. The temperature over extensive tracts formerly marshy, but now dry, is believed to have been raised about 3°. That the temperature of land at certain seasons has not been increased by draining appears to be illustrated by a curious fact. When a slight fall of snow has taken place either in autumn or spring, and which soon melted away, we have seen it remain along the lines of drains after it had disappeared from the rest of the field. The truth seems to be that a great deal more water goes off by evaporation from drained than from undrained land, which may be inferred from the fact that a field under crop does not discharge nearly so much water in drains as an adjoining field lying fallow. After a fall of rain the drains from the fallow will be all flowing, but those from the field under crop yielding not a drop. *T., Roxburghshire.* [In Mr. Lawes' experimental field at Rothamsted scarcely any water is drained off from the plots treated with farmyard dung, while abundance flows from the plots treated with other manures. EDS.]

Home Correspondence.

The Snow Apple.—I herewith send you specimens and description of what I consider the true Pomme de Neige, or Snow Apple:—Pomme de Neige, of Le Lectier (Snow Apple, Belle Anglaise, Beauty of England). The Apple is of second size, first quality, in season from August to October. It is conical, broad at the base, obscurely and irregularly ribbed, and variable in outline. Skin of a pure shining white waxen colour, with occasionally the slightest tinge of vermilion on the sunny side; it is the whitest Apple that I know out of 2000 sorts. Stalk, 1 inch long, strong, thick at the point, and set upright in a deep, even, slightly russeted cavity. Eye placed in a medium-sized corrugated basin. Flesh snowy white, crisp, very juicy, and nicely acidulated. This beautiful Apple was procured by me from Scotland in 1864, under the name of Belle Anglaise, but it has not fruited here until this year. Where it first originated I have not been able to trace, but I am much inclined to think that is the true Pomme de Neige of Le Lectier, who also gives it the synonym of Hâtive de Vignancourt; and Merlet in his *Abrégé des bons Fruits* also records it as Pomme de Neige, with the synonym of Verte-Reyne, and says "it is very tender, light, early, and white within and without." This description exactly suits the above, and leads me to think that it is the true Snow Apple, and that the Pomme de Neige of our gardens is, or should be simply called Fameuse or Sanguineus, being of a deep shining vermilion outside and tinged with the same inside, with a circle of crimson dots around the core. Diel has a Schnée Caleville, *i. e.*, Snow Apple, which he describes as golden yellow. Neither this, nor the Fameuse can be the Pomme de Neige of Le Lectier, as his was an early Apple, and the Fameuse is described by all authors to be from October to January. The fruits I send you fell off the tree on August 20, and it is therefore an early sort. *J. Scott, Merriott.*

Typha latifolia.—Among neglected products of utility in this country I place this plant, which I have ascertained by trial affords valuable food, as indeed is practically known in other parts of the world. In Dr. Syme's edition of the *English Botany*, reference is made to Dr. Clarke as stating in his travels that the stem of Typha latifolia is used as food by the Cossacks, and I have lately observed, in some recent travels in

the East, that in China it is esteemed a delicate vegetable. Having abundance of the plant in ponds here, I have taken the opportunity of trying it, and I find that the young subaqueous stolons, one or two of which may now be found shooting from the root of each plant, of a delicate white colour, when freshly gathered and eaten raw, with a little salt, is crisp to the bite, and of a pleasant, rather nutty flavour, and when boiled and served with melted butter or white sauce, or cut into small pieces and cooked in soup, will be found a very delicate and excellent addition to our list of vegetables, and, I should think, possessing considerable wholesome, nutritive matter. The blanched centres of the young stems may be used in the same way as the stolons, but I do not think they are as good. Dr. Rae, who was with me when we were making these experiment, tells me that the plant is abundant in Orkney, where the leaves are cut to use as bedding for cattle, &c. He came to the same conclusion as we did with regard to its merit as a vegetable, and was so convinced of its value, especially in a land which sometimes suffers from scarcity, that he intended, on visiting Orkney after leaving us, to teach his countrymen its use. *W. C. Trevelyan, Wallington, August* 28. P.S.—Since writing the above I referred to Lindley's *Vegetable Kingdom*, third edition, and I find that he says, "The rhizomes of Typha abound in starch, are somewhat astringent and diuretic," are employed medicinally in the East of Asia. "They are also used as food." Dr. Lindley is mistaken, I think, if he considers as rhizomes those parts of the plant about which I have written, which are true stolons, or suckers, to be developed into plants in the next season; the roots would be tough and uneatable. I cannot say that we experienced any of the medicinal effects which might be expected were the qualities mentioned by Dr. Lindley existing in any but a mild proportion.

Convolvulus althæoides.—There appear to be two distinct species of Convolvulus in cultivation under the name of althæoides, the least attractive of which is more generally found in English collections. There are several published figures of the species, viz., one by Clusius, referred to by Curtis, *Bot. Mag.* vol. x., plate 359; Trattinick, *Thesaurus Botanicus*, 57 and 58; Sibthorp, *Flora Græca*, 194; and Moggridge, *Flora of Mentone*, plate 30. Descriptions are also given by Woods, by Grenier and Godron (*Flore de France*, vol. ii., page 501), and by De Candolle (*Geographical Botany*, vol. i., 409). By nearly all these authors two forms or species are more or less distinctly recognised. The figure in the *Flora of Mentone* represents the form which is common all round the coasts of Mauritania, Spain, Portugal, and the Mediterranean, having large, handsome flowers, 2 to 2½ inches in diameter, of a deep, rich rose colour. The leaves of this species are almost all entire, with the exception of those near the extremity of the floral shoots, which have a tendency to become dissected. I have not seen this species in cultivation, with the exception of a single plant in my garden, which I obtained from Portugal. An excellent figure of the small-flowered species is given in Curtis, plate 359, vol. x. The entire plant is much more slender in habit than the species figured by Mr. Moggridge. The leaves are of a pale sericeous green, and all, excepting those at the very base, are deeply dissected or compound. The flowers never exceed an inch and a half in diameter, and are of a bright light pink, resembling Convolvulus arvensis. I have seen it in cultivation at the Liverpool Botanic Gardens, and at Mr. G. F. Wilson's, at Weybridge. I also grow it from roots I collected last year near Blidah, in Algeria. Mr. Moggridge (*Flora of Mentone*, p. 20) states that it occurs at Cannes, and it is treated by Grenier and Godron as a variety, but as a species by De Candolle, under the name of Convolvulus argyræus, and by Koch and Sibthorp as Convolvulus tenuissimus. It is certainly a distinct species from the larger and much more beautiful plant, which forms such an ornamental feature in the Mediterranean coast flora, and which, I believe, is not in general cultivation. *George Maw, Benthall Hall, near Broseley.*

The Popular Names of Colours.—The remarks of your correspondent at p. 270 of your last number, on the "Popular Names of Colours," recall to my recollection a statement of the late Mr. Greenough, the geologist, of a plan that had occurred to him of forming a standard of colours for the use of scientific men generally. When at Rome he was much struck by the immense variety of shades of colour employed by the mosaic artists, and it occurred to him that it would be a very good plan to get a strip of each colour, 12 inches long and 1 inch broad, to cut each of them into twelve squares, and place them, with corresponding numbers, in a series of frames, and then to deposit a complete set in each of the capital cities of Europe as uniform standards to be referred to by men of science or artists, or any one who wished to define with precision the colour of any object. *A. G.*

The Old Clove Carnation.—The true old Clove Carnation should be of a fine bright, yet dark blood-coloured red, very large in circumference, with white horns or pistils protruding from the centre of the flower, which, when the sun shines on it, give the appearance of gold dust being lightly thrown upon the petals; the scent is very powerful and spicy, and the edge of the outer petals is more like a Rose leaf not "gimped" but uncut. The above is as descriptive of the Carnation required as nearly as possible. It may be mentioned that very frequently towards the centre of the flower the petals are marked with slight white streaks, but not always. The flower must not only be of a good size in circumference, but very full and double. *X.* [Our correspondent desires to know if this true old Clove Carnation is now obtainable, and if so, where? Perhaps some of our florist readers may be able to inform him. EDS.]

Early Pears.—In spite of many disappointments it will be long before the taste for new varieties of this staple fruit declines, though the fresh introductions require time before they are appreciated. Our Continental neighbours, with whom the Pear is most popular, continue to send us specimens of new varieties, many of which do not suit our climate so well as theirs. Having tried a certain number myself, and seen them elsewhere, I can venture to speak of two rather new early Pears with certainty. If it shorten the period of probation among any friends, this is always a gain. More experience will follow, and market growers know what to rely on the sooner. Souvenir du Congrès (not de Congrès) is a remarkably beautiful fruit, large, prolific, and early—say, about the middle of August, from a south wall—and much resembles its parent (Williams' Bon Chrétien) in form and flavour. It is earlier, however, and larger, and greatly excels it in beauty. To paint this lovely fruit requires tints of amazing delicacy. When nearly ripe the side next the wall is of a delicate pale green lemon colour, changing into a warm chrome when quite ripe. The sunny side is streaked with long flashes of rose-madder, ending in lateral blotches, as if the colouring matter had run down; these change into an orange-crimson when the fruit is ripe. The thick stalk is obliquely inserted into homely russet, and altogether it is equal to many flowers in point of decorative beauty. The fruit is large, but here it has never reached to a pound in weight, and the tree, which is—on the Quince—of average vigour only, would require to have the produce well-thinned, or, particularly as a standard in many soils, it would bring only moderately-sized Pears in which the beauty of the fruit would be lost. Then most buyers would still cling to the well-known Bon Chrétien. This would be a pity, for it is a noble Pear, and should not be jeopardised at first in the markets. Beurré de l'Assomption—so named, no doubt, on account of August 15 being the feast of the Assumption of the Virgin, and presumably ripe at that date—is another fine Pear, very different, however. It is later here, smaller, and, though handsomely coloured on the sunny side, is not so remarkable by any means, being rather Calabasse-shaped. Those, however, who object to the musky flavour of the Bon Chrétien type, would find here a rich, juicy, vinous aroma. On the Quince it is also moderately vigorous, and succeeds as a standard well. *Thos. C. Bréhaut, Germany.*

The Way to Grow Wistaria sinensis.—One seldom meets with this lovely old plant except trained in a formal way to a wall or fence, but Mr. A. Waterer has hit upon a plan to grow and show the Wistaria off to the best advantage—viz., by planting it to run up Conifers, &c. It is to be seen growing luxuriously at Knap Hill up Pinus ponderosa, Abies Douglasii, &c.; on the latter it has attained the height of nearly 40 feet. But the best hit, and certainly one that should be adopted by every one, is planting it against the Laburnum. Here it seems quite at home, and in its glory; it flowers at the same season as the Laburnum. The contrast in colour is delightful. Readers, picture these two lovely colours combined. I would strongly advise people to plant the Wistaria extensively in this way; it is a step in the right direction. It would also be a grand ornament, and may be used with advantage to cover naked trees in the shrubberies. *Edward Bennett, Hatfield, Herts.*

Roses and Rose Shows.—I have said that "the standard of size and shape required at the Rose shows shuts out many of the best sorts of Roses for garden decoration," and this position I will endeavour to establish. In the latest edition of the *Rose Garden*, published in 1872, I have arranged Roses in thirty-two floral groups. Of these not more than three, namely, Hybrid Perpetual, Moss, and Tea-scented, are fairly represented at our Rose shows; nine-tenths of the prize varieties are drawn from one group—Hybrid Perpetual, while Hybrid Bourbon, Bourbon, Bourbon Perpetual and Noisette are restricted to one or two sorts of each group. Now these prize varieties are selected from the florist's point of view of "quality" in the flower; the constitution and habit of the plant do not influence the selections or awards—they are made on the shape, size, and fulness of the flowers alone. Well, large full Roses as a rule produce but few flowers, and however beautiful these may be, they are not plentiful enough to make a satisfactory display on the plant, or to enable the cultivator to cut freely for the purposes of indoor decoration. From the present point of view, Roses may be divided into three classes—1, prize Roses; 2, garden or decoration Roses; 3, Roses which in various degrees unite the leading characteristics of the two former. Class 1 contains the largest, fullest, most exact-shaped, or best-coloured Roses, but also many of the shyest bloomers and growers—witness Paul Néron (large, full, shy bloomer), Devienne l'Amy (large, fine colour, rather shy), Marquise de Mortemarte (desirable colour, shy grower), Louis Van Houtte (fine shape and colour, shy grower)—nevertheless the grower for prizes must select from this class, or he will not win; but if the grower for garden or indoor decoration choose from these alone, failure will mark every step, and he will be miserably disappointed. The "high educational influences" of our present Rose shows can refer only to these Roses, and I go far with Mr. Prior in the remark (p. 244) that "the morality of such exhibitions, as now carried on, is open to serious doubt." The one in a thousand who grows for prizes may perhaps judiciously go to a Rose show to choose his varieties, but the 999 who grow for garden decoration, or for the ordinary purposes of cut flowers, would, in my opinion, be misled by pursuing such a course—they had better far choose from plants growing under ordinary culture in gardens or nurseries. I appeal to the skilled gardeners of England whether they would ever think of planting for other purposes than exhibition some of the sorts of Roses which figure so conspicuously at the Rose shows. But the general public does not yet understand this. Class 2 contains Roses of hardy constitution and elegant habit, which produce plenty of good flowers. Although these latter are not so large, so full, or so precise in form as the former, they answer every purpose for which Roses are grown, except prize winning—witness Boule de Neige, Comte Raimbaud, Duc de Cazes, Fisher Holmes, Elizabeth Vigneron, Prince Camille de Rohan, Louise Darzens, Anna Alexieff, Madame Alfred de Rougemont, Glory of Waltham, Princess Christian, Princess of Wales, Safrano, Mdm. Falcot, Aimé Vibert, and Mrs. Bosanquet. If the prize-seeker select from this class, he also will fail and be disappointed. These hardy, free-growing, free-flowering Roses, are not as a rule large enough or full enough, or regular enough in shape, to win 1st prizes. Class 3 contains those sorts which are not at one and the same time the best show Roses and the best decoration Roses, but which occupy a sort of debateable ground, standing in various positions between the two, and which may be used for either purpose. Général Jacqueminot, Jules Margottin, Dr. Andry, Beauty of Waltham, and Lord Macaulay, are examples of this class. Let it be remarked, then, that our present Rose shows draw principally from class 1, shut out almost entirely the varieties of class 2, and admit but few from class 3, and these only from necessity and under protest. It was once remarked to me by one of our cleverest horticulturists that "the florists, having got hold of the Rose, would in time bring it to the same pass that they had brought other flowers to." I asked, "What was that?" He replied, "They will improve (?) them so much that the masses will not be able to grow them." And surely the history of florists' flowers warrants this view. But do not let it be supposed that I wish to depreciate the Rose as a prize winning or florists' flower. It has a right to be such. I simply hold that it has a higher and wider title to popular favour than this, namely, that it is a first-class decorative or garden plant. The florist, with his artificial standard of excellence, after forcing or coaxing a portion of poor plant-nature into a mould of his own conceiving, throws cold water on all outside of it. I do not object to the first step; men might be worse employed; but I cannot submit to be bound hand and foot within the narrow limits of the florist's view. I hold that there are other and even higher aims to secure, namely, to obtain varieties which grow and bloom freely, and display their flowers to advantage on the tree, and which shall be to the garden and to the house what the prize flowers are to the exhibition tables. I think that I have already proved my position. But there are twenty-five out of the thirty-two floral groups which I have not yet spoken of, and these the prize-seeker never touches. Their value and beauty as garden plants I need not, however, enlarge on, because they must be well known to all who have any claim to be considered rosarians. *William Paul, Paul's Nurseries, Waltham Cross, Herts.* P.S.—I find in your columns (p. 238) Mr. G. Paul says: "All Teas are moderate growers." (!) Let me ask are Gloire di Dijon, Climbing Devoniensis, Belle de Bordeaux, Madame Berard, Madame Levet, Triomphe de Guillot Fils, and Cheshunt Hybrid moderate growers? Why, the same writer, in his descriptive catalogue, describes these and many others as "vigorous," and says of

Climbing Devoniensis "of [rampant] growth," and of Cheshunt Hybrid that "it grows vigorous as Blairii No. 2." But Cheshunt Hybrid, although classed as a Tea Rose, is, in my opinion, neither more nor less than a hybrid China, giving an occasional bloom in autumn, and ought never to have been allowed to win prizes as a Tea Rose. *W. Paul, Waltham Cross.*

Rose Showing and Shows of Roses.—The two titles represent two ideas that cannot be antagonistic, but are yet distiuct. Rose showing means the exhibition and determination of the merits of individual Roses. A Rose show may mean this, and include a great deal more. For instance, Mr. W. Paul's happy thought of a garden of cut Roses at the recent meeting of the Regent's Park Botanic Society was a show of Roses—one illustration, and apparently a very striking and pleasing one, of what may be done in the massing and effective display of cut Roses. It was greatly the admiration of the evening, and the talk of the town next day. It was a new idea, admirably carried out. But logically it can hardly be said to have competed with, far less condemned, the usual methods of Rose showing. Mr. W. Paul revealed the capacity of cut Roses for broad and massive effects. He deserved and has received unstinted praise for doing so, and there I submit the matter ought to have rested. His or similar shows of Roses are not even protests against, far less substitutes for, the generally established mode of Rose showing. Both have their merits, which are quite independent of each other. Now it is impossible to combine the two in one method of showing so as to do justice to both. The highest art of successful massing often comes of the sacrifice of individual excellence. Parts must be subordinated to wholes, details to broad results, the merits of single flowers to grand contrasts of light and shade. It cannot be denied that the present mode of showing Roses answers its purpose; that purpose, as I understand it, is twofold—to exhibit the individual excellence of each Rose, and to enable the judges to test the relative merits of equal numbers competing against each other. The light artillery of ridicule has sometimes compared the even lines of show Rose boxes to sample cards of buttons in a draper's shop. Well, the illustration cuts two ways, and I shall urge the cynic to show a better way of placing sample buttons for use as samples and illustrations than those same cards. Supposing the draper in an artistic mood grouped his buttons, would his bewildered customers thank him for such an exhibition of art? It is just so with Roses, Carnations, Picotees, Dahlias, and other flowers. In the determining of individual merit each flower must, or ought to be, set up as a fair sample, without dressing or other accessories. More, all the competing lots of equal numbers, from threes to seventy-twos, or a hundred, should be set up in the same way, occupy equal areas, and be seen in the same light, at the same height, at the same angle. These conditions result in monotonous lines of Rose boxes, as they were meant to do, and as they ought. The difficulty of the determining of individual merit is sufficient now without being further complicated with the artistic grouping of Roses for show, which would, in so far as it operated, tell only and wholly against merit alone being the determining quality in the decision. Roses are shown that the highest cultural skill may be exhibited and rewarded, and the present mode of showing them enables the jurors and the public to concentrate their attention on these alone; and rightly so. Those who wish to see the many decorative effects of Rose flowers and foliage must go to a banquet, ball-room, or a show of Roses, and not to a Rose show merely. I use the word "merely" for a purpose, for there seems no reason why almost every Rose show should not likewise become a show of Roses. Let us hold fast to a system that has largely made our Roses what they are, and helped to develope an almost universal taste for Roses; but let us also link on to it every other mode of displaying and exhibiting them. The more varied these methods the better. Mr. Wm. Paul has given a charming illustration of a Rose garden. Others will design a furnished mixed border and raised banks of Roses, and yet others will set about the enwreathing of tent roofs and pillars, and thus rain down beauty and fragrance from the present home of ugliness at our great shows; and the more diversified the better. Higher and more numerous prizes might also be offered for dinner-table decorations wholly of Roses. These, if well done, would soon displace the everlasting Palms and grasses that seem to sit as a nightmare on the brains alike of diners and decorators. Centre-pieces, vases (of all sizes, from 3 to 6 feet, and 3 to 6 inches diameter) of Roses, wreaths, epergnes, grasses, bouquets (bridal, ball-room, button-hole)—all of Roses, should be placed high in general prize lists. On great occasions, such as international exhibitions, rooms or suites of rooms for bridal or festive rejoicings, might be decorated wholly with Roses; these would give larger scope to genius and taste, and make Roses yet more popular and plentiful. There need be no rivalry between the advocates of the different styles of showing, all are best in their place and for the object in view, and the capacity of Roses for the highest artistic decoration may be said to be as yet almost a virgin mine that will take many generations to work out. Neither is it an easy matter to train Roses to highest decorative account; they are far from being so docile in the hand of skill as many other flowers. Doubtless the fault lies chiefly in ourselves, but it is also partly in the Roses. The art of making each Rose hit the observer exactly in the eye, as Mr. Hole somewhere puts it, is neither common nor easily acquired. Our facetious friend, Mr. Shirley Hibberd, suggests that the Roses should be "wired." Doubtless a hidden joke lurks under the advice, which no Scotchman, according to the satirist, can be expected to understand without trepanning. The wiring of Roses is, however, largely indulged in alike by the bouquetist and the Rose decorator. It is only thus that a good many Roses can be converted into a a perfect cup of beauty resting on a base of spotless verdure. *D. T. Fish.*

Piebald Peas.—A correspondent recently forwarded us two Pea-pods growing on the same haulm, the one being of the usual green colour, the other purple, the seeds in each case being green. No crossing had, so far as our correspondent knew, taken place, and indeed had such taken place we should not expect to see the result in the pod, but in the seedling issue of the cross. The only other explanation is that this was a case of reversion, and this is borne out by the accompanying letter from Mr. Laxton, though we

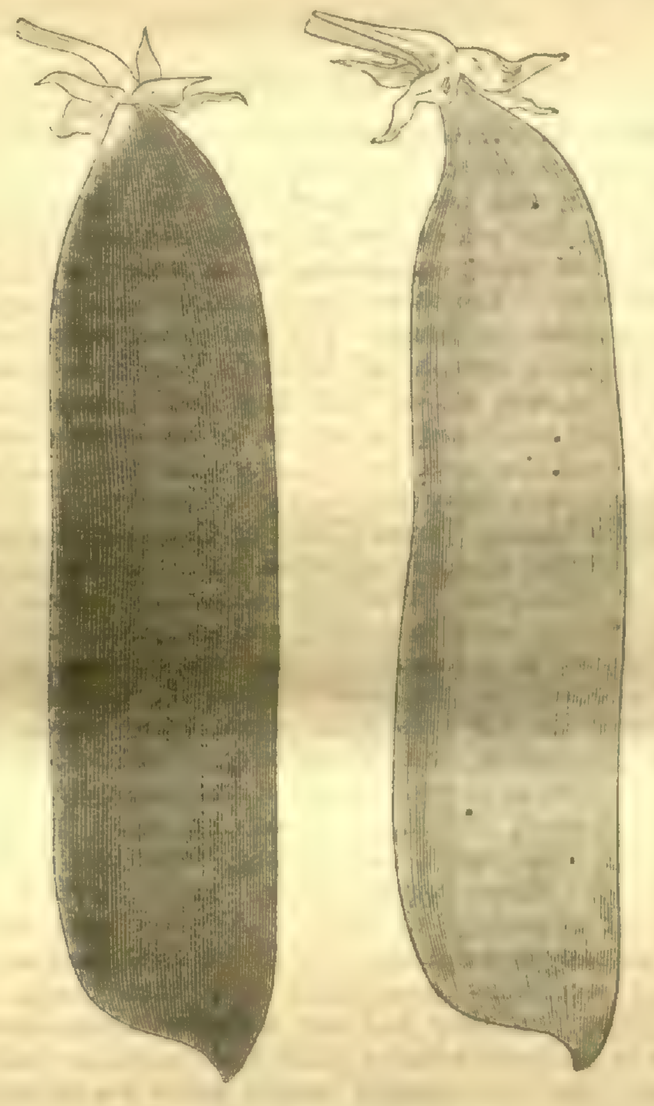


FIG. 66.—BICOLOR-PEAS.

are quite in the dark as to the cause of the reversion;—

"I have frequently seen, in crosses obtained from the purple-podded field Pea crossed with green-podded Peas, that some of the pods come green or greenish, and some black or purple. This is constantly the case until the varieties become quite fixed. I have a few now in the garden of a cross between the common Maple and Purple-podded Peas, and have forwarded you a few stems with pods approaching what is alluded to. About seven years ago I crossed nearly all my own and most of the old Peas with the Purple-pod, and obtained some very curious things. A good many of these I gave away, and on one occasion I brought some up to the Scientific Committee. I have a curious cross now between the Tall Sugar and Purple-pod which has produced a Purple-podded Sugar. I may state that a good many of these curious things have got abroad also, by being accidentally mixed with other Peas when sent out. Some have been shown to me obtained in this way." *T. Laxton, Stamford.*

Effect of Heat and Drought in Retarding Potato Disease.—Where so much has been said and done by those well qualified for the task, as has been the case with regard to the Potato disease, it may seem superfluous for others to offer any remarks on the subject; still, having had, during the present summer, an opportunity of watching the effects of extreme heat and long-continued drought on the disease in contrast with those of more ordinary conditions close by, the results may be interesting. The garden under observation is on the south coast of Devonshire, very much exposed to the sun; the highest authentic return of sun-heat that I have been able to get in the neighbourhood, being 152°, but, from the greater exposure, I should guess the heat in the garden in question to have been greater also. The situation is about 200 feet above sea level, and on a narrow ridge, sloping by cliff or sharp fall to the sea or town on three sides, more gradually to the town on the fourth, and consequently, the air blowing on the exposed spot must be in as great a degree freed from all matters save such as rise from town or sea as can often be the case. The Potatos were Paterson's Victoria, Jersey Blue and White Fluke, and were planted about the middle of March in small clumps of five or six, or otherwise so arranged that only a few plants should be together, and the soil was either the dry poor earth of a shrubbery border, or that of new beds specially made in the lawn for the sake of experiment as to what the effects might be of freshness in all surroundings, and as much isolation as could be managed. The result has been a clearly marked difference in the date of attack and the virulence of the disease. A row of Jersey Blues which I had watered once a day regularly over the leaves during the drought took the disease, but about three weeks or a month after it had made a definite appearance in the valley beneath, but the clumps of others of the same kind, and of white Flukes, which were left to struggle through the long drought, exposed to the intense heat, have now hardly any signs (if any) of the disease on them, though it has been many weeks in the neighourhood. The effect of the heat on these Potatos in the early summer was such as nearly to destroy those most exposed to it, the leaves turned purple, and the growth was checked, and though a few days of moisture brought growth and green, the purple returned again with the return of drought. They are now strong vigorous plants, the doubtful bit of disease being in a little clump where I believe a small quantity of water was given, and the tubers that I have raised are small but healthy, and in some cases so richly coloured as almost to resemble the Potato known as the "Bread-fruit." Would any correspondent who may take an interest in the matter oblige the writer by information whether any object would be likely to be gained by preserving these tubers for seed. *O.*

Blue Hydrangea.—Driving by a cottage near Cosham, Sussex, I was struck with the great beauty of a Hydrangea, which was in colour a most intense blue, approaching to a marine-blue in tint. Upon inquiry I was informed that it began to assume this colour about four years since, and that it has increased in depth of colour annually since. The plant is a large one, a younger plant, a cutting struck therefrom, blooming near by, being of a pure pink colour. *W. E.* [The colour was a deeper blue than any we have seen before. EDS.]

Horticultural Heresies. — The Rev. T. C. Bréhaut is not singular in his ideas regarding the efficacy of the "ordinary" painting of fruit trees in winter as an agent for the destruction of insects. Some years ago I had my faith in these considerably weakened; it happened that some of the ingredients employed in the paint in this instance had been too strong for the trees, for it completely killed back the younger wood of the Peach trees on which it was used. If any efficacy were derivable from these dressings, the one just mentioned, to have judged from its strength, would have been sufficient to annihilate any insect, yet some brown scale on one of the trees was not killed. My own experience has been that these dressings are anything but destructive to red-spider and thrips. Two years since, this next winter, we painted those of the Peach and other trees here which were affected with brown and mussel scale, with boiled linseed oil, and they were completely cleared of both. Sweet oil and olive oil I have used with equal effect, and paraffin is also a deadly poison, but these are no better than the linseed, which is preferable on account of its cheapness. Grape Vines we wash with soft soap and hot water, using it almost scalding hot and without stint; this is harmless to the Vines or other trees, and as to the results, red-spider has not been detected on any of the Vines here this season. In future I mean to use hot water in preference to any dressing whatever; it has the advantages of being very cheap, most cleanly, and perhaps the most effective insecticide at our command for the purposes under notice. *R. P. B.*

Rose Exhibiting. — Would it not be a vast improvement on the present mode of exhibiting cut flowers, in the ofttimes clumsy unsightly boxes, garnished with bouquet papers, and many other futile attempts to "paint the Lily" or clothe the nakedness of rough badly painted deal boards, to revert to the old method, and stage them in nicely painted tin vases of graduated heights and sizes to suit whatsoever may be staged in them? I think that if any of the Dombrains, Keynes, Turners, Pauls, Cranstons, Kelways, or the host of other cut flower exhibitors would have just one made, say 6 inches deep, ½ inch diameter at top and 2½ at the bottom, soldered water-tight and nicely painted—green would be the best colour—fill it with water, and place therein one of the lumpiest of the "lumpy Dahlias," with only just one nice leaf off

the same plant (by-the-by I am of opinion that the best set-off to any flower is its own leaves), as garniture, they would one and all agree that His Lumpiness is then in his right place, showing there is a fitness in all things, and a beauty, if not real elegance, in the Dahlia they have never seen developed by the finest planed deal board, however nicely painted and garnished with finish of lace bouquet papers. Having done this, replace the Dahlia with a Rose, a cluster of the orthodox three Roses, a Marigold, a Zinnia—in fact, any flower, always embellished with their foliage, that the size of vase will suit, and I am sanguine they will agree with me that this mode may be the best; but what about the expediency, convenience, and sundry other practical details, eh? Well, one thing at a time. Settle if most cut flowers would not be better exhibited in vases than on boards or flat surfaces of moss. Let the controversy flourish. Who shall say that a better suggestion than my tin vase shall not crop up? Anyhow there is great room for improvement in flower shows and all appertaining thereto, and the more the gardening press aids the application of practical experience to the better or more fixed settlement of all the vexed questions (not forgetting the judging or compilation of schedule departments) of horticulture, exhibitions, and exhibitors, the more grateful should all interested prove and aid the good work to the utmost of their power. *Robert H. Poynter, Taunton, Aug.* 31.

The Potato Crop of 1874.—I am quite of Mr. Sheppard's opinion that, if your correspondents would give their experience as to suitable and unsuitable kinds grown in their locality it would be of great service, as we are well aware that there are a great number of new varieties sent out every year with a flourish of trumpets which are utterly worthless. I find Mona's Pride an excellent early Potato; also Veitch's Improved Ashleaf a good cropper and good quality, well adapted for forcing, and second to none as an early Potato; Early Sovereign, an American variety, is a good kidney Potato, both for quantity and quality, and the dry summer has suited it, for the quality is much improved this season; Carter's Ashleaf Fluke is a beautiful Potato, both for quantity and quality, and is quite distinct from the Lapstone, being a much better cropper; Carter's Main Crop in a model round Potato, rough in the skin, the true indication of a good Potato; Dalmahoy is round, white, rough-skinned, rather deep in the eye, but of excellent quality; Dunbar Regent, a round white Potato, is rough in the skin, rather deep in the eye, of excellent quality, and a good cropper, one of our best and most useful Potatos; Paterson's Victoria, round, white, rough-skinned, of good quality, and an excellent cropper, the very best and most useful Potato grown; Bresee's Peerless, round, white, rough-skinned, of good form, quality and quantity excellent; Bresee's Prolific, quantity and quality good; Fluke and Lapstone are good in quality; Lapstone is very tender, being attacked by the disease before any other. The new American varieties, Early Vermont, Vermont Beauty, Snowflake, Late Rose, and Willard's Seedling, are all great croppers; Snowflake is the best in quality. Many of our English varieties are turning out worthless, such as Fenn's Onwards, a complete failure—a small, pasty, useless variety; Fenn's Rector of Woodstock, a round, pasty variety, a poor cropper, and quality very indifferent. I grow about one hundred varieties, and the above are what I depend upon for table use. *David Lumsden, Bloxholm Hall Gardens, Sleaford, August* 21.

"Immoral Exhibitors."—It is an unfortunate dispensation in human affairs that suggestions for improvement appear always to arouse the opposition and hostility of some whose interests or prejudices are bound up in preserving things as they are. There are no such bigoted conservatives as those who have "vested interests," which alteration, even for the better, is likely to disturb. Bearing this in mind, I was prepared to find that any proposition for improvement in the present method of conducting Rose shows would provoke angry comment, but I scarcely imagained the possibility of an individual appropriating to himself the remarks made upon a system. It is impossible to read the heated diatribe of your correspondent, Mr. Prince, in which he does me the honour to quote my humble name many times in a small compass, in any other light, because in my paper it was a system and not an individual that was criticised. I should not, however, have cumbered your space with a reply, even to call in question the propriety of your correspondent's laudatory remarks upon his own productions, were it not that one of his statements incidentally furnishes a quota towards those definitions he so earnestly urges me to give. I notice that he states "that his flowers were cut from plants grown upon land off which had been previously taken a crop of Wheat." Now, it is usually considered by adepts that such a soil, and, inferentially, the culture employed thereon, is specially adapted for Roses; and I would ask in how many gardens are such conditions likely to be found. Surely it will not require any great stretch of the imagination to bring them within the scope of the term "adventitious," to which your correspondent seems so greatly to object. In continuation of the definition, I would add the well-known routine, practised in too many cases to produce exhibition blooms—the enormous stock of maiden plants, the selection of the most promising out of these, the disbudding, the syringing above, the liquid manuring below, the shading them when requisite, the general fattening up by every possible device, the after manipulation of "dressing"—the Madame Rachelising, so to speak—for the "stands." I do not assert that your correspondent is amongst the naughty ones who perpetrate such tricks. He says he is not; but, "because he is virtuous, does he think there will be no more cakes and ale?"—ay, and prizes will be hot in the pocket or the bank! Further, I use the term "colourable" in the sense of "under false colours," and justly so, I think, with reference to flowers not produced under fair average cultivation in the natural rosery. There is no doubt that the taking of prizes is a gratifying triumph, the more exhilarating in many cases from its rarity. It is also, if properly managed, attended with substantial profit. But these are scarcely the phases from which the question "whether any improvement can be made in the manner of exhibiting Roses?" should be viewed. As a lover of Roses and Rose shows, in common with hosts of others, I shall hail any step in the direction of real progress, let its origin be what it may. *W. D. Prior.*

Reports of Societies.

Royal Horticultural: *Sept.* 2.—W. B. Kellock, Esq., in the chair. The Rev. M. J. Berkeley, in announcing the awards made by the committees, stated that the well-known Keyser's Prolific Gourd, a specimen of which was shown, was a variety of Cucurbita maxima. It was not good cooked as a Marrow, but excellent for soups. He had never before seen such a pretty sample of Moore's Vegetable Cream Marrow as was shown that day, and he considered that if they could only be certain of the seeds coming true it would be most desirable for cultivation. Alluding next to a very interesting collection of herbs shown by Messrs. James Carter & Co., Mr. Berkeley remarked that the only omission he could notice was that of Tarragon. The plant shown as Saffron was the Safflower, used in dyeing, and sometimes used, he was afraid, in adulterating the true Saffron, which was no other than the dried stigmas of a Crocus. The Souvenir du Congrès Pear again came before the Fruit Committee, and a majority of that body had decided that as regards flavour it was no improvement on its parent, Williams' Bon Chrétien. It had, however, the merit of coming into use a fortnight or three weeks later, which might be of great advantage to some. At their next meeting the fungus exhibition would be held, and as on former occasions complaints had been made by exhibitors that they had not sufficient time allowed them to properly arrange their specimens, he desired to say that the Council would make no objection whatever to those persons who intended to exhibit arranging their collections (the whole or in part) the day before, on their making the fact known to Mr. Eyles. He had received complaints from a gentleman who has a lake, about 6 acres in extent, densely filled with Myriophyllum spicatum, of his inability to get rid of it, and asking for advice. Until he saw the specimens he thought the plant must be what is known in some parts about Cambridge as "Babington's Curse" (Anacharis Alsinastrum); but it was one of the Water Milfoils—the plant above-named. As regards getting rid of it, he thought there was no chance of this being done by swans or any other birds put on the lake, but would be glad of any information on the point.

DAHLIAS, GLADIOLI, AND VEGETABLES.—This show, which included small collections of very good Dahlias and Gladioli, a few other florist's flowers, and a capital lot of vegetables, including a most interesting display of Potatos, was held in the western arcade, which, owing to fashionable London being out of town, was very thinly attended. The Dahlias, though thin in numbers in comparison to what is seen at many provincial exhibitions at this season, were yet of fine quality throughout. In the class for twenty-four distinct varieties, open to nurserymen only, the 1st prize was won by Mr. John Keynes, of Salisbury, whose collection was so good that we give the names of the varieties of which it was composed. These were—Lady Herbert, John N. Keynes, Lord Derby, James Cocker, Arbitrator, Mrs. Hancombe, Henry Walton, Flag of Truce, John Standish, Vice-President, John Downie, Annie Neville, Majestic, Matilda, Mr. Keynes, Seedling (a fancy variety, orange tipped with buff), Earl Radnor, Ada Tiffin, Thomas Goodwin, Mrs. Harris, Queen's Messenger, Herbert Turner, Flora Wyatt, and Lady Jane Ellis. Mr. Turner was a close 2d, and Mr. Walker, Thame 3d. The prizes were awarded in the same order and to the same exhibitors in the larger open class for thirty-six. Here Mr. Keynes also staged superb blooms of Mrs. Harris, Majestic, Pauline, William Eckford, Yellow Boy, Mrs. Henshaw, Nonsuch, and Memorial, in addition to varieties already named. Mr. Turner's collection was also rich in high-class flowers, the best of which were W. P. Laird, Hon. Mrs. Wellesley, Willie Austin, Lord Salisbury, Florence Pontin, Prince Arthur, Earl Radnor, Bob Ridley, Ovid, Julia Wyatt, and Duke of Edinburgh. First-rate also were the blooms shown by Mr. Walker, the varieties staged including many of those above named. The best twelve in a class confined to amateurs came from Mr. H. Glasscock, Rye Street, Bishop Stortford. They were not so large as the flowers contributed by the trade growers, but of nice quality, the varieties being James Cocker, Victory, Lady G. Herbert, Mrs. Stancomb, John N. Keynes, Ovid, Cremorne, Queen's Messenger, Lord Derby, Queen of Beauties, High Sheriff, and Lady Ellis. The next best were furnished respectively by Mr. F. Miller, gr. to J. T. Friend, Esq., Northdown, Margate, and Mr. F. Anstiss, Brill, Bucks. Mr. Glasscock also sent the best six fancy varieties, Mr. Anstiss in this case coming in 2d. In the open class for twelve fancy varieties the competition was good, and the prizes awarded were—1st, Mr. Keynes; 2d, Mr. Turner; and equal 3d, Mr. J. Seale, nurseryman, Sevenoaks, and Mr. Walker. The 1st prize-flowers were very fine, the varieties staged being Majestic, Rose Flake, Flora Wyatt, Mr. Saunders, Butterfly, Fanny Sturt, Richard Dean, Rev. J. B. M. Camm, Letty Colis, Motly, Laura Haslam, and a Seedling.

The Gladiolus competition was very poor, but some grand flowers were staged, especially by Messrs. Kelway & Son, Langport, and the Rev. Lord Hawke, who took the leading 1st prizes. The open class for twenty-four only drew out two collections, which came from Messrs. Kelway & Son, and Mr. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall—the prizes, as on many similar occasions, being awarded in the order named. The Langport collection included grand spikes of Norma, Colænus, Sparkler, Flaked Beauty, Dai, Algidum, Racilia, Mr. Tucker, Dr. Bradly, Lady Dedlock, Lady Bridport, Dr. Lynn, and some fine seedlings. Mr. Douglas' collection was a remarkable one, insomuch that, with the exception of Lacépède, A. F. Barron, and Eugène Scribe, he showed only seedling flowers raised by himself, in which department of floriculture it is well known that Mr. Douglas is an adept, having no equal amongst amateurs. The Rev. Lord Hawke well won the 1st prizes for twelve and six amongst amateurs, showing, amongst others, very fine spikes of Laépède, Mons. Legouvé, Psyche, Eugène Scribe, Murillo, and Lulli. For twelve Mr. Douglas was 2d, and the Rev. H. H. Dombrain 3d—this order being reversed in the class for six. Only two stands of twelve Hollyhocks were staged, and 1st prizes were awarded to the exhibitors, the Rev. Lord Hawke, and Mr. Chater, Saffron Walden.

There was a nice display of Asters, but, with perhaps the exception of the quilled varieties, the flowers were not so fine as we have seen on former occasions. The best twelve French varieties were contributed by Mr. J. Lakin, Chipping Norton, Mr. W. Parrott, gr., St. Winfred's, Reigate, being 2d. In the corresponding class for German (quilled) Asters Mr. T. Benham, Bagnor, Newbury, was 1st; and Mr. Betteridge, Common Hill, Chipping Norton, 2d; both collections including some choice flowers. Mr. J. Lakin also contributed twelve double Zinnias of remarkably fine quality. For twelve pots of Asters, not less than six varieties, Mr. Richard Dean was 1st, with a capitally grown lot; and a nice collection of "Betteridge's Asters" was shown, but not for competition, by Messrs. James Carter & Co.

Mr. Bull showed in this department a rich group of large and small plants, beautifully grown and grandly coloured, of his new Croton majesticum; and Messrs. J. & C. Lee contributed small specimens of several choice new Conifers—the golden Elder, the golden variety of Euonymus latifolius elegantissimus, and the golden variegated form of Cornus mascula called elegantissima.

Prizes were offered for twelve fruits of early dessert Apples and Pears. Williams' Bon Chrétien was the best in the latter class, the winners of the 1st and 2d prizes—Mr. Porter, gr. to Mrs. Benham, Isleworth, and Mr. Moorman, gr. to the Misses Christy, Coombe Bank, Kingston-on-Thames, showing this variety. Mr. Porter was also 1st in the Apple class with Duchess Pippin—a local name, we presume, for a variety not unlike a badly-coloured Red Quarrenden. Astrachan, beautifully coloured, and shown by Mr. Benham, of Bagnor, was 2d.

A very strong competition took place for the prizes offered for twelve dishes of vegetables. As on several former occasions of the kind here the 1st prize was won by Mr. Pragnell, gr. to G. D. W. Digby, Esq., of Sherborne Castle, Dorset, who staged, in his now

well-known excellent style, Sherborne Improved Onions, Globe Artichokes, Rollisson's Telegraph Cucumber, Model Potato, Miller's Selected Carrot (an improved short horn), Scarlet Runner Beans, Maupy's Supreme Tomatos (an excellent sort, of the Hathaway's Excelsior type), Long White-ribbed Vegetable Marrows, Maltese Parsnips, Williams' Matchless Red Celery, Veitch's Autumn Giant Cauliflower, and Loudon Flag Leeks. Mr. Bloxham, gr. to Sir P. D. P. Duncombe, Bart., Great Brickill Manor, came in 2d; and Mr. Miles, gr. to Lord Carrington, 3d. Mr. Pragnell also sent the best collection of salading materials, the next best coming from Mr. Clarke, gr. to Mr. Hall, Sutton.

Seven competitors contested the prizes for twenty dishes of Potatos, and the samples, if not all of equal quality as regards shape and smoothness of outline, left nothing to be desired in point of size. The 1st prize was taken by Mr. R. Dean, Ealing, with beautiful samples of the following varieties:—English Rose, Early Market, Rector of Woodstock, W. F. Radclyffe, Bountiful, and Fillbasket, all raised by Mr. Fenn; and Scotch Blue, Snowflake (the new American variety, which is turning out well), Late Rose, Red Emperor, New Cambridge Kidney, Purple Ashleaf Kidney, King of the Flukes, Vermont Beauty, Birmingham Blue, Model, Blanchard, Lapstone Kidney, The Shiner, and Gleason's Late. The other prizes were taken by Mr. C. Ross, gr. to C. Eyre, Esq., Welford Park, Newbury, and Mr. Lumsden, gr., Bloxholm Hall, Sleaford. The best ten dishes (to include five round and five kidney varieties) were contributed by Mr. Miles, gr. to Lord Carington, the varieties in this instance being Red Regent, Early Goodrich, Premier, Myatt's Prolific, Prince of Wales Kidney, Mona's Pride, Early Emperor, Rivers' Ashleaf, Dalmahoy, and Bresee's Peerless, all the samples being of fine size and nice quality. Mr. Lumsden was again 2d, and Mr. F. B. Bates, Temble Street, Aylesbury, 3d. There were eleven competitors. Fine samples of White Spanish, shown by Mr. Betteridge; Magum Bonum (a Globe variety), from Mr. Parsons, gr., Danesbury; and White Spanish, from Mr. Walker, Thame, took the prizes, in the order named, in the class for twelve Onions. The Giant Rocco variety was shown of great size by Mr. Pragnell.

Floral Committee.—J. Fraser, Esq., in the chair.—First-class Certificates were voted to Messrs. Veitch & Sons for Solanum quitonense, a broad-leaved species of sturdy growth, and without spines—a welcome plant for the subtropical garden; and for Begonia Model, a hybrid, with large flowers, composed of broad, smooth petals of a pale crimson colour, a true florist's flower, very free, and a strong grower. The same firm also received a vote of thanks for a small group of Orchids and other plants, which included Blumenbachia coronata, the stinging hairs of which were illustrated in these columns last year. Mr. Bull had a First-class Certificate for Œceoclades guineensis, a pretty Orchid, with a large, broad, rosy lilac lip, and narrow sepals and petals; and Botanical Commendations for Drosera glanduligera, a white-flowered Australian species, which is, no doubt, the same plant figured under the name of D. Whittakerii in the *Botanical Magazine*, tab. 6121, and for Drosera Menziesii, a small, upright-growing species. The true Resurrection plant—Selaginella lepidophylla (figured in our columns at p. 1069, 1872)—shown by Messrs. E. G. Henderson & Son, also received a First-class Certificate; and a similar award was made to the same firm for a new red Oleander, one of a set of valuable new dwarf, free-flowering Neriums, with rose, yellow, and white flowers. Mr. Keynes received similar awards for Dahlias John McPherson, deep claret, a well-built flower, of great breadth, and Countess of Pembroke, of similar size and form, but straw-yellow in colour, the innermost petals being tipped with rose. The Rev. J. B. Norman, Whitchurch Rectory, Edgware, sent the pretty little Odontoglossum maxillare, lip white with yellow base, petals and sepals white blotched at the base with brown, which also gained a First-class Certificate. From Mr. R. Barr, New Road, Lower Tooting, came a fine group of cut Liliums; and Mr. R. Dean sent the old and well-known blue Lathyrus sativus, which had been raised from seeds received from North Africa. It is closely allied to the Tangier Pea, and to that called Lord Anson's Pea. Mr. Parker, Tooting, sent a specimen of Epigynium leucobotrys, an interesting plant with white, black-spotted fruit, hardy in Ireland and probably in South-western England. Mr. Green, Holmesdale Road, Reigate, showed Polygonum capitatum, a very useful plant for hanging baskets; and from Messrs. Veitch and Sons came a good strain of Boltze's dwarf Bouquet Asters, which was accorded a vote of thanks. Mr. R. Tanton, Borough End, London Bridge, showed Helianthus californicus insignis under the name of H. fistulosus, a beautiful, double-flowered, orange-yellow Sunflower, and samples of rolled bones, recommended for Vine culture.

A Meeting of this Committee (R. B. Postans, Esq., in the chair) was held at Chiswick on the 29th ult., for the purpose of examining the PELARGONIUMS sent for trial. On this occasion the committee confirmed the certificates previously awarded to the following varieties, considering that they fully maintained their characters:—Macbeth and Oriental amongst the Golden Tricolors; Laura, Albion's Cliff, and Brilliant Superb, amongst the Silver-margined; Crystal Palace Gem and Creed's Seedling, amongst the Golden-leaved; Maréchal MacMahon and Black Douglas amongst the Bronze Zonals; Amaranth, Florence Darand, Mrs. Haliburton, and Cleopatra (sent also as Miss Davies), amongst the rose-pinks; Warrior, Corsair, Grand Duke, H. M. Stanley, Milton, Soleil, Indian Yellow, Orange Bouquet, Lucius, Amy Hogg, and Lady Kirkland, amongst the scarlets, roses, and intermediate shades, including both Zonals and Nosegays.

The following varieties, not previously grown for trial, were awarded First-class Certificates, namely, Little Tort, Richard Dean, Ama Pfitzer, Rev. F. F. Fenn, Bonfire, Sparkler, Colonel Holden, Prince Arthur, and Claude de la Meurthe, the latter for its bright amaranth-rose colour. A very free-blooming, close-growing dwarf Tropæolum, called Compactum Yellow, which has bright yellow flowers, with maroon-crimson spots, was also awarded a First-class Certificate.

The varieties of Pelargoniums with rose-pink flowers have been this season submitted to pot-culture, with the view of ascertaining their merits from this point of view, with the result, that First-class Certificates, as pot-plants, were accorded to Mrs. Tate, Mrs. Turner, Mrs. Haliburton, Master Christine, and Ellie. The white and salmon-coloured were also grown in company with the pinks, and among them a first-class award was made to Queen of Beauties; and the award of the same value, made last season, was confirmed in the case of White Swan, Belle Esquemoise, Polly King, President Thiers, and Forest-Hill Nosegay. Vanessa, a very much improved Forest-Hill Nosegay, and a charming flower, by one of those unaccountable casualties which sometimes happen, failed to secure sufficiently the suffrages of the committee to obtain an award.

FRUIT COMMITTEE.—A. Smee, Esq., F.R.S., in the chair. The most interesting feature at this meeting was a collection of about forty sorts of herbs, including everything that could be thought of excepting Tarragon and Angelica. Three or four varieties of Parsley were included, none of them of any particular merit as shown, and especially Suttons' Imperial Moss Curled, which was by no means done justice to. Messrs. Carter & Co. also sent fifteen varieties of Kale, and received the thanks of the committee for the excellent display. Mr. James Groom, gr., Henham Hall, again sent the African Melon brought home by Sir Samuel Baker, and though of much better flavour than many others brought before them this year, it was not considered desirable to give it an award, the principal objection to it being on account of the size. Mr. Richard Smith, Worcester, sent a large Plum much resembling Pond's Seedling, and named Dr. Hogg, and Worcestershire Pearmain Apple, a prettily coloured variety, deficient in flavour. Mr. Melville, the St. Lawrence Vineries, Jersey, sent a white seedling Grape named Duke of Edinburgh, but it arrived in too bad a condition to receive any notice. Large bunches of Keye's Prolific Tomato, gathered from plants raised from cuttings, were shown by Mr. Bennett, Hatfield. From the Society's garden, Chiswick, came examples of Beurré de l'Assomption Pear, a variety of fine flavour, which gained a First-class Certificate.

Bishop Auckland Floral and Horticultural: *Aug.* 28.—The twenty-second annual show of this Society was held, on the above date, in Auckland Park, and proved quite wonderful in extent, and in the quality of the plants, cut flowers, fruits, and vegetables, which filled to overflowing three large marquees. A thousand pounds was offered in prizes. The weather was all that could be desired, and it was computed that 20,000 persons were in the Park during the day—the sum taken at the gates amounting to about £1050, this being £100 in excess of the amount gained in any previous year. Staging to the extent of 10,140 superficial feet was employed, cut flowers and fruits occupying half this space.

The stove and greenhouse plants, fine-foliage plants, and exotic Ferns were especially fine. The Zonal Pelargoniums were particularly well done; the 1st prize eight were wonderful specimens, each over 3 feet in diameter, clothed with foliage of the healthiest hue, and covered with fine trusses of flowers. There can be little doubt that nothing equal to them has ever been exhibited in this country. Gladioli were remarkably fine. I have not seen anything to equal them in the South. Dahlias were largely shown, and were very fine indeed.

For stove and greenhouse plants the 1st prize went to Thos. Wilson, Normanby Hall, Middlesborough, whose collection contained fine plants of Clerodendron Balfourianum, Phœnocoma prolifera Barnesii, Allamanda Schottii, Ixora coccinea, large specimen plants covered with bloom; 2d, to Mr. Cockfield, Seaton Carew, the most notable plants in this collection being Genetyllis tulipifera and Ixora Colei. Other collections contained fine examples of Ixora coccinea, Allamanda Schottii, and Bougainvillea glabra.

For fine-foliage plants the 1st prize fell to Mr. Westcott, the Duke of Cleveland's gardener at Raby Castle. Notable plants in this group were Maranta zebrina, Dracæna regina, Cyathea dealbata, Alocasia metallica, and Croton pictum—all large specimens, in perfect health; 2d, to J. Noble, Woodburn, Darlington, who had a collection very similar to the last, Yucca variegata being particularly fine; 3d, to Edward Lazenby, also of Darlington, whose collection contained very fine examples of Maranta vittata, M. Veitchii, and Croton variegatum. These and the exotic Ferns covered a centre bench 140 feet long by 16 wide, and formed a grand feature of the exhibition.

There was a larger entry and better display of fruit than has ever been previously witnessed at Bishop Auckland; the competition indeed was so close that in many instances two 1st prizes had to be given. Always an attractive feature at this exhibition are the bouquets, and this year they were as magnificent as ever, the bridal and button-hole bouquets being exceptionally fine. One of the most notable competitors was a miner from Gurney Villa—Joseph Moore—who, besides being successful in the department for bouquets, showed one of the finest collection of Dahlias which has been seen in the neighbourhood this year. The Rev. Lord Hawke was scarcely so successful as he has previously been at Auckland, nevertheless, in some of the classes he had an excellent collection. (*From a Correspondent.*)

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPT. 2, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall
Aug.	In.	In.	°	°	°	°	°	°			In.
27	29.63	−0.22	75.0	49.0	26.0	60.7	+ 0.6	55.2	82	S.W.	0.02
28	29.70	−0.16	72.5	52.0	20.5	58.7	− 1.2	49.2	71	NNW: WSW	0.05
29	29.60	−0.26	68.8	50.4	18.4	55.6	− 4.1	50.1	82	SW: W	0.05
30	29.72	−0.16	71.6	49.3	22.3	61.3	+ 1.9	53.3	75	S.W.	0.00
31	29.67	−0.21	74.7	58.9	15.8	64.2	+ 5.0	55.5	73	S.W.	0.05
Sept. 1	29.58	−0.31	74.6	57.5	17.1	65.2	+ 6.2	59.3	81	S.W.	0.11
2	29.75	−0.14	72.8	53.7	19.1	62.1	+ 3.4	53.1	72	S.W.	0.11

Aug. 27.—Fine, but cloudy till evening; overcast afterwards, and rain fell.
— 28.—Overcast in morning, and rain fell till about 2 A.M.; fine and partially cloudy during the remainder of the day.
— 29.—Variable; occasional showers.
— 30.—Fine till noon; generally cloudy afterwards; slight rain in evening.
— 31.—Generally cloudy; occasional showers of rain.
Sept. 1.—Generally overcast; rain fell frequently.
— 2.—Showers of rain in early morning; fine and partially cloudy afterwards.

—— In the neighbourhood of London the reading of the barometer, at the level of the sea, decreased from 30.39 inches at the commencement of the week to 30.03 inches by the afternoon of the 25th, increased to 30.11 inches by the morning of the following day, decreased to 29.78 inches by the evening of the 27th, increased to 29.91 inches by the night of the 28th, decreased to 29.74 inches by noon on the 29th, and then increased to 29.86 inches by the end of the week. The mean reading for the week was 30.03 inches, being 0.30 inch lower than that of the week ending August 22; the readings were above their averages from the 23d to the 26th, but below during the remainder of the week.

The highest temperatures by day ranged from 68¾° on the 29th to 80° on the 23d, the mean for the period being 74¼°. The mean of the lowest temperatures at night was 48½°, the extreme readings being 44° on the 24th, and 53° on the 25th. The mean daily range of temperature was 25¾°, the greatest being 34¼° on the 23d, and the least 18½° on the 29th. The mean daily temperatures of the air varied but little from their averages, the values with departures from their respective mean readings being as follows:—23d, 62°.6, + 2°, 24th, 57°.6, −2°.9; 25th, 61°.3, + 0°.8; 26th, 59°.4, −0°.9; 27th, 60°.7, + 0°.6; 28th, 58°.7, −1°.2; 29th, 55°.6, −4°.1.

The mean of the daily maximum readings of a ther-

mometer with blackened bulb in vacuo, placed on grass in the sun's rays, was 127½°, the highest temperatures by this thermometer being 136° on the 24th and 131° on the 28th. The lowest temperatures at night, by a thermometer on grass, with its bulb fully exposed to the sky, were 34° on the 24th and 38° on the 23d and 26th. The direction of the wind was variable and its strength gentle, but during a gust on the 29th a pressure of 8 lb. on the square foot was registered. The sky was generally cloudy, and showers of rain fell on four days; the amount collected was a little less than a quarter of an inch, nearly half of which fell on the 25th.

In England the extreme high day temperatures ranged from 80° at Blackheath to 69° at Sheffield, the general average over the country being 73½°. The extreme low night temperatures varied from 50¼° at Liverpool to 40° at Hull, with a general average of 45¼°. The mean range of temperature in the week was 28¼°. The mean high temperatures observed by day ranged between 74¼° at Blackheath and 65¾° at Norwich and Hull, the general average being 68°. The mean low temperatures observed by night varied from 53¾° at Bristol to 46° at Hull, with an average value of 50¼°. The mean daily range of temperature was 17¾°, ranging from 25½° at Blackheath to 13° at Liverpool. The mean temperature for the week was 57½°, the highest being at Bristol, 59¾°, and the lowest at Hull, 54¼°. Rain fell on the last two or three days in the week at most stations, the amounts varying from eight-tenths of an inch at Wolverhampton and Eccles to three-hundredths of an inch at Norwich, the average fall over the country being four-tenths of an inch. The weather during the week has been fine, but generally cloudy.

In Scotland the highest temperatures ranged between 80° at Paisley and Perth to 65½° at Aberdeen. The lowest temperatures varied from 47½° at Leith to 38½° at Aberdeen, their respective averages being 72° and 45°. The mean range of temperature was 27°. The mean temperature for the week was 57½°, the highest being at Perth, 59½°, and the lowest at Aberdeen, 55¼°. The amounts of rain measured during the week varied from nine-tenths of an inch at Aberdeen to two-tenths of an inch at Paisley and Leith; the average fall over the country was six-tenths of an inch.

At Dublin the highest temperature was 78°, the lowest 41°, the mean 59°, and the rainfall 1.29 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season.]

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—In the northern parts of the kingdom it will be necessary to look well to the weather, for should there be any appearance of frost the hard-wooded plants out-of-doors must be housed, but unless there is danger from this cause, or it should come very wet, they will do better outside for a fortnight longer. If, as advised, they have had the benefit of a canvas covering to run down over them as occasion required, this can be used in danger of frost. *Phænocoma prolifera*, the flowers of which are dead, yet little inferior in appearance to what they were when first opened, often tempt the grower to allow them to remain on the plant longer than its well-being will permit; these should never be left so long as to interfere with the growth for the coming year, which they do if not removed in time. Plants of *Daphne indica* that have finished their growth must now be treated with great care in respect to water; it is at all times a delicate-rooted subject, impatient of any excess, but doubly so when comparatively at rest. Large specimens of this plant are seldom seen, from the evident cause that they generally succumb to want of judgment in the use of the watering-pot. The most general way of increase is by grafting, but it may at the present season be struck by taking good cuttings of the current season's growth, and placing them singly in thumb-pots, or several round the outside of such as are 4 or 5 inches in diameter, but there must be no attempt at hurrying them in the first instance. They should be placed in a temperature of 45° or 55° until the base of the cuttings is well callused over, which generally occurs in the course of a few weeks, after which they will stand some 20° more, and will then root quickly. *Hovea Celsii.*—This is most generally grown as a bush-shaped specimen, yet it makes a fine climber for the end of a greenhouse or conservatory, in which situation it will attain a large size, flowering and, if allowed, seeding freely. When its Pea-like seeds are ripe they should be sown in shallow, well-drained pots, in fine sandy peat, where they will, with very few losses, grow, making in a few years nice small specimen plants.

SOFT-WOODED GREENHOUSE PLANTS.—*Clematis*, although hardy subjects, are now so extensively grown in pots as to be admirable in this department of greenhouse plants. The distinct colours of some, and the general usefulness of many for decorative purposes in the summer, when there is a paucity of flowering plants, make them very useful when grown in pots. Such as have been grown and flowered through the summer should now be well attended to, so as to make them fit for next year's work; they should be supplied with water, so as not to stop their growth suddenly. They may stand out-of-doors upon a bed of ashes, where they will receive all the sun and light possible, so as to mature their growth well, not allowing their roots to get too much saturated with the rains, should such occur. On this matter it often happens that an erroneous impression exists, it being supposed that the roots of a hardy plant when confined in a pot can stand out-of-doors whatever quantity of rain may fall. Such is by no means the case, for roots so confined will get too wet. *Roses* that have been similarly treated after flowering should be stood where they will receive all the sun and plenty of air necessary to ripen them up; if there is any mildew upon them apply sulphur in some way, either by dusting it upon the plants or by washing them with Gishurst—the sulphur which it contains will destroy the parasite. Every trace of mildew should, as far as possible, be destroyed, or it will be troublesome as soon as the plants are started in the winter. *Mignonette.*—Encourage by the necessary attention, so as to impart all the strength possible to the plants, by keeping them near the glass in the pots or frames they occupy, and potting them on as they require it. A dozen plants well done will produce more flowers than three times the number indifferently grown. Plants grown as standards are very useful for standing amongst other things during the winter and spring months, and when required to be thus grown must be kept to single stems, regularly tied up to sticks sufficiently strong to support the plants, which, when arrived at the height required, should have an umbrella-shaped wire to be trained over. Mignonette is sometimes attacked by greenfly, but it must not be allowed to remain upon the plants, or the leaves will be either destroyed or injured in their appearance, which completely spoils them, for unless they retain their leaves to the end of their flowering, fresh, and of a good dark green colour, they are not fit to be seen. *Pelargoniums* that were cut back some weeks ago, and have now broken fresh growth, should be shaken out and re-potted; if they have occupied the usual size—8-inch pots—they should be transferred to others 2 inches smaller; trim the roots a little, and get nearly all the soil from them, so as to admit as much new as possible in place of the old exhausted stuff. Use good yellow loam, which, if not mixed with manure when laid up for use, should now have a liberal quantity of rotten dung added, such as has been used for hot-bed work, and been exposed to the air so as to destroy worms, which latter must by no means be allowed to enter the pots, or the plants will do little or no good. Add sand in proportion to what the soil naturally contains; but Pelargoniums do not require so much in the soil as some plants. Pot them thoroughly hard by the use of the potting-stick; they delight in the soil being made quite solid. When so treated they make double the quantity of roots that plants loosely potted do; these latter always grow too much into leaf, making shoots much longer in the joints than they ought. *Epiphyllums.*—These useful winter-flowering plants are most generally grown grafted as dwarf standards, but they will do well on their own roots, and at this season, when the growth is complete, they strike freely. Good-sized bits will root if taken off with a clean cut, so as not to bruize the fleshy portion of the shoot; insert them in sand, and keep a little close until they are rooted, when they can be potted off singly. If a few seeds of *Schizanthus* are now sown they will make nice pot-plants for conservatory decoration; they are well worth growing, aud if properly attended to, and sufficient pot-room is given them, they make most attractive objects, producing thousands of their light ethereal flowers. *Roman Hyacinths.*—These early flowering bulbs are general favourites, and are even better adapted for cutting than the larger sorts. They should be potted at once, if not already done, placing some four or six in a 6 or 7-inch pot, and then covered with a few inches of fine ashes, where they will quickly push roots freely, after which they can be brought on with heat and plenty of light to keep them short and stout. If a good quantity of dwarf *Asters* is taken up from the borders and potted as the flowers become partially opened, they will be found most useful for conservatory or room decoration; in fact, they can be placed anywhere, amongst or under the shade of other plants, in a manner that could not be attempted without serious injury to things of greater value, yet not more effective. Previous to removing them from the open ground they should be thoroughly soaked with water, so that their roots may come up intact; they should then be put three or four in a 6-inch pot, and kept well soaked, so as to prevent flagging, or they will not open their flowers freely. Give every attention to *Tree Carnations* for forcing; keep all flowers removed—they weaken the plants for the season when they will be required; keep them free from aphides, and on no account must they be allowed to suffer for want of water; place them in a situation where they will receive all the light possible, so as to keep them dwarf and stout—for upon this depends their ability to produce flowers at the required time in the necessary quantity *Hydrangeas* struck from cuttings grown in the open air make much nicer plants, dwarf and compact, than those that are struck in spring. As soon as the buds are ripe and firm, take off the cuttings with four or five joints and insert them singly in 3-inch pots filled with good turfy loam and sand, with half an inch of sand on the surface; strike them in a little heat, but not too much, or the buds would be excited and spoilt. *Solanums* that have been planted out should now be lifted and potted in 6 or 7-inch pots, according to the size of the plants; these are strong-rooted subjects, and will bear without injury a good soaking with water. As soon as potted, place them under a north wall, and do not allow any sun to come upon them until they have begun to grow, which they very soon will if kept thoroughly moist; if not, they will flag, to the certain destruction of the leaves, which spoils their appearance.

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—The routine work in this department will now be great, as, in addition to picking off bad flowers and foliage, the beds will constantly require clearing of leaves; for, by reason of the drought, Limes, Elms, and Chestnuts are shedding their foliage quite fast, and sweeping up will now become a serious item in garden labour; but the tidy gardener will not spare the broom, as no other garden implement gives half the satisfaction, especially at this time of year. Watering has still to be done copiously in this part of the country, as but little rain has fallen since March. We have this season proved the value of manuring well and trenching deeply, for, with all the roasting weather, the beds are filled, and as fresh as if we had had the most genial weather. Carpet beds are most brilliant, *Alternantheras* being now exceptionally bright, and the new *Golden Chickweed* is a gem. We recommend it strongly for next year's planting. Our best *Pelargoniums* are—scarlets, *Vesuvius* and *Jean Sisley*; pinks, *Mrs. Haliburton* and *Master Christine*; variegated (silver-edged), *May Queen*, *Bijou*, and *Flower of Spring*; golden, *Crystal Palace Gem*, *Robert Fish*, and *Rev. W. F. Radclyffe*; tricolor, *Mrs. Pollock*—still the best, and the only good bedder of this class. The old variegated *Pelargonium Manglesii* still maintains its ground; some beds of it here, mixed with Purple King Verbena, are simply grand. Propagation of all these should go on with despatch; and as the season is so advanced it will be best to put them in cutting boxes or pots at once, and under the shelter of lights, giving all the air possible till cold, damp weather sets in. As stated in last fortnight's Calendar, it is quite unnecessary to propagate a great stock of Alternanthera, Iresines, Coleus, Mesembryanthemums, or similar plants, so long as there is a sufficiency for stock in the spring: all these are best propagated then. Our "subtropical" garden is a very modest affair, notwithstanding we have a few nice beds. The best are *Acacia lophantha* edged with *Chamæpeuce Casabonæ*. The Acacias are sown in January, and are now at least 5 feet high, and bushy in proportion. *Wigandia caracasana*, sown at same time, has foliage quite 2 feet across, and the plants at least 4 feet high; it makes a noble bed. Another bed of *Solanum Warscewiczii*, edged with *S. argenteum*, is perfect. *Dracæna australis* and *D. indivisa* are well adapted for subtropical gardens; they are amongst the most effective beds here. Succulents also play an important part in this department; and as now is the time to propagate them, I add a list which includes all the best kinds suitable for this purpose:—*Sempervivum arboreum*, *S. arboreum variegatum*, *S. urbicum*, *S. canariense*, *S. Haworthii*, *S. Donkelaria*, and *S. "phillyreoides;"* *Aloes*, *Agaves*, and *Yuccas* of sorts; *Echeveria metallica*, *E. glauca metallica*, and *E. farinosa*. All the above are suitable for dotting over the beds as standards, and the following for undergrowth in conjunction with them:—*Sedum*, many kinds, particularly *glaucum*, *lividum*, and *corsicum*. The new one, *Sedum acre elegans*, is also likely to prove a valuable addition to this class of plants. *Sempervivum californicum* [*calcareum*], *montanum*, *arachnoideum*, and *fimbriatum*; and *Echeveria secunda*, *E. secunda glauca*. *Antennaria tomentosa*, and several varieties of *Thyme*, are all well-adapted for covering the ground under large-growing succulents. Herbaceous plants of many varieties are now becoming "seedy," and should be gone over to remove all dead stems or stalks; others will require tying up, such as herbaceous *Asters* and *Chrysanthemums*. We have in

the mixed border here a fine clump or two of *Funkia Sieboldii*, which, if a stove plant, would be thought much of, but because it is hardy it goes unnoticed; seed saved from this last year has given us some scores of plants, which we hope to put to good use next year as a subtropical. The following kinds of *Annuals* should now be sown wherever space can be spared for them—*Alyssum* (sweet), *Candytuft*, *Collinsias*, *Gilias*, *Eschscholtzias*, *Nemophilas*, *Saponarias*, *Silenes*, *Sweet Peas*, and *Virginian Stock*; these will come into flower during April and May, and furnish a cheap supply of spring flowers. Clip *Yew*, *Privet*, and other hedges if not yet done; also tie in *Irish Yews*, *Junipers*, and *Retinosporas*, to prevent breakages and preserve the symmetry of the plants. So soon as rain comes any of these that have to be planted or transplanted may be done at once. Spring planting of shrubs will be at a discount for some time to come, after the disastrous results of those planted last spring. *W. Wildsmith, Heckfield, Hants.*

FRUIT HOUSES.

CUCUMBERS.—Push forward the work of clearing out exhausted plants as opportunity offers, and make everything sweet and clean, that there be no hitch when the time for planting arrives. The fermenting material must now be thought about for the winter fruiters; horse droppings and Oak leaves are undoubtedly the best, but tanners' bark is a very good substitute, and one which the market grower generally employs. Most of the market growers at Chelmsford rely upon tan alone for the supply of bottom-heat, and this they employ to the depth of 3 feet. Make a sowing about the middle of this month to ensure a good supply at Christmas. The market grower should have a small house wherein to raise his plants, and thus save the cost of heating a large area to accomplish this small end. Assist the autumn fruiters to make a strong growth by removing all the male blossoms and tendrils as fast as they appear, and be careful neither to overcrop nor overcrowd. Quite dispense with the blinds, and where whitewash was used in lieu of blinds, let it be removed forthwith. With less sun-heat and shorter days the supply of moisture must also be reduced. Close the ventilators, and gently damp the foliage and walls about 3 P.M; the pipes should also be sprinkled about 7 A.M. In pits and frames continue former directions. *T. Simpson, Broomfield.*

FORESTRY.

Any trees showing signs of decay, or having a tendency towards a back-going condition, should be carefully looked over while the surrounding ones are still in foliage, and stamped with the marking-iron. If done at once it will be seen at a glance which are the trees requiring to be removed. This is also a suitable time to look over any young plantations from 12 to 20 feet in height, which have been planted for shelter and ornament, to select those which are intended to remain for a permanency, and to mark the stems all facing one direction with a brush containing a dab of white paint. It is easy afterwards to judge what is required to relieve the stationary tree, either by lopping or clearing away the nurses. Continue to pit and make progress otherwise for planting. Thin young plantations of *Larch* and *Scotch Fir*. Look after *Birch* seed, and spread it out in a dry, airy place, when gathered. Hedges may now be generally trimmed. Train up young ones to the shape of the top of a Spruce Fir cone. Continue the planting of *Holly* and *Evergreens*. Keep down weeds in nursery-grounds, so as to give young stock all the air possible. *J. Webster.*

Notices to Correspondents.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisments should be addressed to the Publisher.*

AMARANTHUS HENDERI.—This plant was inadvertently called A. Hendersoni in our report of the last meeting of the Floral Committee at p. 244, and its raisers were Messrs. Hender & Son, and not Messrs. Henderson & Son, as stated.

AMARYLLIS: *H. H.* Dean Herbert's book on Amaryllids can be procured from some second-hand bookseller, such as Wheldon or Quaritch.

AZALEAS: *A. O.*—From the imperfect information given respecting the Azaleas, as to how they have been treated, further than being kept syringed and the house warm and moist, it is difficult to determine the cause of the unhealthy condition of the leaves; yet, so far as they can be judged, they appear as if they had been caught by the morning sun, with their leaves wet, as would be the case with morning instead of evening syringing, or the leaves being grown too tenderly by an insufficiency of air or light. This is mere conjecture, as, without precise information, it is impossible to judge.

BOOKS: *T. Taylor.* Robinson's *The Subtropical Garden* (Murray), and Sutherland's *Hardy Herbaceous and Alpine Plants* (Blackwood).

CHANGE OF COLOUR IN THE POTATO: *H. Harks.* Is there any recorded instance of a change of soil producing a change of colour in the Potato?

COPROSMA: *C. C.* By cuttings, in a gentle bottom-heat.

NAMES OF PLANTS: *C. E. F.* Fumaria muralis; but fruit not ripe.—*R. Watts.* 1, Mesembryanthemum conspicuum; 2, a new species, not yet described; 3, M. simile; 4, M. brevifolium; 5, M. corallinum; 6, M. blandum; 7, M. aureum; 9, M. heteropetalum; 11, M. Haworthii; 13, M. albicaule; 14, M. bulbosum; 15, M. micans.—*W. D. T.* Tecoma radicans.—*N. G.* Oncidium Janeirense. *Rchb. f.*—*N. M.* Cymbidium elegans,—as far as I know, flowering for the first time in Europe. Messrs. Veitch & Sons will also probably soon have it in flower. *H. G. Rchb. f.*—*F. Currey.* Pentstemon pubescens, Soland: an apparently hairless form.—*M. A.* Your plant agrees with the Kew specimen labelled H. umbellatum.—*Wm. Henderson.* Clematis flammula. The Creeping Jenny is Lysimachia Numularis.

SARRACENIA: *W. H.* Newly imported plants should be at once potted in a mixture of sphagnum and half fibrous peat, with a moderate sprinkling of sand, and one-eighth crocks, or charcoal broken the size of Broad Beans; placing them in pots not more than a couple of inches larger than the root of each plant, as if overpotted before they commence to make new roots the soil is liable to get sour. Give them plenty of water, keeping the soil always quite moist; they should be placed in a temperature of 50 by night, with a little more by day, until the spring, when, as the days get warmer and they begin to grow, they will bear an increase of heat. Let the corner of the house they occupy be kept a little close, by giving no air near them. A still damp atmosphere is what they delight in. Imported plants are easily induced to push leaves, but the difficulty is to get them to make roots, and if they do not they die off, after every appearance of going on satisfactorily.

THISTLE AND OAK: *W. E.* The swelling is a gall produced by an insect. The galls on the Oak are known as Artichoke galls.

VINE NOT GROWING: *G. F.* It is quite impossible to say why this particular Vine has not grown so well as the others. Perhaps next season it may push and grow out with greater vigour than any of the others. There is nothing apparently the matter with the plant. It lacks vigour, and has not grown much. You may put a little fresh soil to the roots if you like, and close to the stem, so as to induce the emission of fresh roots.

CATALOGUES RECEIVED.—Robertson & Galloway (157, Ingram Street, Glasgow), Catalogue of Dutch Roots.—James Vick (Rochester, N.Y.), Floral Guide.—M. Cole & Co. (Atalanta Nurseries, Atalanta, Georgia), Descriptive Catalogue of Ornamental Trees and Shrubs, Fruit Trees, Roses, &c.—Little & Ballantyne (Carlisle), Catalogue of Dutch Bulbs and Descriptive List of Roses, Rhododendrons, &c.—Cranston & Mayo (St. Peter's Street, Hereford), Descriptive Catalogue of Dutch, Cape, and other Flowering Bulbs.

ERRATA.—In our report of the late show at Belfast we inadvertently stated that the Grapes and other fruit shown Mr. Jones, gr. to the Marquis of Londonderry, were grown at Seaham Hall, instead of at Wynyard Park, Durham. Mr. Jones was also credited with being 2d in the class for the heaviest bunch of Grapes, whereas he only took the 3d prize.

COMMUNICATIONS RECEIVED:—G. N.—A. Z. W. (received, but not considered of sufficient interest at this season).—G. Beech (next week).—H. T., Dublin.—W. G.—J. D.

MARRIED.—On the 1st inst., at St. Mark's, Kennington, by the Rev. J. Llewllyn Felix, G. CLARKE, son of G. Clarke, Esq., of Thorpe Market, Norfolk, to MARY ELIZABETH (Lizzie), only daughter of the late Mr. W. CHAPMAN, of Cairo, Egypt. No cards.

Markets.

COVENT GARDEN, *September* 3.

The markets are less brisk than they were, and the supply not so good; but prices are barely maintained. Outdoor Peaches and Nectarines are becoming very plentiful. A large consignment of St. Michael Pines are to hand, but not in very good condition. *Thos. Taylor, Wholesale Apple Market.*

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, green, ea.	0 3–	0 6	Lettuces, per doz. ..	1 6–	..
Beans, Fr., per bush.	5 0–	..	Mint (green), p. bun.	0 6–	..
— Scarlet, do. ..	3 0–	5 0	Mushrooms, per pott.	1 0–	2 6
Beet, per doz. ..	1 0–	2 0	Onions, young, bun.	0 4–	0 6
Broccoli, p. bundle..	0 9–	1 6	Parsley, per bunch..	0 4–	0 6
Brus. Sprts., p. sieve	3 0–	4 0	Parsnips, p. doz. ..	0 9–	1 0
Cabbages, per doz. ..	2 0–	3 0	Peas, per quart ..	1 0–	2 0
Carrots, new, p. bun.	0 9–	..	Radishes, per bunch.	0 2–	0 4
Cauliflowers, per doz.	2 0–	6 0	— black, Turnip, do. ..	–	0 6
Celery, per bundle .	1 6–	2 0	Shallots, per lb. ..	0 3–	..
Cucumbers, each ..	0 6–	1 0	Salsify, per bundle..	1 6–	..
Endive, per doz. ..	1 0–	2 0	Spinach, per bush. ..	2 0–	3 0
Herbs, per bunch ..	0 2–	0 4	Tomatos, per doz. ..	1 0–	3 0
Horse Radish, p. bun.	3 0–	5 0	Turnips, per bundle.	0 3–	0 4
Leeks, per bunch ..	0 2–	0 4	Veg. Marrows, doz.	1 6–	2 0

New Potatos:—Round, 60s. to 100s. per ton; Kidneys, 0s. 9 to 120s. per ton.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0–	1 6	Melons, each	2 0–	5 6
Apricots, per doz. ..	2 0–	4 0	Nectarines, per doz.	2 0–	6 0
Cherries, Morellos, per lb.	0 6–	2 0	Nuts, Cob, p. lb. ..	1 0–	1 0
Currants, p. ½-sieve	4 0–	..	Oranges, p. 100 ..	10 0–	20 0
Figs, per doz.	1 0–	3 0	Peaches, p. doz. ..	2 0–	10 0
Filberts, per lb. ..	1 0–	1 6	Pears, p. doz. ..	2 0–	3 0
Gooseberries, p. qrt.	0 4–	0 9	Pine-apples, p. lb. ..	3 0–	6 0
Grapes, English, p. lb.	2 0–	6 0	Plums, ½-sieve ..	1 6–	2 0
— Muscats, do. ..	2 6–	0 0	Strawberries, p. lb.	..	
Lemons, per 100 ..	12 0–	20 0	Walnuts, p. bush. ..	16 0–	..

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, per doz. bunches	3 0–	6 0	Pelargoniums, per 12 sprays	0 6–	1 0
Corn-flower, p. doz. bunches	2 0–	6 0	Pelargoniums, Zonal, per 12 sprays ..	0 3–	0 9
Eucharis, per doz. ..	4 0–	9 0	Pinks, mixed do. ..	2 0–	4 0
Escholtzia, p. 12 bun.	2 0–	6 0	Roses, indoor, p. doz.	1 0–	6 0
Gardenias, p. doz. ..	3 0–	9 0	— Outdoor, do...	0 4–	1 0
Gladiolus, doz. sprays	0 6–	1 6	Spiræa, per 12 sprays	1 0–	2 6
Heliotropes, per doz. sprays	–	0 6	Stephanotis, 12 sprays	3 0–	9 0
Mignonette, 12 bun.	2 0–	6 0	Sweet Peas, 12 bun.	3 0–	6 0
			Tuberoses, p. doz. ..	1 0–	2 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Balsams, p. doz. ..	3 0–	9 0	Heaths, in var., do.	12 0–	30 0
Begonias, do. ..	6 0–	12 0	Hydrangea .. do.	9 0–	18 0
Bouvardias do. ..	9 0–	18 0	Liliums, in var., each	1 0–	3 6
Calceolarias, shrubby	6 0–	18 0	Mignonette, per doz.	4 0–	6 0
Coleus, p. doz... ..	3 0–	9 0	Myrtles .. do.	3 0–	9 0
Cyperus .. do.	6 0–	12 0	Pelargoniums do.	6 0–	18 0
Dracæna terminalis	12 0–	30 0	do., double .. do.	4 0–	9 0
,, viridis .. doz.	12 0–	24 0	do, Scarlet .. do.	3 0–	9 0
Fuchsia .. do.	4 0–	12 0	Rhodanthe .. do.	6 0–	12 0

SEEDS.

LONDON: *Sept.* 3.—A fair amount of activity has, during the past week, characterised the agricultural seed trade. Trifolium incarnatum is in good request at late rates. Stocks, as noted in our last, are now reduced quite low. Some considerable arrivals of new English Mustard seed has taken place during the last few days, the bulk of which has gone into the hands of the manufacturers. For sowing Rape seed we now have a better inquiry. Fine qualities are rather scarce. New home-grown Canary seed is now offering. Winter Tares having come to hand more freely, show a further decline in value. In sowing Rye there is a fair trade doing at last Monday's quotations. Clover seeds are at present neglected. For foreign Italian we have a good inquiry. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday there was on sale a fair supply of English Wheat, but the trade was slow, both for red and white, at the late decline. Foreign was also in fair supply, but sales went slowly on former terms. Barley was rather quiet, but no material change in prices took plate. Malt sold slowly at late rates. Oats were dull, and quotations receded 1s. per quarter compared with the previous Monday. Beans and Peas were firm, and fully supported the currency of Monday se'nnight. Flour was quiet, at the recent decline in quotations.—On Wednesday, holders of Wheat evincing less disposition to sell, and millers being unwilling to operate largely, trade was slow for both English and foreign, and prices were without material alteration from those of Monday. Barley was dull, at barely late rates; malt sold slowly, on former terms. Trade in Oats inactive, at Monday's decline. Fully late prices were obtained for Beans and Peas. Flour was quiet, at Monday's quotations.

CATTLE.

The average quality of beasts at Monday's market was inferior, consequently choicest were dear. Trade in sheep was active, at fully late rates, and for choicest there was a slight advance. There is still inquiry for choice lambs at fair prices. Quotations:—Beasts, from 4s. to 6s. 4d.; calves, 4s. to 5s. 6d.; sheep, 4s. 6d. to 5s. 10d.; lambs, 5s. 4d. to 6s. 4d.—On Thursday there was a large supply of beasts, and as trade was dull lower prices for all kinds had to be accepted. Good English sheep were scarce, but trade was slow, with but little alteration in price. Trade was bad for lambs, and heavy for milch cows at about late rates.

HAY.

From the Whitechapel market report we learn that larger supplies of fodder have been on sale, and the trade dull, on lower terms. Meadow hay, 55s. to 113s.; Clover do., 75s. to 127s.; and straw, 33s. to 42s. per load of 36 trusses.—Cumberland Market quotations: Superior meadow hay, 115s. to 123s.; inferior do., 90s. to 105s.; superior Clover, 120s. to 130s.; inferior do., 95s. to 110s.; and straw, 40s. to 46s. per load.

POTATOS.

The Borough and Spitalfields report states that the supplies of home-grown Potatos are now somewhat less extensive, and the arrivals from abroad continue small. The trade is consequently firmer, at a slight improvement in quotations. Regents, 80s. to 100s.; shaws, 70s. to 90s.; kidneys, 110s. to 140s.; and rocks, 70s. per ton. Last week's imports into London were—832 bags from Antwerp, 52 barrels from Boulogne, 105 sacks from St. Nazaire, 282 bags Ghent, 5 Rotterdam, and 431 bags from Dunkirk.

To Florists and Basket Makers.

FILBERT SUCKERS.—1*s.* bundles will make 1000 sticks; 6*d.* bundles, 500 sticks.
45, Wells Street, Oxford Street, W.
☞ Please copy this address, as this Advertisement will not appear again.

DR. DENNY'S GERANIUMS.

SECOND SET.

JOHN COPELIN

Begs to announce that the Price of the above is now reduced to 10*s.* 6*d.* per set.

TYSSEN STREET NURSERIES, WEST HACKNEY, LONDON, N.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

NEW PLANT CATALOGUE 1874,

Gratis and Post Free.

B. S. WILLIAMS'

NEW PLANT AND GENERAL

CATALOGUE OF NURSERY STOCK

Is now ready, and will be forwarded to all applicants.

It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

THE CORINIUM

Guinea Collection of Bulbs,

Suitable for Outdoor, also Conservatory and Greenhouse.

This is the cheapest and contains the best supply of bulbs ever offered, which cannot fail to please purchasers; the cost of the same, if each article were ordered separately, would be considerably more than 21*s.*, but owing to the large number we are constantly supplying of the several sorts included in the Collection, we are able to offer the under-mentioned liberal quantity.

25 HYACINTHS, choice for borders.
6 Ditto, choice for pots or water.
12 NARCISSUS, for pots.
12 Ditto, for borders.
12 JONQUILS.
25 TULIPS, assorted.
25 RANUNCULUS.
200 CROCUS, assorted.
100 SNOWDROPS.
50 ANEMONES.
4 IXIAS.
6 SCILLAS.
6 TRITELEIA ODORATA.
50 ACONITES, winter.

Carriage paid to any railway station in England.

JNO. JEFFERIES AND SONS,
Seed Merchants and Nurserymen, Cirencester.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT,

QUEEN VICTORIA STREET,

CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to

THOMAS THORNTON,
Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

WANTED, about ONE ACRE of LAND for a FLORIST'S NURSERY, with Dwelling-house attached preferred; within ten miles of London.
A. B., Post Office, Chigwell Road, Essex.

Scott's Wasp Destroyer.

J. SCOTT, SEEDSMAN, Yeovil, offers his well-known preparation to Fruit Growers at 1*s.* 9*d.* and 2*s.* 9*d.* per bottle, post free, on receipt of stamps. No one who has fruit to preserve should be without it. It is also useful in the destruction of Flies, Cockroaches, and Crickets. See testimonials. None Genuine except the Corks bear "Scott, Seedsman, Yeovil." The Trade supplied. Prices on application.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Manures, Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of
POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

MILDEW

May be entirely prevented as well as cured by
EWING'S INFALLIBLE COMPOSITION.
Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions for use.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

Autumn Sowing.

ODAMS' MANURES,
Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.
Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.
MADE OF PREPARED HAIR AND WOOL.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes.
THE CHEAPEST AND MOST DURABLE
SHADING.
"FRIGI DOMO" CANVAS.

Two yards wide	.. ..	1*s.* 10*d.* per yard run.
Three yards wide	.. ..	3*s.* per yard.
Four yards wide	.. ..	3*s.* 10*d.* per yard.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.
E. T. ARCHER, Stanstead and Brockley Roads, Forest Hill, London, S.E. All goods carriage free to London.
NOTICE.—REMOVED from 3, CANNON STREET, CITY.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing, Second sized Archangel, 100*s.*; Petersburgh, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

DAVIS' IMPROVED WASP DESTROYER.

The testimony of hundreds who are now using it is that it is simply perfection, and a decided boon to all growers of Fruit.

None genuine unless bearing B. R. D.'s monogram.

May be had of—

THE LAWSON SEED COMPANY	.. Southwark, London, S.E.
Mr. J. E. DAVIS	.. 1, Baker Street, Brighton.
Mr. R. T. VEITCH ..	.. Exeter.
Messrs. GARAWAY & Co.	.. Bristol.
Messrs. DRUMMOND & SONS	.. Dublin; and of

B. R. DAVIS, Seedsman, &c., Yeovil, Somerset.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS' PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS' Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,
THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

HENRY ORMSON,
HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

Highland Cattle.

JAMES BRUCE, CATTLE AGENT, begs to inform his Customers that at the present time he can SEND them ANY DESCRIPTION of HIGHLAND or POLLED CATTLE, 15 per cent. under last year's prices.
Ruthwall, Annan.

DUTCH BULBS.

JOHN & CHARLES LEE

HAVE RECEIVED THEIR ANNUAL SUPPLY OF

HYACINTHS AND OTHER DUTCH ROOTS,

IN FINE CONDITION. EARLY ORDERS ARE REQUESTED.

CATALOGUES Post Free on application.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

DUTCH FLOWER ROOTS.

B. S. WILLIAMS

BEGS TO ANNOUNCE THAT HIS

ANNUAL CATALOGUE OF DUTCH FLOWER ROOTS,

CONTAINING A DESCRIPTIVE LIST OF CHOICE HYACINTHS, TULIPS, NARCISSUS, CROCUS, &c.;

Also a Select List of Fruit Trees, Roses, Vines, &c.,

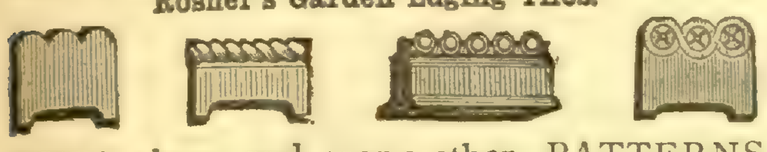
Is now ready, post-free to all applicants.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

CARSONS' PAINT,

PATRONISED BY THE QUEEN,

The British, Indian and Colonial Governments, 8000 of the Nobility, Gentry, and Clergy, Railway and Canal Companies, Collieries, Ironmasters, &c., &c.,

Is extensively used for all kinds of

OUTDOOR WORK.

It is especially applicable to

WOOD, IRON, BRICK, STONE & COMPO.

CAN BE LAID ON BY UNSKILLED LABOUR.

Sold in all Colours.

2 cwt. free to all Stations.

Prices, Patterns, and Testimonials sent Post Free.

WALTER CARSON & SONS,
LA BELLE SAUVAGE YARD,
LUDGATE HILL, LONDON, E.C.,
And 21, BACHELOR'S WALK, DUBLIN.
No AGENTS.

Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all outdoor work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5s., amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

Borough of Rotherham.—£25 Premium offered.

RECREATION or PUBLIC PLEASURE-GROUNDS.—The Corporation of Rotherham invite PLANS for the Laying-out of the Recreation or Public Pleasure-grounds at Boston Castle, Rotherham, in the best and most approved manner, showing the Roads, Walks, Cricket, Croquet Grounds, &c.; the locality of which will, on application, be pointed out to competitors by the Borough Surveyor.

The Plans must show the best Design for the reception of Ornamental Plants, Shrubs, &c.

Twenty-five Pounds will be paid to the competitors whose Plans are selected by the Corporation, and such last mentioned Plans are to become the property of the Corporation without any further payment.

Each Plan must be accompanied by an Estimate of the Cost of the carrying the works into execution, and the Plans must be sent in to the Town Clerk not later than the 1st day of October next.

The Corporation do not bind themselves to accept any Plan unless approved by them.

Further particulars may be obtained of Mr. JENNINGS, the Borough Surveyor.

W. WHITFIELD, Town Clerk.

Corporation Offices, Rotherham.—August 27, 1874.

Notice.

ROYAL SCHOOL of MINES, Jermyn Street, London, S.W.—The 24th SESSION will BEGIN on THURSDAY, the 1st of October. Prospectuses may be had on application.

TRENHAM REEKS, Registrar.

THE METROPOLITAN BOARD of WORKS HEREBY GIVE NOTICE that they will meet at the Office of the Board, Spring Gardens, S.W., on FRIDAY, September 25, 1874, at 12 o'Clock at noon precisely, and will then be prepared to OPEN TENDERS by parties who may be willing to CONTRACT for FORMING and EXECUTING WALKS and other GARDEN WORKS on the VICTORIA EMBANKMENT, at the West side of Hungerford Bridge, in the County of Middlesex.

Parties desirous to submit Tenders may, on and after September 7, 1874, inspect the Drawings and Specifications, and obtain Form of Tender, and other particulars, on application to Mr. GEORGE VULLIAMY, Superintending Architect of the Board, at the Office, Spring Gardens, between the hours of 9 A.M. and 4 P.M., or on Saturdays, between the hours of 9 A.M. and 2 P.M., until Thursday, September 24, 1874.

The Tenders, which must be on the Form supplied from this Office, and addressed to the Clerk of the Board, are to be delivered at this Office before 4 o'Clock on the last-mentioned day, and no Tender will be received after that hour. The Parties tendering must be in attendance at the Board at 12 o'Clock on the day appointed for opening Tenders, and any Tender which is not fully filled up in every particular will be rejected.

The Board do not bind themselves to accept the lowest or any Tender.

J. E. WAKEFIELD, Clerk of the Board.

Spring Gardens, S.W., September 1, 1874.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

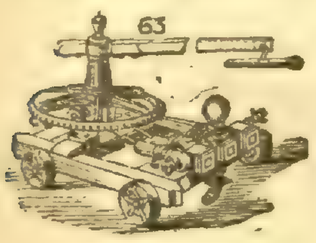
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

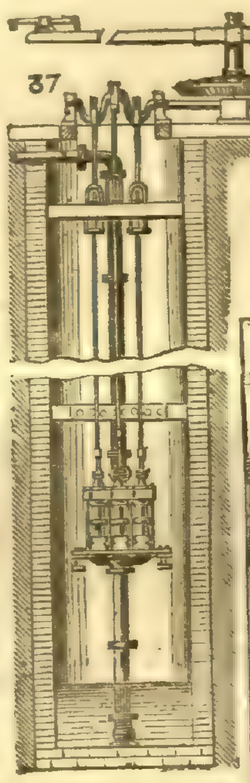
HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

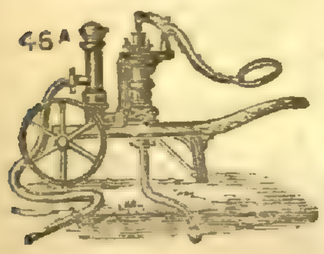
S. OWENS & CO.,

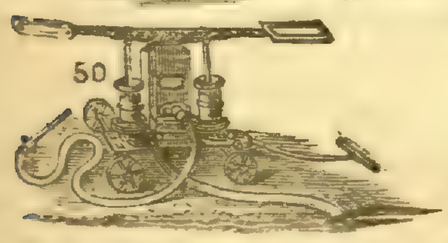
HYDRAULIC ENGINEERS,

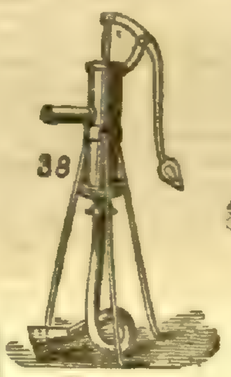
WHITEFRIARS STREET, LONDON, E.C.

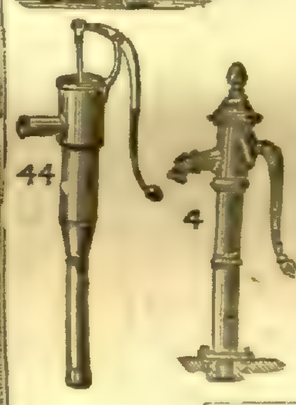


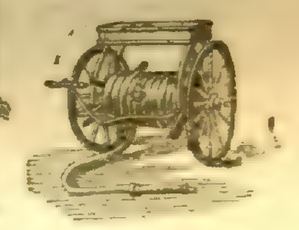


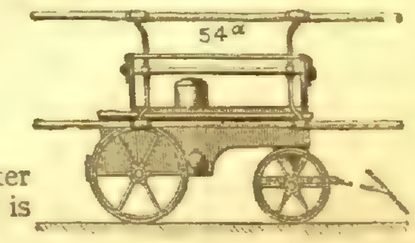












THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

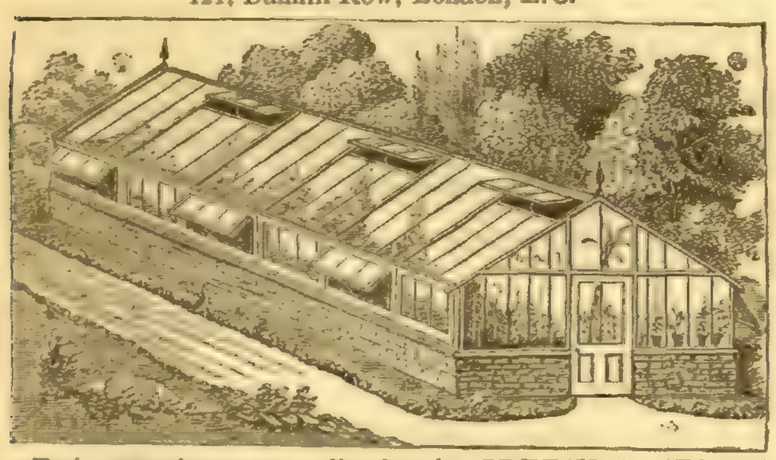
No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
No. 63. PORTABLE IRRIGATORS with Double or Treble Barrels for Horse or Steam Power.
No. 46a. IMPROVED DOUBLE ACTION PUMPS on BARROW for Watering [Gardens, &c.
No. 49a. GALVANISED SWING WATER CARRIERS, for Garden use.
No. 50 and 54a. FARM and MANSION FIRE ENGINES of every description.
No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.
No. 49. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.
No. 54b. THE CASSIOBURY FIRE EXTINGUISHER, as designed for the Right Hon. the Earl of Essex.
No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.
No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.
No. 39b. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution. FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.
HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

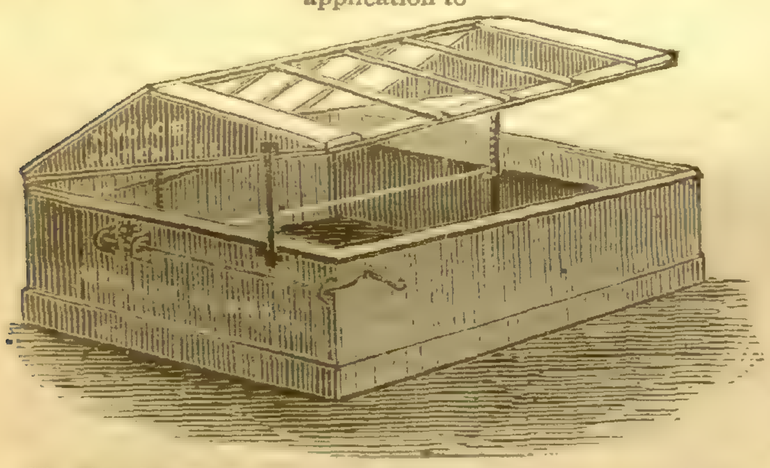
W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to

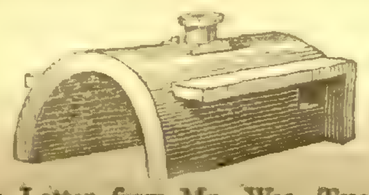


N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

First-class Certificate.

THE TERMINAL SADDLE BOILER is by far the cheapest and best, and is working its way into general favour.

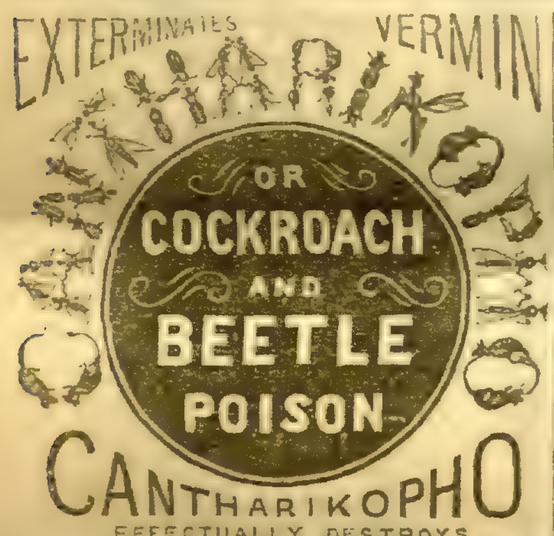


The following Letter from Mr. WM. THOMPSON needs no comment:—

"Tweed Vineyard, March 21, 1873.

"Dear Sir,—I have now had your Terminal Saddle Boiler heating two large Span-houses, 21 feet wide and 15 feet high, containing 1484 feet of 4-inch pipe, and it does its work to my entire satisfaction. In fact I know of no Boiler of the same size and cost that will do the same amount of work with the same quantity of fuel. It is an excellent Boiler. You should advertise more than you do, for it deserves to be better known than it is.—Yours truly, WM. THOMPSON."

Illustrated Circulars, post free.
THOMAS JONES, Temple Street, Manchester.

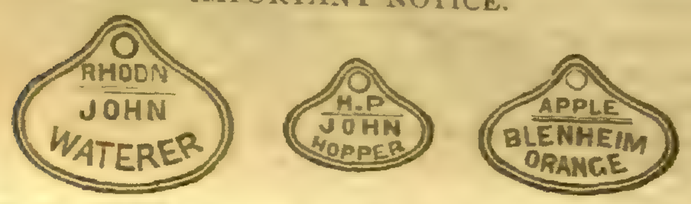


Is indispensable to Nurserymen, Gardeners, and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1s. and 1s. 6d., and sent post free with directions, for 1s. 3d. and 1s. 10d., by the Proprietors—

WILLIAM ROLLISSON & SONS, Tooting, London, S.W. Wholesale Agents: Messrs. Turner & Rowe, 84, Little Britain.

The Improved Imperishable Labels!!!
IMPORTANT NOTICE.



J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon,

J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose.

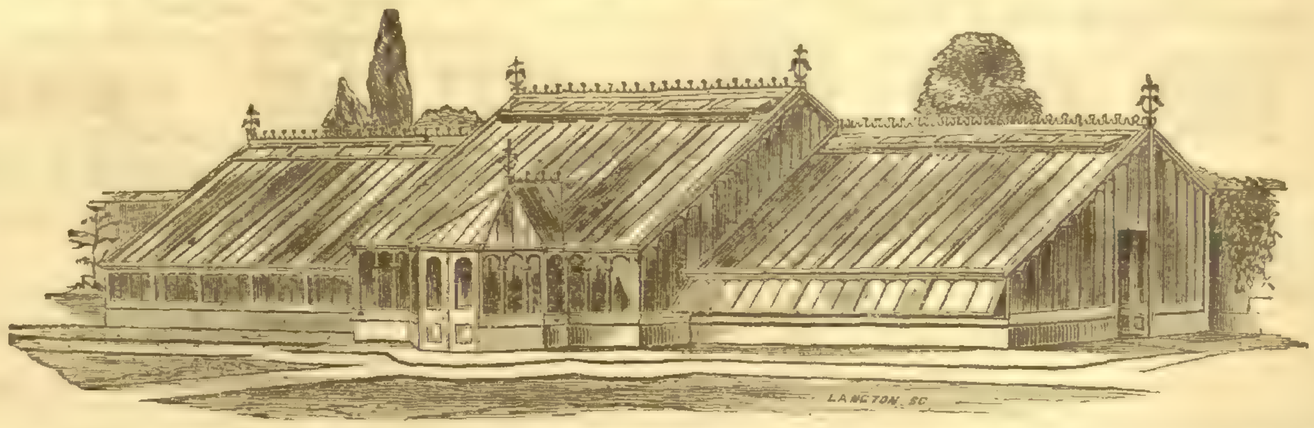
All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

T. G. MESSENGER,

CONTRACTOR, MIDLAND HORTICULTURAL BUILDING AND HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH,



Begs to inform his numerous Patrons and the Public generally, that since his recent disastrous fire he has erected new, more extensive, and commodious works, fitted with the best steam-power machinery, for the construction of Horticultural Buildings in wood or iron, plain or ornamental, of any required dimensions. T. G. MESSENGER is now, therefore, in a position, from his great facilities and experience, to carry out with dispatch and in the best manner, at moderate cost, the orders with which he may be entrusted. Glasshouses erected on Messenger's Patent principles are, owing to mechanical arrangements, very strong, *most durable*, light, *elegant; perfect efficiency* for purpose intended is *guaranteed;* are economical in cost and maintenance. Hot-water engineering in all its branches. Messenger's Patent Hot-water Boilers, Flexible Jointed Hot-water Pipes and Valves, are now in use in many thousands of instances, with the greatest success. Particulars on application.

Plans and Estimates forwarded. Ladies and Gentlemen waited upon. The Plans of Architects and others carried out.

A richly Illustrated CATALOGUE forwarded Post Free on receipt of 33 Stamps.

ST. PANCRAS IRON-WORK COMPANY.

CONSERVATORIES, GREENHOUSES, &c.

ARCHITECTS' DESIGNS CAREFULLY CARRIED OUT.

APPLY FOR ESTIMATES TO
OLD SAINT PANCRAS ROAD, LONDON, N.W.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

Have the largest and most complete Stock in the Trade of

HOT-WATER BOILERS, | PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

They are thus enabled to offer these Goods at Low Prices, notwithstanding the very great increase in the cost of all kinds of Iron.

NEW PATENT CLIMAX BOILER (1874).

GOLD MEDAL BOILER (Birmingham, 1872).
PATENT EXCELSIOR BOILER (1871).

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE.

THE AGRICULTURAL GAZETTE,
SATURDAY, SEPTEMBER 5, 1874,
Contains—

ORIGINAL ARTICLES on Foreign Harvests—Vetches—Forage Crops—The American Horse Distemper—Stonebreakers (Illustrated)—Food Production in France—The Derbyshire Cheese Factories—Emigration to Canada—Piecework in Farming—Agricultural Machinery (Illustrated)—Racing in Yorkshire—Partridge Shooting—Labour and Wealth—Warlaby and its Shorthorn Herd—Cricket—Recent Investigations in Agricultural Chemistry—Portrait and Agricultural Memoir of

Mr. CHARLES HOWARD, OF BIDENHAM.

HOME AND FOREIGN CORRESPONDENCE on the Maintenance of Turnpike Roads—A Suffolk Peasant Farmer—Morecambe Bay—Blunsden Farm—An American Deep Can Butter Dairy (with Illustrations).

FARM NOTES AND MEMORANDA from various English, Scottish, and Irish Counties.

REPORTS OF SOCIETIES AND FARMERS' CLUBS.

ALSO—

The Veterinarian—The Poultry Yard—The Bee-keeper—The Garden of the Farm—Recent Fairs—Notes of the Week—Ram Sales—Markets, &c.

Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

THE VEGETABLE KINGDOM; or, THE STRUCTURE, CLASSIFICATION, AND USES OF PLANTS. Illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25*s.*, with upwards of 500 Illustrations.

EXTRACT FROM THE AUTHOR'S PREFACE.

"The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be brought by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects."

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

Just Published, imperial 8vo, on fine toned paper, with eleven Illustrative Plates,

THE NATURAL PRINCIPLES of LANDSCAPE GARDENING. By JOS. FORSYTH JOHNSON (Landscape Gardener), Curator, Royal Botanic Gardens, Belfast.

Price 7*s.* 6*d.*, post free 7*s.* 9*d.*, from the Author.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

WANTED, a GARDENER—a married Man with a good character. Must thoroughly understand the profession. Two under him.—F. C. SCARGILL, Esq., Bramingham, Luton, Beds.

WANTED, a GARDENER, for a Gentleman's Establishment in the country, where he will be required to perform the functions of Bailiff in the Management of about 30 Acres of Land. As the Proprietor intends that the produce of his garden shall pay for the labour, &c., he would require a man that will undertake the situation in such a manner that it will pay itself, all profit being the property of the gardener. The Garden consists of about 2½ acres, well stocked with Fruit Trees, large Vinery, Orchard-houses, an Orchard (about 2 acres) with first-class Fruit Trees, and everything in good working order.—Apply, by letter, to W., 6, Charles Street, Berkeley Square, London, W.

WANTED, as GARDENER and GROOM, a young Man, to reside in the house (60 miles from London); competent to undertake the Management of Flower and Kitchen Garden and small Conservatory, also the care of a Horse. Wages at commencement, £12 per annum.—J. M., Mr. Harper, Law Writer, 18, Warwick Court, Holborn, W.C.

WANTED, a FOREMAN for the HOUSES. Must understand the Forcing of Vines, &c., and be accustomed to Stove and Greenhouse Plants. None need apply who have not been used to Grow Plants for Table and House Decoration. Wages 20*s.* per week, with lodgings, &c.—J. B., 26, Norman Street, Whitehead's Grove, Chelsea, S.W.

WANTED, a young Man as PROPAGATOR (INDOOR). Must be thoroughly experienced in Roses, Rhododendrons, Clematis, &c., and a good Grafter.—State experience and amount of wages, to WILLIAM FLETCHER, Ottershaw Nursery, Chertsey.

WANTED, a PROPAGATOR of Greenhouse and Bedding Plants. Wages to commence with 20*s.* per week.—JNO. JEFFERIES AND SONS, Royal Nurseries, Cirencester.

WANTED, a young MAN to assist in the Houses; must understand Furnishing, and a good hand at Bouquets.—Address, with reference as to character, ability, &c., M. W., West Brighton Estate Nursery, Cliftonville, Sussex.

To the Seed Trade.

WANTED, as SHOPMAN, a young Man, lately out of his apprenticeship.—Apply, stating age, and giving reference to last employer, to W. DRUMMOND AND SONS, Seedsmen, 58, Dawson Street, Dublin.

WANTED, a TRAVELLER, thoroughly acquainted with the Value of General Nursery Stock both indoors and out.—THOMAS CRIPPS AND SON, The Nurseries, Tunbridge Wells, Kent.

WANTED, a CLERK, in a Provincial Nursery—one who understands Shorthand, and has a thorough knowledge of the profession preferred. Applicants to state age, wages required, and references.—B. WHITHAM, The Nurseries, Reddish, near Stockport.

J. H. LEY has a VACANCY for a NURSERY CLERK—one having some knowledge of the Seed Trade preferred. To an energetic, persevering young Man a good progressive salary will be given.—Royal Nursery, Croydon.

Seed Trade.

WANTED, an active YOUNG MAN, from 18 to 20 years of age, to Assist at Counter, Warehouse, &c. Must write a good hand, and be willing to make himself generally useful.—State wages required, where last employed, and all particulars, to G. C. B., *Gardeners' Chronicle* Office, W.C.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

To Nurserymen and Gardeners.

GARDENER (HEAD), where three or more are kept.—Age 28, married; has had upwards of thirteen years' experience in First-class Establishments, and can be highly recommended. Is now holding a situation where upwards of 40,000 plants are bedded-out annually. Advertiser will give £3 to any Nurseryman or Gardener who will procure him a situation as above.—HORTUS, Post Office, Essendon, Herts.

GARDENER (HEAD), where two or more are kept.—Age 25, single. Five years' character as Foreman.—J. BEES, Newton Park Gardens, near Bristol.

GARDENER (HEAD).—Age 30; understands the profession in all its branches, Stove and Greenhouse Plants, Orchids, Ferns, &c. First-class references.—T. G., W. Rollisson & Sons, The Nurseries, Tooting, Surrey, S.W.

GARDENER (HEAD).—A GENTLEMAN wishes to recommend to any Lady or Gentleman a Working Gardener, thoroughly experienced in every branch of the profession.—C. A., Devonshire Road, West Croydon.

GARDENER (HEAD).—Age 30, married; thoroughly understands the Management of Vines, Stove and Greenhouse Plants, Early and Late Forcing, Flower and Kitchen Gardening, Orchard-houses, &c. Single-handed place objected to.—GEORGE ELLIS, 83, Park Road, Penge Park, Penge, S.E.

GARDENER (HEAD).—Trained in some of the best Gardens in England. For the last two and a half years has had charge of the extensive Collection of Orchids, Ferns, and Stove and Greenhouse Plants in the possession of R. Hanbury, Esq., The Poles, Ware.—J. C. SPYERS, Beckley Grove, Oxford.

GARDENER (HEAD).—Married, one child (six years); thoroughly understands the Cultivation of Stove and Greenhouse Plants, Ferns, Orchids, Vines, Melons, Cucumbers, and Forcing in all departments, Early and Late, having had 16 years' experience in good Establishments. No part objected to. Highest references from late and previous employers.—R., Gardener, Post Office, Newton Abbot, Devon.

GARDENER (HEAD, WORKING).—Married, with one child; understands the profession in all its branches.—R. F., The Gardens, Woodcote, Epsom, Surrey.

GARDENER (HEAD, WORKING).—Age 32; has a good practical knowledge of the profession.—Address, stating wages, to X. Y. Z., Post Office, Peckham Rye, London, S.E.

GARDENER (HEAD, WORKING).—Age 40; thoroughly understands the cultivation of Flowers, Fruits, and Vegetables. — JOHN SMITH, The Dorset Nurseries, Blandford.

GARDENER (HEAD, WORKING).—Age 29, married; well experienced in all branches. Leaving through Employer giving up his Establishment, where he has been over three years.—E. W., 27, Over Street, Brighton.

GARDENER (HEAD, WORKING).—Age 41; first-class Grower of all kinds of Fruits, Flowers, and Vegetables; also a good Orchid, Stove, and Greenhouse Plant Grower. No Single-handed place accepted. Good reference.—HEAD GARDENER, S. Machen, Esq., 29, Beresford Road, Birkenhead.

GARDENER (HEAD, WORKING).—Age 26, married; understands the Cultivation of Vines, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Nine years' experience, five in a Nursery. Somerset or Dorset preferred.—F. C., Post Office, Musbury, Axminster, Devon.

GARDENER (HEAD, or SINGLE-HANDED), or FOREMAN.—Married, one child; thorough good practical knowledge of the profession in all its branches. Good references.—J. H., Bury Nursery, Lower Edmonton, N.

GARDENER.—A LADY, breaking up her household, highly recommends her Gardener as thoroughly efficient and satisfactory in every respect.—W. J. SENDALL, Esq., Crick Road, Oxford.

GARDENER.—Messrs. J. & G. MCHATTIE, Seed Merchants, Chester, can recommend an experienced Gardener to any Lady or Gentleman requiring the services of a Man who has a thorough knowledge of Forcing, Plant Growing, and Flower and Kitchen Gardening.—References and particulars sent on application as above.

FOREMAN, in a Nobleman's or Gentleman's Establishment.—Age 24; has a thorough practical knowledge of the profession. Good references.—S. ROSS, Gardener, Highclere Castle, Newbury, Berks.

To Nurserymen.

GROUND FOREMAN.—Age 38; has had many years' experience in the Propagation of Hardy Trees, Shrubs, Coniferæ, Roses, &c. Also very successful in Budding, Grafting, &c. Good references as to character and abilities.—A. B., *Gardeners' Chronicle* Office, W.C.

GENERAL MANAGER.—The Advertiser, having been a large Grower of Orchids, &c., as an Amateur (formerly F.H.S.), desires an appointment in the Establishment of a Lady, Nobleman, or Gentleman, as general Caretaker and Overlooker of the Estate and Gardens. Good eferences.—M. T. C., Post Office, Tonbridge, Kent.

GARDENER (SINGLE-HANDED), or where a Lad is kept. A Second place not objected to where three are kept.—G. APPLETON, Mr. Carpenter, Morden, Surrey.

GARDENER (SINGLE-HANDED).—Age 24; understands Vines and Greenhouse, and Flower and Kitchen Gardening. Good character.—Address, stating wages given, A. B., Churchgate Street, Harlow, Essex.

GARDENER (SINGLE-HANDED).—Age 25, single; thoroughly practical in Early and Late Forcing, and Stove and Greenhouse Plants. A good Kitchen Gardener. Three years' excellent character. State wages given.—M. M., 7, Albert Row, East End, Finchley, N.

APPRENTICE, in a Nobleman's or Gentleman's Garden.—A strong, active youth, 16 years of age; has been twelve months in the trade. A Premium given.—C. B. B., Pemberry Cottage, College Street, Highbury Vale, London, N.

To Nurserymen and Florists.

APPRENTICE (INDOOR), to a Nurseryman, or in a Nobleman's Establishment.—Age 15.—Mr. PINK, Market Gardener, Mortlake, Surrey.

SEED TRADE.—A respectable Man of long experience, and who holds first-class certificates, is desirous of obtaining a situation in the above. Can be highly recommended by present employer.—B. A., *Gardeners' Chronicle* Office, W.C.

SHOPMAN, or CLERK.—Age 24. Nine years' experience in Nursery and Seed Trades. In or near London preferred. Good reference.—A. M., 7, Church Court, Kensington, W.

COWMAN.—Married, no family; thoroughly understands the Management of Stock. Wife could undertake Dairy, if required. Would not object to fill up his time in the Garden, or could Manage a small Farm. Ten years' good character.—T. W., 4, Sarah Place, Hawks Road, Norbiton.

KINAHAN'S . LL . WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES,
in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA,
BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*

MANUFACTURE OF COCOA.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*

Made simply with boiling water or milk.

Sold by Grocers, only in packets, labelled
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS,
48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, N.W.

Lea & Perrins' Sauce,

THE "WORCESTERSHIRE,"
pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.

ASK FOR LEA AND PERRINS' SAUCE.
BEWARE OF IMITATIONS,
and see the names of LEA AND PERRINS on all Bottles and Labels.

Agents—CROSSE AND BLACKWELL, London and sole by all Dealers in Sauces throughout the World.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W., and of all Chemists throughout the World.

LONDON, 1873.

GOLD MEDAL, 1872.

VIENNA, 1873.

NO BENT GLASS USED.

FLETCHER, LOWNDES & CO.,

13A, GREAT GEORGE STREET, WESTMINSTER, LONDON, S.W.,

PATENTEES AND MANUFACTURERS OF

WOOD AND IRON CONSERVATORIES, GREENHOUSES, VINERIES,

And every description of HORTICULTURAL BUILDING, either Plain or Ornamental.

HOT-WATER ENGINEERS.

CHURCHES AND PUBLIC BUILDINGS HEATED BY HOT-WATER APPARATUS.

Messrs. F., L. & Co. would draw particular attention to their

CURVILINEAR HOUSES

(Constructed with their **PATENT IRON TUBULAR RIB**), which gained the **GOLD MEDAL** for utility, strength, lightness, and elegance, at the Royal Horticultural Society's Show, June, 1872; **MEDAL** for **MERIT** at Vienna, 1873, and **MEDAL** at the International Exhibition, London, 1873.

A special feature in these Buildings is that they may readily be removed any number of times without the slightest injury.

ALSO TO THE

PATENT VAPORISING AND VENTILATING HEATING APPARATUS,

By which perfect Purity of Atmosphere is secured, and a great Saving of Fuel effected.

☞ *DRAWINGS AND ESTIMATES ON APPLICATION.*

FLETCHER, LOWNDES & CO.,

13A, GREAT GEORGE STREET, WESTMINSTER, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, September 5, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 37.—Vol. II. {New Series.} SATURDAY, SEPTEMBER 12, 1874. {Registered at the General Post Office as a Newspaper.} Price 5d. Post Free, 5½d.

CONTENTS.

Alnus imperialis	334
American Association ..	335
America, horticulture in .	333
Andrew Turnbull (with portrait)	329
Books, notices of . ..	331
British gardeners.—I. ..	329
Brunswick Fig, the ..	334
Calostemma Cunninghami	334
Chatsworth	336
Chemistry, centennial of ,	324
Dessert Pears	337
Dunrobin Castle (with cut)	324
East Indian Toddy Palm	334
Erigeron mucronatum ..	334
Exhibition of insects ..	324
Florists' flowers	330
Forestry	330
Fuchsia procumbens ..	322
Gardening operations ..	343
Gardens for cotton-mill operatives	321
Germination of unripe seeds, on the	329
Golden Champion Grape	334
Gongora cassidea ..	322
Greenhouse plants ..	326
Horse, a vegetable (with cut)	339
Immoral criticism of Rose exhibitors	338
Jedburgh Pears	325
Kew, the old walls at ..	323
Kum-quat, the (with cut)	336
Lilium Washingtonianum purpureum (with cut) .	322
Lycopersicum racemiforme	334
Manures, chemistry of ..	327
Masdevallia caloptera ..	322
,, Livingstoneana ..	322
,, melanopus	322
,, pachyura	322
Melons shown at Reading	340
Myosotis dissitiflora ..	339
Notes on Indian forest produce	330
On removing old Apricot trees	336
Pelargonium Society, the	322
Plant gossip	328
Plants, new garden ..	322
Potato disease, the ..	339
Potato crop of 1874 ..	339
Romance of natural history	336
Rose show discussion	337, 338
Selection of judges ..	334
Societies :—	
Crystal Palace ..	349
Dundee Horticultural .	340
Strawberries, best vars. .	
Sweet Flag, the	328
Villa gardening	
Voice's patent ventilating apparatus (with cut) ..	334
Weather, the	343
Zanthoxylum alatum ..	336

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is **$6.30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11 Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth*, 16*s*.
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—The GREAT INTERNATIONAL FRUIT and FLOWER SHOW will be held in Edinburgh on WEDNESDAY and THURSDAY, September 15 and 16.
JOHN STEWART, Sec.
WM. YOUNG, Assist. Sec.

ROYAL POMONA PALACE and GARDENS, MANCHESTER.
A GRAND EXHIBITION of NATIVE and EXOTIC FRUITS, AUTUMN and WINTER FLOWERS, FLORAL BOUQUETS, PALMS, TREE FERNS, CONIFEROUS PLANTS, &c., will be held the latter end of November.
The Schedule of Prizes will be issued shortly.

1875.

GRAND FLORAL FETE, YORK, JUNE 16, 17 and 18, 1875.
Schedules will be ready in January next.
13, New Street, York. JNO. WILSON, Sec.

GIBSON TESTIMONIAL.
For full particulars, see *Gardeners' Chronicle*, p. 204.
Amount already promised, £411.
Subscriptions are received by
Mr. THOMAS MOORE, Treasurer, Botanic Gardens, Chelsea, S.W.; or,
Mr. HARRY J. VEITCH, Hon. Sec., Royal Exotic Nursery, King's Road, Chelsea, S.W.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

BROMUS SCHRŒDERI.—Messrs. F. SANDER & Co. offer the above (New Harvest) to the Trade, at special low quotations. Samples on application.
F. SANDER AND CO., Seed Growers, St. Albans.

CENTAUREA CLEMENTII, 1*s*. 1*d*., 2*s*. 6*d*., and 5*s*. per packet. Price to the Trade on application.
CHARLES YOUNG, The Nursery, Balham Hill, S.W.

EUCALYPTUS GLOBULUS (Blue Gum Tree of Tasmania).—Nice specimens, about 18 inches high, in pots, of the above very interesting hardy tree, so famous for Draining Damp Soils and Destroying Malaria, the leaves of which exhale a very pleasant strong camphor-like odour, are offered at 2*s*. each, or 18*s*. per dozen, by
W. H. ROGERS, Red Lodge Nursery, Southampton.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

Roses, Roses, Roses.

EWING AND CO.'S Illustrated, Priced, and Descriptive CATALOGUE will shortly be ready. All Rosarians should possess a copy, which will be forwarded, gratis and post free, to applicants.
The Royal Norfolk Nurseries, Norwich.

ROSES for SALE.—Five Hundred very fine, large Specimen-sized trained Plants, grown in Pots. The Best Varieties in Cultivation.
The above Stock can be seen on the grounds after September 21. All applications to be addressed
THOMAS EAST, Wolveton Gardens, Dorchester, Dorset.

Standard Tea Roses from Paris.

LEVEQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer for next autumn a splendid and large stock of TEA ROSES, comprising all the best sorts, Maréchal Niel, per hundred. The price will be £5 per 100. LIST of sorts on application.

CINERARIAS.—Seedlings of the finest Strains, including Dark and Light Blues, Strong Plants from Seed Pans, 1*s*. 6*d*. per dozen, 10*s*. per 100.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

Wheeler's Superb Herbaceous Calceolaria.

GEO. WHEELER is prepared to offer packets, post free, at 1*s*. 6*d*., 2*s*. 6*d*., and 3*s*. 6*d*. each, of his very superior Strain. Being dwarf and robust the habit of the Plants is all that can be desired, and may generally be grown without the aid of sticks to support the flower-stems.
Young plants of the above may be sent safely by post, when ready, at 3*s*. per dozen.
The Nurseries, Warminster, Wilts.

Lily of the Valley.

ROBERT NEUMANN, The Nurseries, Erfurt, begs to offer large quantities of strong flowering roots, for forcing, of the above, at 45*s*. per 1000.
Also strong clumps of SPIRÆA (HOTEIA) JAPONICA.

DOWNIE, LAIRD AND LAING beg to intimate that all the popular VIOLAS of the present day may NOW be SEEN in FULL FLOWER in their Flower Garden at their Royal Winter Gardens, Edinburgh, near the Haymarket Station.

Spiræa japonica.—To the Trade Only.

H. B. SMITH is now booking orders for strong Flowering Clumps, at 25*s*. per 100, and £12 per 1000, for cash.
H. B. SMITH, Ealing Dean Nursery, Ealing, London, W.

Note this!

NEW CERTIFICATED PLANTS, offered by J. CHAMBERS, Westlake Nursery, Spring Grove, Isleworth:—GERANIUMS—Captain Raikes, Laxton's Jewel, Master Christine—good plant of each, 7*s*. 6*d*. BOUVARDIAS—Jasminiflora longipetala, Bridal Wreath, alba odorata—good plant of each, 5*s*. ANTHURIUM SHERZERIANUM, ACHIMENES WILLIAMSII, TRADESCANTIA VARIEGATA, new—good plant of each, 7*s*. 6*d*.; or £1 the set.

SUNDEWS—DROSERA ROTUNDIFOLIA.—See *Gardeners' Chronicle*, page 260. One Plant 9*d*., or six strong in flower, or seed, 2*s*. 6*d*. Free by Post.
A. M., Highampton, Devon.

PANCRATIUM NOTATUM and CRINUM PRATENSE CANALICULATUM: *vide* Illustrations, Descriptions, and Prices, in Mr. WILLIAM BULL'S BULB CATALOGUE, just issued.
Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

The Finest Hardy Plant of the Year.

HELIANTHUS FISTULOSUS (vil.) INSIGNIS, Otto.—See description of this gorgeous plant in report of South Kensington, Crystal Palace, &c., &c. In Packets, post free, 12 Seeds, 2*s*. 6*d*.; 6 Seeds, 1*s*. 6*d*.
Mr. TANTON, F.R.H.S., New Plant and Seed Merchant, Borough End, London Bridge, S.E.

British Fern Catalogue.

ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

WANTED, LARCH FIR, from 1½ to 2 feet high. State price and quantity.
GEORGE TOWNSEND, Nurseryman, Fordham, near Soham.

WANTED, to be supplied with the CHOICEST SELECTED FRUITS of every variety.
Address, G. M. KEMP-WELCH, Fruit Merchant, Regent Street, West Clifton, Bristol.

WANTED, to be supplied with CHOICE CUT FLOWERS, including ORCHIDS. Also, CUTTINGS of TRICOLOR and other PELARGONIUMS.
Address G. M. KEMP-WELCH, Florist, Regent Street, West Clifton, Bristol.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s*. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other Dutch Roots, in fine condition. Early orders are requested. CATALOGUES post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete every published.
Hale Farm Nurseries, Tottenham, London, N.

Dutch Bulbs.

CHARLES TURNER'S large importations have arrived in excellent condition, and he is prepared to execute Orders on receipt. CATALOGUES on application.
The Royal Nurseries, Slough.

Spring Flowers.

THOMAS S. WARE'S NEW BULB CATALOGUE contains a selection of all the best spring flowering Perennials in cultivation. A section requiring to be planted in the autumn to ensure a good display the following spring. Hale Farm Nurseries, Tottenham, London, N.

FOR SALE, very cheap, the finest pair of ALOES in the country. Apply to
THOS. SIMPSON, Broomfield Lodge, Chelmsford.

Horticulture.

THOMAS RIVERS' Descriptive and Illustrated CATALOGUE of FRUITS is now ready. Also, CATALOGUE of SELECT ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s*. to 60*s*. per dozen. Extra strong Fruiting Canes, 7*s*. 6*d*. to 10*s*. 6*d*. each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s*. each.
RICHARD SMITH, St. John's Nurseries, Worcester.

Fine Strawberries.

CHARLES TURNER recommends the following, to fruit in the order named:—La Grosse Sucrée, President, Vicomtesse H. de Thury, Sir J. Paxton, Royalty, Sir C. Napier, Frogmore Late Pine, and Elton Pine. These are all good growers and have fine flavour. CATALOGUES on application. The Royal Nurseries, Slough.

Cabbage Plants.

DRUMHEADS, extra fine, 3*s*. per 1000; ENFIELD MARKET and EARLY BATTERSEA, 3*s*. 3*d*. do. Carefully packed and put on the rail. Orders payable at Godalming.
S. WELLAND, Surrey Gardens, Godalming, Surrey.

New Turnip Seeds for Present Sowing.

H. AND F. SHARPE are now harvesting TURNIP SEEDS of 1874 growth, and are prepared to execute Orders from the Trade at very moderate prices, and on receipt of Letter or Telegram.
Seed Growing Establishment, Wisbech.

SEED POTATOS.—Twenty-two bushels of Early Handsworth for Sale. For Sample and price apply to—G. BOLTON, Wyddial, Buntingford, Herts.

The New American Potatos.

SNOWFLAKE, BROWNELL'S BEAUTY, | EXTRA EARLY VERMONT, COMPTON'S SURPRISE.

HOOPER AND CO. are large holders of these very choice sorts, and can give special advantages to buyers in the trade during the autumn. Prices on application.
HOOPER AND CO., Covent Garden, London, W.C.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1*s*. per bushel, or 6*d*. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

Now ready, Gratis and Post-free,

Beautifully Illustrated, and containing complete Cultural Instructions.

SUTTONS' CHOICE COLLECTIONS
OF
SPRING FLOWERING BULBS.

For Spring Blooming in the Open Ground.
Collections containing from 140 to 1000 Bulbs, according to Size.
Price 5*s.*, 10*s.* 6*d.*, 21*s.*, and 42*s.* each. Larger size Collections Carriage Free.

For Spring Blooming in Pots or Glasses.
Collections containing from 70 to 280 Bulbs, according to size.
Price 10*s.* 6*d.*, 21*s.*, and 42*s.* each. Larger size Collections Carriage Free.

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

NEW PLANT CATALOGUE 1874,
Gratis and Post Free.

B. S. WILLIAMS'

NEW PLANT AND GENERAL
CATALOGUE OF NURSERY STOCK
Is now ready, and will be forwarded to all applicants.

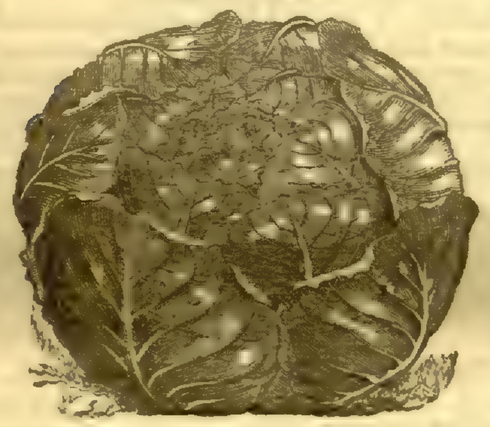
It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

WHEELERS' CHOICE SEEDS

FOR PRESENT SOWING.
POST FREE.

TOM THUMB LETTUCE.



TOM THUMB LETTUCE.

WHEELERS'
TOM THUMB LETTUCE.

A small compact Lettuce, of fine flavour and excellent quality; a capital variety for winter and early spring.
Large packet, 1s.; small packet, 6d.

"I am going to try how your Tom Thumb Lettuce will stand the winter. As a summer Lettuce it is invaluable, and not to be approached by any in cultivation."—CHAS. BRETTINGHAM, Goodwick.

"Please forward me two packets of your most excellent Tom Thumb Lettuce, the best Lettuce ever introduced into this country."—C. THURNALL, Whittlesford, near Cambridge.

"Your Tom Thumb Lettuce is the most tender and delicious of all Lettuces.—W. M. THOMAS, Fanfield, Bedale, Yorkshire.

"Having heard the fame of your Tom Thumb Lettuce I intend to make a trial of it, if you will kindly send me a packet by return of post."—JOHN CARLL, Streatham Common.

"Wheelers' Tom Thumb Lettuce is a capital variety for winter and early spring."—THOMAS RIVERS, Sawbridgeworth.

J. C. WHEELER & SON,
SEED GROWERS, GLOUCESTER, and 59, MARK LANE, LONDON, E.C.

The Royal Seedsmen. The Royal Seedsmen.

PRETTY FLOWERS in WINTER and SPRING

ARE SECURED AT A LOW COST BY PLANTING

Carter's

COLLECTIONS OF HYACINTHS, TULIPS, CROCUS, &c.

NOW READY.

The following Collections are particularly adapted for Drawing Room or Conservatory Decoration:

COLLECTION No. 1	Packing and Carriage Free, excepting No. 5.	Price, 84*s.*
COLLECTION No. 2		Price, 63*s.*
COLLECTION No. 3		Price, 42*s.*
COLLECTION No. 4		Price, 21*s.*
COLLECTION No. 5		Price, 10*s.* 6*d.*

The following Collections are adapted for both Indoor and Outdoor Cultivation:

COLLECTION No. 6	Packing and Carriage Free, excepting No. 10.	Price, 84*s.*
COLLECTION No. 7		Price, 63*s.*
COLLECTION No. 8		Price, 42*s.*
COLLECTION No. 9		Price, 30*s.*
COLLECTION No. 10		Price, 15*s.*

The following Collections are for Outdoor Cultivation:

COLLECTION No. 11	Packing and Carriage Free, excepting No. 15.	Price, 84*s.*
COLLECTION No. 12		Price, 63*s.*
COLLECTION No. 13		Price, 42*s.*
COLLECTION No. 14		Price, 21*s.*
COLLECTION No. 15		Price, 10*s.* 6*d.*

Early Orders ensure the best Bulbs. We Deliver all Dutch Roots above 20s. value, Carriage Free.

THE NEW AND BEAUTIFUL COLEUS, "DUCHESS OF EDINBURGH."

Awarded First-class Certificates: Royal Horticultural Society, June 17, 1874; Royal Botanic Society, June, 20, 1874.

JAMES CARTER AND CO. having purchased the Entire Stock of this charming Plant are prepared to supply Orders at once. As the demand must be great, Orders will be executed in strict rotation as received.

Extra Strong Plants 7*s.* 6*d.*, or post free for 8*s.* Small Plants, 5*s.*, or post free for 5*s.* 6*d.*

DETAILED CATALOGUE GRATIS AND POST FREE.

CARTER'S,
THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

W. & J. BROWN, NURSERYMEN, STAMFORD,

HAVE GREAT PLLASURE IN INTRODUCING THE FOLLOWING

NEW APPLE—PEASGOOD'S NONESUCH.

This handsome Apple was presented before the Fruit Committee of the Royal Horticultural Society on September 18, 1872, and received a First-class Certificate; it was also exhibited at the Crystal Palace on September 8, 9 and 10 inst., and received a similar award. It was pronounced by the Judges to be the most handsome autumn Apple in cultivation.

The fruit is like a very large Nonesuch, and not unlike a well-grown and highly coloured Blenheim Pippin. It is above the medium size, roundish, and somewhat oblate. The skin is yellow, overspread on the sunny side with red, which is copiously streaked with dark crimson. The eye is very large and open, set in a deep, round, and even basin, and with short depauperated segments. Stalk short, deeply inserted. Flesh yellowish, tender, very juicy, with a sweet and sprightly flavour and pleasant aroma.

It is a valuable culinary Apple, and not unworthy of the dessert. In use September, October, and November. A Coloured Plate is in preparation.

Early Orders are solicited, as the stock is very limited.

Dwarfs, 7s. 6d. each; Dwarf-trained and Pyramids, 10s. 6d. each.

TRADE TERMS ON APPLICATION.

CHOICE IMPORTED AND ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 22, at half-past 12 o'Clock precisely, a

COLLECTION OF CHOICE IMPORTED AND ESTABLISHED ORCHIDS,

including Eleven good Plants of the exceedingly beautiful and rare CATTLEYA EXONIENSIS, several established Plants of ODONTOGLOSSUM ROEZLII, ODONTOGLOSSUM ANGUSTATUM, VANDA LAMELLATA; various MASDEVALLIAS and other choice things. Also an Importation of the rare CYPRIPEDIUM CANDIDUM, with various other Imported Orchids.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

SHRUBS, for Potting.—A fine collection of Arbor-vitæs, Box, Berberis, Red Cedars, Cupressus, Ivy, Jasmine, Laurustinus, Pinus, Pyrus, Thujopsis, Yew, Honeysuckle, Roses, &c. LISTS on application to
JOHN COLLINGS, Maybank Nursery, Kingston, Surrey.

GENERAL NURSERY STOCK.—A fine assortment of Forest Trees, Limes, Acacias, Birch, Elm, Poplars, Hornbeam, Chestnuts, Laburnums, &c.; also a good collection of Evergreens, Roses, Spiræas, Syringas, &c. LISTS, Wholesale and Retail, upon application to
JOHN COLLINGS, Maybank Nursery, Kingston, Surrey.

For Early Keep Plant at Once.

EARLY CABBAGE — Enfield, excellent plants, now ready, price 4*s.* per 1000; also, for present sowing, on deficient Clover Leys or on stubbles, TRIFOLIUM INCARNATUM, splendid seed, 6*d.* per lb., 50*s.* per cwt.; WHITE MUSTARD, 10*s.* per bushel; SPRING TARES, fine English, 10*s.* 6*d.* per bushel. Terms Cash.
F. GEE, Seed Grower, Biggleswade, Beds.

MONRO'S DUKE of EDINBURGH CUCUMBER, which has gained all the highest awards offered. A house of the above Cucumber, saved for Seed (150 feet long, 24 feet wide), may now be seen at
J. MONRO'S FORCING GARDENS, Potter's Bar.
This house has had no fire, no water, or any attention, for the last two months.
J. MONRO has cut for Market this year upwards of 17,000 fine fruit, and he will be glad to show the above house, for the next two weeks, to any one that may favour him with a visit.
September 9.

DR. DENNY'S GERANIUMS.
SECOND SET.

JOHN COPELIN
Begs to announce that the Price of the above is now reduced to 10*s.* 6*d.* per set.

TYSSEN STREET NURSERIES, WEST HACKNEY, LONDON, N.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,
MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

FOR SALE, a range of three-quarter SPAN HOUSES (74 feet by 11 feet 6 inches), containing three compartments for Cucumber Growing, one as Greenhouse, with Boiler and Pipes. For particulars apply to
W. WELCH, Highgrove Gardens, Reading, Berks.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Manures, Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of
POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.

MILDEW
May be entirely prevented as well as cured by
EWING'S INFALLIBLE COMPOSITION.
Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions for use.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

Autumn Sowing.

ODAMS' MANURES, Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.
Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

PEAT EARTH.—Fibrous Peat Earth for American and New Holland Plants, Ericas, and for Potting, delivered on Rail at Blackwater, South-Eastern Railway, and Farnborough, South-Western Railway, in truckloads of 4 tons and upwards, at 12*s.* 6*d.* per ton. Extra fibrous quality, for Orchids and Ferns, 25*s.* per ton. Sphagnum Moss for Orchids, 10*s.* per sack.
T. WALKER, 46, Cannon Street, London, E.C., where samples can be seen.

GISHURST COMPOUND. — Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

Scott's Wasp Destroyer.

J. SCOTT, SEEDSMAN, Yeovil, offers his well-known preparation to Fruit Growers at 1*s.* 9*d.* and 2*s.* 9*d.* per bottle, post free, on receipt of stamps. No one who has fruit to preserve should be without it. It is also useful in the destruction of Flies, Cockroaches, and Crickets. See testimonials. None Genuine except the Corks bear "Scott, Seedsman, Yeovil."
The Trade supplied. Prices on application.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing, Second sized Archangel, 100*s.*; Petersburgh, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT. — Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of
CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

Hyacinths in Pots.

POTS made expressly for HYACINTHS can be supplied by
J. MATTHEWS, The Royal Pottery, Weston-super-Mare.
Price List free.

Rhubarb and Seakale Forcing.

STRONG, well made POTS for the above can be supplied by
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List free.

GARDEN POTS, ORCHID POTS, ALPINE POTS, FERN PANS, SEED PANS, and all other GARDEN POTTERY of the best quality can be supplied by
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List free.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS' PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS' Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,
THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	..	..	3*s.* 4½*d.*
3-inch Pipe, per yard	..	..	2*s.* 8½*d.*
2-inch Pipe, per yard	..	..	1*s.* 8*d.*

Connections at proportionate prices.
Illustrated Price List free on application to
T. G. MESSENGER, Hot-water Engineer, Loughborough.

GARDEN TARPAULINGS, 24*s.* per dozen, size 6 by 4, with cords and eyelet-holes; other sizes at the rate of 9*d.* per square yard. They are made from second-hand railway-truck covers and are re-dressed. Excellent POLICE CAPES, 36*s.* per dozen. DRIVING APRONS, 8*s.* Large WATERPROOF CAPES, 4*s.* 6*d.* LEGGINGS, 2*s.*
R. RICHARDSON, 99, Euston Road, N.W.

CHRISTMAS QUINCEY'S IMPROVED STEEL POTATO FORK.

The inventor can with confidence recommend this new Fork to his Patrons and the Public, as the best and most efficient implement yet introduced for digging Potatos, bringing to the surface at one lift the whole of the root, even small tubers, thereby effecting an immense saving of labour. It will be also found invaluable for digging purposes, generally being easier to use than the ordinary spade.
Plain Steel Forks, 6*s.* 6*d.* each.
Polished ditto, 7*s.* each.
Remittances to accompany all orders.
Wholesale prices on application.
CHRISTMAS QUINCEY, Seedsman, &c., Market Place, Peterborough.

Testimonial from Mr. GILBERT, *Burghley Gardens, Stamford, August* 5, 1874.
"DEAR SIR,—We have given your Potato Fork a fair trial to-day, and consider it a gem. I know of no weed so bad in the spring as self-sowed Potatos. By using this Fork the whole of the root, big and little, must come to the surface. Please forward me two more.—I am, dear sir, yours faithfully,
"To Mr. C. QUINCEY." "RD. GILBERT."

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s.*
For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

ROYAL SCHOOL of MINES.
DEPARTMENT of SCIENCE and ART.
During the Twenty-fourth Session, 1874-75, which will commence on October 1, the following COURSES of LECTURES and PRACTICAL DEMONSTRATIONS will be given:—
1. Chemistry. By E. Frankland, Ph.D., F.R.S.
2. Metallurgy. By John Percy, M.D., F.R.S.
3. Natural History. By T. H. Huxley, LL.D., F.R.S.
4. Mineralogy. } By Warington W. Smyth, M.A., F.R.S.,
5. Mining. } *Chairman.*
6. Geology. By A. C. Ramsay, LL.D., F.R.S.
7. Applied Mechanics. By T. M. Goodeve, M.A.
8. Physics. By Frederick Guthrie, Ph.D., F.R.S.
9. Mechanical Drawing. By Rev. J. H. Edgar, M.A.

The Fee for Students desirous of becoming Associates is £30 in one sum, on entrance, or two annual payments of £20, exclusive of the Laboratories.
Tickets to separate Courses of Lectures are issued at £3 and £4 each.
Officers in the Queen's Service, Her Majesty's Consuls, Acting Mining Agents and Managers may obtain Tickets at reduced prices.
Science Teachers are also admitted to the Lectures at reduced fees.
For a Prospectus and information apply to the Registrar, Royal School of Mines, Jermyn Street, London, S.W.
TRENHAM REEKS, Registrar.

NOTE.—By order of the Lords of the Committee of Council on Education, the instruction in Chemistry, Physics, Applied Mechanics, and Natural History will be given in the New Buildings, in the Exhibition Road, South Kensington.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED THEIR

ANNUAL SUPPLY OF HYACINTHS AND OTHER BULBOUS ROOTS

from Holland, and are pleased to say that they are in splendid condition.

J. V. & Sons were awarded the following Prizes for Hyacinths, &c., at the Spring Exhibitions:

1st Prize for 50 Hyacinths, distincts sorts, Royal Horticultural Society, March 18.
1st ,, 18 ,, ,, ,, ,, ,,
1st ,, 6 ,, new varieties ,, ,, ,,
1st ,, 12 pots Tulips, in 6 varieties ,, ,, ,,
1st ,, Collection of Crocus ,, ,, ,,
Extra Prize for Group of Hyacinths, Narciss, and Tulips ,, ,,
1st Prize for 12 Hyacinths, distinct sorts, Royal Botanic Society, March 25.
1st ,, 12 pots Tulips, in variety ,, ,, ,,
Extra Prize for Collection of Hyacinths ,, ,, ,,
Extra ,, Group of Hyacinths, Tulips and Narciss, Liverpool Horticultural Society.
Cultural Certificate for Group of Hyacinths, Tulips, and Narciss, Manchester Botanical Society.

In addition to the above 26 First and Extra Prizes for Hyacinths and Tulips were awarded to J. VEITCH & SONS at the Metropolitan Spring Exhibitions of 1871, '72, and '73.

JAMES VEITCH & SONS have also had the pleasure of supplying to the Commissioners of Her Majesty's Works the Hyacinths, Tulips, and Crocuses for the decoration of Hyde Park during the last four seasons.

Catalogues, Illustrated with upwards of Sixty Woodcuts, are now ready, and will be forwarded, Post Free, on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

DOUBLE FLOWERED CINERARIA.—This Novel Strain has received *a Silver Medal at the International Horticultural Exhibition at Florence;* First-class Certificate from the Royal Horticultural Society, Kensington. Packets of Seed, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Also

PRIZE STRAINS

of Primula, Calceolaria, Pelargonium, Cyclamen, Gloxinia, Begonia, Cineraria, Fuchsia, Coleus, Auricula, Carnation, and Petunia; each 2*s.* 6*d.* per packet.

MR. WILLIAM BULL'S

Establishment for Choice Seeds and New and Rare Plants, King's Road, Chelsea, London, S.W.

To the Trade only.

A. M. C. JONGKINDT CONINCK'S WHOLESALE LIST, including a fine stock of Maiden Apples, Pears and Plums, Moss Roses, Dwarf, Half-standard and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants, is now ready, and will be sent, post free, on application.

Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

Camellias and Indian Azaleas.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to acquaint his Customers and the Trade in general that his Stock of Budded Plants of the above is unusually fine, and ready for delivery on the following terms, viz.:

CAMELLIAS, with bud, from £7, £8, and £10 to £12 per 100.

INDIAN AZALEAS, with bud, splendid stuff, from £5, £6, and £7 to £12 per 100.

Early Orders solicited to secure good choice.

Cash, or reference, from unknown Correspondents required.

NEW ROSES for 1874, GLADIOLI, &c.—The following varieties of Roses, all of the first order, are from the Nurseries of the Horticultural Establishment of EUGÈNE VERDIER, FILS AINÉ, and selection can be made from a stock of nearly 25,000 plants:—

H.P. Bernard Verlot
,, Frederick Wood
,, Henry Ward Beecher
,, La Souveraine
,, Mdlle. Ilona de Adarjon
May Turner
,, Monsieur E. Y. Teas
H.P. Princesse Antoinette Strozzio
,, Souvenir de Charles Sumner
,, Souvenir de Duche
H. (not P.) Mdme. Rivière (gratis).

All other French varieties are also to be obtained.

CATALOGUES, with names, descriptions, prices, and mode of forwarding, will be sent, together with a Special CATALOGUE of GLADIOLI (which are sold by the hundred or thousand of each variety), post free, to all who may apply to

EUGÈNE VERDIER, FILS AINÉ, Horticulturist, 72, Rue Dunois, Gare d'Ivry, Paris.

CABBAGE PLANTS.—Good strong autumn-sown Cabbage Plants, Enfield Market and Battersea, at 3*s.* 6*d.* per 1000; also Robinson's Champion Ox Cabbage Plants, at 3*s.* per 1000, can now be supplied. Remittances to accompany all orders from unknown Correspondents.

J. WOOBERRY, Nurseryman, Billingshurst, Sussex.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT,

QUEEN VICTORIA STREET,

CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to

THOMAS THORNTON,
Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

Camellias, Indian Azaleas, &c.

JEAN VERSCHAFFELT begs to offer the above, in fine healthy grown plants, at the undermentioned low prices, viz.:—

CAMELLIAS, with buds, 1 to 1½ foot high, £7 per 100; stronger, £10 to £15 and upwards; without buds, fine strong plants, £6 to £8 per 100.

AZALEA INDICA, fine plants, £5 per 100; stronger, £6, £8, to £12 and upwards.

NOTE.—Selection of sorts, which are all first-rate, to be left entirely to J. V.

OTAHEITE ORANGES, with fruit, 28*s.* per dozen.

JASMINUM GRANDIFLORUM, grafted, 28*s.* per dozen.

Early orders solicited by

JEAN VERSCHAFFELT, The Nurseries, Ledeberg, Ghent, Belgium.

Change of Title.

CURIO and NEW PLANT MERCHANTS.

MESSRS. TEUTSCHEL AND CO. desire to take this opportunity of thanking their Friends and Patrons for the liberal support hitherto accorded them. They desire now to inform them that, Mr. TEUTSCHEL having ceased to belong to the Establishment, business will, for the future, be carried on under the title of

"The NEW PLANT and BULB COMPANY,"

under the continued supervision of Dr. Wallace, and the active management of Mr. Fred. Horsman (late of Messrs. Osborn & Sons, of Fulham, and Messrs. Barr & Sugden, of Covent Garden).

Importations of the choicest Curios and Porcelain from Japan (*vide* their pieces on view in the International Exhibition, South Kensington), of Lilies and Hardy Bulbs from various parts of the world, of New Zealand Tree and other Ferns, and of New and Rare Hardy and Half-hardy Plants generally, will be continued as before.

Their Collectors are now busy in the Caucasus, India, Japan, North and South America, New Zealand, Jamaica, &c., and arrangements have been made for the introduction, during the season, of a large variety of New and Rare Bulbs, Seeds, Ferns, &c. Catalogues of these will be duly published at a later date.

All orders and communications from Customers and the naming of specimens will be attended to with the same diligence and attention as before.

Collectors of Ferns, Lilies, and Bulbous Plants, at the Cape and in other temperate countries, are invited to put themselves in communication with "The New Plant and Bulb Company," who will treat with them for the disposal of consignments with the greatest possible liberality.

All communications to be addressed to "The NEW PLANT and BULB COMPANY," Lion Walk, Colchester, England.

Colchester, Sept. 1.

IMPORTANT ANNOUNCEMENT.

In compliance with the wishes of the Council of the Royal Horticultural Society

JAMES CARTER & CO.

BEG TO ANNOUNCE THAT

THE CARTER CUP, VALUE FIFTY GUINEAS,

WITH TWENTY-FIVE GUINEAS IN OTHER PRIZES,

FOR THE BEST COLLECTION OF VEGETABLES,

Will be competed for at the Provincial Meeting of the Royal Horticultural Society in 1875.

THIS MAGNIFICENT CUP TO BECOME THE ABSOLUTE PROPERTY OF THE WINNER.

For further particulars apply to

Carter's

THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

HUGH LOW & CO.

HAVE PLEASURE IN INFORMING THEIR FRIENDS AND THE PUBLIC THAT THEIR

STOCK OF WINTER AND SPRING FLOWERING PLANTS

Is this season unusually extensive in quantity and fine in quality, and well worth the notice of intending purchasers, who are very cordially invited to an inspection of the Plants, which comprise amongst other things:—

Many Thousands of ERICAS, of the best varieties, such as hyemalis, hybrida, Syndriana, Willmorea, grandinosa, cæffra, gracilis, melanthera, barbata major, rubens, &c., &c.

Many Thousands of EPACRIS, in many varieties.

Many Thousands of GENISTAS.

Many Thousands of AZALEA INDICA, in variety.

Many Thousands of CAMELLIAS, in variety.

Many Thousands of SOLANUMS, well berried.

Many Thousands of BOUVARDIAS, red and white, all strong bushy plants, of blooming size.

Many Thousands of EPIPHYLLUMS, in many varieties.

Many Thousands of the best GREENHOUSE PLANTS, such as Chorozemas, Aphelexis, Genetyllis, Dillwynias, Acacias, Statices, Polygalas, Boronias, Pimeleas Cyclamens, Tree Carnations, Coronillas, Jasminums.

Also on hand, a very large Stock of

ORNAMENTAL FOLIAGE and DECORATIVE PLANTS, PALMS, DRACÆNAS, FICUS ELASTICAS, &c.

FERNS—Many thousands of the most approved kinds.

CLAPTON NURSERY, LONDON, E.

The Best Lettuces for Present Sowing
ARE
DAVIS' GIANT HARDY GREEN COS and TRUE ALMA COS, the largest, hardiest, and most crisp varieties. Each 1s. per packet.
B. R. DAVIS, Seedsman, Yeovil.

New Apple, Lady Henniker.
EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now Booking Orders for this splendid Novelty, which obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, on November 12, 1873. Circulars with full particulars will be forwarded gratis and post-free to applicants. The price for strong maidens on and after November 1 next, is 7s. 6d. each, or three for 20s. The usual discount to the Trade.

Dutch Flower Roots.
B. S. WILLIAMS begs to announce that his ANNUAL CATATOGUE of DUTCH FLOWER ROOTS, containing a Descriptive List of Choice Hyacinths, Tulips, Narcissus, Crocus, &c., also a Select List of Fruit Trees, Roses, Vines, &c., is now ready, post free to all applicants.
Victoria and Paradise Nurseries, Upper Holloway, N.

DICK RADCLYFFE AND CO.'S
ILLUSTRATED
AUTUMN CATALOGUE
OF
HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.,
is now ready, and can be had gratis and post free on application.
129, High Holborn, London, W.C.
Seed Grounds—Erfurt, Prussia.

To the Trade.—Spiræa japonica.
JEAN VERSCHAFFELT, having a large stock of the above, in strong clumps for winter forcing, begs to offer them at the following low prices, viz.:—
24s. per 100 clumps; £10 per 1000 do.
Orders are now being booked, and will be executed in the course of November.
The Nurseries, Ledeberg, Ghent, Belgium.

Novelties.
NEW SWEET-SCENTED RHODODENDRONS now offered for the first time, the most novel and beautiful ever raised. NEW INDIAN AZALEAS and a fine Collection of AZALEA MOLLIS. A Descriptive Priced List forwarded to any address on application to
ISAAC DAVIES, Nurseryman, Ormskirk.

EAST INDIAN and SOUTH AMERICAN ORCHIDS.—A Gentleman has two or three hundred of the above to dispose of, many of them being Specimen and Prize Plants of the Species SACCOLABIUM, AERIDES, VANDA, PHALÆNOPSIS, CATTLEYA, DENDROBIUM, ONCIDIUM, &c., of the choicest sorts and in the most perfect health.
W. L. BANKES, Oxford Chambers, 71, Lord Street, Liverpool.

New Double Dwarf Sweet William
(DIANTHUS BARBATUS MAGNIFICUS).
THOMAS S. WARE is now prepared to send out the above new and distinct Dianthus, which has been so highly spoken of by the Horticultural Press. For description and figure of this charming novelty see my NEW BULB CATALOGUE, which can be had free on application.
Hale Farm Nurseries, Tottenham, London, N.

To Gentlemen, Market Gardeners, and Others.
MITCHELL'S CHAMPION of ENGLAND BROCCOLI.—JOHN MITCHELL, retiring from the Business, has a small quantity of New Seed to dispose of. The Best LATE WHITE ever grown. Will be sold in ¼ lb., ½ lb., and 1 lb. packages, at One Guinea per pound. Sent to any part of the world on receipt of Post Office Orders made payable to
JOHN MITCHELL, Ponders' End, Middlesex.

Nursery Stock.
JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, **Chester.**

NEW PLANTS.
The Three best New Plants of the season are:—
CROTON MAJESTICUM,
DIPLADENIA BREARLEYANA,
CROTON SPIRALE.
Price, 2 and 3 Guineas each.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

CHEAP LAURUSTINUS, AUCUBAS, &c.
LAURUSTINUS, Common, 15 to 20 in., 7s. 6d. per 100.
LAURUSTINUS, Black Leaved, 18 to 24 in., 7s. 6d. per 100.
AUCUBA JAPONICA, 1-yr. cuttings, fine, 7s. 6d. per 100.
" " 2 to 3 feet, bushy, 8s. per dozen.
OAKS, Evergreen, 3 to 4 feet, 9s. per dozen.
CUPRESSUS LAWSONIANA, 3 to 4 feet, 30s. per 100.
Terms, Cash with Order, Package Free.
WILLIAM ABRAHAM, Fort Prospect Nursery, Limerick.

YOUNG PALMS.—The following are now disposable in large quantities, viz.:—
LATANIA BORBONICA, two to three divided leaves, £6 per 100.
CORYPHA AUSTRALIS, £6 per 100.
CHAMÆROPS EXCELSA, 1 foot high, strong, £5 per 100.
" FORTUNEI, 1 foot high, strong, £5 per 100.
PHŒNIX RECLINATA, 1½ foot, with dividing leaves, 40s. per dozen, £16 per 100.
" " Seedlings, 6 inches high, in store pots, 48s. per 100, £20 per 1000.
PTYCHOSPERMA ALEXANDRÆ.—This most beautiful new Palm, in store pots, £4 per 100.
ARECA MONOSTACHYA, in store pots, £6 per 100.
Early orders respectfully solicited by
JEAN VERSCHAFFELT, Nurseryman, Ledeberg, Ghent, Belgium.

SATURDAY, SEPTEMBER 12, 1874.

GARDENS FOR COTTON-MILL OPERATIVES.

WHILE so much is being done to promote "window gardening" by the poorer inhabitants of our large manufacturing towns, as well as in the metropolis, it is pleasant to find that here and there the more substantial and profitable, though not more pleasant and refreshing idea of kitchen gardening is receiving stimulus. No community that pretends to be civilised can dispense with flowers; the more zealous the love, and the more sedulous the culture of them, so much the more tasteful and industrious is a man likely to be in matters other than floricultural. Two things we are always content to receive, on entering a house for the first time, as indicative of the moral and intellectual preferences, the manners and customs and spirit of the owner; these are, in the first place, a shelf of well-selected books that show signs of use; secondly, a fair display of flowers, no matter of what description, so that they are genuine. "Genuine," we say, because there are people in the world who seem to think it an evidence of good taste to deck their parlours with the mockeries called wax flowers, shell flowers, and the like. No doubt these efforts of art are ingenious, in their way; so are wax dolls, as imitations of the living and sparkling sunbeams otherwise called little girls; and under certain restrictions they may be allowed a place. On the mantel-piece, for instance, immediately over the fire-grate, where Nature's flowers would speedily be dried to death; and in corners where it is needful to establish some kind of ornamental fixture, artificial flowers may be permitted. But where living flowers, if any at all, have a right to be, the presence of the artificial indicates feeling very little removed from that of the savages who paint their faces, and wear rings in their noses. Genuine flowers are in these present fortunate days so cheaply purchased, and so easily renewed, that there is positively no excuse left for superseding bright reality with dreary effigies. The latter belong to that period in the history of people's development, as regards Taste, which corresponds in the history of our country to the time of the ancient Britons, who, instead of cultivating the amenities of modest and graceful dress, were content to paint their bodies blue. A remnant, by the way, of the obsolete Celtic practice is said still to hold its ground at some of our fashionable watering-places, where a little careful observation may detect it in connection not only with chignons and curls, but with cheeks and lower eyelids. What a pity that some of these self-tinting promenaders were not cotemporary with Queen Boadicea: they might have got the appointment of maids of honour to her gracious majesty, and been welcome to paint themselves, had they so pleased, from head to foot. Perhaps the most charitable and historically-correct ground upon which to regard those who in England practise skin-painting is the ethnological one—*i.e.*, to suppose that their genealogy would take them back to the savages who were participators in or witnesses of the rites of the Druids.

En passant, can any one tell me if the celebrated and very ancient town of Glastonbury, in Somersetshire (the traditional scene of the visit of Joseph of Arimathæa) derives its name from the former culture there of the Woad-plant, in Latin originally called Glastum?

Let me get on, however, with my proper subject. Flower-gardening, with all its charms, must still give way, with people who have to earn their daily bread by means of daily toil, to a still stronger relish for what will enrich and enlarge the dinner, and at the same time, perhaps, help to pay the rent. I always look with respect, pleasure, and interest on a man who cultivates flowers for the sake of their own sweet intrinsic beauty. Though temperament, or something else—one is obliged to regret and make the best of it, seeing that it is the poor fellow's misfortune rather than fault—may render him a little bit rough, I am sure that underneath there abides a kind and manly heart. I think I look with even more respect on a man who cultivates his flowers, as it were, in his holiday moments, giving the earnest and solid hours to fruit and vegetables. Of course I am now speaking of men with whom gardening is a business, or an auxiliary to means of livelihood, not of merchants and wealthy amateurs who have no occasion for anxiety as to "what they shall eat or what they shall drink, or wherewithal they shall be clothed," and who can concentrate their personal attention on the simply beautiful. It is a fine thing to render the world more lovely than we found it; it is an immense honour to a man to be able to say at the close of the year, earth has become more beautiful because of what I have done for it. Perhaps it is still more honouring that he should be able to remember that the result of his activities has been a greater abundance of fruit and a more plentiful supply of nourishing esculents. Not that work done for the sake of increasing beauty as its sole purpose, diffusing beautiful objects and inspiring wider and loftier love for the beautiful, is ever to be in the slightest degree disparaged. Absolutely considered, or upon its own intrinsic merits, work on behalf of beauty stands exactly on a par with most of what is conventionally called education. In its results it really and truly is education, for the masses of mankind learn more through their eyes than through their ears, be their preceptors ever so skilful in communicating.

Listening to lectures and addresses no doubt contributes to knowledge, but the best of our wealth consists in power, and this, like love, feeds chiefly through the eyes, and finds no better aliment than the beautiful—the beautiful, emphatically, as set forth in plants and flowers. Even gentlemen's gardeners, large and important as are their duties and prerogatives in regard to flowers and the ornamental at every season, still do their work best when it shows in larger and better Cauliflowers and Asparagus, improved and more exquisitely conditioned Grapes. A true votary of the beautiful will always be found quite as anxious on behalf of the useful.

How pleasant to find a man, employing many hundreds of workpeople, disposed to give them every chance in both directions. I find plenty of liberal masters who establish schools and open reading-rooms for their operatives, but it is a rarity to find one who gives them not only these, but gardens also. An example came under my notice the other day at Guide Bridge, a place which is a sort of suburb of the celebrated, but not very attractive, town of Ashton-under-Lyne, say 5 miles or thereabouts from Manchester, on the line of rail that leads to Sheffield. The wealthy and liberal proprietor of the Oxford Mills, an immense cotton-spinning establishment, has not only, single-handed, given to the men, women, and children, who work at his spindles a handsome and commodious building, containing newspaper and conversation-rooms, baths, &c., with, outside, a

capital gymnasium, bowling-green, drying-ground, &c., all perfectly free, not a single individual out of the hundreds who pertain to the mills ever paying a single penny; in addition to this, for the last twenty or twenty-five years he has provided over a score of nice little gardens at an extremely low rent, which last, after all, is got back in the value of the produce, the gardens falling in turn to whoever is willing to undertake one, though in truth they are too precious to change hands often. Going through them on the occasion of my visit to Guide Bridge, it was astonishing to observe how much has been accomplished. There is not an inch of ground to spare. Every yard of soil is as well covered as a lady's table at a bazaar. The specialities, of course, are on the side of the useful—Greens, Celery, Rhubarb, and Onions being greatly in the ascendant; but the floral part is in no instance inconspicuous, and in some of the plots becomes quite engaging. At the present moment, the complexion in matter of ornament is given chiefly by Phloxes and Antirrhinums. Several of the gardens contain little greenhouses, and here, to my surprise, I found not only Grapes, one of the Vines bearing twenty-two bunches, but Passionflowers, choice Begonias, plenty of good Ferns, and even Orchids. No insignificant sign of the times is it when a man who earns weekly wages in a cotton-mill can point with pride to his Cypripedes and Odontoglots. It gives plain proof that the best charms of botanical nature may become what Roses are, if the working-men of England would only give a little more thought to a sensible pastime like gardening, instead of letting their leisure and their money go in beer and dogs and tobacco, and perhaps in worse things. There is no need to go into minute detail; it is enough to invite the attention of those to whom the idea may not hitherto have presented itself, to the fact that simple horticulture, well-started by a liberal promoter, and encouraged in a persevering, kindly, and consistent way, declares itself, as in the present instance, one of the most practically beneficial institutions that an employer of labour can introduce among his dependents. The good results are reflective. It may be purely accidental—the causes may have nothing to do with the gardening, as to this we have no means of judging; but the fact remains that, while strikes and foolish money disputes are only too well-known both right and left, at the mills where this gardening is a part of the programme they have never been known to occur. Gardening, as here practised, at once induces habits of industry, order, and care, and teaches the value of time. A gardener, in truth, never knows the meaning of that shameful phrase, "idle time"; and, while beneficial in these respects to the men themselves, can it be deemed of trifling moment to the wives and families that they get a fair quantity of nice fresh vegetables, and that they learn the charm of home-grown flowers? Cotton-mill girls who have the chance of handling flowers from their father's garden can hardly fail to acquire ideas of beauty and harmony that by-and-by will have result in well-ordered apparel and in the tidiness of home. Flowers got, as it were, from without, never tell half as much on the heart and mind as those that have been watched and tended in one's own little enclosure; and whatever good may be effected by the giving of ready-made flowers to the lower classes, as benevolently practised in certain quarters, depend upon it that which comes of doing what is done at these mills at Guide Bridge is fifty times more salutary. I can but commend the good example to every large employer, and wish continued success to the kindly endeavours of Mr. Hugh Mason.

It is but right to add as a postscript that there is an annual exhibition, with award of prizes, and that prizes are given also for the best kept gardens. *G.*

New Garden Plants.

MASDEVALLIA CALOPTERA, *n. sp.**

This must be very pretty, though the numerous flowers are small enough. All the Amandæ belong to those Orchids the attraction of which is based on the quantity of the flowers, just as in Calanthe, Dendrochilum, Epidendrum, Amphiglottium. No doubt the flowers are whitish. There is a violet line around the superior sepal, and there are two similar lines on the inferior sepal. This, and M. melanopus and M. pachyura, were collected by M. Roezl, with M. amabilis and M. polysticta. We may expect to see the whole lot very soon in flower. *H. G. Rchb. f.*

MASDEVALLIA MELANOPUS, *n. sp.*†

A racemose, small-flowered species. The flowers would appear to be whitish, and all directed towards one side. The ovary, the base of the perigone, and the three bristles are very dark, perhaps greenish black or brownish black; when the flowers are dried those parts look black. There are also some small dots of same colour over the perigone, but they are only well seen with a lens. One of M. Roezl's discoveries. *H. G. Rchb. f.*

MASDEVALLIA PACHYURA, *n. sp.*‡

A nice, small-flowered, but racemose Masdevallia, with yellow flowers, covered with numerous brownish red spots. One of M. Roezl's discoveries. *H. G. Rchb. f.*

MASDEVALLIA LIVINGSTONEANA, *n. sp.*§

It was not a brilliant idea to devote such an insignificant Orchid to such a hero as was the lamented Dr. Livingstone. Yet it would be a sacrilege to take away what was given to him, and this is my reason for fulfilling M. Roezl's wish that I should describe the plant under this name. After all the dark purplish brown eye-like spots at the base of the lateral sepals look nice enough, and contrast with the pallid greenish yellow and brown colours of the flower. It was discovered in Panama by M. Roezl, and was sold lately at a sale in Mr. Stevens' rooms. *H. G. Rchb. f.*

GONGORA CASSIDEA, *Rchb. f. in v. Schlechtd. Bot. Zeit.* 1864, 298.‖

This is much in the way of Gongora galeata, Rchb. f. (Acropera Loddigesii, Lindl.), a common Mexican Orchid, that may now be forgotten in England, since it is *passé*—out of fashion. The lip, however, is very different. It has two lacinulæ at its end, spread as the fingers of a man swearing before lawyers [!]. The original variety flowered with the late Consul Schiller at Hamburg, 1864. It was pallid ochre colour, with many purplish zebra lines over the claw and the side laciniæ of the lip. It was said to come from Guatemala. I have been very sorry to find, from Dr. Lindley's *Herbarium*, that it obtained the unpublished name of Acropera Batemanni, having been introduced from Nicaragua by Mr. Skinner. That was, indeed, before Mr. Bateman had even begun his last *magnum opus*. Now Mr. Bateman would not more feel satisfied with the dedication of a Gongora, the more reason he should soon prepare a new *magnum opus* in honour of the new English princess, and then he should be loyal enough to do the same for the genuine English princesses, so that we might then expect several splendid new monographs from the same author. Now I have just obtained a single flower, said to come from New Grenada. It has the lip deep orange, the side wings violet purplish. I have to thank Mr. Stuart Low for it. *H. G. Rchb. f.*

FUCHSIA PROCUMBENS, *A. Cunn.* See *ante*, p. 291.

In our notice last week we inadvertently cited this species as having been described by Dr. Hooker instead of Allan Cunningham. It was figured in Hooker's *Icones*, tab. 421, and is described in Dr. Hooker's *Handbook of the New Zealand Flora*, p. 76. The majority of the flowers on the plant are erect, not pendulous, as represented in the drawing taken from a cut branch.

LILIUM WASHINGTONIANUM PURPUREUM. (Fig. 67.)

This fine Lily was imported by Mr. W. Bull, and was distributed in considerable quantity last year under the name of Lilium purpureum. Mr. Baker, however, in his Notes on the Tulipeæ, published in the *Journal of the Linnean Society*, makes it a variety of L. Washingtonianum, as no doubt it is, nothwithstanding some discrepancy in the bulbs. He describes it as smaller and more slender than the type, with a stem from 1—1½ foot high, and the whorled leaves from 1—1½ inch long, as having from four to eight flowers on an umbel, the perianth being of a wine-purple and covered with minute dots. Our illustration (fig. 67), prepared from a small specimen flowered and exhibited by Messrs. Veitch & Sons at one of the meetings of the Royal Horticultural Society, shows its peculiar pyramidal habit of growth, with one of the flowers of the natural size; but in a specimen of much finer growth, exhibited by Mr. G. F. Wilson, the flowers, which were several in number, were distinctly racemose: the colour, moreover, on their first opening, was nearly white with purple spots, becoming, in age, suffused with a purplish tint not deep enough to obliterate the spotting. It is a native of Humboldt County, in California, which enjoys a climate of perpetual spring. *T. M.*

* (Amandæ.) Racemo plurifloro secundifloro; bracteis maximis ovatis apiculatis uninerviis; ovaria pedicellata excedentibus; cyathi mento prope recto, regione antementali intrusa; sepalo dorsali libero ovato triangulo seta longe breviori, per dorsum carinato; sepalis lateralibus angustioribus, æque longius caudatis; tepalis ligulatis antice dilatatis, apice emarginatis cum apiculo, lateribus antrorsum serratis; labello latiusculo trifido; laciniis lateralibus obtusangulis insilientibus in laciniam anticam prope pentangulam, sc. quadratam antice apiculatam, linea semicirculari incrassata in disco; columna dorso apice acuta.

† (Amandæ.) Racemo secundifloro; bracteis oblongis acutis uninerviis; ovaria pedicellata subæquantibus, ovariis obscure coloratis; costis crenulatis, cyatho elongato curvo, mento antrorso; sepalo supremo brevissimo libero in setam obscure coloratam multo longiorem extenso, dorso carinato; sepalis lateralibus subæqualibus angustioribus; tepalis ligulatis apice trifidis; lacinia media acuta, laciniis lateralibus extrorsum serratis; callo triangulo umbonato in latere antico; labelli laciniis lateralibus semioblongis antice transsilientibus in laciniam mediam ligulatam acutam; columnæ cucullato serrulato.

‡ (Amandæ.) Racemo plurifloro; bracteis ovatis acutis; ovaria æquantibus; perigonio ad tertiam in cyathum connato; mento antrorso, regione antementali intrusa; sepalo superiori libero lato triangulo in aristam crassam æquilongam expanso; sepalis lateralibus liberis angustioribus, ceterum æqualibus; tepalis ligulatis obtusis aristatis, utrinque apicem versus serratis; labello trifido; laciniis lateralibus ligulatis oblongis, lacinia antica oblonga obtusa acuta lineis incrassatis geminis.

§ (Clausæ porrectæ.) Cæspitosa; foliis spatulato-obovatis retusiusculis obtusato-emarginatis; pedunculis unifloris, perigonii externi cyatho elongato; sepalo libero superiori lineari ligulato; sepalis lateralibus liberis triangulo deflexis. Flores ochraceo virides; sepalo dorsali libero brunneo; sepalis lateralibus basi obscure oculatis, apice brunneis, ceterum superne albidis.

‖ Racemo deflexo pendulo, fractiflexo, plurifloro, ovariis in pedicellis longissime arcuatis; floribus conspicuis illos G. galeatæ superantibus; sepalo summo transverso ovato apiculato galeato latissimo; sepalis lateralibus oblongis acutis retrorsum replicatis; tepalis pandurato-ligulatis aristatis in basi columnæ; labelli ungue lato; laciniis posticis ligulatis oblique uncatis antice acutis, postice bidentatis seu edentulis lobatis; antice basi confluentibus membrana antice plicis duabus sub forma cunei erecti emarginati prosiliente; lacinia antica ligulata bene bifida, lacinulis ligulatis apiculo in sinu; columna utrinque obtusangulo expansa juxta foveam, rostello subulato. Flores pallide ochraceo; labelli laciniis lateralibus ac ungue purpureo zebrinis, seu labello vitellino; laciniis lateralibus ac apice lacinularum anticarum violaceo-purpureis.

THE PELARGONIUM SOCIETY.

BELIEVING as I do that the ultimate success of the Pelargonium Society, so auspiciously inaugurated at South Kensington on the 2d inst, will depend upon the support and encouragement it receives at its outset, I may be excused for earnestly appealing for the immediate co-operation of all interested in its welfare.

First, to my brother workers for the improvement of the Zonal Pelargonium, among whom it is hoped by the Society's promoters that it may constitute a bond of union, and be the medium of introduction to the goodly fellowship of kindred spirits, as well as the means of affording mutual assistance in carrying out the undertaking, and to whom the Society may be considered more especially to belong.

I appeal also to horticulturists generally, be they amateurs or professional Pelargonium growers or not, for aid and support, begging of all to bear in mind that the success and advancement of horticulture, whether regarded and esteemed as a science, or as a commercial speculation, will mainly depend upon the improvement of our fruits and flowers, and upon union amongst ourselves.

The first step the Society deemed it expedient to take was to offer the highest amount of prizes its means (at present) admitted as supplementary to those offered by the Royal Horticultural Society for Zonal Pelargoniums, at their show to be held in July, 1875; considering that by offering some liberal prizes in addition to those offered by the Society, a large and well-grown collection of all the best varieties would be secured.

If the prizes offered produce what the Society has a right to expect, the raisers of novelties will be enabled to compare notes, to profit by experience, and will probably be stimulated to increased exertions; while the public will be afforded an opportunity of forming a correct estimate of the value of Zonal Pelargoniums for conservatory decoration. The display on the last occasion, with the exception of the collections that competed for Mr. Pearson's prize, was most miserable in all the flowering sections, and there could not perhaps be a better argument in favour of this new Society.

Nothing would tend more, in my opinion, to render the Zonal Pelargonium popular than to show the

public the wonderful progress that has been made within the last few years in this tribe of plants by an exhibition of well-grown specimens of the newest and best varieties. The flowers of the Zonal section have attained to such a state of perfection as to challenge the criticism of the florists, and the Nosegay varieties produce such gorgeous trusses that they require only to be seen to be appreciated.

I quite agree with the remarks made by Dr. Masters at the meeting, that the Zonal section of the Pelargonium family is not the only one that might with advantage be improved, and to which encouragement should be afforded; for, with him, I believe that much could be done with the Cape species, amongst which there are the greatest variety and brilliancy of colour. Moreover, I see no reason why the size of the petals of the Cape species should not be increased.

I am of opinion that it is to these varieties of the Cape species that we shall have to look for our future bedders, for the large and perfect flowers of the florists' class of Zonals are not adapted for bedding purposes, and Mr. Pearson and Mr. Frank Miles (who is close upon Mr. Pearson's heels) are working such wonders in the Nosegay section that it also is becoming too good for the purpose; in fact, it is a positive sacrilege to expose such lovely trusses of flowers as I saw in the house at Chiswick, upon a variety named Mrs. Turner, to the buffets of our ungenial clime. Compare also many of Mr. Pearson's other varieties that are in the beds, and flowering in the house too, and I think all will agree with me that they are magnificent for conservatory decoration, but that his industry has lifted them beyond their original station, and that the time has arrived for other species to be cultivated to supply their places.

When going over the beds at Chiswick a few days since, one of the most experienced of the Floral Committee remarked that he knew of no variety so effective as a bedder as Indian Yellow. I quote this remark as bearing out my opinion, that it is not the size of the truss, or of the individual flower, but rather the smallness of both, provided there is free-flowering habit that makes the best bedders.

I strongly urged at our inauguration meeting that the title of our Society might not be too restrictive, hoping that its funds might some day admit of offering encouragement for the improvement of all the sections and species of the Pelargonium family.

There are many matters connected with our subject that might be taken in hand by the Society with advantage. The classification of the Zonals, so-called, requires rectification; for under the present improved state of the Nosegay section, it is almost impossible to decide upon a line of demarcation, thus causing frequent difficulty to the judges at exhibitions. The nomenclature of all the sections, too, is most unscientific, if not absurd—for instance, "Zonal," applied to plants without a zone. As for the term "Nosegay," it is positively ridiculous; The "large-flowering" varieties are now not much larger than our scarlets. "Fancies" suggest the question, Whose fancies? "French" to some varieties raised in England, Surely there is room for improvement here, as much as in our flowers?

At our first meeting I also broached a matter relative to the cultivation of the Zonals at Chiswick, which I consider one of much importance, viz., a proposition that all new varieties should for the first season be cultivated in pots under glass; so that, standing side by side, the new varieties could be readily compared one with another, and with all the best of the older varieties, which would be under cultivation in the same house. These old varieties much require sorting and sifting this autumn, so that the inferior varieties may be thrown out and cancelled from the lists. By the adoption of this permanent exhibition, a much surer judgment could be formed of the value of new varieties, and the plants, moreover, would be in a better condition, instead of, as is too frequently the case, partially denuded of their petals by the shaking of a long journey. The following season they would, of course, be bedded out, and thus an opinion could be given of their qualifications in both capacities.

These trials, too, would afford ample opportunities for all concerned in their circulation to make their notes, and amend their lists, and prepare themselves for purchasing and propagating prudently. I would suggest that our annual meetings should be held at Chiswick the day following the Pelargonium show at South Kensington. We should be on the spot to discuss the novelties, and, from the experience of the previous day, in the best possible position to arrange the prizes and other matters for the following year. *John Denny, Stoke Newington.*

FIG. 67.—LILIUM WASHINGTONIANUM PURPUREUM.

THE OLD WALLS AT KEW.

(*Continued from p. 304.*)

THE Myrtle, Myrtus communis, is too well known to need anything more than a compliment in passing. It is the pet shrub of many in the South and West, where, in the vicinity of the sea, the protection of a wall is sufficient even during a severe winter; but as we advance inland, and especially north of London, where additional shelter is necessary in sharp weather, it is not so great a favourite. Indeed it is not cultivated to the extent it deserves to be, for after all what substitute can we find that will afford us the delight of a healthy specimen of Myrtle in full bloom? Its glossy foliage and pure white deliciously fragrant flowers are unsurpassed by any shrub that can claim to be even half-hardy. But then some people object to tender subjects on account of their unsightly appearance when muffled up in winter, and unless this is properly protected, according to the situation, the foliage is injured, and its beauty lost for the summer. There are a great number of very distinct forms from different localities in the south of Europe, but none appears to be hardier than the common broad-leaved form. Taking up a *Gardeners' Dictionary* to ascertain the date of its introduction into England, we are certainly rather startled with the information that about a dozen different varieties—a double-flowered and one with variegated foliage included—were all introduced during the same year, namely, 1597.

Escallonia is a South American genus that furnishes several valuable evergreen shrubs especially adapted for walls or banks near the sea, though inland they are tender; but the two species, E. illinita and montevidensis, on my old wall, are by no means so ornamental, and probably not so hardy as some other species now pretty generally cultivated. I may mention that E. macrantha is the best of all. It has relatively large bright red flowers, and glossy rich dark green leaves of great substance. It is indisputably one of the most desirable shrubs for the purposes indicated above in localities near the sea. E. rubra and its varieties are less showy.

Anagyris fœtida is a shrubby leguminous plant with yellow flowers, from the south of Europe. It is of no value as an ornamental plant, and its seeds, which greatly resemble Haricot beans, are poisonous. It is botanically interesting as an outlier of a tribe of the pea-flower family, having free stamens.

We come now to another species of Jasminum, namely, J. nudiflorum. As one of the few climbers that flower in mid-winter, and one that does not rapidly run over a large space, this is worthy of all recommendation. It is certainly more effective when associated with other things, as it is leafless when in bloom; but its bright yellow flowers are prettily set off by the dark green of its young branches. It is perfectly hardy, and produces its flowers from Christmas up till March. This is one of the many good things introduced from China by Mr. Fortune.

The next plant is, strictly speaking, a climber, in fact the genus Clematis, to which it belongs, offers very few erect-growing species; and nearly all the species of this large genus are attractive, either from their graceful habit and elegantly shaped flowers, or from the gorgeous colours of the latter. C. montana, the species in question, has white flowers of medium size, but its chief merit is its early period of flowering, which falls in May, before any of its hardy congeners. It is a native of the south of Europe, and perfectly hardy in England. Old stems are occasionally met with from four to six inches in diameter. It is a capital plant for the pillars and eaves of a verandah or the balustrade of a balcony. It is somewhat anomalous that the genus placed first in the "natural" arrangement now generally adopted should be what is termed abnormal in the structure and colouring of its flowers. But so it is. The coloured organs here are sepals, or the outer floral whorl termed collectively the calyx, whilst the petals are suppressed. The same remark might be applied to the entire family of Ranunculaceæ, for it presents more deviations from normal structure than any of those to which it is more or less allied. But this is not the time to dwell upon scientific questions.

A fruit tree, though not an important one, comes next under observation. It is the Chinese Quince, Cydonia chinensis. Though by no means so showy as the Japanese species, whose brilliant scarlet flowers are amongst the most conspicuous features of the shrubbery in spring, it is very ornamental when clothed

with its rosy red blossoms. The fruit, which is rarely produced in this country, is as large as a medium-sized stewing Pear, but it is described as not edible, or very inferior. The Chinese Quince was introduced into Europe towards the end of the last century, and first fruited in France. A figure of the flowers and fruit appeared in the *Annales du Muséum*. The Kew plant fruited in 1866, and specimens of the fruit, preserved in spirit, may be seen in the Economic Museum. This species may be described as of secondary interest, but if there were no C. japonica, C. chinensis would occupy an important place amongst hardy flowering shrubs. But on the other hand it is not so hardy as the Japanese species.

From the far East, the next subject, Oreodaphne californica, takes us to the distant West, two places so far apart, and yet so near. With the exception of the Sweet Bay there is no familiar hardy member of the true Laurel family in cultivation. This, and a few other less ornamental species of this family, natives of North America, are hardy in this country. And this, which is an evergreen tree, from 30 to 100 feet in height, if it prove as hardy as it is believed to be, will be a great acquisition to our small number of evergreen trees with broad leaves. It was only introduced about ten or twelve years ago, so that its constitution is scarcely known, but reports from different parts where it has been planted speak of it as a very hardy and highly ornamental plant. Like most of the family it is very aromatic. The flowers are small and green, and borne in axillary umbels. It is said to form large forests in California. This, then, needs neither the support nor the shelter afforded by a wall.

Lonicera flexuosa, a true climber or twiner, takes us back again to China and Japan, the home of this and many other valuable species of Honeysuckle. This was introduced early in the present century, and is one of the hardiest and most useful of the Eastern species for general purposes. It has long slender shoots covered with purplish-black hairs when quite young, and the leaves are purplish beneath. The small yellow-and-red flowers are borne in pairs, and are exceedingly fragrant. This, like L. brachypoda, is evergreen during mild winters, but both are cut to the ground by very severe frosts. The plant figured in the *Botanical Register*, tab. 712, is the same as L. confusa, DC., and possibly this name may have to be adopted for the plant called flexuosa in gardens. But there is some confusion in the application of the names of described species, and it is very probable that some of those in cultivation in Europe had their origin in Japanese gardens.

(To be continued.)

STRAWBERRIES.

[THE following varieties are those recommended by our correspondents for culture in their respective districts. EDS.]

AYRSHIRE.—These vary very much according to soil and situation. President is by far the most useful variety grown here, although the following are all worthy of a place: Keens' Seedling, Sir Joseph Paxton, Elton Pine, Amateur, Dr. Hogg, Sir Charles Napier. *J. Gray, Eglinton Castle, Irvine.*

BERWICK.—Keens' Seedling, Sir Harry, President, Sir J. Paxton, and Elton Pine, are all good (the latter especially), and in most seasons do well. *Peter Loney, Marchmont, Dunse.*

BUCKS.—Mr. Radclyffe, Sir Charles Napier, Dr. Hogg, Lucas, Cockscomb, Sir Joseph Paxton, Wonderful, Filbert Pine, Souvenir de Kieff. *G. T. Miles, Wycombe Abbey.*

CAITHNESS.—Keens' Seedling, Grove End Scarlet, British Queen, Sir Harry, Garibaldi, Elton Pine, and Roseberry, all do well in this neighbourhood. *John Sutherland, Langwell, Berriedale.*

CARMARTHEN.—Strawberries have done well in some gardens, in others a total failure from the dry weather; here the fruit has been good and abundant. Eleanor, Alice Maud, Sir J. Paxton, Sabreur, Amateur, James Veitch, do the best, and I can strongly recommend Ingram's Prince Arthur as producing a large quantity of highly coloured handsome fruit, though rather small. *J. Ticehurst, Dynevor Castle, Llandilo.*

CHESHIRE.—The President is the most useful variety grown here. *John Malcolm, Cholmondeley, Nantwich.*

—— Those which do best with us are President, Sir Harry, and Sir Joseph Paxton. *W. Whitaker, Crewe Hall.*

EAST LOTHIAN.—I find no sorts more useful or certain than Keens' Seedling, Sir Harry, Paterson's Nonpareil, British Queen, and Elton Pine. *Alex. Shearer, Yester Gardens.*

KENT.—British Queen, Dr. Hogg, President, Keens' Seedling, and Wonderful. *Thomas Woodford, Eastwell Park, Ashford.*

LANCASHIRE.—The best general croppers here are Vicomtesse Héricart de Thury, President, and Dr. Hogg. Amongst late varieties, Eleanor, Frogmore, and Late Pine are the best. *W. B. Upjohn, Worsley Hall Gardens, Manchester.*

—— President, Dr. Hogg, and a local variety called Yates' Seedling, are specially adapted for culture in this neighbourhood. *Henry Lindsey, Huntroyde Park Gardens.*

LEICESTER.—Dr. Hogg, British Queen, Elton Pine, Keens' Seedling, Sir Charles Napier, President, and Jay's Wonderful always do well here. *J. Browne, Gopsall Hall, Atherstone.*

LINCOLN.—Our best varieties are Black Bess, Sir Charles Napier, Keens' Seedling, and Grove End Scarlet for preserving. *R. Gilbert, Burghley, Stamford.*

MERIONETH.—President, Eclipse, Keens' Seedling, Frogmore Late Pine, Dr. Hogg, Sir J. Paxton, Sir Harry, and Oscar. *James Bennett, Rhug Gardens, Corwen.*

MID-LOTHIAN.—The most generally useful varieties here are Keens' Seedling, Garibaldi, President, Duke of Edinburgh, Sir Joseph Paxton, Elton Late. *M. Dunn, Dalkeith.*

NORFOLK.—James Veitch, Dr. Hogg, Eclipse, Elton Pine, and Prince Imperial, Keens' Seedling, Mr. Radclyffe, Royalty, Sir Charles Napier, and Sir Joseph Paxton. *William Smythe, Elmham Hall.*

NORTHAMPTON.—Keens' Seedling, Sir Charles Napier, Trollope's Victoria, Sir Harry, Sir J. Paxton, Empress Eugenie, and Elton Pine. *J. Worraker, Milton, Peterborough.*

—— Keens' Seedling, Sir Charles Napier, and President are the best here. *J. Smyth, Althorp Gardens.*

RUTLAND.—Our best varieties are Premier, President, Lucas, Sir Joseph Paxton, Sir C. Napier, Vicomtesse Héricart de Thury, a most excellent variety, and Elton Pine for late crop. *J. Smith, Exton.*

STAFFORD.—Of Strawberries we grow a large number. We force between 3000 and 4000 plants. The varieties I grow are President, Sir Charles Napier, Marguerite, Keens' Seedling, Vicomtesse Héricart de Thury, British Queen, and Dr. Hogg. For market purposes in this neighbourhood Keens' Seedling has been quite discarded, and Vicomtesse Héricart de Thury is the variety principally grown for that purpose. *Owen Thomas, Drayton Manor.*

SUFFOLK.—Sir Charles Napier is invariably a great bearer, and forces well. *Thomas Blair, Shrubland Park.*

WILTS.—Strawberries grow remarkably fine here, and the best sorts are Keens' Seedling, British Queen, and Dr. Hogg. The subsoil in our kitchen garden is principally blue clay, and tender stone fruits do not ripen their wood well, excepting where elaborate preparations have been made. *Wm. Taylor, Longleat Gardens, Warminster.*

THE CENTENNIAL OF CHEMISTRY.

PURSUANT to the call issued by the Committee of Chemists, says the *Boston Journal of Chemistry* of the 1st inst., about 70 chemists, representing all branches of the science, met at the little town of Northumberland, Pa., on July 30, to celebrate the hundredth anniversary of the discovery of oxygen, and to do honour to the memory of Joseph Priestley. Simultaneously with the meeting at Northumberland the chemists of England met at Birmingham, to celebrate the same event and to unveil a statue of Priestley. Thus two nations united to do honour to the man who had been persecuted and driven from his home by the one, and who received but a cold welcome from the other.

During the session of the Congress the following dispatches were sent and received:—

Northumberland, July 31, 1874.

To the Priestley Memorial Committee, Birmingham, England.

The brother chemists at the grave to their brothers at the home of Priestley send greeting on the centennial anniversary of the birth of chemistry.

Birmingham, July 31, 1874.

To the American Chemists assembled at Northumberland, Pa.

Our statue of Dr. Priestley will be unveiled to-morrow at Birmingham; presented by the subscribers through Professor Huxley to the town, and accepted by the mayor. We greet you as colleagues engaged in honouring the memory of a great and good man.

To this a reply was returned as follows:—

Northumberland, Pa, July 31, 1874.

To the Priestley Memorial Committee, Birmingham, England.

Welcome dispatch received. Professors J. Lawrence Smith, Youmans, and Joy appointed committee to represent us in spirit at unveiling of Priestley's statue.

The noon recess was pleasantly spent in inspecting the residence of Dr. Priestley and the remains of his apparatus.

In the evening the assemblage met around the grave of Dr. Priestley, to listen to an address by Dr. Coppée, of Bethlehem, Pa. The hour, the associations, and the oratory combined to make this one of the most eloquent addresses we have ever listened to.

"Could Priestley," said the speaker, "rise from that sod and hear the wonders of science and the marvels of art of to-day, what would be his astonishment at the photograph of his own picture; at the crowds that have come by railway expresses to do him honour; at the announcement that under the ocean waves the medium which he loved to handle was sending from the Priestley centennial gathering in Northumberland, in an instant flash, greeting to the crowds who, 3000 miles away, were making the welkin ring with plaudits as his statue is unveiled at Birmingham—that Birmingham which, only three-quarters of a century ago, sacked his laboratory, burned his house, and drove him and his children away and out of England with a ferocious bigotry which was not essentially English, but inherent in human nature in all ages, and especially characteristic of that age in Europe.

"This is an unusual celebration, and this particularly is the strangest scene of this singular drama. This peaceful field and Acre of God, in this most charming evening hour, happily suggested by a lady chemist; these surrounding hills; this gleaming river, which lends breadth and beauty to the landscape; this distinguished assemblage standing reverently but not mournfully around the grave—these do not tell us of death, but of life; not of decay, but of resurrection; not of oblivion, but of immortality. They tell us that in the inexorable past there is but a semblance of imprisonment; that the good and the true break the flimsy bands and come back to gladden the hearts of men. Such are the pleasant thoughts, fancies, and yet living facts which cluster around the grave of Joseph Priestley."

At the conclusion of this address we assembled once more in the hall to listen to an essay by Professor J. L. Smith on the Progress of Industrial Chemistry since 1774, in which he traced the development of many of the great industries of the day from their small beginnings, showing that almost all of them were dependent on chemistry, and how little advance had been made beyond empiricism until Priestley's discovery of oxygen paved the way for future progress.

EXHIBITION OF INSECTS IN PARIS.

ONE of our (*Daily News*) Paris Correspondents writes as follows:—

The Insect Exhibition in the Tuileries Gardens was opened a few days since. It was M. Ducuing who did the honours of the Orangery, where the insects are on view. These creatures are divided into two great classes. The beneficent are on one side and the maleficent on the other. The bee and the silkworm have a prominent place in the exhibition. I was glad to see the spider's claims to human gratitude allowed. Crickets, beetles, and other familiar insects which we treat as enemies are placed among the auxiliaries. The direct and indirect utility of the ant are lectured upon by an aged *savant*, who has spent his life in studying the ways of insects in the woods and vineyards of the Jura, and seeking to penetrate the mysteries of their nervous systems. The terrible Phylloxera is an object of peculiar interest to Parisian families, because of the rise this mischievous little insect has caused in the price of ordinary wines produced on the alluvial soils, where it most multiplies. Each insect is pinned to a card, stating briefly its natural enemies, habits, appetites, capacities of increase, uses (direct and indirect), or the ravages it commits in accomplishing its destiny. Exhibitions of this kind would be more useful in market towns on market days than in Paris. The improved beehives on sale at the Insect Exhibition enable the agriculturists to take away the superfluous honey without danger to the bees. In an annexe there is a collection of insectivorous birds. Each bird has round its neck the bill of fare which its palate and necessities dictate. I was never in an exhibition which more interested me than this. One comes away with the impression that, if man is at the head of created beings, Nature has a care for her more insignificant children, and will not suffer them to be stamped out of existence with impunity. We must not overmuch interfere with her general plan in cultivating the ground. The natural, or providential, government of the world, and the distribution of its alimentary resources between the various species of created beings, is so very complicated that Omniscience alone can clearly see where good darkens into evil, and evil brightens into good. The agriculturist who does not respect Nature's system of checks and balances will find himself in the long run a sufferer for it.

DUNROBIN CASTLE.

AT the mouth of the Dornoch Firth, on the northern shore, and but a short distance from the clean straggling village of Golspie, stands at a considerable elevation above the sea the princely pile—Dunrobin Castle—the residence of His Grace the Duke of Sutherland, and which, as we learn from that indispensable companion to every visitor to the "Land o' Cakes"—Black's *Tourist*—was founded in 1097 by Robert, second Earl of Sutherland. "By additions it has become one of the most princely palaces in the kingdom, and undoubtedly one of the most commodious in Scotland. The building now exhibits a solid mass of masonry about 100 feet square by 80 feet in height. There are three main storeys, besides the basement and attics, connected by a lower range of building with the old structure. This in

itself is a large building, though modernised and almost lost amidst a multitude of high towers and fretted pinnacles, but still it serves to preserve much of the pristine dignity of the castle. A magnificent elevation, springing from a terraced basement, and pierced with rows of oriel and plain windows ornamented with various tabling, forms an extensive and imposing frontage to the sea, over which rises a series of lofty towers at the angles of the large square mass, while the whole edifice is crowned by numerous towers and minarets. All the towers have high, sharp, pointed roofs, covered with overlapping plates or scales of lead; but the main tower at the north-east corner, which is 28 feet square, and rises to a height of 135 feet above the basement terrace, has its roof incurved and truncated. It forms the *porte-cochère* underneath. The general character of the whole building is that of a very large French château or German palace, with details of the best old Scottish models."

Standing on the basement terrace before-mentioned, the view seaward is magnificent. On either hand are extensive slopes luxuriantly wooded; in front, on the right, is a large old-fashioned kitchen-garden; on the left are singularly picturesque flower-gardens and shady woodland walks, while in front is the Moray Firth, the greater portion of which is swept by the eye.

Descending towards the main flower garden we come upon a terrace with Ivy-covered slopes, and along which there is a grass promenade, kept luxuriantly green all through the driest summer by means of a permanent system of shower irrigation. On the north side is a long border bedded out in the same style as the long border at New Tarbet, mentioned at p. 270, the partitioning plants being Fuchsia Riccartoni and Scarlet Salvia, and the spaces filled in with such sweet-scented plants as Stocks, Phloxes, Carnations, &c. The background to this border is formed by a row of Hollyhocks and Dahlias, and the stone wall covered with fruit trees, flowering creepers, &c. Descending still lower the visitor comes upon the main flower garden (see fig. 68), which occupies a considerable space, and is circular in its outline, with a fountain in the centre. The design is simple but exceedingly chaste, and the bedding-out is carried out on the massing principle, the object being to secure a telling effect from the windows some 150 or 200 feet above. In this garden Violas are largely used, so well do they do; and as a yellow nothing does better than Viola lutea Perfection, which was a glorious mass of colour. Another plant which does grandly here in the autumn is Saponaria calabrica, and accordingly it too is very largely used. Where a mass of scarlet is wanted, the dwarf Dahlia Little Wonder is used with great effect. Around the fountain, which is seen in our illustration (fig. 68), several plants of the Pampas-grass have been planted since our photograph was taken, with very good results, pictorially speaking. Nearer the sea is what is called the lower garden, which is divided from the preceding by a substantial wall, on which Apple trees are trained, and it is worthy of remark that these trees, principally of Lord Suffield and Keswick Codlin, although directly facing the sea, and often bathed in its spray, have done better than those in more sheltered situations in the same garden. In this department are the glass-houses, and one of the prettiest and most convenient of gardener's cottages, tenanted by Mr. Melville, the head gardener—a first-class practical man.

The choice kinds of fruit are not required to be produced here, the supplies coming from the gardens at Trentham, consequently the houses are devoted to Cucumbers, Melons, and Tomatos, and principally to the culture of small plants for table work, and which are remarkably well done. There are one or two long flower borders, principally composed of plants remarkable for the delicacy of their perfume, and several large round beds filled with such glorious objects as the Lythrum roseum, Fuchsia Riccartoni, and Phloxes. Of trees grown for shelter, the chief is the Sea Buckthorn, and it is astonishing how well such things as the common and Portugal Laurels, Hollies, and the Willow-leaved Poplar do here, seeing that there is only 14 or 15 inches of soil that is not impregnated with salt. The woolly-leaved Poplar and the Sycamore also make fine growths, and so does the common Honeysuckle. We should not omit to mention that plant screens are in some demand here, and that none are found to do better or prove more effectual than those of Lophospermum scandens.

The kitchen garden covers a considerable extent of ground, and contains a good assortment of Apples and Pears and of bush fruits, and well-cropped vegetable quarters, edged for the most part with old-fashioned herbaceous borders.

In the ornamental grounds on the north-west side of the Castle is a strikingly handsome dairy; and in another part may be seen the magnificent monument erected to the memory of the late Duchess of Sutherland, the foundation-stone of which was laid by Her Majesty.

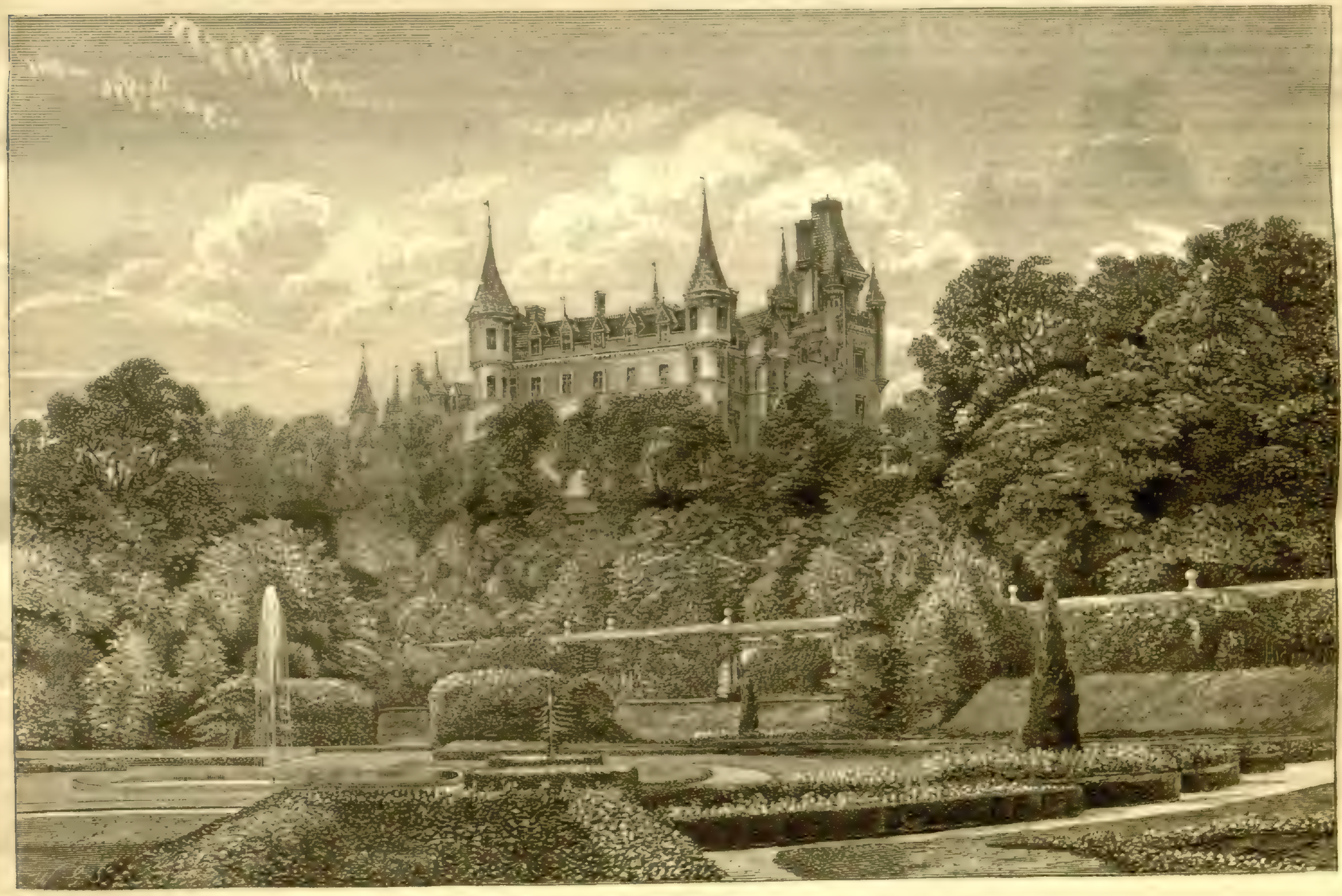


FIG. 68.—VIEW OF DUNROBIN CASTLE FROM THE FLOWER GARDEN.

JEDBURGH PEARS.

IT were difficult to find a more picturesque and enchanting bit of Scottish scenery than the vale through which meanders the crystal streamlet locally known as "Jed Water." The "water," as it is designated, in contradistinction to its tributary "burns" and the "river" Teviot, in which it is ultimately lost, rises out of the Carter Fell, an outpost of the Cheviot range of hills, the summit of which was once the boundary line of two kingdoms, and the witness of many a bloody fray, but notably of a skirmish known as the Raid of the Reedswyre, where a friendly meeting of the wardens for the redressing of wrongs and punishing of crimes ended in a sanguinary battle, in which the "Jedwood axe" was a conspicuous weapon, and the formidable war-cry "Jetharts here," was heard above the clash of arms and the groans of the wounded. The upper part of the vale is devoid of wood, but soon the gushing streamlet gets lost in the deep and impenetrable shades of the grand remains of what was once the great Caledonian forest. Six miles from its source are the remains of old Jedburgh, or Jedworth, locally corrupted into "Jethart," said to have been founded in 845, but of which nothing now remains. Four miles farther on is Jedburgh, or Jethart, and at every turn of the road new and fresh beauties meet the eye. One notable feature in the landscape is the succession of lofty precipices, or scaurs, overhanging the stream, which exhibit a face of red sandstone, partially screened with the foliage of natural wood, which grows luxuriantly, and produces a blending of colours pleasing to the eye and ravishing to the landscape painter.

Little more than a mile from Jedburgh is Ferniehirst, once the principal stronghold of that branch of the Kerr family now represented by the Marquis of Lothian. The remains of the ancient tower have been transformed into a farmhouse, which retains somewhat the form of an old Border keep, and the old-fashioned garden is curious and interesting. The surrounding woods are old and gnarled, many of the trees having the appearance of being part of the ancient Jed Forest. One of the largest, an Oak of great girth, and about 80 feet high, is called the King of the Wood; and another very ancient Oak near the margin of the Jed is called the Capon Tree. The designation has given rise to no little archæological discussion; but the solution is probably to be found in the definition given of Capon, Coban, or Covine tree, by Dr. Jamieson in his *Scottish Dictionary*, as "a large tree in front of an old Scottish

mansion-house, where the laird always met his visitors." Probably the Capon tree was some "kepping," or trysting-tree, where the valiant Kerr met his visitors or vassals in the days when Ferniehirst was in its glory. Near Brampton, in Cumberland, is a tree which bears the same designation, and under it, according to popular tradition, the authorities of Carlisle were wont to meet the judges of assize when approaching their city. Across the Jed from Ferniehirst, near the residence of the Marquis of Lothian's forester, are some of the largest and most graceful specimens of the Spruce Fir tree to be found in Scotland; and looking out from a leafy screen at the top of the bank is Lintalee House, close to which are the remains of encampments once occupied by the Black Douglas, when keeper of Jed Forest. In the face of the cliff were some ancient caves, but these have disappeared within the last few years through the effects of frost and flood gradually undermining and breaking away the rocky scaur.

In a little nook of the tortuous vale, part of it on the level close to the Jed, and part on the sloping ascent toward the hills, is situated the town of Jedburgh. The vale is narrow, and the haugh land of small extent, so that a good portion of the houses are set in the face of steep banks, and the gardens suggest some idea of what the hanging gardens of ancient Babylon may have been. The town itself has many features of curious interest. It has the ruins of an abbey, in which lived in other days a colony of monks; and some of the Jethart Pear trees are believed to have stood from a period before the Reformation. It had a strong castle at the highest part of the town, and some of the old mansions were in the form of Bastile houses, the defensive character being requisite as a protection against the English invaders. The most interesting specimen of these houses now remaining is one in which Queen Mary lay sick for some time after her ride of 50 miles over moor and moss to visit Bothwell at Hermitage Castle, when he had been wounded by the banditti of Liddesdale. It is one of the few good houses now remaining in the burgh which has a thatched roof.

But our present object is to notice Jethart Pears, and not to give a description of the town. We have already spoken of the steep banks on which some of the gardens are situated, and that probably tends to help the growth of fruit by the radiation of heat, but the soil is likewise uncommonly deep, and the roots can go 10 feet downwards without exhausting the nourishment. The Pears have long been famous, and the time is not distant when Jedburgh Pears were sold in the streets of London. In Newcastle-on-Tyne it was common to hear the cry of "Fine Jethart Burgundy Pears." The name should probably have been Bergamot, a variety of Pear said to have been introduced by the Romans, and still a favourite in the town, but the wood is liable to canker. Of the ancient kinds there is one called the "Worrycare," of which no specimen remains in Jedburgh, but there is, or lately was, one at Ancrum, 3 miles distant. The trees are said to have been extremely prolific, but the fruit was so woody as to be uneatable, and, after long keeping, the Pears had to be boiled like Potatos before being used. Tradition says that on one occasion a Jedburgh market-gardener took a cartload of Worrycares across the Border to a fair at Wooler, and the country people readily purchased the Jedburgh Pears, but as the honest burgher trotted homeward in the evening he was pelted all along the road by the disgusted purchasers, who had tried in vain to masticate the hard knots of Pears.

Another Pear that nobody now cares to cultivate, but that grows in great abundance and never fails of a crop, is the Warden Pear. Like the Worrycare, the Warden used to grow in great abundance at Jedburgh, and seems to have been much used, as "Warden pies" are mentioned in history as a common article of diet. In the Lady's Yards, a garden not far from the Abbey, are two specimens of Warden trees which are worthy of notice. One of them is near the house of Mr. William Hilson, manufacturer, who, in the spirit of a true lover of Nature, has taken precautions to preserve its historic interest as far as possible; as it stood originally the tree must have had a thick trunk, but in its present prostrate and decayed form measurement is impossible. It had, at some period in the distant past, fallen over, but from the prostrate trunk another tree had grown a few feet to the eastward of the parent root; this again had fallen, and the end of the stump is easily seen where it has been cut across, while a third tree has grown up from the ruins, and that is now an old tree tottering to its fall, but carefully propped, and still in old age bearing abundant crops of fruit. From the original to the present root is a distance of about 15 feet, and that consists of decayed trunks, out of which, however, new shoots are at present springing. The Pears are hard and green, very well shaped, and forming a neat point at the junction with the stalk. At a short distance is another tree, which, in a similar way, has travelled about 20 feet. At one extremity is a Warden Pear tree, and at the other end, where the original stock had been, there has sprung up an Achan Pear tree.

Along the north side of the town is a locality called "the Friars," where some gardens belonging to the monks have been situated, and in which are some old Pear trees. In the Friars' orchard is an old Longueville tree, a kind of fruit which some authorities have considered to be identical with Hampden's Bergamot, but which is in reality quite different. The tree in Friars' orchard has originally had a thick trunk, but some years ago it was all blown over except one small limb which continued to grow, and has this year a large crop of fruit. The Pears are of moderately large size, thick and short in form, green in colour, and rough in the skin, but not yet ripe. In the same orchard there is a Hessle Pear tree, the first introduced into the district, and which came direct from Hull when the species was imported from the Continent. The tree is not very well grown, and Mr. Deans has a better specimen in his nursery. The fruit is turbinate-shaped, of rather small size, but tender, sweet, and juicy, with a pleasant aroma. It is ripe in October. In the same orchard is a specimen of the Summer Bon Chrétien, upwards of 100 years old, but there is not much fruit on it, and it is a kind which is always shy and precarious in the district. The St. Catherine Pear is here represented by a tree eighty or ninety years old, the Pears on which are small, reddish, and sweet to the taste.

In various gardens around the town are large and fine Pear trees, some of which are worthy of a passing notice. In the garden of Mr. Brown, grocer, is an old tree of a kind called "Ludd," the only one of its kind now grown, which bears always a fine crop of turbinate-shaped, fair-eating Pears, though not equal to some of the more modern sorts. In the Burn orchard, belonging to Mr. Ormiston, is a large specimen of the grey Warden, an old tree, but not nearly equal in age to those at the Lady's Yards.

Near the Nest Academy are two specimens of the Grey Achan, of very large size and bearing great crops. These are sometimes called Black Achans, and some-Red Achans; but the truth is the colour changes with the age of the fruit. It may be observed that this species forms an excellent dessert Pear in Scotland, where it grows plentifully, hangs on the tree till all the leaves are off, and will scarcely part from it even them, and is in season in the months of November and December; but in the south of England it is worthless. In the manse or parsonage garden, close to the Abbey, are some grand trees, but the most notable of them all was a celebrated Plum, called Cloth of Gold, which was broken by a storm some years since, and has been replaced by another many degrees inferior. In a little sheltered corner of a garden, where Queen Street meets Canongate, is a very old Longueville, belonging to Mr. George Hilson, manufacturer; and in the same place is a noble specimen of the French Jargonelle, a favourite Pear in the town, and which grows in great perfection. Having measured this particular tree, we found it 7 feet in girth and 6 feet high from the ground to the first cleft; the tree is about fifty-eight years old, in perfect health, and finely developed, and is the parent of all the French Jargonelles in the town. In a garden adjoining the above, between the High Street and Queen Street, is a specimen of the Green Yair, the only one in the town, which seems surprising as it is generally considered a good Scotch Pear, tender, juicy, and sugary, but below medium size. Another notable tree in the same garden is a Green Honey, very large and prolific, and the parent of all others of the same species in the town. On the opposite side of Queen Street is "the Palace," as the former residence of Queen Mary is called, and connected with it is a garden filled with magnificent trees. It is nearly quite level, and extends from the street to the margin of the Jed. At the west end of the house is an enormous tree of what is called the Buchanan Pear, but whether that means Buchanan's Spring Buerré, or how it has got the name, nobody seems to know. It covers more ground than any Pear tree we ever saw before, and its spreading limbs are supported by three sturdy props. We noticed a Longueville which shows how life may be prolonged amid decay, for the trunk is entirely worm-eaten, only a shell remaining, and yet a limb, which seems like to fall by the weight of its fruit, has grown out from one side, as if it were a graft set into the tree, and is green, flourishing, and uncommonly fruitful. Near the river-side is a large specimen of the White Warden Pear tree.

No visitor should be in Jedburgh and not see Mr. Deans at the Anna Nursery. Not only can he tell everything of interest that has happened in the town for upwards of sixty years, but he knows all about the gentlemen's country seats in the neighbourhood, and in his own conservatories and grounds there is much worthy of notice. In the course of a long and active life he has not only carried on a good nursery and seed business, but has made experiments and has several fruits bearing his own name. We notice specially an Apple called Deans' Gold-finder, a seedling having what we consider excellent merit, being a fine, large, well-coloured, and mellow summer Apple. Another seedling has been named Deans' Pippin, which is likewise an excellent Apple. Mr. Deans was the first to introduce to Jedburgh Williams' Bon Chrétien Pear, a graft of which was sent him in a letter from London, and it has been found to suit the locality uncommonly well. We observed a specimen of the Doyenné du Comice Pear, which is, we believe, the only one in the district; and the Marie Louise is likewise to be seen in perfection. Some kinds of Plums, including the Golden Drop and the Victoria, may also be noticed in great excellence. In fact the Anna Nursery contains a compendious treasury of all in the shape of fruit and flower that long experience and keen observation have shown to be suitable for the district; and Mr. Deans, who has been its maker, and of whose genius it is a true embodiment, is one of the most genial and pleasant men one could desire to meet. *I.*

GREENHOUSE PLANTS.—XV.

THEIR CULTURE AND MANAGEMENT.

PHŒNOCOMA PROLIFERA.—This very beautiful and remarkably distinct plant is a native of the Cape of Good Hope. The flowers are of the character designated "everlasting;" they are bright crimson, produced freely on well-managed plants, and as large as a five-shilling piece. They remain in good condition for several weeks, and even for much longer they are presentable, but it is not good practice to allow them to remain on for an unlimited time, as by so doing they produce seed, which greatly tends to weaken the plants, and to prevent the necessary growth for the season following. Phœnocomas suffer more from this treatment than most plants, consequent upon their late-flowering disposition, since they naturally come in later than most hard-wooded subjects, and are often kept back for decorative or exhibition purposes long after the time that the flowers should have been removed and the plant making growth for the ensuing season. It is, like all others from the same latitude, a light-loving subject, that cannot endure at any season to be kept in a dark situation, or where the atmosphere is too close. It is of quicker growth than some it is nearly allied to; on the other hand it does not, as a rule, last so long, but it is a good grower, not so liable to go off suddenly as some of the occupants of this department. The plant will succeed in loam, in which soil some grow it, but I prefer good ordinary peat. In selecting plants choose such as are dwarf and bushy, that have not been neglected in stopping, and that are of a good dark colour in the foliage. I prefer plants procured through the autumn; these or other hard-wooded subjects got at that time, when their season's growth is complete, can be wintered without crowding, and, consequently, are likely to be found in a better condition for starting off freely in the spring. Place them for the winter in a good situation near the glass, in a dry house where there will be no drip upon them nor any accumulation of moisture, as they are subject to lose their inside foliage near the base of the shoots, which much injures them both in appearance and reality. A temperature of 40° will answer for them in every way; and they require a little more water at the root than most hard-wooded species, by reason of their never being at rest completely, but growing on slowly through the winter.

If they are in 6-inch pots give them a 3-inch shift in April, using good fibrous peat, lighter in texture than required for some plants; break it moderately fine, using sand in sufficient quantity to keep the whole in good open condition. Shade in bright weather slightly for a few weeks, keeping the atmosphere a little damper, but do not syringe this plant overhead at any time. Bring the shoots straight in a horizontal position close down as low as the rim of the pot will admit. This is essential with the Phœnocoma, as it is naturally inclined to grow erect, and if the shoots are not trained out whilst they are young they will split off when the attempt is made to train them when they get older; the points of the shoots will soon turn up, the weaker ones near the centre of the plant will gain strength, and the growth will become equalised.

Treat them through the spring months similarly to other hard-wooded stock. By the beginning of July they will bear another shift into pots again 3 inches larger, using plenty of drainage; pot hard, and leave sufficient space for water by keeping the ball well down below the rim of the pot. Shade again for two or three weeks, if the weather is such as to require it, after which it may be dispensed with; damp the house, and close in sun-heat all through the summer until the middle of August, when air may be left on all night, so long as there is nothing to fear from frost. Attend to them in training, by keeping any shoots that take the lead well down, and if there are any much stronger than the rest pinch out their points, which will cause them to break back and fill up. Pot again in spring as advised for the preceding year, giving a 3 or 4-inch shift, according to the strength of the plants, and the condition the roots are found to be in. The soil will now do used in a little coarser state, but must be equally good as to its containing plenty of fibre, with sufficient sand, and the drainage must be ample and well secured

by either a thin layer of Sphagnum or pieces of turfy peat. The plants will this season make some flower, and it becomes a question, which will be best answered by each grower, whether they are to be allowed to remain on, or be nipped off and growth encouraged? If the object is to get the plants as large as can be in the least possible time, then they should not be allowed to flower; but when there is a disposition to use them whilst young for decorative purposes no harm will be done by allowing the flowers to open, providing they are not left on too long, and the plants are not injured by being crowded amongst other things. But if they do not show flower in good time, that is, so that it will open early in June, it should not be allowed to remain on, or it will interfere with their making growth for the ensuing season's flowering. They will not require a second shift this summer, but must be attended to in training. The shoots will bend moderately, but at the joints are extremely liable to split right off. Their summer and autumn treatment will need to be as before, but in the winter they will require more careful tying, so as to put them in proper form for flowering the following season, when, if all goes well, they should make nice small blooming specimens.

Pot them again in April; it will in no way interfere with their flowering, providing it is done with care and the plants are not allowed to suffer either from the want of water or from receiving too much until their roots get hold of the new soil. The flowers should not be allowed to remain upon the plants more than six weeks after opening, otherwise they will interfere with the ensuing season's blooming; it is to this cause that is generally attributable the lack of flowers upon these plants two seasons in succession. By the autumn they will have made such progress as to be large enough for exhibition specimens, if required. Keep them near the glass through the winter, which has the effect of causing many shoots to flower that otherwise would not; this is often the case with plants of the character of the Phœnocoma that do not bloom from mature wood of the previous season's growth, but keep on growing all the year, and flower from the points of comparatively soft shoots. Tie and put them into shape during the winter. As to potting this season in the spring, or deferring it until after they have flowered, that can best be determined in the case of each individual plant. Any that appear as if they would suffer for want of sustenance at the root by being very large and strong, proportionate with the size of the pot they already occupy, had better be potted on as hitherto in April; but where the reverse is the case, it will be well to defer the operation until they have flowered, or even till the spring following, for, although it is always wise to give a plant in its younger stages all the root-space requisite to get it on in size as quickly as possible, yet, when once a good start has been effected up to a certain size, determinable in the case of each particular species of plant, it is better not to transfer it into a larger pot more quickly than requisite. This, of course, applies to such as the species under consideration, which do not admit of being shaken out, or of a reduction of the ball being made, so as to renew the soil, as may be done with coarse-rooted plants, that will bear partially disrooting.

If they do not receive a larger pot until the ensuing spring let it be done by the end of March, as, now that the plants have attained size, they cannot be removed with so little disturbance of the roots as when smaller. The necessity for this is that if the potting is deferred until later it may have the effect of injuring the season's bloom. It must be borne in mind that this plant can never be induced to flower freely if under-potted. The quantity of bloom produced will depend upon the strength of the plant. It is liable in time to get bare and denuded of leaves at the bottom, and in such state is very unsightly, but if the branches have been kept trained down as advised, there can be no difficulty in covering this defect, for, with the exception of their being liable to split off at their junction they will bend freely in any direction.

There are several forms of Phœnocoma — the old kind, now seldom seen, which is a shy flowerer; the one most generally met with, Barnes' variety (Phœnocoma prolifera Barnesii); and a variety with much larger flowers and stronger in its growth. It may be easily recognised in small plants, if strong, as the lateral branches are depressed, giving each vigorous shoot much the appearance of a miniature specimen of Spruce Fir; this is much the finest variety.

Phœnocomas are but little subject to the attacks of insects; though occasionally red-spider will make its appearance upon them, in which case the plants should be laid down on their sides, and thoroughly syringed with clean water three or four times, at intervals of a few days. They must never be allowed to stand, especially in the autumn and winter, where anything in the shape of dead leaves from other plants can fall upon them, for, as they decompose, they will communicate damp to the foliage of these plants. I once in the autumn, for want of room, placed one of the best specimens I ever had, in a vinery where all the leaves were off but not the leaf-stalks, and a number of these fell and lodged upon the strong inside branches, where, not being observed, they decayed, and killed every branch with which they were in contact, rendering the plant utterly useless. *T. Baines.*

THE CHEMISTRY OF MANURES.

THERE has been much difference of opinion as to the most important fertilising agent of manure, and the most judicious way of its application to land. In the *Journal of Horticulture*, vol. xvii. of the new series, this subject was introduced by one writer (p. 221) condemning the notion of another, whose practice was that of ploughing in manure as soon as it was possible, to prevent deterioration by sun and wind; the writer stating at the same time that he had "acres" of land then covered with manure "as dry as sun and wind could make it." His idea was, that no ammonia was lost, because, by spreading manure over the land there had been no fermentation, and he seemed to base his theory upon the fact that the guano beds of Peru (long supposed to be the excrements of sea fowl, but now thought by some to be the remains of fossil life) remain unaltered, although under a burning sun. This article was followed by a lengthy discussion, and at the foot of a subsequent paper (p. 377) on this subject was appended the editors' objection to such views as were put forth.

What I would also add before proceeding further is this: Are we certain that the surface of the guano beds loses no fertilising constituents by exposure? I think not. We use this manure as a top-dressing to grass, &c., because it is the only means that can be resorted to with facility. There is more or less waste in all surface manuring. If dressing land where crops are growing could be performed by liquid application much of this waste would be avoided. However, it was afterwards acknowledged that "fresh" guano was more valuable than "old"; but that the reason was not on account of the sun and wind dissipating the rich and volatile ingredients, but solely by the rain moistening it and causing fermentation, which also was the case with other manures so exposed. Yet it is a fact that the locality of guano beds is peculiarly void of vegetation, the cause of which is the total absence of rain. The only prolific spots are those which skirt the sides of the rivers that issue from the mountains, or such as are within the reach of artificial irrigation.

At the time of this discussion a harassing domestic trial prevented my taking much notice of this important and interesting subject as then brought forward, and I merely jotted down a few notes, thinking I might soon be at liberty to turn my attention to it. However, for personal reasons, no opportunity offered for a revival of the topic in question, until a few days ago, when my thoughts recurred to it on turning over the leaves of the journal, and observing my written remarks in the margin opposite to the articles contributed. Feeling prompted to put these jottings into some shape or other with a view to publication, I determined to do so, having then formed a conclusion from which I cannot yet depart, and which was positively opposite to the theory of the old adage quoted—

> "Be it wet, or be it dry,
> Spread your muck and let it lie."

And hence I would say, the "muck" should not in my opinion be spread over ground until it is convenient to plough or dig it in.

The value of a manure depends upon—(α) the amount of ammonia it contains, and (β) the amount of phosphates which are soluble in water.

Now bones, when ground to powder and mixed with sulphuric acid, form, as is well known, sulphate of lime, and, of course, the nitrogen, which was originally in the bone, *i.e.*, contained in the gelatine, is transformed into ammonia, so that we have both phosphate and ammonia in bone-dust; it is therefore a valuable manure. When this is spread on a field part of it is washed in by the rain, and part is left to decompose, and to yield the ammonia; the insoluble phosphate remaining on or in the soil, and being of no account. Now, when land is spread with stable manure in dry weather, it gives off ammonia and moisture, and in some seasons it throws out ammonia and absorbs moisture. Can any one assert that a heap of manure placed in the sun for any stated time (say a week) would remain unaltered? No. Yet at p. 502 of the same volume we find this startling assertion:—"It is most desirable that agriculturists and gardeners should know that wind and sun do not dissipate any fertilising matter when manure is spread on the field." Any one who has walked over a freshly manured surface perceives an odour of ammonia, owing to a portion having diffused itself through the atmosphere; a wind comes up, and so the atmosphere is renewed from another field. As a matter of course, the ammonia diffuses once more; again the wind carries it away, and it goes to vegetate some other person's fields. When rain comes, it washes the vital principle into the soil, and so, as it were, boxes it up until it is extracted by the living organism—the plant. In some weathers it may be as well to spread and let lie, but in most instances it certainly ought be ploughed or dug in directly. To know in what weather, and what kind of manure ought or ought not to be immediately covered is not understood by many, and it is this judicious application of manures that constitutes a good agriculturist. Yet, in a general way, it may be said for the benefit of those who may not know, that it is safest and best to adopt the plan of covering in all manure directly it is spread over land.

At p. 206 of the next volume another horticulturist takes up the matter, and we have an interesting paper on the chemistry of soil and plants, although it contains some few errors, my brief mention of which the writer will kindly pardon, knowing that his aim to arrive at truth is as earnest as my own; and if I shall have written falsely upon any point, I shall be glad, for the sake of truth and accuracy, to be shown where I have erred. In this article it is said that a false value has been placed upon nitrogen; yet the writer implies that ammonia is a very important constituent, and this ammonia, we all know, is formed by the decomposition of bodies containing nitrogen. And again, he says:—"Nitrogen plays a very unimportant part in the economy of a plant," and, it seems, because it therein exists in a small quantity; but this does not surely prove the statement. Continuing our reading, we find that nitrogen "is the most inert of all elements." Just so; but then an attempt is made to prove that plants would sooner absorb this inert agent than the active ammonia, which is contrary to the supposition of Liebig, Johnston, and Miller, quoted. The reason for this seems to have been inferred from the fact that our atmosphere contains nearly four-fifths of its bulk of free nitrogren, and it being contrary to the provision of Nature to place a living organism in a medium necessary to its existence without the power to absorb or assimilate from that medium what its life may require. Yes; but see the very small quantity of this element that exists in a plant—we may say almost an unimportant one in the economy of its structure, yet not so in the formation of the fruit and seed of plants. We see, moreover, that the ultimate weight of fruit, which contains more nitrogen than any other part of the plant, especially in the Leguminosæ, is in some proportion due to the attention we pay to the soil. A heavy crop of Peas cannot well be produced from a poor soil, however profuse the blossom may have been, though the soil may have been rich enough in all other salts but nitrogen compounds.

But the supposition that the nitrogen of the air constitutes a vegetable food is not an original idea. It was the opinion of some of the earlier pneumatic chemists, Priestley in particular, and he was supported by the results of the experiments of Ingenhous, which results, however, were contradicted by Senebier, Woodhouse, and Saussure; and what remains for me to add is that, although my friend Mr. Davis was under the impression that the writer on the "Chemistry of Manures" in the *Journal of Horticulture* was correct in this matter, after conducting some very ingenious experiments on dwarf Kidney Beans, I cannot concur with him. I need not mention here the details of those experiments, as they were submitted, in connection with my name, in the pages of the *English Mechanic*, and an extract upon the matter was quoted by the editors in one of their leading articles in the *Gardeners' Chronicle*, vol. i. (new series), p. 1032. Great pains were taken over those experiments, but they were attended with greater difficulties, difficulties that seemed insurmountable, and hence, to me, the results were unsatisfactory. One set of the plants experimented on was permitted to grow in an ammoniacal atmosphere, while the other set was grown in an atmosphere from which the ammonia was absorbed by passing common air through dilute sulphuric acid through the aspirator of the apparatus. Both sets of Beans were planted in washed and dried silver sand, and the roots supplied with artificial food. Neither set of Beans took kindly to this artificial culture; the mechanical state of the fine sand itself was not the medium for the production of roots, hence the plants became "drawn" and weak, and to this sickly state alone I attribute the attacks made by the insect in those grown in the ammoniacal atmosphere, which were unprotected by the bell-glass; and this, therefore, was, I think, the cause of this set of Beans perishing before the other set grown under the bell-glass in non-ammoniacal air. Besides, the extreme difficulty of the adjustment of the apparatus connected with the latter set of plants, so as to permanently exclude every particle of the surrounding atmosphere, was in itself a dissatisfaction to me. I do not think that the fact of those plants surviving the set grown in the ammonia-impregnated air was caused on this account, but was the result of reasons already stated. It may be asked why I did not submit my views at the time, to which interrogation I reply that though I had the

inclination to do so, my mind and time were too much engrossed at the period to enable me to devote them to other subjects than those of personal interest.

In the same article now under my examination the writer confounds ozone with nascent oxygen; but the former is quite a different form of oxygen from the latter. Though much discussion has taken place upon the nature and composition of ozone, it is proved to be oxygen in a condensed form, and while there exist but two atoms in the molecule of ordinary oxygen, ozone is known to have three atoms to its molecule. Thus it may be termed dioxygen oxide, or something similar to water, as may be seen from the expression: $\left.\begin{matrix}H\\H\end{matrix}\right\}O''$ water, $\left.\begin{matrix}O''\\O''\end{matrix}\right\}O''$ ozone. Pure oxygen is liberated from the latter when free hydroxyl, $\left\{\begin{matrix}HO\\HO,\end{matrix}\right.$ is brought into contact with ozone, one molecule of hydroxyl and one of ozone giving one of water and two of oxygen. Now, although it is admitted in the article in conjunction with the above that nascent oxygen possesses more active properties than this element in its free state, yet it is implied that nitrogen has no more active properties when liberated from ammonia than it has at it exists free in the air. Surely this is wrong.

In a subsequent article, p. 224, it is stated that the humic, ulmic, &c., acids are carbon in combination with water, and a table is quoted to show the relative proportions of carbon, hydrogen, and oxygen. This combination of carbon, with variable proportions of water to form such acids, was certainly thought so once, but then we should bring our chemistry up to the present time. Humic, ulmic, geic, and other acids are formed by putrefaction; they are but very little known. Humus exists in the soil, but it is insoluble. Humic acid is formed by the action of ammonia or alkalies on humus, but the solution is always a dark brown; and yet the writer of the articles on manures would have it that the humic acid and ammonia are directly absorbed. If this be the case, how is it that the sap of plants is nearly colourless? Again, if humic acid is the main portion of manure, as indeed is set forth in the article alluded to, why is it that plants are not able to grow in peat which contains humic acid in large quantity? *George Newlyn.*

THE SWEET FLAG.*

THE interesting article upon the native country of this curious plant induces me to transcribe a passage from the *Flowers of the Field* of the late lamented Rev. C. A. Johns. "This plant," he tells us, "is said to have supplied the 'Rushes' with which, before the use of carpets had been introduced into England, it was customary to strew the floors of the great. As it did not grow in the neighbourhood of London, but had to be fetched at considerable expense from Norfolk and Suffolk, one of the charges of extravagance against Cardinal Wolsey was, that he caused his floors to be strewed with Rushes too frequently. It is still used to strew the cathedral at Norwich on festival-days."

The practice of strewing apartments with Rushes, so as to give a sort of finish to the furnishing, is frequently referred to in the earlier English authors; and it is reasonable to suppose that a plant capable of evolving fragrance when trampled upon would be preferred to any one of the various species of Juncus, which are at all times, and however dealt with, perfectly scentless. A use, somewhat similar, is to this day made in Cheshire of the stems or haulm of the Carex paludosa, and of other large, coarse, semi-aquatic sedges, which, under the name of "Sniddel," are employed by the farmers for covering the floors of the cheese-rooms, as they do not give way so soon as the straws of cereals, and seem to allow also of what in this particular use is an important consideration, a more free and thorough passage of the air. Now it is hard to suppose that if the Acorus were not indigenous to England, it should have become located at so early a period as this of the strewing of rooms with Rushes, in counties comparatively so out-of-the-way as Norfolk and Suffolk. That the plant now grows so plentifully in the valley of the Thames, from Hampton Court upwards, with example of special profusion at Runnymede, the famous scene of the meeting of King John and the Barons, and of the signing of Magna Charta, is very probably to be attributed to human influence, more or less direct, the plant having long been esteemed by the well-meaning fraternity called "medical botanists." But that it should not only have existed, but have been so abundant in Norfolk and Suffolk as to supply the London market three to five centuries ago is scarcely conceivable, except on the supposition of its having grown there since the beginning. If designedly introduced from the Continent during the Middle Ages, which, I presume, is what is meant by those who esteem it an alien, it would probably have been for use in the simple pharmacy of the day, and would therefore be more likely to have its archæology connected more or less directly either with the neighbourhood of the metropolis or with the gardens of the monasteries, to which such plants were for a long time confined. I do not know from what source the Rev. C. A. Johns derived his information. He cautiously tells us only that "it is said" that the Rushes, so-called, were the stems and leaves of the Acorus. Perhaps some of your correspondents can confirm his statement, or render it highly probable, by the citation of a passage from some mediæval writer. It certainly will be a great point gained in favour of the plant being indigenous to England if such a passage can be found. Shakspeare, who several times refers to the employment of Rushes for strewing, never once, so far as I can remember, alludes to odour as being yielded by them. For instance, in the *Taming of the Shrew*, act iv., s. 1, Grumio exclaims, "Is supper ready; the house trimmed; Rushes strewed?" And again in *Henry IV.*, pt. i., act iii., sc. 1, Glendower says to Mortimer—

> "She bids you
> Upon the wanton Rushes lay you down,
> And rest your gentle head upon her lap,
> And she will sing the song that pleaseth you;
> And on your eyelids crown the God of Sleep,
> Charming your blood with pleasing heaviness."

Here, if anywhere, one would think, Shakspeare would have found a fitting opportunity for allusion to the scent thrown by the crushed herbage into the atmosphere, filled, as we are led to understand it was, with music and love. But he is silent on the point; and although a negation, of course, never reckons as an argument, the circumstance should not be overlooked by those who are disposed to play fair in the matter. Another allusion occurs in *Romeo and Juliet*, act i., sc. 4:—

> "Let wantons, light of heart,
> "Tickle the senseless Rushes with their heels."

Here, again, the scene being one of dancing and festivity, one would suppose that, had the trampling brought out scent, the latter might have been spoken of, Shakspeare not having been the man to miss anything that was worth a reference. But, as in the preceding instance, the omission really proves nothing towards the case in point; nor, for that matter, do the references prove that the materials employed for strewing were the ordinary Junci of the swamp or ditch-bank. Shakspeare was under no obligation to mention the perfume, and in his silence we may of course quite as consistently think of the Acorus. It is worthy of note that when in *Cymbeline* (act ii., sc. 2) Shakspeare cites the shameful incident in the life of Tarquin which lost him his kingdom, he pictures the simplicity of the times again by an allusion to the strewing with Rushes:—

> "Our Tarquin thus
> Did softly press the Rushes ere he wakened
> The chastity he wounded."

These are all the passages in the great dramatist which I can give from memory. No doubt there are others, but I have no Concordance to consult. Possibly there may occur among them some allusion to what I should certainly be very glad to hear of—the perfume which exhales through the treading and bruising.

We have a locality in Cheshire for the Acorus, which I am disposed to believe is as old as any in England. It lies on the borders of one of the ancient wet and sandy wastes which are locally called "mosses," and of which there were formerly so many in the neighbourhood of Manchester that the term is quite common in the topography. Even in the suburbs of the town we have a large district, now well covered with streets, or, at all events, with houses, called Moss-side; while in the immediate neighbourhood are Moss Lane, Upper Moss Lane, Moss Lane West, &c. On the remains of one of these mosses, now laid out as the Victoria Park, and little more than a mile from the Exchange, I have myself plucked the silver tassels of the Cotton-grass. The area I particularly refer to is Hale Moss, some 8 or 9 miles from the borough, and closely adjacent to the now wealthy village of Bowdon. The moss so denominated is too far from primitive Manchester to render it likely that the plant was ever put there by a local Culpepper or Gerarde; and the neighbourhood of Bowdon, so far as I know, was never the residence of any one of the celebrated old "botanists in humble life" of this part of England, all of whom belonged indeed to South Lancashire, the River Mersey intervening between the two counties. There was another locality about twenty-five years ago at Old Trafford, and that one also I am disposed to think was genuine. The plant grows luxuriantly in the ornamental water of the Old Trafford Botanic Gardens, close to the locality now effaced, and is probably a memorial of the last-named. The character and the associations of Hale Moss alike give the Cheshire locality the air of a veritably wild one. What Mr. H. C. Watson has to say about it, even if aware of its existence, I do not know. I can only say for myself that if not aboriginal to the place indicated, I shall hardly know where to look, without misgiving, for a wild flower.

Every gardener who possesses a pond should introduce this curious plant, which is perfectly hardy and very self-accommodating. After a few years' growth, it forms quite a forest of bright green foliage, to gather a bit of which and smell it is always a pleasure. Very curious is it to be able to distinguish the plant, as we may, long before touching, and determining it by the sweetness of its English cinnamon, by the curious crimping or puckering of one of the two thin edges of the tall, flat, vertical, and Sparganium-like leaves, the midribs of which divide them into two unequal portions, the broader portion remaining unpuckered. Very curious, too, and in respect of singularity not excelled in the English flora, is the spadix of bloom. Protruded some half-way up the yard-high flower-stem, which is always concealed among the general herbage, and from the great length and the foliaceous character of the narrow green spathe, seems itself only a leaf, this remarkable body juts out like a finger, 3 or 4 inches in length, tapering and slanting upwards, and in colour is a delicate light greenish-brown, suffused with gold, the latter given chiefly by the anthers. On close examination the surface presents a mosaic of minute hexagons, disposed in contiguous spiral lines, every hexagon being a perfect little flower with minute perianth, six stamens and a solitary ovary. Like others who have sought, I have never succeeded in discovering a ripened seed; for that matter, no more have I ever been able to find one produced by the Mentha hirsuta. I cheerfully grant the soundness of the argument against a plant being aboriginal to this country, which is founded upon its never ripening fruit in England; but I am inclined to think that this argument ought to be pressed only in the case of purely terrestrial plants, and that certain aquatic and semi-aquatic ones, the flowers of which, as in the case of the Acorus, are inaccessible without baring the feet ("faint heart never won fair lady"), and which spread and multiply by the permanent rhizome, may be allowed to stand as exceptions, the existing members being lineal descendants, with unaltered escutcheon, of the first that arrived from their geographical "centre."

Perhaps I may be allowed to add that the collecting of rushy foliage for use as a carpet is as old at least as the time of Theocritus, in whose thirteenth *Idyll*, when the Argonauts have gone on shore in the land of the Cyanians, and the nymphs steal the beautiful Hylas from his companions, the former are described as resorting with this object to the leaves of the Butomus—not the plant so-called to-day, but probably some large Carex—perhaps, ah! there is no reason why it should not have been in part the fragrant Acorus Calamus itself. *Leo Grindon, Manchester.*

* See p. 135.

PLANT GOSSIP.

Too much cannot well be said of that fine old bedding plant, VERBENA VENOSA. Its colour is so pleasing, and its habit and constitution so neat and good, and it associates so well with other things, that all we wonder is we see so little of it. In the North it does grandly, and in many places is quite hardy. At Mount Teviot, a seat of the Marquis of Lothian, about 60 miles south of Edinburgh, and 3 miles from Jedburgh, for instance, it stands out all winter without any protection whatever. "It is not," writes Mr. Page, the gardener at Mount Teviot, "half so well known amongst gardeners as it deserves to be, on account of its easy management. Get a packet of seeds and sow in heat in early spring, prick the seedlings off into boxes, and grow them on liberally, and you will have them in nice order by bedding-out time. When put out, it comes into flower as quickly as any of the ordinary Verbenas, and continues improving until frost cuts the flowers off. It is never troubled with red-spider, and there need be no fear of trouble on the score of plants dying off."

—— The charming BEGONIA MARTIANA is blooming freely outdoors on Mr. Wilson's rootery at Weybridge, and is a plant to be much recommended for a similar purpose in other situations. Being tuberous-rooted, it may be a useful subject for intercrossing with the new race which has sprung up from B. boliviensis—which, by-the-by, is likely to be of some importance in outdoor decorative gardening. One of these, B. Sedeni, is also growing and blooming most charmingly at Weybridge, and has been in the same position on the rootery for a couple of years, the tops being reduced to pulp by the first frost, but springing up again in spring. The brilliant Begonia Veitchii, which has also stood out there for two or three winters, is growing in the finest health, and blooms successionally through the summer and autumn months. All these are planted in a somewhat sunny situation.

—— NERTERA DEPRESSA is one of the prettiest things on the rockwork at Kew. Its tiny stems and leaves form a dense cushion, which now is covered with orange-red berries about the size of Sweet Peas. There are hundreds of pots in the nurseries, but only recently does it seem to have received general atten-

tion. It is useful to know that, if placed in a warm house in spring, it will grow freely, and can be divided at will. Lange, supposing it distinct, in 1868 gave it the name N. scapanioides. There is, however, no sufficient character by which it can be distinguished from the above. It has a wide geographical distribution, and appears to vary. It grows on the mountains of New Zealand and Tasmania, on the Island of Tristan d'Acunha, and on the Andes from Cape Horn to New Grenada.

—— A fine specimen of the Mexican DASYLIRION ACROTRICHUM is now flowering in the Oxford Botanic Garden. The flower-stem is from 10 to 12 feet high, the upper part being crowded with greenish white flowers, produced in the axils of the scales. The flower-stalk grows very rapidly, the present one making growth, at one time, at the rate of 6 inches in twenty-four hours.

—— We have been favoured with the sight of some grand examples of LILIUM AURATUM in the garden of James McIntosh, Esq., of Oatlands Park, Weybridge, which evidently show that they are in the right place, and may furnish a hint to others in the cultivation of this finest of Lilies. They are planted at intervals near the margin of beds of Rhododendrons, which occur on sloping ground, near the foot of the hill-side on which Mr. McIntosh's garden stands, in a sheltered situation, and where there must be a moist atmosphere from the contiguity of a sheet of water; and they are, of course, in peat soil. The roots have, we learned, been planted four years, and now have in many cases divided so as to produce two stems. They range from 6 feet to 9 feet in height, many being of the latter stature, and in some cases the stems are 3 inches in circumference at the base. Many of the finest were gone out of bloom when we saw them, a few days since, but several still remained in full beauty, with from twenty to two dozen flowers, forming a noble head of blossoms from 1 to 2 feet in depth, and upwards of a foot in diameter. Being selected bulbs, with finely-formed and richly-coloured flowers, some idea may be formed of their magnificent appearance.

—— Those in quest of brilliant autmn flowering plants for the herbaceous border, should make a note of DAHLIA COCCINEA. It is a profuse flowering single species, of moderately dwarf compact habit, the single row of petals being intense scarlet and the centre yellow. Planted in small clumps, as in the Oxford Botanic Garden, it is singularly attractive.

—— CLEMATIS DAVIDIANA is now flowering on the wall of the herbaceous ground at Kew. It is very near C. tubulosa, but the leaves are more finely serrated, in this case the leaflets narrower, tapering at the base, and are covered with fine short hair. The sepals also are broader. It is a native of Eastern Asia; and is figured and described by M. B. Verlot in the *Revue Horticole* for 1867, p. 90. C. tubulosa is in flower close at hand, and is very conspicuous from the large number of blue flowers. The leaves are bold and dark green. This is a native of N. China.

—— The Sacred Bean, NELUMBIUM LUTEUM, is this season producing perfect seeds on a plant in the Oxford Botanic Garden.

—— One of the most beautiful of stove aquatics is ×NYMPHÆA DAUBENYANA, a hybrid raised in the Oxford Botanic Garden, where it is now freely producing its lovely flowers, which are of a rosy-tinted white colour with rich yellow centre.

—— In the garden of Mr. McIntosh, at Weybridge, is one of the finest examples we have anywhere seen of the beautiful CUPRESSUS LAWSONIANA ERECTA VIRIDIS, raised in the Knap Hill Nursery, and fully bearing out all that we have from time to time said of its elegance and beauty. Its fine green colour and refined style of growth are the two most remarkable of its characteristics.

—— BELLIS ROTUNDIFOLIA VAR. CŒRULESCENS —the Blue Daisy—is flowering on the rockwork at Kew. It is one of the valuable additions to our collections, brought home three years ago by the Expedition to Morocco of Dr. Hooker, Messrs. Maw and Ball. The florist would, perhaps, prefer a blue Dahlia or Pelargonium, but alpine collectors will be more interested in this. It was figured in the *Botanical Magazine* last year, where we are informed that "the Blue Daisy is one of the commonest spring flowers in various parts of Morocco, abounding in fields with a rich soil on the hills near Tangier, and occurring in great profusion by the watercourses of the valleys of the Greater Atlas in latitude 31°, at elevations of 4000 to 11,000 feet" (Dr. Hooker). It flowers very profusely, and continues for a considerable time. The colour of the above-mentioned plant is rather pale, but with some of the few who possess it the colour has been bright. It does the best when planted on rockwork, and is increased by careful division, preferably of plants in pots.

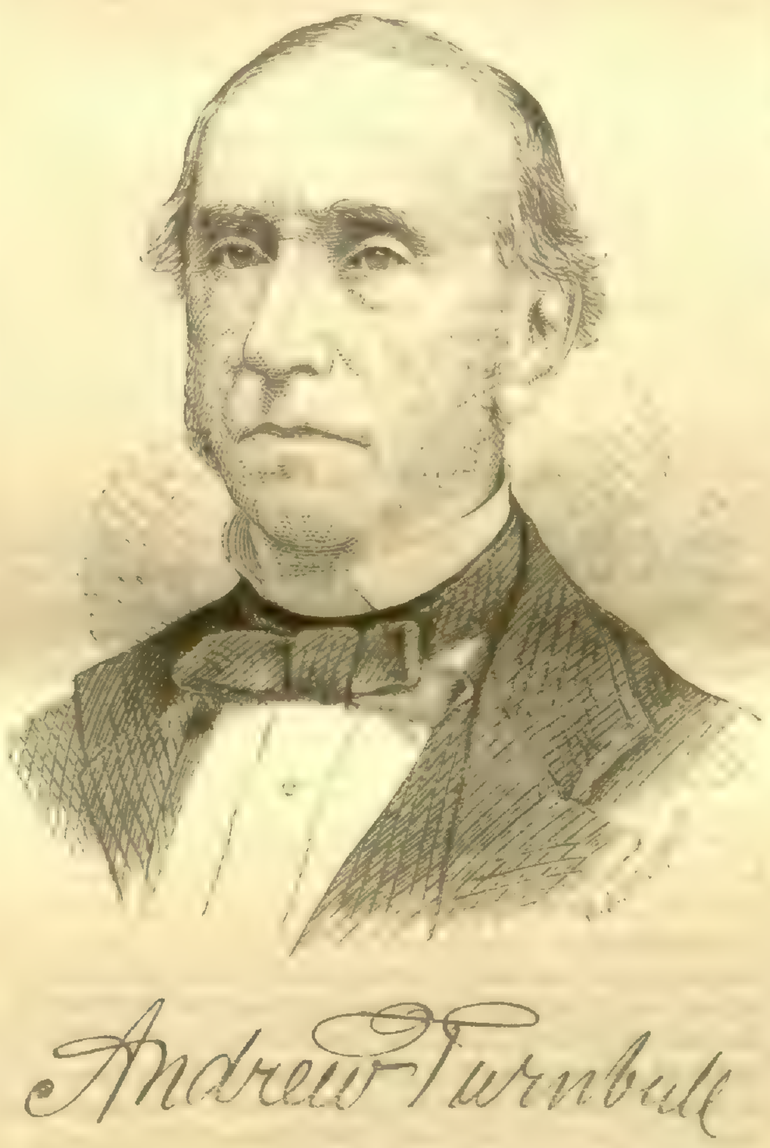
BRITISH GARDENERS.—I.

ANDREW TURNBULL.

THE subject of the present notice, and of the annexed portrait, Mr. ANDREW TURNBULL, has been head gardener at Bothwell Castle for upwards of forty-five years, during which time he has taken a very prominent position amongst the gardeners of Scotland, both as a successful propagator and cultivator of plants, and as the much-respected tutor of the young men who have from time to time been employed under him.

Mr. Turnbull was born at Legerwick, in the county of Berwick, on January 18, 1804, his father being a farm labourer, who removed with his master's son to a farm in the neighbourhood of Clovenfords, and afterwards to Selkirk. His taste for gardening commenced early, for when about nine years of age young Turnbull got for a garden a small corner of his father's yard, into which he introduced and cultivated such attractive wild flowers as the neighbourhood afforded, with the result that he resolved to make gardening his calling; and when just over thirteen years of age he entered as an apprentice in the garden at Haining, in the immediate neighbourhood of Selkirk. Here, Mr. Turnbull writes—

I was bound for two years, and paid £4 as an apprentice fee. I got my bed and board, but the only cash that came to my share was 2*s.* a year given in two payments, being 1*s.* at each of the two leading



fairs. Mr. Craick, my master, was, however, a good kitchen gardener, and every attention was paid to kitchen cropping; it was one of my duties to serve the kitchen, which every young gardener should learn to do. Both master and man had plenty of hard work, and during the season of cutting the short grass, which lasted most of the summer, we commenced work at 4 A.M. After my apprenticeship expired, my parents intended to put me to school for a year, but before I had completed that, something went wrong with my successor at Haining, when I was pressed to go back as a journeyman, until another suitable apprentice was got. After that, through the kind recommendation of my master, I got the promise of work from a traveller for one of the Edinburgh nurseries, and on the faith of his promise I walked about forty miles, and at the end of my journey was told that a great many more young men than were expected had come for employment from places in which they had a much greater interest than Haining, and in consequence they could not take me in, which was rather a damper, and may, I fear, have perhaps shaken my confidence in some of the statements made by that useful class of men, but that I got plenty of work in the Selkirk Nursery until I went to Dalkeith Park in March, 1821, under the late Mr. McDonald, who was undoubtedly a very good kitchen and fruit gardener, and an active pushing man.

There was at Dalkeith an excellent collection of herbaceous plants in the old garden, very correctly named, and we had the privilege of staying in the gardens after working hours to learn the plants, which opportunity I fully embraced, and often remained alone. My memory at that time being pretty good, I generally learned fifty plants in an evening, and repeated them the following evening before looking up any new ones, so I soon learned all that were then grown at Dalkeith.

I was not quite eighteen years of age when Mr. McDonald placed me as foreman in the flower garden. I presume that my immediate predecessors in that situation had neither been very persevering nor successful, especially in propagating plants, for on my applying to the foreman in the garden and grounds, who had previously been foreman in the flower garden, for information, he told me a good number of the plants that were scarce did not strike from cuttings; but I gave them a trial, and so far succeeded in putting roots on them, that by my neighbours in the garden I began to be rather looked up to as a good propagator and plantsman, and I had a very hearty regard for the flower-garden at Dalkeith; and to the three years that I held that situation I have often looked back as to a very pleasant period of my life.

When about twenty-one years of age I was entrusted with the general foreman's situation, when I got the charge of the whole of the men and women employed in the garden and grounds, and conducted the work as arranged by Mr. McDonald, keeping all accounts of time, &c., which he was kind enough to say I managed to his entire satisfaction.

At the term of Martinmas, 1828, he sent me to my present situation, which I have now held for forty-five and a half years, during which period I have been employed under three noble lords and two ladies, my present employer being the Right Hon. the Countess of Home. Few, if any, men have greater cause to be thankful for having had such a succession of reasonable and kind employers to deal with, and their kindness and liberality have been, and still are, felt and appreciated by all who are employed on these extensive estates.

I find it rather a delicate matter to enter into details regarding matters that have taken place in my professional experience here, which is so well known to many besides myself. Only a few months ago I had the pleasure of a visit from my first foreman, Mr. John Westwood, who has long been the respected superintendent of the garden and out-of-door departments at Dollar Academy; and I have lived on very intimate terms with my much esteemed friend, Mr. Thomson, of the Tweed Vineyard, since 1832, as well as with many other friends who have lived with me here. I may, however, mention that when I came here the collection of Heaths was specially noticed as being in an unsatisfactory state, and as no purchases were to be made, my previous attention to propagation was of much service to me. I at once took the best cuttings I could get off the long bare leggy plants; and as soon as I got safe young plants I threw away the old, and paid strict attention to the young ones, which I was the better able to do from my having had the privilege of seeing pretty frequently the fine collection of Heaths at the Edinburgh Botanic Gardens, then under the able management of the late Mr. McNab, who was certainly one of the most successful cultivators of his day.

At a pretty early period I commenced to cross-breed Heaths, and raised a number of good seedlings, some of which are not now in existence, as they were given to friends on the understanding that I was to get young plants back if required, but which arrangement was never realised. Collections of Heaths seem to be less popular now than they were thirty or forty years ago, and a few good sorts suitable for exhibition purposes seem to be those chiefly grown. Amongst the good seedlings that I have raised I usually give the first place to Erica Marnockiana, E. Jacksoni, E. Austiniana, E. Turnbulli (named by Mr. Thomson), E. Bothwelliana alba, &c. I have one that I think better than any of these, but it is difficult to propagate, and I have never got beyond the requisite number of plants for our own collection.

Under the direction of so able a man as Mr. Turnbull, the gardens at Bothwell Castle have acquired as great an amount of interest in the history of gardening, as the Castle itself, now a picturesque ruin, has done in the history of the country.

ON THE GERMINATION OF UNRIPE SEEDS.

[THE following is a brief summary of certain experiments made by M. Paul Sagot upon this subject in the summer of 1873. It presents several points of considerable interest, and is given at greater length in a recent number of the *Bulletin de la Société Botanique de France.*]

WHEAT.—I have succeeded in germinating green grains of Wheat which were still soft and tender, collected early in July, at a time when the albumen is soft, semi-liquid, and milky. To estimate the relative development of these grains, I dried some of them in the air, and found that their weight was then but half of their normal weight. These grains, still fresh and

green, were sown in ground kept constantly moist, and shielded from the direct action of the rays of the sun. All of them germinated, although slowly. I have not been able to compare the evolution of the plant raised from these unripe grains with that of Wheat sown at maturity. Such an observation would require certain precautions: Wheat sown in July cannot flower during the same year, and the leaves of a plant so quickly sown would be frozen in winter, even by moderate frosts. It would probably be necessary to preserve the young plants in an orangery, or similar situation.

PEAS.—I have germinated Peas weighing one-half, one-fifth, or even one-twelfth of the normal weight. The half-weight seeds have germinated rapidly, and have produced plants which were hardly different, from their first appearance, from those sprung from fully ripe seeds. The Peas of a fifth of the normal weight germinated, but the young plants were slender, and their development at first was slow. At the end of five weeks, however, they acquired strength, and soon produced flowers and fruit. Of the sowing of the seeds, which were only one-twelfth of their normal weight, many did not germinate, and some died after the commencement of their development. Those which survived were very feeble and developed very slowly; and in one of them the extremity of the stem withered. I do not doubt, however, but that if a sufficient number were sown, some of them would bear fruit.

BEANS.—Seeds of half the normal weight have germinated; they produced feeble plants, of very slow development, pale green in colour, and evidently unhealthy. However, at the end of three months they acquired strength; and were only prevented by the cold of autumn from arriving at the normal end of their development.

MARVEL OF PERU (Mirabilis Jalapa).—Seeds of half the normal weight have germinated. The plants which sprung from them were from their first appearance equal to those produced by ripe seeds. They flowered nearly at the same time (about eight days later), and became even a little larger than those raised from mature seed.

PERSICARIA (Polygonum orientale).—The unripe seeds did not germinate.

I do not wish to draw conclusions from experiments which are not yet sufficiently numerous. We may see, however, that life exists in the young embryo soon after fecundation; but this life cannot yet encounter exterior agencies, and must develope itself at first within the fruit. The time at which the fitness for independent existence commences varies in different species. In certain plants this aptitude is early, while in others it is late. It seems also that the character of the vegetation of unripe seeds varies in different species—being sometimes slow and even unhealthy, and sometimes hardly retarded or even normal. These variations ought not to surprise us if we consider the great differences presented by the seeds themselves. They may be large or very small; provided with albumen or destitute of it; dry or moist. Their first development is rapid in some and slow in others; some require a higher temperature for germination and some a lower. In all points of view, indeed, the conditions of good and normal vegetation differ in different plants; and each species has its physiological distinction as well as its individual form.

Forestry.

NOTES ON INDIAN FOREST PRODUCE.—There has recently been issued from the Forest Department of India one of the best general sketches of the products of the Indian forests that has ever, perhaps, been embodied in the form of a report. It is in fact a "Report on the Administration of the Forest Department in the several provinces under the Government of India 1872-73." The report or reports occupy two volumes or parts, but it is the first part which contains matter most interesting to us and from which we intend to quote some of the most interesting facts in a somewhat detailed review of Indian forest produce.

Considering the interest now attached to the produce of our Indian Empire and the number of Englishmen already employed or being sent there to superintend or work out the more extended cultivation of native, or the acclimatisation of foreign species we are assured no apology on our part is needed for introducing these "notes on Indian forest produce."

In the consideration of these forests now placed under such a complete system of conservancy composed of able practical and scientific men, they may, as Mr. Baden-Powell says in the report alluded to, be considered to have a twofold purpose, first their direct utility—namely, their use as supplying timber, wood, and other products for building, manufactures, food, or for the use and convenience of the people; and secondly, their indirect utility as represented in the value of the forest in preserving the climate and soil with its moisture and existing configuration, in maintaining the supply of water in springs, streams, and even rivers, and also in regulating the distribution of rainfall.

It is to their direct utility that we shall now more especially allude, and here "it may not be out of place to mention that one of the subjects which has just now begun to receive attention is the more general utilisation of hitherto unknown or despised woods and timbers, and especially in connection with the improvement of their quality and durability by the processes of impregnation and artificial seasoning."

The subject is of pressing importance, for the long continued demand for each of the more prominent woods, foremost of which is the Deodar (Cedrus Deodara), Sal (Shorea robusta), and Teak (Tectona grandis), has caused the forests of production to become the especial prey of contractors and traders, who have ravaged without remorse in a few years the capital that Nature had been storing up for us with centuries of toil.

The Deodar or Indian Cedar (Cedrus Deodara), is a closely allied species, or perhaps only a variety of C. Libani. It differs in having longer leaves, which are more distinctly three-sided than they are in the Lebanon plant. The scales of the cones likewise fall away when ripe, while they are persistent in the latter species. The tree is "confined to the middle altitudes of the North-west Himalaya, where it grows at an elevation from 5000 to even 9000 feet; it prefers the north and east slopes where there is most shade, except in those valleys further to the North-west, where the tree begins to reach its limit, and then, as in Kaghan, the tree will be found on the sunny side." In the Punjab the Cedar is of very great importance, as it is the best building timber to be obtained, Sal and Teak being procurable only at considerable expense, and therefore used very occasionally for special purposes. In the North-western provinces, owing to its lightness and the facility with which it can be transported, it is used chiefly for railway sleepers—Sal, being the principal product, of course occupies the primary position. In the valley of the Kishnganga, when visited by Mr. Baden-Powell in 1867, he says, "there were still splendid forests of Pine, Deodar occupying the slopes of the hills extending down to the water's edge, but the practice of always beginning to cut where it is least troublesome, together with the absence of anything like principle in the selection of material to be removed, or in the protection of the ground after it is removed, is rapidly causing these fine forests to disappear."

The Sutlej Cedar forests are the most valuable and extensive in the Punjab; though they have been worked to some extent the trees have not been so much injured as they have been in the forests of the northern rivers. "The Cedar is a somewhat slow-growing tree, though the rate of growth varies considerably, according to exposure, elevation, and rainfall. It attains a large size, trees 18 feet in girth and 100 to 150 feet in height being far from uncommon. Several trees of 36 feet in girth have been noted, and a few of more than 200 feet in height have been felled. The largest tree on record is on the Sutlej, having a girth of 42 feet. As a rule the species does not thrive under 4000 feet, nor above 9000 feet, though at times it ascends to 10,000 feet, and even up to 12,000 feet. As to temperature, a range between 35° and 50° in the cold season, and 65° to 70° in summer, seems to suit it best. Drought affects it very much. It is entirely absent from arid regions, and its rate of growth is much affected by the rainfall."

In North-west India the turpentine yielded by Cedrus Deodara is used in native practice. The tree is now much cultivated in this country as an ornamental evergreen, and was introduced in 1822.

Besides the Deodar the same hills produce several other coniferous as well as deciduous trees. Picea Webbiana, Abies Smithiana, and Pinus excelsa occur either in mixed or Pine forests; of the two former there are vast tracts, far exceeding in extent those of the Deodar. They mostly occupy the higher ranges, and P. Webbiana may be found up to 11,000 feet, and even higher. The wood of Pinus excelsa is the most valuable next to the Deodar, and that of A. Smithiana is used largely for indoor work; it is white and easily split. Pinus longifolia abounds on the lower hills at an elevation of from 3000 to 6000 feet, and its wood is valuable, though not equal to those above mentioned.

The Neosa or Chilghosa Pine (P. Gerardiana) is comparatively scarce, indeed hardly to be seen except in parts of Kashmir and in the Sutlej. The seeds are found in the bazaars of Upper India, and form a staple article of food to the people of Kunawar during the winter months. The wood is of no value, being soft and brittle. "The tree is distinguished by its almost barkless stem, of a silvery-grey lustre, which gives a most peculiar and pleasing effect to the tree as it stands among granite blocks on the steep hillside, its pale stem and dull olive foliage contrasting with the deep glossy green of the Ilex, with which it often associates."

Of deciduous trees there are many in the Cedar localities, the woods of which are not generally known beyond the neighbourhood in which they grow. Amongst these may be mentioned the Indian Horse Chestnut (Pavia indica), the Bird Cherry (Cerasus cornuta), some species of Acer, Rhododendron arboreum, and amongst Oaks, Quercus annulata, Q. Ilex, Q. incana, and Q. semicarpifolia; this last species grows up to an elevation of 12,000 feet, and is readily distinguished by its large handsome leaves, rusty yellow beneath, and its large acorns; the wood is very heavy, and sinks in water. The most valuable wood of the deciduous trees is that of Fraxinus floribunda, which, however, is not common. The Walnut (Juglans regia) also produces a valuable wood, well-known in Europe for its splendid marking and adaptability for choice cabinet work. In young trees the wood is white and comparatively soft; but as the trees increase in age, and produce burrs or knots, the wood becomes darker and deeply veined. The plain wood is much used in this country for gun-stocks. The sap contains a quantity of saccharine juice, from which sugar is made in Circassia. The young fruits are well-known for their use as a pickle, and the ripe seeds as a dessert nut. Large quantities of the fruits are likewise consumed in India, being imported into the plains chiefly from Kashmir. From the seeds a fine oil can also be obtained, useful alike for culinary purposes as well as for painting.

The Sal forests (Shorea robusta) occupy a much greater extent of country than the Cedar. The first great group lies along the foot of the Himalayan ranges, forming a more or less continuous belt from the Jumna on the West, to the Assam province on the East. It also extends over a great portion of the lower provinces of Bengal, and of the central provinces. In the North-western provinces it forms the great timber tree in the Dera Dhun, Kumaon, and Gurhwal. These forests, which once bore large trees, "are usually found on the alluvial soil and *detritus* of the Sivalik sandstones, with boulders at a considerable depth. Now the trees are small, only occasionally a huge torso blackened with fire, hollowed and diseased, remains to bear witness to what the forests once were, and to make powerful, albeit silent, protest against the absurdity of the idea which still lingers in India that forest fires are beneficial to Sal forests. It is not too much to say, that two-thirds of all the standing trees exhibit signs of injury by fire; the lower part of the stem is swelled and knotty; small nodules all over the tall, thin stems are observed, each bearing a crown of small 'bourgeons' or sprouts."

In the Gurhwal Sal forests, which extend from the Ganges to the borders of Kumaon, occupying the lower slopes and spurs of the Himalaya below the Pines, other trees, such as Cedrela Toona, Dalbergia Sissoo, species of Pentaptera, Conocarpus, and Nauclea, occur. In the Kumaon forests good sound trees, apparently of middle age, are abundant, many of them being 60 to 80 feet high, and 6 to 8 feet in girth. Mixed with the Sal in the Sikkim hill forests, at an elevation of 5000 feet, are to be found trees of Quercus lamellosa, Magnolias, Chestnuts (Castanea), Walnuts (Juglans regia); and in the lower hill forests, besides the above species, Gordonia Wallichii, a Ternstrœmiaceous tree, Cedrela Toona, and a species of Ficus.

In the forest below the Sal in Assam, and beyond it in the same line after Sal ceases, are patches of the Soom tree (Machilus odoratissima), which rears the greater portion of the silk of Assam. Next to the "Soom" the principal trees are species of Lagerstrœmia, fine trees belonging to the Lythraceæ, the wood of which is strong and durable, and used for boat building in India; also species of Artocarpus, Eugenia, and fine trees of the Indiarubber, Ficus elastica. Many others also occur of lesser importance, as Michelia, Albizzia, Cassia, Nauclea, Terminalia, Dillenia, Vitex, Dipterocarpus, Careya, Mimusops, Garcinia, and others. The wood of the Sal is very hard, heavy, and of a brown colour, and is much used for house and ship building, gun carriages, beams, posts, &c.; it is even stronger than Teak, and is amongst the few woods said to resist the attacks of white ants. It is so heavy that it cannot be floated down the streams without the aid of Bamboo or light wooden supports to buoy it; its export therefore is mostly effected by land carriage.

(*To be continued.*)

Florists' Flowers.

As the summer draws to a close, and the dark dull days of autumn come on apace, the attention of gardeners is being turned to the furnishing of their winter and spring gardens; for so much has the system of spring gardening grown amongst us, that an unfurnished garden during the winter months is, to a great extent, an uncommon occurrence. In planning arrangements for the coming spring, the gorgeous EARLY-FLOWERING SINGLE TULIP will be taken into consideration, for in any sustained spring display that is attempted, the Tulip must play a part; and be it remembered, too, that a wealth of hues—patches of bright and striking colours—seem most appropriate in our gardens, after we have emerged from the shadows

of winter, and are hailing the rising beauties of the early spring.

Tulips may be appropriately massed in beds carpeted with some dwarf-growing plant, using one or two varieties in a bed in order to gain a certain effect, according to the taste of the planter; or they may be used as one sometimes sees them employed at Belvoir and other well-known places, dotted about beds of mixed flowers that give a succession of bloom—perhaps one of the best modes of planting a spring garden. And the Tulip has some claim to be regarded as a town plant, for Messrs. Veitch & Sons, Chelsea, are in the habit of planting-out a collection, as well as beds of certain varieties, every year, at their nursery in the King's Road; and they bloom there, producing brilliantly coloured and large flowers. Such varieties as La Belle Alliance, scarlet; Yellow Prince, pure yellow; Yellow Pottebakker, golden-yellow; Duchess of Parma, orange-red, margined with yellow; and White Pottebakker, pure white, do as well at Chelsea as when planted-out in open spaces in the London parks. Messrs. Veitch & Sons also do good service by planting-out a large collection by way of a trial, planting also any new varieties that may be thought improvements on those already in cultivation. It must, however, be admitted that it will require a very great amount of improvement to displace some of the fine old varieties that have held their own for nearly half-a-century.

The best of all the early-flowering scarlet Tulips is La Belle Alliance, of large size, though dwarf in growth, with stiff, erect footstalks, and standing exposure well. What an excellent and effective contrast was furnished at Chelsea by beds of this variety being placed in juxtaposition with those of White Pottebakker—two bedding Tulips that ought to have double first-class certificates. Artis, Garibaldi, Samson, and other dwarf early-flowering types, be they the same or be they different, are much inferior to the one under notice. Add to it the fine dwarf crimson Couronne Pourpre, distinct and very fine for bedding purposes, and the glorious Vermillon Brillant for pots, and a trio is formed that cannot be matched. The last is a veritable aristocrat among the scarlet varieties—a floral peer with the true grace of kingly expression. There are two varieties that come very nearly to the crimsons, but being much suffused with cerise, are very distinct in character. One is Paul Morcelle, cerise-crimson; and Cramoise Superbe, rosy cerise—the latter very fine. By some declared to be identical, they are yet diverse in character, and, whether employed for beds or for pot culture, are well worthy cultivation. In Cerise Grisdelin, Le Matelas, and Rose Grisdelin we get three very charming Tulips of great distinctness of character, being of a rosy pink colour, and dashed with white or peach. Cerise Grisdelin and Le Matelas are very fine for pot culture, while Rose Grisdelin makes a charming bed, very soft, and yet standing the weather well. In arranging beds of Tulips the last must be included, it is so distinct in character.

Shades of purple and violet give us some grand flowers. There is Wouverman, almost of a black-purple, dark, and yet most effective in the garden; dwarf and erect in growth, and very fine. Next comes Van der Neer, perhaps the best formed of all our early Tulips, looking like a fine and promising breeder in the Byblœmen division of the show class; the colour purplish violet, and very fine, whether for beds or pots. Faviola and Globe de Rigaud are both purple flowers, more or less flaked, striped or marked with white. They are useful and effective in collections cultivated in pots, but in beds in the open ground they are apt to get a somewhat washed-out appearance. Proserpine and Queen of Violets are of delicate rosy-violet hues, both exceedingly fine and distinct. The great size of Proserpine almost unfits it for bedding purposes, yet it is most telling when employed in this way. Queen of Violets makes a lovely soft-coloured bed, and, like Proserpine, is fine for pots. Proserpine, too, reminds one of a grand breeder of the show class.

Of the white selfs, White Pottebakker still holds its own for general usefulness. It has such a stiff, upright growth as to fit it for exposure in the open air in beds. As a pot variety it is good also. Princess Helena is a newer white self, and very pure, and, like the foregoing, makes an effective bed. It should also be grown in pots, for it is under such circumstances its purity of colour manifests itself so markedly. Rosa Mundi may be appropriately classed with the whites; when grown in pots under glass it comes shaded with rose, in the open air it loses this to some extent. It is a capital bedding variety of striped flowers, *i.e.*, flaked and striped with red and scarlet on a white ground, or *vice versâ*. Cottage Maid and Royal Standard are the best. The latter is a cheap and excellent bedding variety. The red striped Pottebakker has red stripes on a yellow ground, but it is always somewhat uncertain, as it is as likely to come pure yellow as not. On the other hand the old Yellow Pottebakker will frequently throw flowers much striped with red.

Of edged flowers Duchesse de Parma and the glorious Keizer Kroon are unapproachable. The latter has flowers of enormous size, regularly and deeply edged with pure yellow on a crimson ground; but in consequence of their dimensions they are apt to get injured in wet weather. A bed of Keizer Kroon, however, is a sight long to be remembered: it is very fine for pots. Duchesse de Parma has a rigid habit of growth, and is very bold and showy in beds. What is known as Princess d'Autriche is a broken form of Duchesse de Parma, and while some of the former will frequently come back from the broken form, flowers of the latter will display the broken character. It is not nearly so effective in its broken as in its edged form.

I put Canary Bird at the head of the yellow self single Tulips. It is very little later than Yellow Van Thol, and as superior to it as a Green Gage Plum is to a common Bullace. It is pure, showy, and very pretty. One of the most useful for bedding purposes is Golden or Yellow Prince. The bulbs are always large, it is cheap in price, and it has that stiff erect habit of growth so necessary in a bedding Tulip. Yellow Pottebakker is very good also. Thomas Moore yet maintains its marked individuality of character—a kind of shaded orange in colour, and very useful indeed for bedding purposes.

It will thus be seen that the older varieties still maintain their pre-eminence; at the same time there are new candidates to public favour, having pretensions of no mean order. But more of this by-and-by. *R. D.*

Notices of Books.

Synopsis of the Flora of Colorado. By T. C. Porter and J. M. Coulter. (Washington: Government Printing Office.)

This is a small and unpretending treatise, but one the labour in preparing which, and of which the value when prepared, are out of all proportion to its modest appearance. It is a descriptive catalogue, based on the personal researches of Dr. Parry and of the authors, of the plants of the Colorado territory. Full descriptions are given of all those species and genera which are not found in Gray's *Manual of the North-Eastern* or Chapman's *Flora of the Southern States*. The mountains of Colorado, as remarked by the authors, are now so accessible to the travelling public that this synopsis will be valuable to those who intend to visit a region not only like Switzerland as to its alpine scenery, but also as to its flora. It is announced that other local Floras of a similar character will be issued from time to time. The scenery of Colorado is described by American authors as extremely grand. Two noted mountains, Pike's Peak and Long's Peak, rising to the height of 3 miles, lift their snowy heads into the heavens, and a circular range of snow-covered mountains reaches from one of these vast spurs to the other, the whole forming a natural amphitheatre, the diameter of which is 150 miles. Of the plains round Denver, the author of *Greater Britain* writes:—"The most astounding features of these plains is their capacity to receive millions and swallowing them up to wait open-mouthed for more. Vast and silent, fertile yet waste, field-like yet untilled, they have room for the Huns, the Goths, the Vandals, for all the teeming multitudes that have poured and can pour from the plains of Asia and of central Europe. Twice as large as Hindostan, more temperate, more habitable, Nature has placed here, hedgeless, gateless, free to all, a green field for the support of half of the human race, unchained, untouched, awaiting hands and ploughs." A full description of this tempting region is given in a work published in 1869, by Mr. Blackmore, entitled *Colorado; its Resources, Parks and Prospects*, noticed by us at the time of its publication. With the publications of Sereno Watson and others *On the Botany of the Fortieth Parallel*, the researches of the Californian botanists on the one side and those of Dr. Asa Gray, Englemann, Thurber, &c., on the other, we may hope to get a complete Flora of the central States of North America, interesting not only botanically but as furnishing a large quota of beautiful plants for our gardens.

—— Mr. Sereno Watson continues his valuable contributions to American Botany. His latest memoirs have been devoted to North American Polygonaceæ and Chenopodiaceæ—orders which include a large number of weeds introduced from Europe.

—— Mr. J. H. Krelage has just issued a notice of some species and varieties of Lily—*Notice sur quelques Espèces et Variétés de Lis*—which is dedicated to the International Botanical Congress of Florence. The varieties commented on are Lilium Thunbergianum, var. transiens, Lilium tigrinum fl.-pleno; Lilium Wittei, of which a coloured illustration is given, and which seems to be a variety of L. auratum, and L. Humboldtii. The text contains a *resumé* of what has been written on these plants by Koch, Suringar, Baker, Duchartre, Max Leichtlin, and others.

—— The September number of the *Botanical Magazine* (Reeve & Co.) contains figures of Iris tectorum, a Japanese species, with blue flowers, and with the outer segments of the perianth provided with a deeply-cut projecting crest; Bolbophyllum Dayanum, a Moulmein species, first described by Professor Reichenbach in our columns in 1865, p. 434. *Apropos* of this species Dr. Hooker remarks:—"Orchidology is falling into a hopeless condition, and, but for the generous assistance of Professor Reichenbach, both cultivators and botanists would be badly off indeed. A synopsis of the genera and species, or even a classified catalogue of these, with synonyms, habitats, and references to publications, would be a boon to botany and horticulture." Cinnamodendron corticosum, whose bark is used as an aromatic stimulant, is also figured, as well as Drosera Whittakeri—the same species as one shown in flower by Mr. W. Bull at a recent meeting of the Royal Horticultural Society; Pentstemon humilis, which is a beautiful low-growing species with blue flowers; and Brodiæa volubilis, a species like B. coccinea, but having a spirally twisted scape.

—— The last issued part of the new edition of the *Micrographic Dictionary* (Van Voorst) brings the work up to the word "skin." The book has long been indispensable to miscroscopists.

—— The fourth and fifth parts of the re-issue of Sowerby's *British Wild Flowers* (Van Voorst) have been issued, and bring the work up to the Rosaceæ. The value of this unpretending book as a guide to beginners, or those who do not care to know much beyond the name of a plant, is incontestable, as the illustrations, though small, are characteristic.

—— The *Land Improver's Pocket Book*, by John Ewart (Lockwood & Co.), is one of those books about which the reviewer can say but little save to praise or condemn in so many words. In the present instance praise is the duty of the critic, and beyond stating that the book consists of formulæ, tables, and memoranda required in any computation relating to the permanent improvement of landed property, there is little else that need be said. It will probably become the pocket companion of all land surveyors and agricultural engineers.

—— It is but a short time since we had the pleasure of announcing the commencement of the twentieth volume of the *Flore des Serres*, and already a second instalment is before us, comprising the fourth, fifth, and sixth numbers. The plates are devoted to Tropæolum polyphyllum, a magnificent plant, hardy with us in southern England, but which in Belgium requires a frame. It is easily propagated, says M. Van Houtte, by cuttings from the subterranean stock—a fact worth knowing, as here some difficulty has been experienced with it. Aralia Maximowiczii, a fine-looking spiny species with Hemp-like leaves, described as being as hardy as an Oak; it is supposed to be a native of Japan, and to have been introduced by the botanist whose name it bears. The plant is described as having originated from a single seed accidentally mixed in with some packets of other seeds sent by M. Regel. Mantisia saltatoria is a very old friend. John Gould Veitch is the name applied to a very handsome Azalea with large pink rather rough flowers, margined with white. Four varieties of Iris Kæmpferi are figured, but neither of them rivals the splendid one figured at p. 45. A pink-tinted variety of the Pampas-grass is represented, but M. Van Houtte, not having seen it in flower, does not commit himself to any expression of opinion concerning it. A deeply-cut leaved variety of the common Hawthorn is figured as Cratægus Oxyacantha var. filicifolia. The plate of Amaryllis procera is reproduced from a memoir of M. Duchartre's. Aralia pentaphylla fol. var. is a bright, showy, variegated plant. The golden variety of Liliodendron tulipifera is a well-known but handsome form. Tacsonia insignis is well known from the figures in our columns, and in the *Botanical* and *Floral Magazines*, and *Florist*, as the finest of the Tacsonias. It is a native of Northern Bolivia, as we stated some time after its first publication. The remaining plates are devoted to various Pears, of which admirable coloured plates are given. It is to be hoped these will be separately published at some future time. The letterpress of the present number contains, in addition to the description of the plates, biographical notices, taken from various sources, of several of the principal botanists and collectors, such as Barclay, Cassini, Delessert, Drummond, Ruiz, Loudon, and Wallich. It is a graceful thing of M. Van Houtte thus to record the doings of men who have done such good service, but who nevertheless are not known to the rank and file of horticulturists.

—— *The Bazaar, the Exchange and Mart*, announces its intention of appearing twice weekly during the season, as its single issue weekly is no longer able to meet the demands upon it.

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. JAMES FRASER, HORTICULTURAL and AGRICULTURAL VALUER and AUCTIONEER, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

MARENDAZ AND FISHER, RUSSIA MAT MERCHANTS, 9, James Street, Covent Garden, W.C.
Large Stock of ARCHANGEL MATS, heavy and close-woven ST. PETERSBURG MATS, just arrived.

SIMPSON'S RED SPIDER and THRIPS, &c., ANTIDOTE.—*Bonâ fide.* See former advertisements. Prepared by JOHN KILNER, Wortley, Sheffield.

HENRY ORMSON,
HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

NURSERY GROUND TO BE LET.—The PINESHAW NURSERY, in the neighbourhood of Inverurie, Aberdeenshire, and for a long time occupied as Nursery Ground, is to be Let, with the Houses thereon, with Entry at Martinmas, 1874, for such number of years as may be agreed on. The Nursery is 15 miles distant from Aberdeen, and within one mile of the Inverurie Station, on the Great North of Scotland Railway. The ground measures 12 acres imperial, and there has been a very good and extensive business carried on for many years.
JOHN CLARK, the Forester at Keith Hall, by Inverurie, will point out the Boundaries, and offers will be received by Messrs. EDMONDS AND MACQUEEN, Advocates, Aberdeen.

Burton, Westmoreland.

TO BE LET, with immediate possession, for a term or otherwise, the desirable FAMILY RESIDENCE, known as the "Mansion House," Burton, formerly occupied by the late James Carden, Esq. Rent £130 a year. The Ground Floor contains excellent Dining, Drawing, and Breakfast Rooms, Kitchens, Dairy and Larder, six good Bedrooms, and Nursery. The Outbuildings consist of Three-stall Stable, two Cow Houses, Coach House, and Harness Room.
The Gardens and Pleasure Ground contain about 3 acres, and have been beautifully laid out, regardless of expense, and replete with the choicest Fruit and other trees. There is upwards of 700 feet of Glass, constituting Vineries, Peach and other Houses, Conservatories, Greenhouses, Pits, and Frames, the whole being heated with 6-inch water-pipes, on an improved principle, by Combe & Sons, of Glasgow. The Kitchen Garden, which is detached from the Pleasure Grounds, contains, with two rich Meadows, about 8½ acres. The Mansion House is within fifteen minutes' walk of the Burton Station, on the Lancaster and Carlisle line.
Particulars and Cards to View may be had on application to Mr. M. DEROME, Estate Agent, Kendal; Mr. J. C. AMBLER, Solicitor, Preston; and on the Premises.

At Chichester.

TO BE LET, a VINERY, in Three Compartments, 150 feet long, 15 feet wide, and 10 feet high, fully stocked with choice and thriving Vines, and fitted with Hot-Water Apparatus on the most approved principle. Large Tank and Pump, with about a Quarter of an acre of Garden Ground. Immediate possession.
Apply to Mr. CLIFFORD, Gardener, Ellerslie.

To Nurserymen, Florists, and Persons seeking a LUCRATIVE BUSINESS.

TO BE SOLD (in consequence of the death of the Proprietor), the FREEHOLD of an OLD-ESTABLISHED NURSERY, in a high state of Cultivation, well stocked with Fruit and Forest Trees and Shrubs; Cottages, Glasshouses, Sheds, Stabling, and every convenience for the Nursery Business, in full working order. The Stock to be taken at a valuation. To an energetic man with capital this is an opportunity that seldom occurs.
For particulars and cards to view, address H. LITTLER, 55, Bow Chambers, Cross Street, Manchester.

SALES BY AUCTION.

The Farnham Castle Collection of Orchids.

MR. J. C. STEVENS has received instructions from the Executors to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY and FRIDAY, September 17 and 18, at half-past 12 o'Clock precisely each day, the well-known COLLECTION of ORCHIDS formed by the late Bishop Sumner at Farnham Castle. Amongst other fine things will be found a magnificent specimen of Dendrochilum filiforme and glumaceum, Dendrobium Kingianum, the true Lælia anceps Dawsoni, Cymbidium eburneum superbum, Maxillaria venusta (very fine var.), Cattleya Trianæ Lawrenciana, a very fine lot of Calanthe Veitchii, Anæctochilus Dawsoni and Ordeana, very fine, &c. Also a few choice WORKS on ORCHIDS, viz., Bateman's "Monograph of Odontoglossum," Lindley's "Sertum Orchidaceum," and Linden's "Pescatore Iconographic des Orchidees," &c.
On view the morning of Sale, and Catalogues had.

Epidendrum vitellinum majus.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, September 18, a large importation of EPIDENDRUM VITELLINUM MAJUS, just received from Paso del Macho, Mexico, many of them in very fine specimens or masses, and all in excellent condition, breaking freely into growth.
On view the morning of Sale, and Catalogues had.

Cypripedium candidum.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 22, at half-past 12 o'Clock precisely, an importation, in good condition, of the exceedingly rare CYPRIPEDIUM CANDIDUM.
On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 22, at half-past 12 o'Clock precisely, a collection of Established ORCHIDS, comprising many choice species, and including several good established plants of Odontoglossum Roezlii.
On view the morning of Sale, and Catalogues had.

Cattleya exoniensis.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 22, at half-past 12 o'Clock precisely, eleven good plants of the exceedingly beautiful and rare CATTLEYA EXONIENSIS.
On view the morning of Sale, and Catalogues had.

Spring Flowering Bulbs for present Planting, just received direct from well-known Farms in Holland, consisting of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, GLADIOLI, LILIUM, &c., in lots to suit large and small growers.

MR. J. C. STEVENS begs to announce that he will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY during September, at half-past 12 o'Clock precisely each day.
Catalogues will be forwarded to any address on receipt of a stamped directed envelope.

Tooting, S.W.

IMPORTANT SALE of extra STOVE and GREENHOUSE PLANTS, the whole of which are in a very healthy and thriving condition.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. R. Parker to SELL by AUCTION, without reserve, on the Premises, The Exotic Nursery, Tooting, Surrey, about fifteen minutes' walk from Balham and Tooting stations, on TUESDAY, September 15, at 11 for 12 o'Clock precisely, a large quantity of extra stock of choice STOVE and GREENHOUSE PLANTS, including Ananasa sativa variegata, Anthurium Scherzerianum, Stephanotis, Lapageria rosea, Phormium tenax and Colensoi variegatum, Yucca aloifolia variegata, Gardenias, Pandanus, and Crotons, in variety; a fine assortment of best named Camellias and Azalea indica, Epacris, a large number of selected Palms, fifty choice and valuable Orchids, specimen Adiantum farleyense, Gymnogramma decomposita, Gleichenias of sorts; Lomaria alpina and other Exotic and Hardy Ferns, a collection of Greenhouse Rhododendrons, together with some Herbaceous and Succulent Plants, Hardy Climbers in pots, &c.
May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, City, and Leytonstone, E.

Tottenham, N.

GREAT SALE of STOVE and GREENHOUSE PLANTS. Important to the Trade and other large consumers.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Maller to SELL by AUCTION, without reserve, on the Premises, the Brunswick Nursery, Tottenhan, Middlesex, opposite the White Hart Lane Station, Great Eastern Railway, on TUESDAY, September 15, 1874, at 11 o'Clock precisely, 600 lots of unusually well-grown STOVE and GREENHOUSE PLANTS, consisting of 16,000 winter-blooming Heaths, in fine thriving condition, promising a profusion of flowers, including 3500 Hyemalis, 2500 gracilis, 1500 caffra, 1000 Wilmoreana, quantities of ventricosa rubra, hybrida, candidissima, 1800 remarkably well berried Solanum capsicastrum, fine Camellias, and Azalea indica, set with bloom buds; 750 Bouvardia of sorts, Acacia Drummondii and armata, 400 well furnished Adiantum cuneatum, 70 nice plants of A. farleyense, Eucharis amazonica, Ficus elastica, Epiphyllum in variety, 160 Poinsettias, Daphne indica rubra, 600 fine Cyclamens, 350 Genistas, 200 Fairy Roses, 500 double and single Primulas, and Cinerarias, Dracænas, Palms, &c.
May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, City, and Leytonstone, E.
N.B.—This Sale will commence punctually at 11 o'Clock, in consequence of the number of lots.

Lea Bridge Road.

EXTENSIVE ANNUAL TRADE SALE of FINE WINTER FLOWERING HEATHS, EPACRIS, CYCLAMENS, TREE CARNATIONS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Fraser to SELL by AUCTION, without reserve, on the Premises, The Lea Bridge Nurseries, Lea Bridge Road, Leyton, Essex, on WEDNESDAY and THURSDAY, September 16 and 17, at 11 for 12 o'Clock precisely each day, about 30,000 Winter Blooming HEATHS, remarkably well grown and thickly set with bloom-buds, and including about 10,500 hyemalis, 2500 gracilis, 2500 Wilmoreana, 7500 caffra, 500 ventricosas of the best varieties; also large quantities of gracilis, vernalis, regerminans, colorans, Linnæa superba, melanthera, pyramidalis persoluta alba, and others; 1500 fine EPACRIS, of the choicest kinds; 1500 CYCLAMEN PERSICUM; 500 AZALEA INDICA, to name; 1500 CYTISUS FRAGRANS and ATLEANA; 1000 TEA-SCENTED ROSES in pots, to name; a large stock of SOLANUM CAPSICASTRUM, full of berries; TREE CARNATIONS, ACACIA DRUMMONDII, and a quantity of MISCELLANEOUS GREENHOUSE PLANTS, including Phœnocomas, Aphelexis, Pimeleas, Boronias, &c.
May be viewed any day prior to the Sale. Catalogues had on the Premises; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Consignment of New Zealand Ferns For UNRESERVED SALE.

MESSRS. PROTHEROE AND MORRIS beg to announce that in Mr. John Fraser's great ANNUAL SALE of WINTER-BLOOMING HEATHS, to be HELD on SEPTEMBER 16 and 17 NEXT, at the Lea Bridge Nurseries, there will be included 20 fine trunks of ALSOPHILA AUSTRALIS, 4 to 8 feet high; and 324 TODEA SUPERBA, nearly the whole of which have started into growth.

Lee, S.E.—Important to Gentlemen and the Trade.

FOURTH ANNUAL SALE of WINTER-FLOWERING HEATHS, and numerous other POT PLANTS, the whole being in splendid condition.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. B. Maller to SELL by AUCTION, on the Premises, the Burnt Ash Nursery, Lee, Kent, adjoining the Lee Railway Station, on TUESDAY, September 22, 1874, at 11 for 12 o'Clock precisely, an extensive and valuable assortment of choice GREENHOUSE PLANTS, including 4000 winter-blooming Heaths, in first-class condition and full of flower-buds, and consisting principally of hyemalis, gracilis (autumn and spring), Wilmoreana, colorans, Syndriana, persoluta alba; also a fine healthy young stock of 10,000 smaller Heaths, in 60-pots, of the most approved varieties suitable to the trade; likewise 1000 fine Cyclamen persicum, Poinsettia pulcherrima, 400 Solanums, Primulas, Begonias, Cytissus, Dracænas, handsome standard Laurustinus and Bays, selected Palms, Tree and other Ferns, including 100 fine Adiantum cuneatum, 500 Epiphyllums, Dendrobium nobile, specimen Camellias and Azaleas, variegated Yucca, Magnolia grandiflora, Exmouth, Tea and other Roses in pots, Fruiting Vines, &c.

High Beech, Loughton, Essex, E.

CLEARANCE SALE of GREENHOUSE and Other PLANTS, POULTRY, eleven HIVES of BEES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Rosherville Nursery (close to the King's Oak, High Beech, Loughton, Essex), on FRIDAY, September 25, at 11 for 12 o'Clock, without reserve, by order of the Proprietor, who is about relinquishing the Premises, the whole of the choice GREENHOUSE PLANTS, consisting of several large Camellias (Double White and imbricata), 6 to 7 feet high by 3 to 4 feet across; specimen Azalea indica, 6 feet by 4 feet; quantity of Ferns, Callas, Lily-of-the-Valley, Spiræas, Geraniums, Amaryllis, and general Outdoor Stock, Roses, &c.; also a few Fowls, Geese, Ducks, eleven Hives of Bees, Mowing-machine, Chaff-cutter, &c.
On view the day prior to Sale. Catalogues may be had on the Premises, and at 98, Gracechurch Srreet, E.C.
N.B.—Particulars of the Nursery, which is to be Disposed of, can be had of the Auctioneers and Valuers.

Preliminary Notice of

FORTHCOMING SALES, by PROTHEROE AND MORRIS.

SEPTEMBER 28, 29.—ALBION ROAD NURSERY, Stoke Newington, London. By order of Mr. Kirtland. Clearance Sale of Glass Erections and Fittings, and the whole of the choice Greenhouse Plants, the land being required for building purposes.

OCTOBER 1.—MANOR LANE NURSERY, Lee, Kent. By order of Mr. W. North. General Nursery Stock.

OCTOBER 5.—ERITH, Kent. By order of Mr. E. Morris. Evergreen and Coniferæ Shrubs, &c.

OCTOBER 5 to 9.—AMERICAN NURSERY, Bagshot, Surrey. By order of Mortgagee, with concurrence of the Executors of George Baker, deceased. Many thousands of Coniferæ, Evergreen, and Deciduous Shrubs, choice American Plants, Roses, &c.

OCTOBER 13.—ST. JOHN'S HILL NURSERY, near Wandsworth, London. By order of Mr. W. Hooper. Clearance Sale of Glass Erections, Shop, and general Nursery, the land being required for building purposes.

OCTOBER 14 to 17.—MARESFIELD, near Uckfield, Sussex. By order of Messrs. Wood & Son. Great quantity of well-grown Nursery Stock, including many fine specimens.

OCTOBER 17.—THE NURSERY, Chigwell, Essex. By order of Mr. J. Protheroe. An Assortment of General Nursery Stock.

OCTOBER 19, 20.—HALE FARM NURSERIES, Tottenham, Middlesex. By order of Mr. Thomas Ware. Quantity of thriving Nursery Stock, Fruit Trees, and Roses.

OCTOBER 26 to 28.—EXOTIC NURSERY, Tooting, S.W. By order of Mr. R. Parker. Large assortment of young and thriving Nursery Stock; also specimen Coniferæ.

OCTOBER (several days).—The SUNNINGDALE NURSERIES, Bagshot, Surrey. By order of Mr. Charles Noble. Great quantities of remarkably well-grown Nursery Stock, the lease of a portion of the land having expired.

NOVEMBER 2 to 10.—THE NURSERIES, Wandsworth Common, S.W. By order of Messrs. R. Neale & Son. An immense quantity of General Nursery Stock.

NOVEMBER 2 to 4.—GROOMBRIDGE NURSERIES, Tunbridge Wells. By order of Mr. Hollamby. A beautiful assortment of General Nursery Stock.

NOVEMBER 11.—EAST DOWN NURSERY, Lewisham, S.E. By order of Mr. B. Maller. A quantity of well-selected Nursery Stock.

NOVEMBER 16.—WHITCHURCH RECTORY, Edgware. By order of the Rev. J. B. Norman. A choice assortment of Coniferæ, Evergreens, Fruit Trees, and Roses.

NOVEMBER (three days' Sale).—THE NURSERIES, Loughton. By order of Mr. W. Paul. Many thousands of Coniferæ and Evergreen Shrubs, Fruit and Ornamental Trees, Roses, &c., in fine condition.

Catalogues of the above Sales may be had (when ready) on application to Messrs. PROTHEROE AND MORRIS, Auctioneers, Estate Agents and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Great Clearance Sale of Trees and Shrubs.

MR. J. T. KERRISON has received instructions from Mr. B. Whitham to SELL by AUCTION, at the Nurseries, Reddish, near Stockport, on WEDNESDAY, September 30, and three following days, on account of expiration of the lease of a portion of the grounds, without the slightest reserve, about 10 Acres of general NURSERY STOCK, comprising Ash (common and Mountain), Arecas, Acacias, Beech, Chestnuts, Elms, Firs (Scotch and Austrian), Laburnums, Limes, Maples, Oak (scarlet), Poplars (in variety), Privet, Sycamore, &c.; also Arbor-vitæs, Berberis (in sorts), Box (in variety), common Hollies, Cupressus, Portugal Laurels, Retinosporas, Rhododendrons (named), and Ponticums (fine bushy plants), Thorns (scarlet and pink), Yews (English), &c.
Catalogues (which will be ready September 14), and further information, may be obtained from the Auctioneer, 200, Stamford Street, Ashton-under-Lyne; or from Mr. WHITHAM, The Nurseries, Reddish, near Stockport.

Extensive Sale of Trees and Shrubs, Fruit Trees and BUSHES, GREENHOUSE PLANTS, &c.

MR. JAMES S. MARSHALL, Auctioneer, has been instructed to SELL, as above, on TUESDAY and WEDNESDAY, October 13 and 14, at Messrs. JOHN STEWART AND SONS' NURSERIES, Broughty Ferry near Dundee.
Catalogues ready by September 21.

Noteworthy Horticulturists and Botanists.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6*d.* each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.	JAMES BATEMAN, F.R.S.
W. WILSON SAUNDERS, F.R.S.	BERTHOLD SEEMANN, Ph.D.
Rev. M. J. BERKELEY, F.L.S.	ARCHIBALD F. BARRON.
M. DECAISNE.	Hon. MARSHALL P. WILDER.
G. F. WILSON, F.R.S.	JOHN GIBSON.
Dr. MOORE, of Glasnevin.	Professor ASA GRAY.
Professor REICHENBACH.	I. ANDERSON-HENRY.
Rev. S. R. HOLE, M.A.	Professor KARL KOCH.
E. J. LOWE, F.R.S.	Baron VON MUELLER.
JAMES MCNAB.	JOHN SMITH (Kew).
ROBERT HOGG, LL.D.	Professor WESTWOOD.
Dr. REGEL.	Dr. THWAITES.
	Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5*s.* 11½*d.* | Six Months .. 11*s.* 11*d.*
Twelve Months .. £1 3*s.* 10*d.*

FOREIGN SUBSCRIPTION.

£1 6*s.* *for* 12 *months, including postage to*—

AUSTRALIA	CANADA	JAMAICA	WEST INDIES
BELGIUM	FRANCE	NEW ZEALAND	UNITED STATES

£1 10*s.* 4*d.* *for* 12 *months, including postage to*—

AUSTRIA	HOLLAND	PORTUGAL	SPAIN
CHINA	INDIA	PRUSSIA	SWITZERLAND

£1 14*s.* 8*d.* *for* 12 *months, including postage to*—

RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 12, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Sept. 14	Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Sept. 15	Warwickshire Horticultural Society's Show (two days).
WEDNESDAY,	Sept. 16	Sale of 800 lots of Dutch Bulbs, at Stevens' Rooms.
THURSDAY,	Sept. 17	Sale of the First Portion of the Farnham Castle Orchids, at Stevens' Rooms. Floral and Horticultural Fete at Northampton
FRIDAY,	Sept. 18	Sale of Last Portion of the Farnham Castle Orchids, at Stevens' Rooms. Sale of Camellias, Palms, &c., from Ghent, at Stevens' Rooms.

IF, in some particulars, our American cousins have not yet attained to our standard in horticultural matters, yet in others they are fully our equals, and bid fair to rival us in all. Ornamental gardening has not yet become a part of the national life to the same extent that it has in England. We do not hear of the rich collections of Orchids, Ferns, and stove plants such as are possessed by so many of our citizens; nor do we hear of the villa gardens and the cottage gardens which form so prominent and so wholesome a feature among ourselves; but the taste is evidently growing, and our cultivators will, sooner or later, have to look to their laurels. That Azaleas and Rhododendrons are well done our own columns testify, for we have had occasion to mention and to figure some of their specimens; and Professor SARGENT'S Rhododendron show, of which we gave a notice at the time (1873, p. 1304), was a sufficient proof that these plants are thoroughly appreciated. Camellias are one of the pet hobbies of the veteran Marshal WILDER, whose services to horticulture are universally acknowledged. The flower trade of New York and other large cities is enormous, and no doubt the taste so engendered will filter through to other strata, and be productive of that yet more healthy love of flowers—for flowers' sake, and for the sake of the pleasant exercise and occupation afforded by their culture.

That hardy trees, and especially hardy Conifers, should be favourites we may surmise from the writings of MEEHAN, HOOPES, and others. Mr. HOOPES, we may mention, has published what is probably the most useful book on the subject for horticultural purposes that exists in the language, while Mr. MEEHAN brings to bear on his subject not only practical knowledge, but a large amount of original observation.

It is, however, in strictly practical matters that our American horticultural friends are most advanced. As to Pomology, the names of DOWNING, of HOVEY, of WILDER, and other pioneers, and the accounts that we have lately published, together with the records of the American Pomological Society, show that in this particular branch America is considerably in advance of the old country, and even of Belgium. Climatal reasons, no doubt, constitute one great reason for this superiority in hardy fruits even in the Eastern States, while in California a climate exists which is the envy of all horticulturists. American Cranberries have long been introduced into this country, but owing to the way in which they were packed they have not gained much popular favour. Lately, however, through the good offices of Mr. QUINN, we have tasted some Cranberries preserved in tins, concerning which we will only say that we trust soon to see those tins in our markets. Of American Peaches as we get them here in tins the less said the better.

Of late years, too, we have received a large number of new varieties of Potatos from America, some of great merit. First in order we would place Late Rose, which is an enormous cropper and of good quality; it is best suited for dry seasons and dry land. It is a good poor man's Potato, and is an improvement on Early Rose. Of similar kind are Extra Early Vermont, Early Gem, and others. We would suggest to our friends that they send us no more new kinds of this description, as there are already too many. Vermont Beauty is a large, second early, red-skinned Potato; it is a great cropper, of good quality, likely to supersede Red-skinned Flourball. Bresee's Climax is a large, second early, white Potato, of fine quality and very productive. Snowflake is of the same type, and a finer-looking Potato. Bresee's Prolific is also a very handsome and good Potato. Of coarser types may be mentioned—Peach Blow, American Red, Chardon, Goodrich, &c.

Most of the American Potatos are of similar type, with large broad pale foliage, like that of the Lapstone. Unfortunately they are rather prone to be attacked in this country by the Potato disease.

Tomatos, again, are an American specialty, of which many kinds have been introduced—Hathaway's Excelsior is perhaps the best. American lawn-mowers, from their novelty of arrangement and ease in working, have won for themselves a favourable verdict, though for large places and heavy work they do not equal our own.

Of less desirable and unintentional introductions, we must cite the American Water Weed (Anacharis), the Phylloxera, which is producing such havoc in France, and which is not wholly unknown here; while there is some reason to fear that the Colorado Bug may be introduced, though up to the present time we have not heard of its existence on our side of the Atlantic. The mention of insects reminds us of one feature in the American system, which we should do well to imitate—we mean the appointment of distinguished men of science as "State Entomologists," or what not, and whose business it is to inform the public on all matters likely to concern them. The entomological reports of Mr. RILEY, an Englishman settled in America, are of first-rate importance. American botanists, such as GRAY, the late Dr. TORREY, THURBER, EATON, WATSON, PARRY, ENGELMANN, are as well known and as much appreciated here as on the other side of the Atlantic.

Of the natural features of America it is needless here to speak, as they have often formed the theme of travellers' eulogium; while of the marvels of the Yellow Stone Territory, its geysers, hot springs, and wonderful scenery, we have been able to lay before our readers several original illustrations, which bear out what might otherwise be thought to be the exaggerated descriptions of the explorers.

We cannot doubt that horticulture has a glorious future in prospect in America, and, if we might venture to suggest a remark, it would be that our cousins should strive at originality in this matter, and not copy European models too closely. Let them strive to develope those features which their own climate and their own nationality favour, and thus, as it were, found a school of horticulture of their own.

WE issue to-day the first of a series of PORTRAITS of the GARDENERS of GREAT BRITAIN and IRELAND, with the object and intent of assisting in making them better known to each other and to the horticultural public, for we are persuaded that the latter body fully appreciates the most successful efforts of the former to maintain the high position which the art and science of gardening have reached in this country—a position which may challenge comparison with the state of horticulture in any part of the world. Mr. TURNBULL, whose portrait we now publish, has won for himself an honourable position amongst the gardeners of Scotland, and is held in the highest esteem by those who know him; indeed, his influence on the gardening of our time has been much greater than might at first sight appear, since he is the horticultural preceptor of many gardeners holding prominent positions at the present day. We are indebted to him for the very interesting autobiographic sketch, which will be found at p. 329.

—— A PUBLICATION, likely to be very useful to professional horticulturists, is announced for speedy publication, under the name of the ANNUAIRE DE L'HORTICULTURE BELGE. It is to be edited by Messrs. BURVENICH, PYNAERT, RODIGAS, and VAN HULLE, Professors of the State School of Horticulture of the University of Ghent. It will comprise a list of Belgian horticulturists of all descriptions, a list of the horticultural societies, notices of new plants of the year, &c. We have no doubt, from the ability and special opportunities of the editors, that we may expect a thoroughly useful publication.

—— Mr. ALBERT GRANT'S example is happily contagious. We have already recorded what that public-spirited gentleman has done for Leicester Square, and what he proposes to do for Soho Square. It is now announced that the Duke of NORTHUMBERLAND proposes to undertake a similar work in TRAFALGAR SQUARE. We can only hope the report is true. With the new street, the open space caused by the removal of Northumberland House, and the due development of Trafalgar Square, we may hope to see that Square, if not "the finest site in Europe," at least a credit to the metropolis. We hope, however, that the landscape gardener may be consulted in the matter, and that architectural influences may not unduly preponderate. In such a case, both should be consulted.

—— At the ordinary meeting of the Richmond (Surrey) Select Vestry on Tuesday last, Vice-Admiral R. F. STOPFORD in the chair, Mr. BURT moved that a memorial, having the seal of the Vestry affixed, be presented to the Commissioner of Her Majesty's Works and Public Buildings in favour of the opening of Kew Gardens at an earlier hour than 1 o'clock P.M. on week days. He thought the present hour was very inconvenient for the public generally. Large numbers of excursionists came from London to the gardens, and great was their disappointment at finding that the gardens were not open till the afternoon. Many of these excursionists were poor people, who only obtained a holiday once or twice a year; but this was not the only class that suffered, for many other persons would visit the gardens if they could obtain admission at an earlier hour. He thought 1 o'clock was a very late hour for opening. He did

not wish to dictate to the First Commissioner of Works, but the Richmond Vestry being the nearest public body to the gardens, he thought they ought to express an opinion on the subject, and try to get the hour of opening altered. Dr. SELLÉ seconded the motion. It would be a great public boon if the authorities would consent to the opening of the gardens at an earlier hour than at present. He was sure the public would appreciate the concession. It had been said that the opening of the gardens in the morning would entail the employment of additional workmen, more of whom would be wanted as watchers. He thought, however, that in the present day the public themselves were the best police; and he could not think that many more men would be required in the gardens. The motion was carried unanimously, and a deputation, consisting of Admiral STOPFORD, Dr. SELLÉ, Mr. DERMER, J.P., Mr. BURT, and Mr. OLDER, was appointed to present a memorial to the Commissioner of Works.

—— Some very strong protests have again been addressed to us as to the SELECTION of JUDGES at the Royal Horticultural Society. No complaint is made as to the perfect good faith of the persons appointed, but it is asserted that they are sometimes wanting in special knowledge of the objects exhibited. On a recent occasion one of the judges was, we are told, an exhibitor in the class in which he judged, though of course he did not judge his own productions. Again, considerable dissatisfaction is expressed at the judging in the Potato classes. We certainly think many of these complaints might be obviated by a more judicious selection and a wider choice of judges. For instance, with a large Fruit and Vegetable Committee, many of whose members are specially conversant with Potatos, it seems strange to have picked three members of the Floral Committee.

—— In the last number of the *Annales des Sciences* M. BERTRAND publishes the first portion of a lengthy paper on the comparative ANATOMY of the STEMS and LEAVES of CONIFEROUS PLANTS. M. BERTRAND points out the relation between the species and their geographical distribution, the parallelism existing between the floras of the Old World and those of the New, as well as that between the floras of the Australian islands and of South America, and enters into detail with reference to the comparative anatomy of the species in almost the genera of the order. He considers that the genera of Coniferæ are much more sharply defined than those of other flowering plants. M. BERTRAND arrives at various original conclusions as to the true nature of Pine needles, the leaf-like organs of Sciadopitys, &c., which differ from those of other observers, and to which we may again allude when the whole paper is before us.

—— We learn that Mr. PETER DOLLAR, 46A, Pall Mall, is continuing, as a landscape gardener, the professional work on which the lamented Mr. MARKHAM NESFIELD was engaged at the time of his sudden decease. Among the works in progress may be mentioned those at Hampton in Arden, for Sir FREDERICK PEEL; Beenham Court, for Mr. HOLDING; Milverton Vicarage, Leamington; and Fetcham Park, Leatherhead.

—— We learn that Mr. JAMES, gr. to the Earl of DARTMOUTH, Patshull, near Wolverhampton, retires at the end of this month, after twenty-one years' service. His successor is Mr. JAMES SMITH, gr. to the Earl of GAINSBOROUGH, Exton Park, Oakham.

——We have, on several occasions, noticed the remarkable fruitfulness of some of Mr. WILSON'S ORCHARD-HOUSE TREES, and last year (p. 257) we gave a figure of a Plum tree bearing an enormous crop. This year a pot tree of Coe's Golden Drop Plum is equally remarkable; and though a good many fruits have been gathered, the tree is now quite a picture. The entire crop which it brought to maturity was 212 fruits. It should be added that these are not dry, starveling fruits, but full-sized, succulent, high-flavoured examples of the variety, which is well known to be one of the best Plums in cultivation.

—— A beautiful deciduous tree for planting as single specimens on lawns, or on the borders of shrubberies, is the elegant, drooping, cut-leaved ALNUS IMPERIALIS, which HEMSLEY, in the *Handbook of Hardy Trees, Shrubs, and Herbaceous Plants*, refers to as a variety of the Alder, Alnus glutinosa. A fine specimen of it may be seen at Battersea Park, in what is termed the American Garden.

—— The first number of a new Belgian horticultural periodical has been issued, under the name of the *Bulletin Horticole*, and which professes to be the organ of certain local horticultural societies. The number contains, in addition to a number of official details relating to the societies in question, some practical articles of interest, such as a short history of Belgian pomology in the shape of a review of a work of M. GILBERT'S on Belgian fruits; an abstract of a lecture of M. HEMS on the insects injurious to cultivated plants; on pinching and summer pruning of the Pear and Apple; on liquid manures; on the selection of seeds for kitchen garden purposes; on weeping trees; the propagation of fruit trees, &c.

—— The Rose Show at LYONS, which, on account of the hailstorm of June 20, was postponed, will, we learn from the *Revue Horticole*, take place from September 17 to 20, in the park of the Tête d'Or. A special class will be instituted for new Roses.

—— We gather the following details as to the extent of ROSE CULTURE at Brie Comte Robert, from the *Revue Horticole*. In 1873, in spite of the war and the German occupation, which for a time destroyed the commerce in Roses; in spite of the disastrous frosts of 1871, the Rose fields, extending over 40 hectares, are estimated to have contained 2,500,000 plants.

—— M. BAILLON has recently described a most curious phenomenon in the bulbiform seeds of CALOSTEMMA CUNNINGHAMI, and which, if confirmed, will help to explain the cases of supposed parthenogenesis. The chalaza of the ovule thickens and produces roots, the coats of the ovule occupy the place of bulb scales, while a bud springs from the chalaza and forms a stem. A reproductive body is here found, then, nearly occupying the position of the true embryo, which latter is, as it seems, not formed. This is one of the most curious cases of substitution of one organ for another yet recorded, and we await with much interest further details with illustrations.

—— We have before called attention to the simplicity and handiness of VOICE'S PATENT VENTILATING APPARATUS, as applied to houses which may be large enough for professionals or small enough for amateurs, and now have to notice another improvement, which will be of considerable value where space and the saving of labour are objects of consideration. As will be seen from the illustration

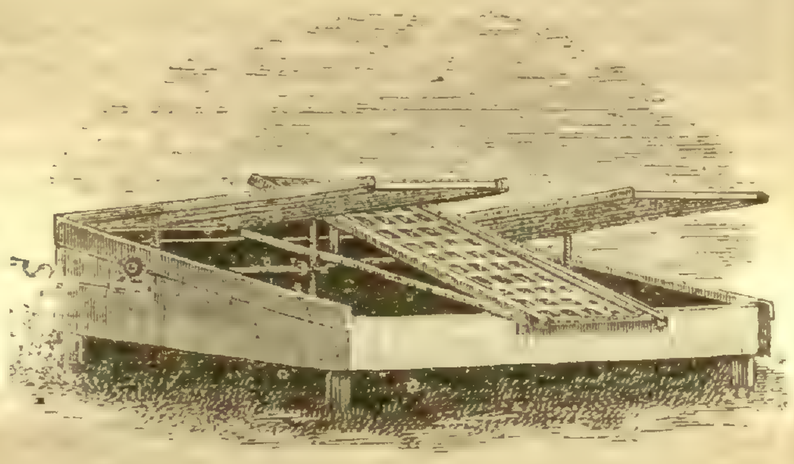


FIG. 70.—VOICE'S SYSTEM OF VENTILATING.

(fig. 70), Mr. VOICE, of Horley, Surrey, has adapted his patent to the old-fashioned sliding lights of frames, whereby perfect ventilation can be ensured without the lights occupying more space than the frames they stand on. The illustration shows a horizontal rod passing through the frame, to which are fixed pinion-wheels and tooth-racks, which are held in position by an Archimedean screw. The lights are raised by means of the small handle at the end, to the height required for giving a suitable supply of air, watering, or arranging the plants, and they may be raised either in front or at the back, as shown, by simply passing the handle of the light over a small hook at the back of the frame. The lights are not fixed to the apparatus, as the top of the tooth-rack fits into a niche in the light. This renders fixing unnecessary, and so allows of the lights being lifted quite off the frame, if necessary. This simple apparatus can be fixed to any frame, and by its use the breakage of glass, which is greatly accelerated by the lights being left tilted up with blocks or flower pots, is entirely obviated; and where, to give proper ventilation, sometimes the lights have to be slid off in front, taking up almost as much room as the frame, this space is saved. This is not of much consequence in large gardens, but it is a consideration in nurseries and market gardens.

—— The *Irish Farmers' Gazette* says the judges selected by the North of Ireland Horticultural Society to inspect the vineries in the province competing for the special vinery prizes offered on occasion of the late International Show at Belfast, awarded the 1st prize to WM. VALENTINE, Esq., Glenavon, Belfast; 2d to JOHN LESLIE, Esq., M.P., Glasslough, Monaghan; and 3d to J. CLELAND, Esq., D.L., Stormount Castle, Downpatrick.

—— A very pleasing combination can be effected at this season of the year, if the well-known Virginian Creeper and the equally popular Lonicera aureo-reticulata are so planted that the drooping branches of the one can mingle with the sprays of the other. It can be seen mingled in this effective way on the walls of a villa residence in one of the western suburbs of London. The Lonicera planted against the wall on the sunny side of the house has grown luxuriantly in an upward direction, without losing any of that brightness of tint so peculiar to it at the end of the summer. The branches of the Virginian Creeper hang down over it in graceful festoons, and at many points, and the golden sprays have grown outwards from among it profusely, and in a most effective manner. Dead walls and other unsightly places might be covered in this way, and many a dark, naked corner be lit up with brightness if the shade did not cause the Honeysuckle to lose its auriferous sheen.

—— LYCOPERSICUM RACEMIFORME is used for decorative purposes at Kew. It has slender manageable stems and neat foliage, without the viscosity of its near ally the Tomato. The berries, for the sake of which it is grown, are brilliant in colour, quite round, in racemose cymes 3 inches long, and are much larger than red Currants. The seeds may be sown in spring. It requires a moderate amount of pot room, as, if much restricted, the leaves are liable to turn yellow. It is worth attention. Native of tropical America.

—— To induce artisans and others to visit the EXHIBITION for the purpose of gaining technical instruction, the charge of admission has been reduced to 3*d.* each person on Mondays, Tuesdays, and Saturdays, being the free days of the South Kensington Museum. The Exhibition will close on October 31.

—— In the Palm Stove in the Oxford Botanic Garden there is a specimen of the EAST INDIAN TODDY PALM (Caryota urens), which has grown up to the roof and is now flowering. It is a characteristic feature in this plant that its first spike of flowers comes from the top and continues downwards in the axil of every leaf, until it eventually dies.

—— The BRUNSWICK FIG is quite a feature at this time in the kitchen garden at Goodwood, growing in immense spreading trees. The fruit, being large and fine-flavoured, are placed by Mr. RUTLAND in muslin bags, and afford quite a singular display. Is it "too well" known that the Brunswick, though not quite so good a bearer as the Brown Turkey, is, nevertheless, one of the best for outdoor cultivation, particularly for walls in cold latitudes?

—— MONSTER MUSHROOMS have been rather scarce this year, but we are informed that Mr. STROUD, gr. to DANIEL MORGAN, Esq., of Cumgigfran, South Wales, found one on the 3d inst. measuring 13 inches across, and weighing 2 lb. 1 oz.

—— COTYLEDON (UMBILICUS) SPINOSA is flowering at Kew on the rockwork. It bears an erect dense raceme of pale yellow flowers. The leaves vanish with the rising of the stem, so the beauty of the plant is destroyed. A few years ago it was rare, but from the freedom with which offsets are produced a stock may soon be obtained. The smallest will grow if pricked into pans. It has been the subject of several names. Sempervivum cuspidatum was the name given by HAWORTH, under which it is sometimes cultivated. Native of Siberia, China, and Japan.

—— The GOLDEN CHAMPION GRAPE is being done well this season by Mr. VICKERY, Woodend, near Chichester. This gentleman has fifteen bunches upon a rod, all of moderate size, ripened to a good golden colour, and free from "spot." To assist them in ripening off, Mr. VICKERY keeps the house very dry, and has severed each fruiting lateral half in two, as he says, to limit the flow of sap to the bunches. The result is good to whatever cause attributable.

—— A new and highly successful cultivator and exhibitor of the Gladiolus has come to the fore this season in the person of Mr. THOMAS SAMPSON, Preston Road Nurseries, Yeovil. On two or three occasions, at West of England flower shows, Mr. SAMPSON, who has raised some remarkably fine seedlings, succeeded in defeating those renowned cultivators of the beautiful autumn-flowering plants—Messrs. KELWAY & SON, Langport.

—— The value of ERIGERON MUCRONATUM as a border plant is exemplified in the herbaceous ground at Kew. A fine tuft, a yard across, is composed of a multitude of slender stems, bearing small leaves, and covered with Daisy-like flowers, the ray is at first white, afterwards turning red. It is very easily raised from seed in the spring, when it at once commences to flower, and continues till late in the year. At Kew it is quite hardy. Until last year this was known as Vittadenia triloba, when it was defined as the above by Dr. A. GRAY, at p. 1337. Native of Mexico and Venezuela.

—— In the grounds attached to Chase Park, Enfield, the residence of Mrs. ADAMS, there can be seen an interesting old Chestnut tree, which in the course of time has formed a dense and gigantic bush. Tradition states that the tree once stood by the side of an

old well, and that in some distant time past the brink of the well gave way, and the roots and trunk of the tree fell into it. This is what is stated respecting it in the locality. The knowledge of the oldest inhabitant does not appear to carry him back further than the tree as at present seen. Close to the ground huge limbs spread out in various directions, of great size, and appearing as if they had thrust out roots beneath at some time, which have fed on the soil. From these branches a growth has resulted, giving to the clump of Chestnut foliage the appearance of a group of young trees growing up out of a dense undergrowth. The bush measures nearly 25 yards in circumference, and it is fenced off from the park in order to maintain it as a feature of interest.

—— That part of the City known as BRIDGEWATER GARDENS may, in its general appearance, belie the designation it has received; but with certain apparently unfitting surroundings, there can be seen in this thoroughfare as it leaves Aldersgate an attempt at gardening well deserving a passing record. The top window of one of the houses had a rough deal box placed on the sill, and it is planted with a dark purple variety of Convolvulus major, which has twined itself about perpendicular lines of twine reaching from the box to the top of the window. The consequence is a complete leafy screen, decorated with a number of pretty purple flowers that expand in the sunshine, but keep closed in dull weather—almost the one bright piece of colour in a somewhat forbidding-looking side street, and only a few paces removed from the whirr and rattle of Mr. H. M. POLLETT's steam-printing presses, busily at work almost beneath the Convolvulus blossoms.

—— CYPHOMANDRA BETACEA is flourishing in the beds of the temperate house at Kew. It forms a handsome tree, and besides produces a number of edible ornamental fruit which hang for more than twelve months. They are the size and shape of a hen's egg, and of a reddish yellow colour. For these the tree is cultivated in South America, where they are used in the same way as the Tomato. Cuttings will strike, and seeds grow very readily. It may be grown as a pot plant but should evidently be planted out.

—— Plans of well-designed gardens, &c., are always acceptable to practical gardeners. It is with pleasure, therefore, that we insert in this place a PLAN OF AN ESTATE recently laid out by an accomplished and energetic Belgian landscape-gardener, M. PYNAERT, of Ghent, whose works have deservedly gained him reputation. The estate in question is near Bruges, and occupies about 14 hectares. The site is flat, and affords no distant prospect of any beauty. The following references will serve for the comprehension of the plan—A, house; B, coach-house; C, stables; D and E, farm-buildings; F, kitchen garden; G, entrance-gate, at the end of an avenue of 600 metres in length; H, rustic cottage; I, orchard, picturesquely planted; J, iron bridge; K, cascade; L, kiosque, surmounted by a mill to pump up water; M and N, rustic bridges; O, stream; P, farm roads; Q, woods.

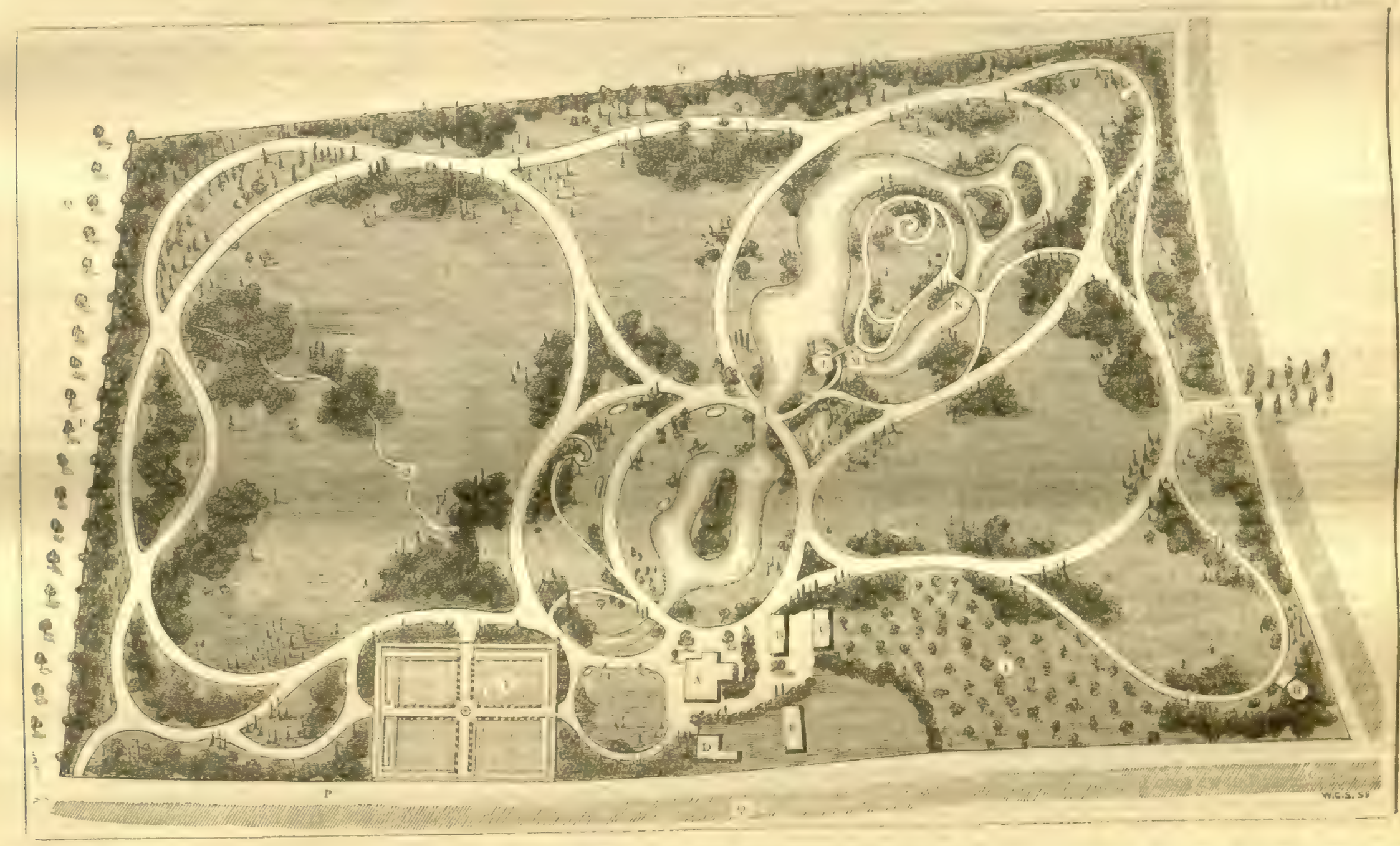


FIG. 71.—PLAN OF AN ESTATE NEAR BRUGES, BELGIUM.

AMERICAN ASSOCIATION.

THIS Association, which is formed on the model of our own British Association, has been lately holding its meeting at Hartford, under the presidency of Dr. Le Conte, of Philadelphia. On August 13, Mr. Meehan read the following paper:—

Natura non facit saltum has been accepted as a grand canon by most naturalists, and the evident absence of connecting links has been thought fatal to theories of evolution. My studies in plant life lead me to the belief that one form will spring from another essentially different, and without any gradual or insensible modifications uniting them.

In my theory of evolution morphology must take an essential part. In the transformation of a leaf-blade to the various organs of a plant the change is sometimes gradual, as in the passage from leaves to bracts in some orders, or from sepals to petals, petals to stamens, or stamens to pistils in others; but the cases where the change is from one form of structure to another of very different character is by no means rare, and if it can be proved that change with gradual modification, and change by the sudden appearance of a distinct form, are both good morphological laws in plant life, there is no reason why both laws may not operate in any scheme in which morphology is called to act. How suddenly the parts of plants often change is well illustrated in most coniferous plants.

In the Pinus, on the first pushing of the axis from the cotyledonous condition of the plant, flat leaves are developed often an inch or more in length. After some time these leaves are suddenly arrested, and the axillary buds as suddenly develope into fascicles of needles, as they are popularly called. So, when the plant reaches its floral condition, the transformation of leaf and stem into the various parts which constitute a cone comes on with wonderful suddenness. The leaf which we saw so suddenly arrested in early life now becomes a bract, the fasciculi combine and form the scale, and the axis suddenly ceases to elongate and gives form to the whole. The one in search of missing links would be sadly puzzled here! This sudden change of folial organs to organs of inflorescence is very common. In the change of one portion of a leaf structure to another, Magnolia and Liriodendron afford interesting examples.

In many plants the regular leaf-blade is metamorphosed, and forms the petal, but in these, as soon as the plant reaches its flowering stage, the leaf-blade is suddenly and entirely arrested in the formation of the petals, and the stipules are as suddenly developed. The petals are, in fact, highly developed and transformed stipules, and all without the slightest trace of gradual modification. So in sexual transformations the modifications are by no means always gradual. One who had never seen the Maize growing would hardly believe the tassel and the ear were from one plant, yet they are formed morphologically on the same plan, and once in a while we find male flowers gradually merging into female, and females to males in the respective domain of each, but this is the great exception to the general rule.

Natura non facit saltum is not true of individual plant life. Now we come to variations from specific form, and here I find great changes with no transitional forms between. I have a Halesia from seed of Halesia tetraptera, which any one might be pardoned for placing in a new genus. It is much further removed from its parent than H. diptera is. The corolla is not drawn up into a funnel-like tube as in the original, but is cupular and barely the length of the stamens. The leaves are broadly ovate and rugose, and no one at first glance would take it for a Halesia. When I first saw it in the seed bed I supposed it to be a young Apple tree. I have on my grounds large quantities of Yucca filamentosa. Hundreds of plants throw up their flower-spikes and open their first blossoms within twenty-four hours of each other. But some years ago one struck off to have a more branching panicle and to open its flowers two weeks before the others, which characters remain and are continued in the progeny. This two weeks was not gained gradually, day by day, through successive generations, but in one great leap. So with raising Peaches or other varieties of fruit. Though the progeny usually takes to the general habits of the parent, there will be, once in a while, very late varieties from seeds of early ones, and very early from late kinds.

In Delaware and New Jersey Azalea viscosa varies to a form having glaucous saliciform leaves. I have not raised these up from the seeds, but I have seen an extreme form, with leaves looking rather like the English Woodbine (Lonicera Periclymenum) than an ordinary Azalea viscosa growing under ordinary circumstances, which left no doubt on my mind that it sprang without any intermediate links from the other form.

Glyptostrobus is another remarkable case. I exhibited at our meeting at Chicago, branches from a tree raised from seed of Taxodium distichum, and branches from an acknowledged Glyptostrobus pendulus, and no one could separate them. Here is a leap at once to a new genus. Moreover, I have a Thuja growing which the highest authorities insist is a Retinospora, but which I know was raised directly from Thuja occidentalis, without any intermediate parent whatever. Some genera seem very variable. Take our common Ox-eye Daisy (Chrysanthemum Leucanthemum), for instance, and then, say in Staphylea, we may examine hundreds of plants without any apparent variation. But in the variable genera it is a mistake to suppose that these variations are by gradual modifications, though one can often place them so as to appear like gradually approaching links. It is wonderful how many variations there are in the common Ox-eye Daisy. I have studied them closely for years, and find that the most divergent forms are often parent and child.

Steady-going species act in the same way. I do not know anything that more exactly repeats itself than Glycine frutescens. Every leaf is exactly ovate, with an upward turn from the midrib; but in its variety, known in gardens as G. magnifica, the leaves are regularly attenuated and reflexed, and the whole manner so different that some have supposed it a distinct species, with the name as above.

Not only do strikingly distinct forms come suddenly into existence, but once born they reproduce themselves from seed, and act in every way as acknowledged species. The Peach in its general form has its branches at a very acute angle upwards; I never saw a plant with branches approaching a right angle; but some thirty years ago one came into existence with a strong angle downwards, a weeping variety, and seeds of this reproduce this form exactly in every respect. So with colour. The Peach is of an uniform green—no tendency to vary its shade—but ten years ago a deep blood-leaved variety appeared. The deep blood-leaved Peach is also a rapid jump from the green, and reproduces the blood-leaved character from seeds. The Siberian Arbor-vitæ is another great leap from the Thuja occidentalis, and reproduces itself from seeds, as do all the striking forms in which this species abounds. Indeed I think I may close this branch of my subject by the statement that in over a quarter of a century of experience among living plants I have rarely known any striking form to have originated by gradual modifications, but always by one great leap. The slight changes are generally in efforts backwards, as when we sow Purple Beech seed some few are a trifle paler than their parents—there is little of this hesitation in the forward leap.

But even reversions are not always gradual. Some years ago the common Babylonian Willow sent out branches suddenly which bore singularly curved leaves, just as the Nectarine is said to have suddenly sprung from the Peach. The cuttings grew and maintained the character. It is known as Salix babylonica annularis. A few years ago I saw a tree, perhaps twenty-five years old, push out the regular Weeping Willow leaves, and I have heard of one in Boston which did the same.

This fact in regard to the Willow suggests another great principle. Forms are not only called into existence suddenly, widely different from parents, and can reproduce themselves from seed, but they come into existence without seed agency, and the same or similar form in widely-separated localities, and not all necessarily by seed from one individual. I have had sent me from five different localities—two in Pennsylvania, one in New York, one in Illinois, and one in Indiana—flowers of Viola pedata in which the two upper petals were of the beautiful maroon characteristic of the Pansy. Then I have given what I think good reasons, in *Proc. Ac. Nat. Sciences*, for believing that identical forms of Blackberries and Raspberries originate in distinct localities. Again, a whole change of character will occur suddenly in many individuals through a large extent of country. This season, in our part of the world, at least, half the leaves of the Liriodendron are from five to seven-lobed, when, as is well known, the three-lobed character has been almost specific in former years. We are accustomed to say about these changes that they are "caused by climate;" but this expression proves nothing. We have in Pennsylvania a form of Viola cucullata, usually growing in wet places, which always causes the breast of the young botanist to thrill with the idea that he has a new species. The paler colour and more delicate growth, when the plants are seen in the aggregate, are very striking. But when the plants and flowers are analogous, no difference is found that can be described in words. Those to whom reason comes rapidly tell us at once that the difference is "caused" by the plant growing in wet places; but we soon find the deep purple form coming down, as it were, from the high ground to the swamp, and the pale one working up to the high ground, yet each retaining its little peculiarity. There is a gradual modification of location going on; a gradual modification of circumstances; but no gradual modification of form to correspond. In suggesting that species come suddenly into existence, not always from one parent, and not only in one locality, I wish to confine myself mainly to facts, and to facts within my own observation, but I cannot forbear suggesting how much nearer such a theory coincides with possibilities than the theory of descent by gradual modifications from a single parent, where, surrounded by innumerable foes, not even the fittest could survive. As a host of Liliputians could finally subdue a single Brobdingnagian, so the sheer crowd of individuals in an old form in the struggle for life would crowd out the solitary new one, no matter how much better fitted it might be *per se* to survive. Insect agency alone, as I have shown in a paper on Linaria vulgaris in *Proc. Ac. Natural Sciences*, and I believe Dr. Asa Gray before me in *Silliman's Journal*, is a powerful force in the crushing out of any departure from a parent form.

Again, a theory deserves consideration when it will explain phenomena in which others fail. In 1862 I discovered the identity of relative characters in allied species of European and American trees. Mr. Darwin frankly admits in his work on *Animals and Plants under Domestication*, that the facts given in my paper are unexplainable by his theory of natural selection, and Sir George Mivart makes strong use of them against Darwin in his *Genesis of Species*. That the variations of allied plants should be all on one plan is not consistent with any idea that the selection of their forms should be for the purpose of a struggle with one another if they had any such power of selection. The American Hornbeam (Carpinus americana) differs from the European (C. Betulus), amongst other points, in being less sharply and deeply serrate. But on examining Hornbeam leaves it is seen that, though simple, they are on the road to pinnation. The lateral veins are typical midribs of pinnules. In the American there are from five to ten small serratures between each main one that terminates the main rib, while in the European there are but from two to five. The American has more nearly approached a pinnate form, and bearing the case of the Liriodendron in mind, we see how this can be brought about without the necessity of going through any gradual modification from a single parent, but in obedience probably to some law of nutrition regulating form, which may operate at times on a large number of individuals, and at other times on a single cell.

That form is in some way dependent on nutrition is demonstrated not only by my papers before this Association on the laws of sex, but by the operation of various fungi, which, as they attack plants each in its own way, produce fixed abnormal forms in these plants, each after its own kind. The whole habit of a plant will sometimes change under these attacks. In the Rocky Mountains I have seen an Euphorbia, usually creeping, become wholly erect when an Æcidium was growing on it.

The attack, of course, interferes with nutrition, and we may therefore say that in some cases nutrition governs form. Sudden cosmical disturbances acting on nutrition would, therefore, constitute a factor equal to great specific changes of form; and we are not compelled to look solely to gradual modifications of form from single individuals for the explanation of all the phenomena we see. A review of the facts I have presented shows, I believe, the following truths:—

1. Morphological changes in individual plants are not always by gradual modifications.
2. Variations from specific forms follow the same law.
3. Variations are often sudden, and of such decided character as to be deemed generic.
4. These sudden formations perpetuate themselves, and act in all respects the same, as forms which spring through gradual modifications.
5. Variations of similar character occur in widely-separate locations.
6. Variations occur in communities or plants simultaneously by causes affecting nutrition, and perhaps by other causes.

Arguing from these, new and widely distinct species may be suddenly evolved from pre-existing forms without the intervention of connecting links.

THE KUM-QUAT.

THE figure (72) which we give of this interesting plant was taken from a specimen kindly forwarded by Mr. Sherratt, of Knypersley. The species (Citrus japonica) was originally introduced from China by Mr. Fortune, in 1842. That gentleman contributed to the Royal Horticultural Society in 1869 (see *Gardeners' Chronicle*, 1869, p. 308) an account from which the following particulars are condensed. Mr. Fortune found that it was cultivated over a large extent of country in China, but more particularly in the more temperate regions, and perhaps even a lower temperature than this. In winter it must be kept cold and dry. During its season of growth, in summer, it ought to have a liberal supply of water, and a temperature of from 80° to 100°, and this heat should be well kept up in autumn in order that young wood may be well ripened. Many parts of the United States would seem to be well adapted for the culture of this fine species.

Mr. Fortune informs us that the Citrus trifoliata, which is quite hardy in Paris, and which we recently saw there in bloom in the open air, in the garden of the Ecole de Médicine, is used in China as a stock for the Kum-quat, and further that it was introduced by him into this country many years since.

The plant is very attractive both in foliage and in flower, and the fruits are much relished, particularly when preserved. Mr. Fortune remarks that, by studying the climatal conditions under which it grows, this plant might easily be cultivated in England as an ornamental plant. In the country where the Kum-quat is found in the highest perfection the common Orange will not survive the winters, and, on the other hand, the Kum-quat, when cultivated in the south of China, does not succeed, although the common Orange is found there in great perfection. Both plants require warm summers, indeed the northern summer is frequently hotter than the southern one. A hot summer temperature, varying from 80°—100° F., is necessary to enable the Kum-quat to form its growth and ripen its new wood. In winter it will bear 10°—15° of frost.

Home Correspondence.

On Removing Old Apricot Trees.—Mr. Earley's interesting account of his productive Apricot, and of his success in moving large fruit trees, recalls to memory my own experience and success in moving very old Apricots, &c. In the year 1868 we formed a new kitchen garden some short distance from the old one then in existence, inclosed by stone walls built of local stone, the S.W. walls being faced with red brick, for the growing of Apricots, Peaches, and the more delicate kinds of fruit. The garden walls here have a somewhat nice and unusual architectural appearance, and are generally looked upon by practical men as being unnecessarily costly and unpractically constructed for growing fruit, ; however, if they lack practical utility they serve one intended purpose—they vastly please the eye. The S.W. wall outside is planted with very old Apricots, probably some of them are now thirty years old. These trees were moved from the old kitchen garden to the new one. I find by reference to notes made at the time that I commenced moving on September 2, 1869. They were carefully lifted without any previous preparation, and carried one at a time upon long poles by six men, and at once planted, the hole having been previously prepared. The branches were then drawn up together, covered with mats, and secured to the wall. In this covered-up state they remained three weeks. A man attended every morning and night, applying water overhead with the hose, never allowing the mats to become dry. At the end of three weeks I partially exposed them to light and air by taking off the mats during the night-time, replacing them in the morning. This I continued to do until the end of the fifth week, when I dispensed with the covering altogether. The points of the young wood had then begun to show signs of new growth. I continued to use the water-hose at times when considered necessary. By the end of October some of the young shoots had grown to the length of 5 or 6 inches; I then was convinced all was well with them. When winter approached I covered the surface of the ground with rotten leaf-mould, thus keeping out the frost from the roots. This was moved in early spring, and watering attended to, &c. The result is now to be seen—twelve old Apricot trees with new life in them, producing bountiful crops of fruit annually from the year they were moved into their new quarters. There are other specimens of successful moving of large fruit trees to be seen here. Several of the trees measured at the time 24 inches round the stem some few inches above the ground, all being dwarf fan-shaped trained trees, and when opened covered the wall from 25 to 30 feet each tree. *G. Beech, Castle Ashby.*

Romance of Natural History.—In this advanced age no one ought to find fault with the first sentence of Dr. Hooker's address at Belfast on the "Carnivorous Habits of some of our Brother Organisms—Plants" (see p. 260), but if this sentence is connected with one in the previous week's *Lancet* (Aug. 29, p. 304, 4th paragraph of 2d col.), it is likely to lead to some confusion in unadvanced minds. A celebrated physician there discourses on a "vegetable fungus" and a "vegetable fungus of a most luxuriant kind" obtained from — where do our readers think? — the "scrapings" of a missionary. Whether this "organism" was "scraped" off a missionary by some heathen, or whether the heathen scraped it off a missionary, the doctor does not tell us, but he evidently infers that all plants are not vegetables, and Dr. Hooker at Belfast quiets us by the assurance that they are our "brother organisms." "Am I not a fungus and a brother?" we may soon expect to see inscribed under some humble fungoid "organism." *A.* [If our correspondent were a surgeon he would know that there is such a thing as "fungus hæmatodes," which is not vegetable. EDS.]

Zanthoxylum alatum.—The reference in your number of Aug. 29 (p. 271) to Zanthoxylum alatum and my observation on its unisexual character, induces me to offer a few additional remarks. My specimen, which was transferred to the open ground ten years ago, still exists. It is now a vigorous little tree, far out-topping the high south wall against which it grows, and spreading in other directions as freely as space and the pruning-knife will admit. Every year it is covered with small red fruits which, combined with its elegant foliage, make it an attractive-looking shrub. It has the further recommendation of being half-evergreen and of retaining a good many leaves through the winter. The flowers, which are produced in early spring, continue, so far as I can observe, devoid of male organs; yet the seeds are not all of them destitute of fertility. One year I sowed several hundreds, placing exactly 100 seeds in each pot. The result showed that about 20 per cent. germinated. On subsequent occasions I have been less successful. The seedlings have hitherto proved exactly like the parent, producing female flowers only. Z. alatum is a hardy plant, by no means requiring the protection of a wall, but growing well among other shrubs with no particular care. I have also in cultivation Z. Bungei, likewise non-staminiferous, the seeds of which were sent to me from Pekin. It is a very vigorous species, and so extremely spiny that it might well serve to form hedges, but it has the disadvantage of losing all its foliage in winter. From its fruits, which are produced but very sparingly, I have obtained seeds that have given me young plants. *D. Hanbury, Clapham Common, S. W., Sept. 7.*

Chatsworth. — Although a mere tyro, I read the *Gardeners' Chronicle* with a zest which I hope will be in time repaid by wider knowledge. Last week I perused with much enjoyment the eloquent and well written description of Chatsworth by your correspondent, "G.," and could not help thinking how great would be the pleasure of going through the Fern and Palm houses with so keen and philo-

FIG. 72.—CITRUS JAPONICA.

A, Transverse section of fruit, showing the oil-glands, natural size; B, Calyx and pistil, enlarged four diameters.

sophic an observer. Now and then a few privileged persons are taken round the British Museum by one of the officials, and it would be well if the practice were more common in our national collections. Who would not like to visit, for example, the Botanic Gardens at Kew, or the Royal Botanic Gardens, Regent's Park, with such a companion as your correspondent? The next best thing would be, if his arrangements permitted him, to contribute to the *Gardeners' Chronicle* a series of similar articles for Kew, so that the botanical student or lover of horticulture might follow in his steps, and profit by his sense of beauty and grace in Nature. I highly appreciate your occasional notices of all that is remarkable at Kew, but I feel in need of something more comprehensive; and the description of Chatsworth would exactly correspond to the needs of many tyros like myself if a visit to Chatsworth were not, to most metropolitan readers, the affair of a lifetime; but would it not be possible to form, say, a half-guinea class for a short series of lecture visits at Kew? Lord Henry Lennox and Dr. Hooker would, I think, offer facilities for such lectures, because they could not fail to give a great impulse to botanical studies, and, for one result, would add to the number of greenhouses and conservatories in private dwellings. Few names in science shine with more lustre than Dr. Hooker's, and I would respectfully ask him, in view of such a delightful sketch as that descriptive of Chatsworth, whether something cannot be done to popularise the treasures of Kew, and make the gardens a still more active living spring of botanical knowledge? Nothing is more difficult to learn from books than botany, while nothing is, I should conceive, more delightful than to acquire a taste for the beautiful in plants from an accomplished and enthusiastic teacher. *A Journalist.*

Dessert Pears.—At South Kensington on the 2d inst. a prize of the value of 20*s.* was awarded to a dish of twelve Williams' Bon Chrétien Pears that were judged for flavour; the fruit were small, and such as might be gathered in any market orchard. That same evening, when going home, I bought a dozen as good fruit, and just so ripened as to be delicious eating, for fourpence! *Pomona.* [We have not been fortunate enough to get them for less than a penny a-piece. EDS.]

Roses and Rose Showing.—A few remarks upon this subject from one who has had practical experience in cultivating Roses may not be out of place after the attack made (as I understand it) upon good cultivation by Mr. Prior. In fact the remarks from that gentleman would lead one to suppose that he knows very little of the cultivation of Roses or of any other trees out-of-doors when he decries good tilthy ground. For it is by such means that healthy trees with good fibrous roots are produced. Did any one ever know of a buyer of Roses going to a nursery and selecting the small trees, leaving the large ones? Why, the reverse is the fact; the best are selected first, and the best trees of Roses are the largest, whether standards or dwarfs. Who would buy starved trees that would linger for a few months and then die? And what has a greater tendency to dwarf, and what I call starve, than hard ground, with a good crop of weeds on it and very little manure at the roots? The grower who may save small stunted trees will say these are the ones to buy, but if I were going to plant I should prefer good strong, healthy plants, and plants that had produced good blooms, for then I should know that they had good roots.

One remark on exhibiting. Would it not be very unfair to the small grower to show Roses on the massing system? How is he to find the blooms to compete with against the large grower without he commits that "immoral" action of buying or begging them from his neighbours, when now they can show their twelve, twenty-four, or forty-eight blooms, and stimulate their friends to enter the lists? Again, the number of exhibitors must be limited or their masses must be very small ones, and if they are for competition Mr. Prior's dressing and Madame Rachelising must be in great request, as excellence of bloom must stand aside for effective arrangement. *Practical.*

—— Are we not losing sight of our object of discussion, "the improvement of our Rose shows"? One looks earnestly for any sugggestions, and I felt hopeful when I caught sight of Mr. D. T. Fish's name amongst the correspondents. He seems at one with the majority of previous writers, as "D., Deal," "C.," "P. P.," in still feeling that "we must hold fast to a system which has largely made our Roses what they are." His ideas of wreathing pillars, &c., are hardly fitted for competitive exhibitions, and no one has proposed to discontinue competition, feeling that shows would not long survive its abolition. The priority of the discovery of the advantage of freshness may seem to be important to "men of science," but its practical application has been more than suggested. Mr. Wills' idea of edging designs of Roses with Lycopod might be well applied to the existing method of showing. Suppose a narrow sloped box of Lycopod, fixed at the back of the stage at the same angle at which the boxes are usually tilted, and another narrow, sloped box of Lycopod to be placed in front of the boxes after staging, on table space left for the purpose—would it not give an effective and contrastive margin to the raised bed of flowers which the boxes really constitute? But all these are only devices for setting off the present box system, and no practical suggestion for the utilisation of what was "the talk of the town" has been made. We are drifting out of the season of leisure for those of us who are business men, and seem to be still without the novel practical outcome we hoped for from the discussion. Is a conference of rosarians on the subject of Rose show improvement not possible? There are plenty of practical men amongst the class—men interested in making Rose shows more attractive, and, from what I know of them, not sparing in labour for a task so congenial. The discussion as to show and garden Roses, which has grown out of this, I have ventured to deal with elsewhere, if you can find room for so many letters from one hand. *George Paul.*

Immoral Criticism of Rose Exhibitors.—Your correspondent, Mr. Prior, as I think, recklessly attacks Rose exhibitors, and is honestly bound to be sure of the grounds on which he accuses them of immorality. If he is not so sure, does not the charge redound on himself? Allow us, as old exhibitors of cut Roses, to take *seriatim* what he describes "as the well-known routine practised in too many cases to produce exhibition blooms," denying or affirming, as far as we are concerned, the practices which he condemns. "The enormous stock of maiden plants" we fear we must plead guilty to; "the selection of the most promising out of these" is erroneous. "Disbudding" is a praiseworthy effort to produce fine flowers, which, we are glad to say, is practised here, as in all good nursery and private gardens. "The syringing above and the liquid manure below," admirable practices for small private gardens, we are simply unable to carry out on a large equally treated stock like our own. "Shading" is not practised here, colourless flowers would be the result. "The general fattening up by every possible device" is a vague generalisation, and, from its obscurity, cannot be affirmed or denied. "The after-manipulation of dressing" is an impossibility; the mere handling a Rose flower bruises and destroys the beauty of its petal, and any attempt to improve the form of the flower must be a failure. Immoral criticism is such as your correspondent is guilty of in writing to condemn practices, in some cases non-existent and in others beneficial, but which he, a would-be guide to others, is ignorant of the use or the purpose which they serve. *Paul & Son.*

The Rose-showing Discussion. — Horticulturists, whether rosarians or not, who really love the Queen of Flowers for its inherent beauties, have no desire to see it reduced to the level of a mere parterre flower, to be a companion of scarlet Geraniums, yellow Calceolarias, and blue Lobelias, whose sole mission in the gardening world appears to be the weaving of certain masses of gaudy hues of colour to please the tastes of the uneducated, or gratify the pride of rich parvenues. The Rose is to be admired, and even worshipped for its own intrinsic beauties. Given a fine bloom of Maréchal Niel, Baronne de Rothschild, or of Marie Baumann, and it contains concentrated all the highest forms of beauty that a thousand plants of any one of these kinds could produce. A thousand other flowers as good might make a brilliant mass of colour, and distract the eye from a study of individual beauties to a sense of admiration for the magnificence of the whole, but more than this no mass of any one kind could accomplish. A thousand blooms of any one of these Roses could neither add to nor detract from the form, colour, and loveliness of any one good flower; in seeing one we see all that an acre of plants could produce. There is a frightful species of heresy attempted to be propagated when it is asserted that the exhibition of the finest and grandest blooms that the Rose can produce is altogether wrong and misleading. The whole aim of exhibitions is to produce all things in the finest possible form and condition. Why should the Rose be exempt from this aim? Why should not the most magnificent flowers that cultivation can produce be placed on our exhibition tables, just as is the case with the Dahlia, Gladiolus, and, indeed, with all things horticultural? If the Pauls, Turners, Cants, Princes, and other great growers of the Rose can place before the public flowers that exceed in size and splendour all that all other growers, great or small, can accomplish, certainly they have a right to do so, and where can they look for their reward for superior cultivation and display of cultural ability but in the prizes offered for their competition, and the admiration and approbation of the public? When the Rose is reduced to the level of a bedding plant for the production of glaring and evanescent masses of colour, or when, to suit the tastes of carping critics, it is exhibited as produced under "ordinary" cultivation, then good-bye to the supremacy that the Queen of Flowers has so long and so sweetly exercised, for she will indeed have fallen. As long as the Rose is exhibited as a florists' flower in its most perfect form, so long shall we have Rose competitions as now; and it were better to spend ink and paper in the development of new or improved forms of staging rather than in the penning of personalities or articles that are calculated to bring Rose competitions into contempt. No suggestions towards an improved mode of showing cut Roses have been offered: are we, therefore, to conclude that none are possible? To grow a Rose well is one thing, to arrange a show of them to the best possible advantage is another. It is really less a question for rosarians, and more one for the consideration of floral decorators—of men whose profession it is to create beauties as if by magic out of whatever materials may be at their disposal, only in this particular case they have in the competing stands of flowers beautiful objects, the which they are expected to appropriately and fittingly frame—beauties not to be added to or detracted from, but rather to be shown up in bold and clear relief, so that, whilst the whole group of pictures shall produce one admirable and pleasing effect, yet not for one moment shall the admiring eye be distracted from the charms of each picture, or the beautiful floral portraits that individually go to make up the magnificent whole. Now, there is scarcely an exhibition of importance in the kingdom where the Rose is not staged in the usual pattern-boxes upon baize-covered tables. It may happen in a few cases that they are placed upon turfy banks, but beyond that nothing more is done. In this latter case a simple arrangement of dwarf Ferns and Selaginellas, with plenty of loose moss, might be made so that each box should be hidden from view, whilst the Roses in each collection should be, as it were, set in a framework of dense and ornamental leafage, with the introduction of a few small Palms and Ferns or other foliage plants as a back. The whole thing would be complete, and might easily be worked out on the spot by any person of ordinary taste and intelligence. To deal effectively with such a show as is to be found at South Kensington in July is, however, a much more difficult problem to solve, and can only be worked out by the decorative power of the Society itself, or by means of some decorative agents who, having the general idea placed before them, see at a glance what is wanted, and furnish it accordingly. Now, I would suggest the possibility of dealing with a Rose show, say in the arcades there, something in this fashion. The whole length of table required for staging being marked off into the respective classes, lengths of narrow troughs, previously filled with Selaginella denticulata—and for this purpose now a dense growth on top and one side—should be placed all down the outer edge of the table, a narrow row of elegant foliage plants being run all down at the back, each competing group being separated by narrow lines either of dwarf Adiantums, mosses, or any other suitable plants; then the whole of each intervening space should be filled with loose green moss, sloping to the front, and into this the competing blooms, still in their tubes, should be transferred from the boxes used in their transit from the nursery. In this way space might be more effectually utilised, and the flowers could be arranged six deep instead of in fours, as is usually the case now in boxes; moreover, the undue crowding of the blooms that is now often found, especially in the case of the "threes," could be avoided. Each competing group of seventy-two single Roses, in 48's, three trusses each, could have dividing lines of plants, but, in the case of twenty-fours or twelves, several competing collections might be grouped together, especially in the case of twelve trusses of any one variety. How effective would these look if all the entries were placed in one group, six blooms deep, and how well in this way they could be judged. Then, if here and there, between the mixed classes, there were groups of say sixty or seventy-two blooms of Marie Baumann, Maréchal Niel, Duke of Edinburgh, or La France, how grand the effect would be. In any case, if the idea is a crude one, it has at least the merit of being easily worked out. "Where there's a will there's a way," is an old proverb that is not inapplicable in this case, and even if my proposal does not meet with approval, at least some one else may suggest something that will. *Alex. Dean.*

The Best Garden and Show Roses, are they not Identical? — This subject seems to have sprung from the discussion of Rose show improvement, but from my point of view has but little bearing thereon. I ventured to give on p. 233, August 22, a list of Roses, "the best for garden and exhibition purposes," and to any practical man it seems evident that any show, be it arranged how it may, must consist in main part of the varieties named in that list. And of more than 120 varieties only twenty good Roses of the autumnal flowering classes are given as not admissible, for one or the other reason, in this select list of "show and garden Roses." It must be a fairly chosen selection, as your correspondent, Mr. W. Paul, only criticises the footnote, meant to refer to the few white Tea Roses named, which were described as all moderate growers. I need hardly say the remark did not apply to the Teas of Gloire de Dijon and other rampant-growing classes. But really does not my list dispose of the "I have said" assertion—"The standard of size and shape required at the Rose shows shuts out many of the best Roses for garden decoration,"—quoted correctly this time, I hope, Messrs. Editors. The thirty-four fanciful classes mentioned in the happy *en passant* recommendation of the "last edition of the" *Rose Garden*, are beyond the powers of most of us ordinary Rose growers; but I can't help thinking that the three classes your correspondent expresses his contentment with, differ but little from the three of which illustrations are given in my list. But the sorts included in the respective lists differ: for instance, in your correspondent's class 1 he quotes as a prize Rose "Paul Neron;" it is too big and coarse, and is rarely shown in winning stands, but in the large French Rose grounds it is one of the most largely grown kinds for "garden" purposes, and forms one of the biggest groups in the Brie Rose shows, of which the Royal Botanic Society's exhibition was but a feeble copy. Devienne Lamy and Marquise de Mortemart are doubtful Roses for show and are certainly not garden Roses. Louis Van Houtte is one of the few sorts we quote amongst the ten fine show Roses, too feeble in growth for garden purposes, so that our classes here are identical. Class 2 of your correspondent's "Roses of hardy constitution and elegant habit" includes all the Roses given in our list as "grand garden Roses, but lacking shape enough for show Roses;" the sorts he gives—Boule de Neige, Fisher Holmes, Prince Camille de Rohan, Madame Falcot and Safrano—don't belong here, being both fine show and garden Roses. I should leave for the special culture of your correspondent and our old friend, Mr. Radclyffe, with other dull colours, Duc de Cazes and Comte Rimbaud—supposing these Roses are dear, from old associations, to the Rose exhibitors of the past. Your correspondent's class 3 is the very same as my list of the best Roses for exhibition and garden purposes, and includes all our best and most saleable Roses. The remark of the "cleverest horticulturist" (name?) as to the baneful influence of the florists on the Rose, has not, like many other doleful prophecies, come to pass. The florists' influence is traced in the improved form of the flower, but the fact that Rose growing is a trade has counteracted anything like an extended or continued cultivation of weakly constitutioned kinds. It does not pay to cultivate bad growers. The public, after a season or two, won't buy them—studying, as the fact proves, the vigorous or moderate at the end of the catalogue descriptions; and, looking over the stock-book of my firm (for one must here quote from personal experience), I find the sorts which public opinion compels the largest stock to be held of are the vigorous-growing garden and show Roses—the good-shaped, free-growing kinds quoted in the list, which I have been compelled to allude to—the most beautiful Roses of their respective families, but which the public can, with ordinary care, cultivate well themselves. In summing up, I think I may fairly claim to have proved by my list, and from your correspondent's own admissions, that the best show and the best garden Roses are identical; and that while, as we have always advanced, the buyer will do best to study for himself, if he have learned the varieties, in the nursery or in the gardens of Rose growing friends, he will, correcting his list by the description of habit

in the catalogue, be safe in making his selection at the shows. The seedling Roses sent out by my firm seem to excite the susceptibilities of your correspondent —witness Lord Clyde, Princess Mary of Cambridge, Duke of Edinburgh, and now Cheshunt Hybrid. Your readers may rest assured that this Rose is a seedling Tea, is blooming freely at this moment in these nurseries, and is fully bearing out the awards made to it. *George Paul.*

Giant Bunches of Grapes.—I was told the other day by a first-class gardener, that these huge and ungainly monstrosities could be produced by the grafting of bunches on to the stem or shoulders of the one to be the future giant. Is this so?—and, if so, will it not account for the appearance of these remarkable but scarcely useful productions? *Pomona.* [We have recently heard the same thing, and intend to have the experiment tried another year. EDS.]

The Potato Disease: Prevention of Fungi in Paste.—When the Potato disease is prevalent it sometimes happens that, although Potatos are taken up perfectly sound, they show the disease within a week or fortnight, and very nearly all are rapidly destroyed; and this accident may happen at a later period, as it not unfrequently happens that the Potatos purchased by retailers are quite good when purchased, but within two or three weeks afterwards numbers of them are found diseased, and perhaps all would go if not sold off quickly. This suggests that the spores at the time the Potatos are taken up may not have begun to germinate, even if they are present on the Potatos. In one instance I observed a Potato of the average size of the others which had entirely escaped the disease, and I purposely left it in contact with the diseased for a long time, to see if it could be communicated, but found it could not. This freedom from disease I suppose to be owing to the Potato having grown near the surface, or subsequent exposure to the air, by which the skin had become harder than that of the others. As the skin is not supposed to contain any stomates or breathing pores like the leaves, a very slight hardening of it would perhaps prevent the fungus penetrating it. That a slight induration of the skin might prevent the entrance of the fibres of the fungus may perhaps derive some support from the fact that where the Potato crop becomes very nearly destroyed, it has been found that only the smaller ones escaped, perhaps from the skin being denser, the cellular tissue not having been put on the stretch by over-growth,* and also from a statement in Lindley's *Vegetable Kingdom*, p. 115, "that the spurred Rye approaching nearer in quality to good grain is only met with on the finest plants of Rye in shady places or towards the ends of fields recently cleared of wood, and where the carbonic principles and a rich soil abound," as growing in the shade; and perhaps also the other circumstances may make the tissues softer. Connected with this question it may deserve notice that paste made with water quite saturated with salt does not mould;† perhaps, therefore, it might be worth while for the growers to make the experiment of placing a peck or two of Potatos in perfectly saturated brine for a few minutes, and then lay them out to dry, fully exposed to the light and air, for two or three days, or any time short of their becoming green, to see if they would keep better than the others. The salt as well as the light and air might indurate the skin, besides preventing, it may be hoped, the germination of the spores of the fungus. This does not appear to injure the Potatos, as I passed one through perfectly saturated brine three times, and others twice at intervals of about two or three days, and they afterwards turned green on exposure to light, showing their vitality had not been injured, and they also remain quite firm, although the second and still more the third immersion leaves them permanently covered with a whitish crust.‡ If salt thus employed would destroy or prevent the germination of the spores of the fungus, planting early sorts, and treating them with it on taking them up, may deserve trial. A paste made with two parts of Wheat flour and one of flowers of sulphur and cold water became mouldy very soon, and was speedily quite covered over with the usual moulds. Last year I attempted to communicate the disease to a lot of very small kidney Potatos which had been taken up about two months, but the attempt entirely failed; it seemed as if the disease would not take on a surface which had became quite dry, nor yet on a cut surface after it had become dry. If small Potatos are, from a closer texture of the skin, proof against the fungus even while in the ground, mere dryness of the skin of the larger ones, which may perhaps be accompanied with a slight degree of increased hardness, might be expected to prevent the entrance of the fungus. From this it would seem that it would be impossible for Potatos to become diseased if taken up only a few weeks before the disease appeared, which coincides with the advice to plant early sorts. *B. Clarke, F.L.S., &c., Mount Vernon, Hampstead, Sept.* 4.

* It would appear that over-growth has its disadvantages, as the largest Beet-roots contain less sugar than the middle-sized, and on that account the former are not selected for making Beet-sugar.

† This paste appears to occasion adhesion as well as common paste, but after some time small crystals of salt may form in it: could this be prevented by the addition of a very small quantity of water, insufficient to occasion the growth of fungi?

‡ The minute quantity of salt which enters the Potato, if perceived at all, would improve the flavour.

A Vegetable Horse.—The steed here illustrated (fig. 73) lives upon classic ground, but it is no myth, either of classic or modern date. The classic ground referred to belongs to the English classics, and is not far from Datchet Common, near Windsor. Now every reader of Shakspeare on seeing the word "Datchet" in print will immediately remember the inimitable comedy of the *Merry Wives of Windsor*, and Falstaff being carried down "Datchet Lane" (act iii., sc. v.) in the basket of dirty linen, and shot headlong into the neighbouring Thames. Falstaff saw many amazing sights (apparently belonging to another world) in the neighbouring fairy-pits of Windsor Forest, when he was there disguised with a buck's head on, but we doubt whether he ever saw anything more amazing than the original of our present cut, which is natural, and still lives, and belongs to this world and not the next. To descend from the realms of romance to the narration of a sober fact, we may say that the extraordinary and perfect form of a horse, show in our engraving, is caused by the singular and entirely natural growth of the crowns of four lopped Elms. The sketch is taken

FIG. 73.—EXTRAORDINARY NATURAL GROWTH OF FOUR LOPPED ELMS (SKETCHED AT SUNSET).

from the footpath (of a Turnip field), which runs from Datchet Common to Wraysbury, a few yards before reaching the wicket gate which leads into the next field. At this point the four Elms are about five or six hundred yards off, towards Windsor. On nearing the trees or leaving the footpath the resemblance is soon lost, as it can only be perfectly seen at the point indicated; the Elms themselves stretch over a space (in a straight line) of about 150 feet, and the tallest of the four trees is about 60 feet high. As shown, they have been lopped a considerable distance from the ground, but above this they have never been touched by mortal hand, indeed the trees; when viewed from a nearer point, only look like four scraggy erractic-looking lopped Elms, as they are. Mr. Chennell, one of the Queen's gardeners, who kindly conducted us to the spot, informs us that the horse's eye has moved a little, and seems to be gradually approaching the jaw. We can only say, in conclusion, that our illustration is not exaggerated in the slightest degree, in fact it has been purposely kept a little less like a sculptured figure of an old roadster than the image the tree tops actually present. *W. G. Smith.*

Myosotis dissitiflora.—Let Mr. Earley try raising his annual stock of Myosotis dissitiflora from seed instead of from cuttings, and his chances of success will be far greater. We yearly plant out several thousands of this charming spring flower, and that is the method adopted to ensure anything like success. Neither do we trust to seed of our own raising for more than two or three seasons, but procure a change, either through a friend by exchange or through the medium of a seedsman, who generally send out poor beggarly packets of seed of this variety, a very small proportion of which grows. No pains should be spared to secure success with this sweet flower, no song of praise is needed from me with which to sing of its beauties: that has been done in your columns by abler pens than mine; but its early and unobtrusive beauty is simply irresistible, and holds spell-bound all beholders, as Mr. Fish wrote, "captives to its own sweet will." It is at once the earliest and brightest gem of our spring garden, and its recuperative powers are something astonishing. On the 10th of last March our plants were in their almost full beauty, and a very severe frost occurred, which seemed to casual beholders, who did not know its reviving powers, to have put an end to its beauty for that season at least, but in a few days it began to hold up its head again, and gradually unfolded its unsurpassed flowers of lovely blue, and shortly was as charming again as though Jack Frost had never laid his cruel hands upon its unassuming beauty. The fatal disease will, I fear, always show to a certain extent, but it is so indispensable in every collection of spring flowers that no efforts should be spared to enable it to hold its own, and being such a favourite of mine I have been at great pains to secure a healthy vigorous plant, and seedlings have always been attended with the greatest measure of success. *William Tantum, Fenagh House, August* 5.

Potato, Veitch's Ashleaf Kidney.—I have great pleasure in supporting "H. J. C.'s" character of this truly excellent Potato. I think I have grown here all the varieties of kidney Potato, but this to my mind is much the best: the produce this year is truly grand, and the quality excellent. This, and Paterson's Victoria, are the only sorts I shall grow in the garden. The American Rose I have sent to the farm, where it produces excellent crops, and is good for table after Christmas. I bought and distributed this variety amongst the cottagers on the estate, and it is now a great favourite. Sutton's Hundredfold Fluke I think is an excellent kind, but I shall tell you more about it by-and-by. *J. Rust, Eridge Castle.*

The Potato Crop of 1874.—No doubt, as your correspondent, Mr. Lumsden, says, it would be well for others to give their experience of the most suitable and unsuitable kinds for their locality. We grow a good many Potatos here, and, from experience, find it anything but a good practice to grow too many sorts. We find the following sorts most suitable here:—For an early crop the old Ashleaf Kidney does well; Veitch's Improved is also good, but produces much more top; the Lemon Kidney crops well here; Gloucestershire Kidney is a good Potato both in quality and in producing powers; Ne Plus Ultra, rather later, is an excellent variety; the Early Rose is a good cropper and boils well, but of bad flavour; Paterson's Victoria is a good cropper, has a rough skin, boils mealy, and is of good flavour; York Regent is a good cropper, mealy, good flavoured, and very sound this year; Red Regent crops well and keeps well: this is a good poor man's Potato, but grows out badly in seasons like the present, particularly on very light land; the Red Fluke is good on strong land, but grows badly on light soils, it is a good cropper and keeps well; the King of Flukes is a good Potato, but grew out very early this season; Flourball is a great cropper, but pasty here, not worth growing only that it is a long keeper; Peerless is a good cropper but pasty. I found our Potatos in the fields making a second growth, so we have lifted the whole of them, and clamped them the same as Turnips for a time, to set their skin. We found no signs of the disease, and the crop and samples are first-rate, only having 14 bushels for the pigs from 1¼ acre. All the sorts boil mealy except Flourball, of which we have plenty weighing 1 lb. each. I will give the number of bushels per acre when I house them, and their keeping quality at times through the winter. *T. Capers, Woodcote Park, Warwick.*

Pasty and Poor Cropping Potatos.—I am the last person who would recommend such Potatos to the public, if I know it, and I certainly felt my complacency rather shocked when I read this character given to my seedling, the Rector of Woodstock, by Mr. Lumsden, at p. 808. Well, one comfort must sustain me. I was induced to "let it out" from the circumstance of the Potato having gained a First-class Certificate after it had run the gauntlet by being partaken of in a cooked state by a full committee meeting of the Royal Horticultural Society. It having hitherto gained the appreciation of my friends, allow me to introduce a few now for your epicurean perception in seconding Mr. Lumsden's opinion about "pastiness." You have "a chiel" at your elbow who saw them dug up in this garden but lately; they averaged a sack to 21 square yards of ground. The sort has also produced me a very satisfactory crop from the field, a sample of which I send for you to judge of them comparatively, as when grown in a rich stony loam and in the stone brash. I fear Mr. Lumsden has grown Onwards in a field; if so, he is not "up" in my literary lore. I did not, in fact, intend to "let out" Onwards. It

was in consequence of a request by connoisseurs of the esculent that I did so. It took me years to concentrate the best blood of our old varieties by crossing and re-crossing. Onwards resulted, and proved to meet my wishes, and laying a foundation as a mother parent to my after-generations of seedlings. When I gave my veto for the sort to go into commerce I wrote publicly to this import—"Cultivate Fenn's Onwards in small old plethoric gardens only, in soil that will not produce other than 'tops' of other varieties. In such soil it will answer very satisfactorily to dig as wanted during the summer months till store Potatos can be bought cheaply in the market. From a field, or from off light soil, Onwards will prove a poor cropper and very unsatisfactory." But this was a long time ago; many varieties have sprung up since then, and I myself do not cultivate Onwards. To those who are enamoured of the American sorts, I would say—Unsatisfactory always will prove the seedling varieties of your correspondent. *R. Fenn, Rectory, Woodstock, Oxon, Sept.* 9.

The Melons Shown at Reading. — Having noticed your mention of my name as an exhibitor of Melons at the Reading show on August 20, I beg that you will allow me a small space to express my opinion on the subject. As you observed last week, a silver cup of the value of five guineas was offered by Messrs. Sutton & Sons for the best six sorts of Melons, two fruits of a sort, and the judges agreed to cut one of each, the most likely looking fruit, and award one, two, or three points according to merit; and had the fruit been pretty evenly balanced as to appearance, &c., the above would have been the proper way of awarding the prize; but such was not the case, and I am convinced that a great mistake was made by the judges. The collection which I exhibited, and to which Messrs. Sutton awarded an extra prize, contained six pairs of handsome fruit, all ripe and fit for table, and evenly matched in their respective pairs. Six fruit were cut and four points awarded, and had the other six been tested four points more would have been awarded, so evenly were they matched. In the 1st prize collection were five ripe fruit, two under-ripe, and five as hard and green as a Cabbage stem; six of the best were cut, and six points awarded, and had the whole lot been tested not one more point could have been added. I defy any impartial person who inspected the fruit to contradict my statements. *T. Lockie, Gr. to the Right Hon. Lord Otho Fitzgerald, Oakley Court, Windsor, Sept.* 5.

Reports of Societies.

Crystal Palace: *Sept.* 8, 9, *and* 10 (*Autumn Fruit Show*).—There was very little observable difference as to extent between the show opened on Tuesday last and the one held at the same period last year, but on the whole we thought the produce of a higher standard of merit. Some of the Grapes and Pines were particularly good, Melons plentiful but bad, Plums fine in quality, and kitchen Apples grand in size and shown in good numbers. There were seven exhibitors of collections, but the class did not take long to get through. The 1st prize was easily won by Mr. Coleman, gr. to Earl Somers, Eastnor Castle, his collection containing a fine sample of Black Hamburgh Grapes, capital Queen Pine, large Walburton Admirable Peaches, highly coloured Pitmaston Orange Nectarines, good well-finished Muscat of Alexandria Grapes, a nice Melon, and grand Brunswick Figs. Second came Mr. Bannerman, gr. to Lord Bagot, Blithfield, Rugeley, with small bunches, but a pretty sample of Lady Downe's and Muscat of Alexandria Grapes, Pitmaston Orange Nectarines, splendid in size and colour, good Peaches and Figs, &c. In the 3d prize collection, which came from Mr. Deauxberry, gr. to Lord Darnley, Cobham Hall, Gravesend, were a good Pine, excellent Royal George Peaches, Violette Hâtive Nectarines, and Brown Turkey Figs. Other prize winners in this class were Mr. James Neighbour, gr., Bickley Park, Bromley; and Mr. O. Goldsmith, gr., Polesden Lacy, Dorking.

PINES were not plentiful, but very good. In the class for a collection of not less than three fruits of any variety, the best examples came from the Royal Gardens, Frogmore, Mr. Jones putting up four large and handsome Smooth Cayennes. Two excellent specimens, each of Moscow and Ripley Queens, sent by Mr. S. Coulter, gr. to L. J. Baker, Esq., Haydon Hall, Eastcott, came in 2d; and some small Smooth Cayennes with very fine pips, from Mr. H. Plummer, gr. to R. Thornton, Esq., Canon Hill Park, Merton, were 3d. The highest award given for a single fruit of any variety went to a Queen, weighing 6 lb. 14 oz. and measuring 11 inches in depth, shown by Mr. T. W. Bond, gr. to G. A. Smith, Esq., The Beeches, Weybridge; and the next prize was awarded to Mr. Jones, Frogmore, who staged a remarkably fine Smooth Cayenne, weighing nearly 8 lb., and of beautifully developed proportions. A good Queen we know is at all times hard to beat, but in this case it was anything but handsome to look at, and getting past its best; so that we agree with those who think that the judgment ought to have been reversed. Mr. A. Jamieson, The Gardens, Haigh Hall, Wigan, was 3d.

BLACK GRAPES were a fair class, six competitors putting in an appearance. For the 1st prize the competition lay at last between a fine sample of Mr. Coleman's Black Hamburgh and a strikingly handsome dish of Madresfield Court, shown by Mr. Potts, gr. to Sam Mendel, Esq., Manley Hall, Manchester. The Black Hamburghs were good in bunch and berry, all that could be desired as to colour, and perfectly ripened—so hard to beat, in fact, that the smaller Madresfields, wonderfully handsome as they were, had to accept the 2d honours. The 3d prize went to Mr. W. Bones, gr. to D. McIntosh, Esq., Havering Park, with fair-sized bunches and good berries, but not over well finished. For the three prizes offered for a dish of white Grapes there were nine competitors, and at the head of these stood Messrs. H. Lane & Son, of Great Berkhamstead, with Muscat of Alexandria, of the usual superb quality. The centre bunch, a trifle the largest of the three, measured 14 inches in length, and 12 inches across the shoulders. Second came Mr. Coleman with smaller, but still good-sized bunches of well-coloured berries; and 3d, Mr. Cole, gr., Ealing Park, with the same variety. The largest bunch was composed of two bunches of Black Hamburghs on one stalk, weighing 5½ lb., and this took the 1st prize; the 2d going to Mr. Bannerman, who had Barbarossa, weighing 5 lb. 1 oz., a very compact bunch, and much better coloured than the first-named.

PEACHES AND NECTARINES were tolerably plentiful, but not particularly good. Of Peaches thirty-one dishes were staged, and out of these the judges had no difficulty in putting Mr. Coleman 1st, Mr. Bannerman 2d, and Mr. G. Halliday, gr. to J. Norris, Castle Hill, Bletchingly, 3d. The first-named had Barrington, large and good. Bellegarde, also good, but not so even, did duty for Mr. Bannerman; and Noblesse, of fine size, for Mr. Halliday. Royal George and Barrington were also well represented in one or two other cases; and Lord Palmerston, unripe, but of great size, was shown by Mr. Parsons, Melbourne House, Shooter's Hill Road. A beautiful sample of Pitmaston Orange, from Mr. O. Goldsmith, was selected out of nineteen as the best in that class. Violette Hâtive, also fine, from Mr. Jordan, gr. to J. Banstead, Esq., Cannizaro House, Wimbledon, was 2d; and Pitmaston Orange, smaller than the first-named, from Mr. Coleman, was 3d.

Out of nineteen green-fleshed MELONS there were but a few possessing any claims to be considered good, and the same may be said of the scarlet-fleshed class, of which twenty-six fruits were staged. Golden Queen, shown by Mr. C. J. Goldsmith, gr. to H. T. Lambert, Esq., Sandhill, Bletchingly, was the best of the green-fleshed varieties; and Scarlet Gem stood well amongst scarlets. Figs were sparely shown, the best dish—a fine one of Brunswick—coming from Mr. W. Chisholm, gr. to R. C. Taylor, Esq., Boughton Place, Maidstone. Of fourteen dishes of Cherries—nearly all Morellos—the 1st prize was taken by Mr. Parsons, of Danesbury, with very good Bigarreau Napoléon; the next best dishes being of Morellos, and coming from Mr. O. Goldsmith and Mr. James Holder, Crown Nursery, Reading.

PLUMS were a good feature, being both plentiful and good. Three dishes were asked for and twenty-four groups were staged. Out of these, the best undoubtedly came from Mr. Coleman—clean large fruit of Magnum Bonum, Washington and Jefferson. Mr. C. Pitts, gr. to Mrs. Mays, Riverdale, Dorking, was 2d, and Mr. F. Deauxberry 3d. Amongst varieties well represented were Pond's Seedling, Goliah, Diamond, Green Gage, Guthrie's Late Gage, and Kirk's.

APPLES were a show in themselves, especially the culinary sorts, which were nearly all of very fine size. Mr. R. Webb, of Calcot, Reading, was 1st for four dishes of dessert varieties, with excellent examples of Cox's Orange Pippin, Ribston, Astrachan, and Red Quarrenden. Mr. Holder was 2d with the first-named variety, Kerry Pippin, Golden Pippin, and Red Margaret; and Mr. Longman, gr. to E. D. Lushington, Esq., Park House, Maidstone, was 3d with Red Quarrenden, King of the Pippins, Cox's Orange Pippin, and Kerry Pippin. There were fifteen competitors in this class, and twenty in the corresponding one for culinary sorts. Here the 1st prize went to Mr. J. R. Swinnerton, Swanleigh, Kent, who had very large examples of Blenheim Orange, King of Apples (?), Early Marie (?), like Golden Noble; and another large sort, the name of which was not given. Second came Mr. C. Chaff, gr. to C. H. Goshen, Esq., Addington, near Croydon, with Lord Suffield, Scarlet Admirable, Lord Derby, and Dumelow's Seedling, all especially fine. Mr. H. Mandy, Epsom, was 3d, and Mr. Holder 4th. Besides the varieties above named, Emperor Alexander, Five-Crown Pippin, Kentish Codlin, Nelson's Glory, Cellini, Hawthornden, Reinette du Canada, Gravenstein, Alfriston, and Manx Codlin, were exceedingly well shown.

PEARS also were well shown both as to numbers and quality. For three distinct varieties, twelve fruits of each, Mr. C. Tivey, gr. to P. Gosset, Esq., Bagot St. Saviour's, Jersey, was 1st, with splendid specimens of Williams' Bon Chrétien, Louise Bonne of Jersey, and De Coq (?). The two first-named varieties and Gansel's Bergamot, very fine, from Mr. W. Strong, gr. to H. Yool, Esq., Palace Gardens, Weybridge, were 2d, and the same variety, with Jersey Gratioli, from Mr. Longman, were 3d. Duchesse d'Angoulême, Marie Louise, Beurré Diel, Van Mons Leon le Clerc, and Beurré d'Amanlis were also shown in first-rate order. For the best single dish, to be tested for flavour, Mr. W. Strong was placed 1st, with Louise Bonne of Jersey; Mr. Sage, Ashridge, 2d, with Beurré d'Amanlis; and Mr. J. Lane 3d, with Williams' Bon Chrétien. This was a very heavy class. Four very good Vines in pots were shown by Messrs. H. Lane & Son, and took a 1st prize. In the miscellaneous class an extra prize was awarded to Mr. Webb, Calcot, Reading, for a most interesting collection of twenty-two varieties of nuts; and a First-class Certificate was awarded to Messrs. W. & J. Brown, nurserymen, Stamford, for their Peasgood's Nonesuch Apple—a large, handsome variety of the Blenheim Orange type, yellow with red spots, and beautifully streaked with deep crimson on the sunny side. It is a seedling raised by Mrs. Peasgood, of Stamford, about eight years ago, and fruiting this year for the third time; and it had a First-class Certificate from the Royal Horticultural Society in 1872.

COTTAGERS' PRODUCE.—A series of prizes offered for competition among cottagers were not so productive of competition as we should have liked to have seen, nor were the exhibits so good as are seen at many local exhibitions; nevertheless this is a beginning, and in the right direction, and it is hoped that, when better known amongst cottagers, the Palace Company may be more largely patronised. Of Onions, there was a fair display of very good produce, the Giant Roccas of Mr. W. Patchell, Bandon Hill, Beddington, being specially noteworthy. Cabbages were very poor, except a few samples of the Enfield Market, from Mr. W. Lakeman, Arundel Cottages, Thornton Heath. Cauliflowers and Turnips were very poor, and Carrots but little better. Potatos were a better class, the samples being large and good of the sorts shown, which were principally confined to the Early and Late Rose, Paterson's Victoria, and Red-skinned Flourballs. An excellent sample of Late Rose, from Mr. James Lighton, Frampton, Boston, Lincolnshire, was 1st.

The GLADIOLUS competition was on a very limited scale, the only exhibitors being Messrs. Kelway & Son, Mr. Douglas, Rev. H. H. Dombrain, and Mr. H. Coppin, the Rose Nursery, Shirley, Croydon. Messrs. Kelway & Son were 1st for thirty-six, twenty-four, and six cut spikes, and Mr. Douglas for twelve, some very good spikes being staged amongst them. First-class Certificates were awarded to Messrs. Kelway & Son for Duchess of Edinburgh, bright rose, very fine; and Mr. Wilson, pink, flaked with rosy cerise, a very fine flower, and a good spike. To Mr. Douglas for Warrior, dense scarlet, with a white broad throat; and Manfred, brick-red, flamed with deep scarlet, and blood-crimson throat. And to the Rev. H. H. Dombrain, for La Vésuve, flamed scarlet, very fine.

Messrs. Downie, Laird & Laing contributed a choice collection of Palms and other fine-foliaged plants, and a collection of named Phloxes; and from Mr. Turner, Slough, came a large and particularly fine collection of Dahlias, including a few which gained certificates.

Dundee Horticultural: *Sept.* 3, 4, *and* 5.—The Dundee horticultural shows have been looking up since the British Association meeting in that town. That year formed the beginning of a series of shows which have been more than usually interesting and instructive; and the show which we are about to chronicle was fully equal to any of its predecessors. With the Belfast International meeting of exhibitors and competitors fresh in our mind, it might seem that any district show would fall considerably short, if measured by way of comparison. But it was not so; there was not the fine quality, generally speaking, nor was there the same picturesque effect; but when we look to some 1400 entries for the various classes, and many of these highly meritorious produce, we find that the north-east division of Scotland is pushing horticulture into notice, and that it promises by its energy and liberality to assume a position second to few in the kingdom. This happy state of matters is greatly due to the wealthy citizens of Dundee, who band themselves together under the presidency of the senior member for the city, who gives a portion of his valuable time by attending committee meetings as well as show meetings, and thus encourages others of the same social rank to join in developing and fostering practical measures for promoting the success of shows. As as instance of the outcome of this oraganisation, the Lord-Lieutenant of the county, the Earl of Strathmore, not only favoured the exhibition with his presence, but opened it

in an excellent speech—a portion of which is subjoined, and afterwards took his place at the dinner given to the judges; thus strengthening by his presence and the remarks which fell from him, not only the standing of the show, which was a great financial success, but the position of horticulture and of horticulturists. His allusion to the enterprise of the citizens as fitted for providing the funds for and organising an international show, was received with applause; so that when a suitable year can be selected there can be no doubt that Dundee will hold out tempting inducements to all classes of horticulturists. It seemed to be the general impression to allow it to stand over till September, 1876, so as not to interfere with Edinburgh next year. It is questionable prudence how far one particular district should assume to cater for an international exhibition three times in ten years. If it were possible to divide them over Great Britain and Ireland in regular order, it would tend to stimulate horticultural progress more generally over these islands. The term International, so far as we have seen, looking back to Edinburgh, Glasgow, Manchester, and Belfast, is a misnomer, but we need not quarrel with that so long as we have shows horticulturally and financially successful. All of them have been eminently successful from a horticultural point of view; scarcely any of them have had that financial success which their merits and the labours of their respective committees so well entitle them to. Without presuming to have the toga of the seer, we might venture to anticipate, from what we have seen, a financial success for the Dundee Great National Show when the time comes round. The following are Lord Strathmore's remarks above referred to:—

"I had very great pleasure in accepting the kind invitation addressed to me by Provost Cox to meet you all here to-day on the occasion of the opening of this great horticultural show. Coupled with the invitation was the request that I should open this exhibition by addressing to you a few words. At first I was rather disposed to decline the honour, as I thought a formal opening with a speech was more for a special demonstration than one occurring annually. The Dundee Horticultural Society, I knew, could quite afford to rest on its own merits, and did not need any words of mine to recommend it to your favourable consideration. It has been for several years before the public, and that it has served the purpose for which it was established is very clearly and satisfactorily demonstrated by the progress which has been made. I have not been fortunate enough myself to attend any of its previous meetings, but I have heard a good deal regarding them, and I am told that the improvement which has taken place within the last few years has been most wonderful. I have looked round the stalls, and I must compliment you upon the excellent show of fruit which is displayed. Horticulture has made such advances of late that in almost every place there are shows of more or less importance; and it would not be for Dundee to be behindhand. I think that in large towns we appreciate flowers more than we do in the country. Every one who has lived in a town knows the charm and brightness which flowers impart to a room. You have great power of organisation in a large place like Dundee, and you are able also to carry out whatever you undertake; and so I see no reason why the exhibition of the Dundee Horticultural Society should not take the highest place among those held in the country. In fact, my own opinion is that there ought to be an international horticultural exhibition in Dundee. It was only last month that there was an international exhibition in Belfast, which in the opinion of competent judges was regarded as one of the best which had ever been held. I think Dundee is quite as eligible a place as Belfast; it is as easy of access, possesses as much energy and public spirit, and I have no doubt that this Society would be ready to attract competition by offering prizes which they would consider worthy of being contested for. With the wish that you may soon have an international horticultural exhibition in Dundee, I have great pleasure in formally declaring this grand show open.

As regards the show itself, plants in pots were, as a class, superior to anything of the kind that has ever been seen in Dundee, the non-professionals treading hard on the heels of the trained gardeners, and in some cases outstripping them. This, taken in conjunction with the general excellence of the specimens, and the extended area from which competitions have been drawn, indicates that the exhibitions of past years have furnished some useful lessons to all classes of horticulturists. In the class for nine stove or greenhouse plants, Mr. McMillan, gr. to J. Grimond, Esq., of Carbet Castle, who was 1st last year, also took the leading position. A speciality in the collection was Erica æmula, one of the most remarkable sights in the show, measuring some 12 or 14 feet in circumference, and thickly clustered with finely-coloured, healthy blooms. The whole of the plants in this collection were magnificent in shape and form. Mr. J. Wilson, gr. to G. Cox., Esq., of Beechwood, came in 2d with a very fine lot. In the competition for twelve exotic Ferns, Messrs. Stewart & Son were 1st with a very fine collection, of which one prominent specimen was the Cibotium princeps, a Tree Fern remarkable for its great breadth of fronds. The 1st prize for two pots of Lilium speciosum was gained by Mr. J. Murphy, gr. to W. Ritchie, Esq., of Elmslie, with plants which it could have been no trouble to the judges to select for that position. For three Fuchsias, the 1st prize was carried off by Mr. J. Smith, gr. to C. W. Corsar, Esq., Seaforth, Arbroath, with plants among which an old Queen of England was very distinguishable for build and wealth of blooms. Mr. Edward Moir, Newport, was 1st for six British Ferns, and gardeners who competed in this class need think it no dishonour that they were beaten by such a splendid collection as Mr. Moir exhibited, prominent in it being the crested Royal Fern, as also a fine specimen of the Scolopendrium vulgare crispum. In the nurserymen's competition for twenty stove or greenhouse plants the 1st prize was awarded to Messrs. Stewart & Son, with a group remarkable among which were a tall Tree Fern (Alsophila australis), Seaforthia elegans, standing 9 or 10 feet high, and a very fine specimen of Statice brassicæfolia. Laird & Sinclair came in with an almost neck and neck 2d. In six exotic Ferns, Carbet Castle again showed in front with very fine specimens, of which Gleichenia dicarpa and Lygodium scandens deserve special mention. One of the competitions on which most value is set by gardeners is that for the best six stove or greenhouse plants, and in it there was a keen competition, the 1st prize being carried to St. Martin's Abbey, Perth; and Colonel Macdonald's gardener, Mr. David Ross, deserves to be complimented, not only on having had the pluck to bring his plants, which were in capital health and in fine condition, down to Dundee, but likewise for having been able to carry off the honours.

In the amateur competition for one pot of Lilium speciosum, Mr. D. Barrie, Monifieth, took the 1st prize with a plant equal, if not superior, to that shown in the gardeners' competition; and in the amateur competition for two Scarlet Geraniums, Councillor Nicoll, who took the 1st prize, showed perhaps the finest bloomed plant in the show. The 1st prize for one Todea was carried off by Mr. R. Masson, gr. at Viewfield, with a magnificent specimen of the Todea superba.

For twelve British Ferns Mr. Edward Moir was deservedly 1st, with a collection conspicuous in which was the Irish Filmy Fern. Perhaps one of the finest features in the show, and one which the judges thought worthy the attention of other similar exhibitions, is the competition for thirty alpines in pots. The plants were indeed, "beyond compare," the best we have seen at any exhibition, the beautiful Nertera depressa, which stands out quite hardy in some of the north-eastern gardens, being loaded with berries looked like a densely covered pincushion. In this competition Mr. Edward Moir was again 1st with as fine a collection as the judges have seen brought together on an exhibition table. The 2d prize was gained by Mr. Andrew Pattison, Baxter Park, and the 3d prize, between which and the 2d there was little or no difference, by Mr. T. H. Miln, Linlathen. Messrs. J. & R. Thynne, nurserymen, Glasgow, sent a valuable and rare collection, comprising all the richest and newest productions, prominent among them being Croton majesticum, undulatum, irregulare, Johannis; Dracæna Youngii, Guilfoylei, regina; Aralia Veitchii, Pandanus Veitchii, Anthurium crystallinum, Phormium tenax, Paullinia thalictrifolia, Brainea insignis, Cocos Weddelliana, Maranta Makoyana, &c. As a whole this year's competition in plants in pots shows that the annual shows are serving the main end for which they have been got up—that is to say, they are stimulating both gardeners and amateurs to perfect their art, and are educating them year by year in the science of horticulture.

Cut flowers were not so good a show as we have seen them, this being accounted for by the broken weather. Roses were fully an average, and were looking well. The 1st prize for twenty-four was taken to Helensburgh by Messrs. Robertson & Galloway, nurserymen. Mr. G. McLennan, gr. at Fetteresso, took the 1st prize for twelve Dahlias. The best Dahlia bloom in the exhibition was shown by Mr. J. McPherson, Polmuir, Aberdeen. For twelve Hollyhock blooms the gardener of Fetteresso was 1st, and the specimens with which he carried off the prize showed that he will maintain the reputation of his predecessor, Mr. Shand.

The show of fruit was particularly good. The show of Grapes was better than usual; the heaviest bunch was shown by Mr. Beisant, gr. to Mr. Brand, of Mylnefield, and weighed about 6 lb. In the other competitions the vinery of Baillie Moncur (G. Reid, gr.), as usual, gave a good account of itself, and extorted both admiration and prizes from the judges, and some envious watering from the mouths of many a visitor. In the collection of fruit—which is considered the best prize amongst gardeners—there were five entries. The 1st prize was gained by Mr. Ross, gr. at St. Martin's Abbey, Perth, with a very good stand of fruit, amongst which Grapes, Peaches, and Melons, were most noticeable. In the show of outside fruit, such as Apples, Pears, Plums, Cherries, &c., we have seen a better display, although here again the season has been against a good turn-out. In vegetables the quality, on the whole, was fair. The 1st prize for the best basket of ten varieties was carried off by Mr. Ross, St. Martins, with a rich lot. The most noteworthy feature in the vegetable competitions was the high excellence of the amateurs, and the large number of prizes which went to the village of Baladgarno, in the Carse of Gowrie.

The judges were entertained at dinner in the afternoon in the Royal Hotel—J. Yeaman, Esq., M.P., President of the Society, in the chair. Among those present were the Earl of Strathmore, Provost Cox, Bailie Moncur, and Mr. B. S. Williams, London. The Chairman in proposing "The Judges," coupled with the names of Mr. Anderson and Mr. Williams, remarked that the judges were all men in the very highest rank of the profession, and that their awards had given ample satisfaction. Mr. Anderson and Mr. Williams replied, and both spoke favourably of the proposal mooted by Lord Strathmore of having an international show in Dundee. (*From a Correspondent.*)

Trowbridge Horticultural: *Aug.* 26.—The annual exhibition at Troubridge may be described as a Leeds show in miniature. Like that great centre of Yorkshire industry, it is devoted to the woollen trade, a great quantity of fancy trousering being manufactured in the busy mills which rear their shafts high above the surrounding buildings in many parts of the town. Trowbridge wisely makes its annual show the occasion of a town's holiday; the factories are closed for half a day, the house fronts and streets are decorated, and large numbers of people come in from Bath, Bristol, and the outlying villages. It is a society having only a limited subscription list, but which depends mainly on the amount of money it makes by the sale of tickets to meet the expenditure of nearly £400 consequent upon holding an exhibition. It it managed in a very spirited manner, and as the weather has been nearly always propitious, the committee have been invariably able to pay their way, and lay by a nest-egg in the event of a wet day happening.

The show is held in a large field close to the railway station, and the tents are arranged in the form of a ring round its circumference. The whole of the centre of the field is thus given up to the bands (one of which is engaged at a great cost, for the Trowbridgian loves good music as well as fine plants and flowers), and to the large company which comes together. The schedule of prizes is divided into certain sections, and the whole of the exhibits in one section are placed in one tent; by doing this the work lies close at hand, and the task of awarding the prizes is expeditiously and comfortably done.

Trowbridge can boast the possession of several fine features from the horticultural point of view. One of these is the splendid Fuchsias shown by Mr. Lye, gr. to the Hon. Mrs. Hay, and so finely were the specimens shown on this occasion that it is doubtful if they could be matched anywhere else in the West of England. The plants averaged 7 feet in height, and were gracefully furnished from top to bottom. Among the varieties were Mrs. J. Lye, white tube and sepals and rosy carmine corolla; Rose of Castile; the Hon. Mrs. Hay, Georgiana, Arabella, and Arabella Improved, the last named larger than the preceding. Mr. Lye was also 1st with four varieties of staging plants of similar excellent growth. Bedding Pelargoniums of the Zonal and Nosegay types were finely done; not tied out flat, but with a bold, free, upright growth, and carrying large trusses of flowers. Perhaps in no other part of England are Petunias better done than at Trowbridge. The plants are trained to sloping wire frames, which causes the flowers to face one way; the plants are grown from cuttings struck in early spring, and are generally composed of pretty striped varieties, and on an average each plant had from seventy to a hundred expanded flowers: a dozen of such plants would create a sensation at one of the London exhibitions. Scarcely less remarkable were the Verbenas grown in pots. They were large, well-grown plants, and, like the Petunias, densely flowered on wire frames. The leading varieties were Géant des Batailles, Rose Beauty, St. Stephen, Mazeppa, James Birbeck, and Ariosto Improved. In addition to producing good bold trusses of flowers, the plants have considerable robustness of constitution. Cockscombs were well shown also. Variegated Pelargoniums were well grown, and had fine coloured leaves.

Stove and greenhouse plants were in great quantity, and had on the whole a nice fresh appearance, notwithstanding the lateness of the season. The best group in the open class was furnished by Mr. King, gr. to R. V. Leach, Esq., Devizes Castle—well-grown and bloomed plants. It included Cassia corymbosa, alwa ys well done in this part of the country; Rondeletia speciosa major, Bougainvillea glabra, Statice profusa, Allamanda nobilis, Phœnocoma prolifera Barnesii, Dipladenia amabilis, and Eucharis amazonica. Other plants in these classes comprised Tritonia aurea, Chironia ixifera, very pleasing indeed; Clerodendron fallax, Stephanotis floribunda, Trachelospernum jasminoides, Clerodendron Balfourianum, Ixora amboinensis, and Lapageria rosea. Foliaged plants and Ferns were very numerous—the latter especially

—and comprised, in the main, types peculiar to exhibitions of this character.

Of cut flowers there was a fine show, and Messrs. Paul & Son and Mr. John Keynes met here again to renew the fights of many previous years. In each of the nurserymen's classes Messrs. Paul & Son were the victors. There were nice examples of Madame Victor Verdier, Marie Baumann, Alfred Colomb, Maréchal Niel, Madame George Schwartz, La France, Sénateur Favre, Dr. Hooker, Pierre Notting, Niphetos, Marie Rady, Countess of Oxford, Ferdinand de Lesseps, Sénateur Vaisse, Charles Lefebvre, and La Marquise. Mr. S. J. Pavett, Batherwick, staged a large number of Tea-scented Roses, in great variety; unfortunately none of them were named. Dahlias were wonderfully well shown by Mr. J. Keynes. His blooms of Monarch, Mrs. Stancombe, John Standish, Yellow Boy, Leah, James Service, Rival, the President, Marchioness of Bath, Thomas Goodwin, Flora Wyatt, and John McPherson, among selfs; and Grand Duchess, Mrs. Saunders, Fanny Sturt, Majestic, Letty Cole, Flora Wyatt, Monarch, Rose Flake, and Queen Mab, among fancies, seemed to be as perfect as Dahlias could well be. The Trowbridge Society maintains the practice of giving a prize to the best seedling Dahlia, and on this occasion it fell to Countess of Pembroke (Keynes), a distinct and novel primrose-buff self, slightly tipped with purple in the centre, and of fine outline and petal. First-class Certificates were awarded to this, and also to Mrs. Harris, blush, suffused and tipped with lilac-purple, of fine form and substance; and to John Downie, shaded red, tipped with purple, large, full, and very fine. A promising seedling, named Maid of Honour, rosy purple on the reverse of the petals, and pale interior, was shown by Mr. George Wheeler. Some splendid spikes of Gladioli were staged, including grand examples of the Queen, Thomas Methven, Rosea perfecta, Mr. Keynes, Lady Landseer, Earl of Pembroke, Marie Stuart, and some good seedlings. Asters, both flat-petalled and quilled, were very fine, flowers of the Victoria type predominating.

There was a falling off in the show of fruit, especially in the matter of collections and Grapes. The best collection came from Mr. C. Squires, gr. to A. Phipps, Esq. In the classes for Grapes, Muscat Hamburghs were well shown, and Black Hamburghs were good. Of white Grapes, Buckland Sweetwater, Muscat, and Golden Champion proved the best, the latter large in berry but poor in flavour. Plums were freely and numerously shown; the red varieties consisting of Purple Magnum Bonum, Kirk's, Fonthill, and Mitchelson's; the white varieties of Jefferson's Green Gage, Magnum Bonum, Washington, and Golden Drop. Peaches, Nectarines, and Cherries were well shown also. Dessert and culinary Apples were numerous and very good. Of the former the most noticeable were the Peach, Quarrenden, Kerry Pippin, Nonsuch, Cellini, and Lord Suffield. Of kitchen Apples, Reinette du Canada, Emperor Alexander, Kentish Codlin, Newton Pippin, Beauty of Kent, and Blenheim Orange. Pears were represented by Jargonelle, Bon Chrétien, Williams' Seedling, Windsor, and Doyenné Boussoch, very fine. Some excellent Peaches in pots were also shown. (*From a Correspondent.*)

Enfield Horticultural: *September* 3. — The autumn exhibition, as it is termed, took place on the above date in the pleasant grounds of Chase Park, the residence of Mrs. Adams, and though not large, yet an excellent show was brought together. The grounds at Chase Park are well adapted for a show, being well-wooded, and with a gentle declivity falling away to a large ornamental lake lying at the foot of a dense belt of trees. Some very fine and handsome examples of the deciduous as well as the evergreen Cypress can be seen about the place, the former especially are of a striking character.

Stove and greenhouse plants were well shown by Mr. W. Wilson, gr. to Mrs. Adams, who had by far the best four, consisting of Clerodendron fallax, Allamanda nobilis, A. Schottii, and another. In the 2d prize lot Mr. Gooderham, gr. to G. Ford, Esq., J.P., had Dipladenia amabilis, and the rare flowering shrub, Lagerstrœmia indica, well furnished with the lovely pink inflorescences it displays with so much profusion when well grown. In the class for specimen plants, Mr. Wilson had a fine Allamanda Schottii. Foliage plants were well shown from the gardens of Phillip Twells, Esq., M.P.; a collection of six, every way most praiseworthy, consisted of Thamnopteris australasica, Corypha australis, Dicksonia antarctica, Cordyline indivisa, Chamærops humilis, and Yucca aloifolia variegata. A group of six very fine stove and greenhouse Ferns were staged by Mr. Wilson, which included Cyathea excelsa, a huge Platycerium grande, magnificently grown; Thamnopteris australasica, Lomaria gibba, Todea barbata, and Adiantum Farleyense.

Pots of Lilium speciosum were nicely done—better than one usually sees them; and the groups of twelve flowering and foliaged plants, or Ferns, materially assisted the general effect. A leading feature was a group of six Pompon Dahlias, grown in 11-inch pots, and exhibited by Mr. W. Wilson. They were huge bushes, 3 to 4 feet in height, and of corresponding diameter, furnished with leaves to the bottom, and well-flowered. As examples of the successful cultivation of the Dahlia in pots, they well deserved ten times the amount awarded to them.

The cut flower, fruit, and vegetable departments, were nicely represented throughout, but a special word of praise must be given to a basket of vegetables in twelves varieties, shown by Mr. Wilson. They were all of average table size, without a single element of coarseness; quality was not sacrificed to mere size, as is too frequently the case.

The exhibition was largely assisted by contributions from local nurserymen. Messrs. Paul & Son sent a collection of beautiful cut Roses, a group of coniferous plants in pots (including examples of Japanese Retinosporas), a basket of the variegated Pampas-grass, &c. Mr. William Paul sent a fine lot of cut Gladioli, some of the newer Zonal and Nosegay Pelargoniums, among which Mr. J. George and A. F. Barron were conspicuous by their fine quality; a bunch each of the Waltham Cross and Winter Muscadine Grapes, &c.; and Mr. W. Rumsey sent collections of cut examples of hardy flowers and other things, all of a very praiseworthy character.

Rain fell heavily just at the time of opening the grounds to the public, and many were thereby deprived of an opportunity of inspecting one of the best of the smaller suburban exhibitions held round London this season. (*From a Correspondent.*)

The Eastleigh and Bishopstoke Horticultural.—In many instances there are no especial features out of the ordinary average at these meetings to chronicle, but this Society deservedly claims notice, because of its rapid growth into a leading society in Hampshire, the general excellence of the productions exhibited, and the great encouragement given to cottagers. In the four parishes of the district seventeen prizes are awarded to the best gardens, and a large display of vegetables were staged by them. Amongst the nurserymen, Mr. W. H. Rogers exhibited a pretty group of Japanese plants; Mrs. Shilling, of Winchester, sent a glorious group of small plants of Zonal Pelargoniums; and Mr. Elcombe, of Romseys, a very fine group of Bronze and Tricolor Pelargoniums, medium-sized plants, and admirably coloured. Messrs. Oakley & Watling took the 1st prize for a collection of plants; and Mr. Windebank, 1st prizes for excellent Dahlias and Gladioli.

Mr. Bundy, gr. to the Rev. Canon Beadon, exhibited a fine lot of plants, and took several 1st prizes. Canon Beadon, who is now in his ninety-seventh year, and still takes an active interest in his garden, has been an exhibitor at the Southampton and other local shows for about forty years. Mr. Forby, gr. to Mrs. Warriner, also exhibited some good plants, and his Balsams were well grown and flowered plants of an enormous size.

Excellent fruit was shown by Messrs. Budd, Jones, and Stoddart, and very fine collections of vegetable were shown in the gentlemen's gardeners classes.

There were nearly 800 entries, and the Society is fast rising into a leading position in Hampshire. (*From a Correspondent.*)

Apiary.

THE FIRST GREAT EXHIBITION OF BEES AND THEIR PRODUCE, AND BEE FURNITURE, AT THE CRYSTAL PALACE.—The first great exhibition held by the British Beekeepers' Association, which was instituted in May last under the Presidency of Sir John Lubbock, Bart., M.P., "for the encouragement, improvement, and advancement of bee culture in the United Kingdom, particularly as a means of bettering the condition of cottagers and the agricultural labouring classes, as well as the advocacy of humanity to the industrious labourer—the honey bee," was held at the Crystal Palace, on Tuesday, Wednesday, and Thursday last, with results that cannot be other than gratifying to all concerned.

The show was organised under the superintendence of Mr. F. W. Wilson, by the Association, prominent among the members of which are found such well-known names in connection with apiculture as Mr. C. N. Abbot, editor of the *British Bee Journal*, Mr. Cheshire, Mr. Symington, and Mr. Hunter, Eaton Rise, Ealing, the hon. sec. Prizes to a considerable amount were offered for improved hives of all kinds, and among these were Major Munro's, the Cottage Woodbury, the Sherrington, the Sibbetswold, the Frame Hive and the Box Hive, &c.; for different varieties of bees, for different classes of honey and wax, and for miscellaneous articles and appliances required in the keeping of the hard-working bee. Many patterns of hives showed great improvement on the old-fashioned skep. The display of honey was remarkable. One gentleman sent from Sussex 700 lb. of honey gathered by twelve stocks of bees; and Mr. Symington showed thirty-six jars of the nett weight of 128 lb., the produce of one hive. There was also a fine display of "supers," some of which contained nearly 100 lb. weight of honey, all gathered by a single hive of bees. Among the objects of more general interest in the show were the Ligurian bees and the honey extractors. This is the most expensive machine that bee-masters use, and on account of this it is usually dispensed with, and the honey is got by the slow process of straining; from others nothing can be obtained without relentless crushing of the cells, and the consequent vitiation of the honey by wax, bee-bread, and the bodies of undeveloped bees. The advantages of the extractor will be apparent when it is known that in a few minutes it empties all the combs of a hive. Among the inventions in this department was one sent from America, called a "slinger." The honey is thrown out by centrifugal force, the comb being rapidly rotated after its removal from the hive.

A portion of the north corridor, 100 feet in length, was partitioned off and glazed, so that the public could see how easy it is to make bees swarm at will, and how queen bees are bred in any number. A number of modern hives, as well as the old-fashioned skeps, were used for illustrating how the queen can at any moment be found, and all operations of the hive be most clearly seen; how swarms may be made in the course of a few minutes artificially without waiting for their natural issue, when they may fly away to a distant tree and be lost; and how in the event of the loss of a queen bee, which involves the destruction of the whole colony, the difficulty is easily repaired by the introduction of a new queen. These supernumerary queens are raised in considerable numbers in small hives prepared for the purpose. An ordinary modern hive can be divided into ten nuclei, and in each nucleus an independent queen may be fed, and may become the mother of a new colony. In the main hive, when queen eggs mature, only one bee is allowed to live, but by taking the extra queen eggs and placing them in a nucleus, where they are duly hatched, a store of queens can be provided.

The exhibition was well attended, and the hives of working bees proved a never-failing source of attraction to the uninitiated in bee matters.

The following are the awards:—

HIVES.

Hive for observation purposes.—Withheld.

Skep or box hive for depriving purposes, for cottagers' use, that can be supplied for 3*s*., exclusive of floor-board.—Prize, Mr. C. N. Abbott, Hanwell.

Movable comb hive for depriving purposes.—Prize, Mr. F. Cheshire, Avenue House, Acton.

Hive for use on the storifying principle.—Prize, Mr. J. Lee, Bagshot, Surrey.

Hive for use on the collateral principle.—Withheld.

Most economical (best and cheapest) complete hive on the movable comb principle, for cottagers' use.—Prize, Mr. C. N. Abbott.

BEES.

Most beautiful breed of Ligurian bees—*i.e.*, a queen accompanied by her progeny, the beauty of the queen to be of secondary importance—Prize, Mr. C. W. Smith, Totteridge, Herts.

HONEY.

Largest and best harvest from one stock of bees, under any system, or combination of systems, the same to be declared on exhibition.—Equal, Mr. A. Fergusson, Stewarton, Hon. and Rev. H. Bligh, Henley-on-Thames, and Mr. C. N. Abbott.

Exhibition of super honey from one apiary—1st, Rev. G. Raynor, Maldon; 2d and 3d, withheld.

Straw super of honey, nett contents above 20 lb.—1st, Mr. W. H. Clark, Merton, Surrey; 2d, Mr. J. Lee.

Straw super of honey, nett contents not under 14 lb., nor above 20 lb.—Prize, Mrs. Pagden, Alfriston, Sussex.

Straw surper of honey, nett contents not under 10 lb., nor above 14 lb.—Prize, Mr. T. Bagshaw, Longnor, Buxton.

Wood super of honey (or wood in combination with glass or straw), nett contents above 20 lb.—1st, Mr. W. H. Clark; 2d, Mr. J. Anderson; 3d, Mr. A. Rusbridge.

Wood super of honey (or wood in combination with glass or straw), nett contents not under 14 lb., nor above 20 lb.—Equal merit, Mr. W. Sword, Falkirk; Mr. J. Anderson, Dalry, Ayrshire; Mr. R. Graham, Dalry; Mr. R. Anderson and Mr. D. Anderson, Stevingston, Ayrshire; Mr. A. McCrone, Kilmaurs, Ayrshire.

Wood super of honey (or wood in combination with glass or straw), nett contents not under 10 lb., nor above 14 lb.—1st, Mr. J. Anderson; 2d, Mr. R. Anderson; 3d, Mrs. Pagden.

Glass super of honey, nett contents above 20 lb.—1st, Mr. G. Fox, Kingsbridge, Devon; 2d, Mr. T. W. Cowan, Horsham; 3d, Mr. S. Thorne, Ashwell, near Baldock.

Glass super of honey, nett contents not under 14 lb., nor above 20 lb.—1st, Mr. T. Plumridge, Upper Norwood; 2d, Mr. T. Bagshaw; 3d, Mr. W. Martin.

Glass super of honey, nett contents not under 10 lb., nor above 14 lb.—1st, Mr. S. Thorne; 2d, Mr. D. King, Odiham.

Glass super of honey, nett contents not under 6 lb., nor above 10 lb.—1st, Mr. T. Plumridge; 2d, Mr. J. Lighton; 3d, Mr. T. Bagshaw.

Display of honey in comb for table use.—1st, Mr. J. Anderson; 2d, Mr. D. Anderson; 3d, withheld.

Exhibition of run honey in glasses of from 5 lb. to 10 lb. each, nett contents, the produce of one apiary.—1st, Mr. C. N. Abbot; 2d, Mr. J. Anderson; 3d, Mr. W. Laughland.

Exhibition of run heather honey in glasses of from 5 lb. to 10 lb. each, nett contents.—1st, Mr. D. Anderson; 2d, Mr. J. Anderson.

Exhibition of honey, obtained by the use of the honey-extractor, from one colony.—1st, Mr. C. N. Abbott.

COTTAGERS' CLASSES.

Largest and best exhibition of super honey in comb, gathered by one stock, or united swarms of bees, the property of exhibitor.—1st, Mr. H. Withnal, Rangemore, Burton-on-Trent; 2d, Mr. S. J. Baldwin, South Vale, Norwood; remainder withheld.

Exhibition of honey in comb, produced in one apiary, without the destruction of the bees.—1st, Mr. A. Fergusson; 2d, Mr. M. Freeman.

Exhibition of run honey in glass jars, containing from 5 lb. to 10 lb. each.—1st, Mr. W. Martin; 2d, Mr. W. Scorer; 3d, Mr. J. Stephenson; 4th, withheld.

MISCELLANEOUS.

Best and largest collection of hives, bee furniture, bee gear, and apiculturists' necessaries, no two articles to be alike.—1st, Mr. C. N. Abbott; 2d, Mr. J. Lee.

Drone trap.—1st, Mr. F. Cheshire.

Bee feeder, the invention or adaptation of the exhibitor.—Prize, Mr. J. S. Turner.

Appliance for introducing alien queen bees to stocks.—Prize, Mr. J. Anderson.

Bee dress.—Prize, Mr. C. W. Smith, Totteridge.

Method of quieting bees during manipulation, with appliances shown.—Prize, Mr. F. Cheshire.

Cheapest and best supers for general use in an apiary.—Prize, Mr. J. Lee.

Honey extractor.—Prize, Messrs. Starling & Co., Kensal New Town.

Machine for embossing wax sheets for guide combs, with at least six sheets manufactured by it.—Prize, Messrs. G. Neighbour & Sons, 149, Regent Street.

Exhibition of pure bees' wax, the produce of 1874, in cakes of not less than 1 lb. in weight.—1st, Mr. W. Martin; 2d, Mr. W. Laughland; 3d, Mr. J. Walton.

Any new invention calculated, in the opinion of the judges, to advance the culture of bees.—Extra, Mr. F. Cheshire (4).

The Villa Garden.

WEEDS.—One of the prime duties incumbent on the villa gardener at this season of the year is that of keeping the garden free from weeds. Pleasant, if somewhat unfrequent, showers of rain are falling, which, moistening the earth, give occasion to a profuse growth of weeds, and they put in appearance at every point; and even the hard gravelled walks are no exception. In the case of ground cleared of crops, hoe it occasionally on a drying day, doing so when the weeds are young, and they will soon wither up. Weeds that have made some growth had better be pulled up by hand; if they are cut down by means of the hoe they do not wither in showery weather, but quickly take root again. Even if the weeds are cut up by the hoe, it is best to pass a rake over the ground, and so gather them up and put them on the rubbish heap. All the refuse of the garden, if gathered in a heap in an out-of-the-way corner, and occasionally covered with a little soil, will by-and-by, when quite decayed, come in very handy for digging in during winter, or for burying in the trenches when the ground is deeply dug and ridged up for winter.

Advantage should be taken of a shower which nicely moistens the surface of the paths to pull the weeds out of them. An old oyster-knife, firmly gripped by the fingers of the right hand, and worked in conjunction with the thumbs, is one of the best tools to use in weeding a gravel path. The weeds should be plucked up by the roots, and the walks rolled over, or, failing a garden roller, gently flattened down with the back of a spade. The hoe ought not to be used on gravel walks in a small garden, unless for cleansing and loosening purposes, preparatory to laying down a dressing of gravel on the surface. The hoe will not remove the roots of the weeds altogether, and they soon spring into growth again. By removing the weeds before they flower a harvest of seeds is saved, for when these are shed they soon spring into growth, and produce numberless plants. There is no better mode of prolonging the beauty of a garden as far as possible into the days of autumn than by keeping it clean and orderly.

KITCHEN GARDEN.—On vacant plots of ground, that have become cleared by lifting the later crops of Potatos, clearing away Bean and Pea haulm, and other things, plant winter greens, such as Kales and Savoy. Some sprouting Broccoli should be put out without delay, if not already done. Not only is it a favourite and excellent vegetable, but it will grow almost where any other winter green will not grow, even under trees. Any one who has inspected the market grounds about London will have observed that the market gardeners plant out an immense quantity of sprouting Broccoli under the shade of the large Apple and Pear trees. Gooseberries are planted under the trees, and the intervening spaces they fill up with sprouting Broccoli. If not already done, some Cabbage and Cauliflower seed should be sown at once; the former should be planted out in beds to stand the winter in odd places as soon as large enough; and the Cauliflowers for wintering under hand-glasses, or under any protection that can be afforded them.

Cabbage that was sown some weeks ago will have grown into nice young plants, and they should be planted out thickly in spare pieces of ground. Cabbage does well when planted close together, as the growth will be slow, and the demands of the kitchen constant. So long as there is space for the development of the plants, that is sufficient. Nice dwarf Cabbage of the type of Improved Nonpareil and Early York—certainly the best two Cabbages for small gardens—make close, compact hearts, without a superabundance of outside leaves. Cabbages should have a good soil, so as to encourage a quick growth, which makes them tender, and when boiled they have a delicious mellow flavour.

Sowings of Turnips have fared badly, owing to the dry weather and the prevalence of fly. Only in favoured spots have the early sowings resulted in the production of a crop. In all cases of failure the best plan would be to sow again at once, and immediately after a shower has fallen. A few Turnip Radishes may also be sown; as it is perhaps getting too late for them to bulb-in large, they will come in very useful for winter saladings. A little winter Spinach may also be sown, to come in successionally to that recommended to be put in a few weeks ago.

The beds of White Spanish and James' Keeping Onions sown in early spring for winter use will now be fast ripening off, and they should be pulled up and spread on a garden mat to become thoroughly dry before being stored away for use. The place in which to store them is a cool, dry, airy loft or shed, on the floor of a spare room, or any suitable place that can be utilised in this way. Where fruit and other garden produce have to be stowed away, more room is required than can be devoted to the purpose in cases where the residence is small. The Onions can, therefore, be roped, at least the largest of them, and hung up in the kitchen. Roping Onions is a simple process; what is required is a rope made of straight Wheat straw, about 1 inch in diameter and 3 feet in length, firmly tied at each end and in the middle with a piece of twine. Then holding the rope of straw in the left hand, take four of the largest Onions, having strong necks, and place them in a circle round the bottom of the rope, and firmly tie them to it round the necks, and so on till the rope is completed. In this way space can be utilised, and the Onions will be preserved as well as if spread out in cool dry lofts.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPT. 9, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°			In.
3	29.60	—0.30	65.9	54.2	11.7	58.8	+ 0.4	55.5	89	SSW: E	0.15
4	27.74	—0.16	65.5	48.5	17.0	54.7	— 3.5	50.0	84	WSW: W.	0.26
5	29.84	—0.06	68.7	46.5	22.2	55.6	— 2.4	47.2	73	W.: W.S.W	0.00
6	29.81	—0.10	60.2	49.6	10.6	54.8	— 3.1	52.8	93	SW: SE	0.29
7	29.84	—0.07	67.6	52.7	14.9	58.3	+ 0.5	54.2	86	S.W.	0.03
8	29.76	—0.15	68.1	55.9	12.2	59.9	+ 2.1	56.7	89	S.W.	0.02
9	29.34	—0.57	64.7	48.0	16.7	55.4	— 2.3	50.8	85	SW: W	0.22

Sept. 3.—Overcast; frequent showers of rain.
— 4.—Very variable till evening, and rain fell occasionally; cloudless at night.
— 5.—Partially cloudy; a fine day. Lowest temperature on grass, 38°.
— 6.—The sky was generally overcast, and rain fell frequently.
— 7.—Generally overcast; rain at night.
— 8.—Variable; occasional showers.
— 9.—The amount of cloud was very variable: frequent heavy showers of rain; thunder and lightning between 4 P.M. and 5 P.M.

—— In and near London the reading of the barometer at the level of the sea increased from 29.86 inches at the beginning of the week to 29.94 inches by 10 A.M. on August 30, decreased to 29.72 inches by the morning of September 1, increased to 29.99 inches by the evening of the 2d, decreased quickly to 29.54 inches by 9 P.M. on the 3d, increased to 30.04 inches by the morning of the 5th, and was 30.03 inches at the end of the week. The mean reading for the week was 29.88 inches, being 0.15 inch lower than that of the preceding week, and 0.19 inch lower than the average of the corresponding period, as deduced from observations extending over eighteen years.

The highest temperatures of the air at 4 feet above the ground varied from 74¾° on August 31 to 65½° on September 4, with a mean for the week of 70½°. The lowest temperatures of the air ranged from 59° on August 31 to 46½° on September 5, the mean value for the period being 52¾°. The mean daily range of temperature was 17¾°.

The mean daily temperatures of the air, with departures from their respective averages, were as follows:—August 30, 61°.3, + 1°.9; 31st, 64°.2, + 5°; September 1, 65°.6, + 6°.6; 2d, 62°.1, + 3°.4; 3d, 58°.8, + 0°.4; 4th, 54°.7, − 3°.5; 5th, 55°.6, — 2°.4; showing that the weather was considerably warmer on the first five days than on the last two.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the full rays of the sun, were 141° on August 31, and 129° and 133° on September 2 and 5 respectively. The lowest readings at night of a thermometer placed on grass, with its bulb fully exposed to the sky, were 40° and 38° on September 4 and 5 respectively, and at other times the readings of this instrument were all above 40°.

The most prevalent directions of the wind were S.W. and W.S.W. On August 31, and September 1 and 2 brisk winds were experienced, the pressures on these days frequently amounting to 7 lb. and 8 lb. on the square foot; on the other days the strength of the wind was gentle. The sky was overcast on September 3, and at other times large amounts of cloud were present. Rain fell on five days, the amount collected was nearly seven-tenths of an inch.

In England, the extreme high day temperatures ranged from 78° at Sunderland, to 66° at Newcastle-on-Tyne, the general average over the country being 71½°. The extreme low night temperatures varied from 50¼° at Bristol and Liverpool, to 43¼° at Nottingham, the general average being 46¾°. The mean range of temperature from all stations was 24¾°, varying from 32° at Sunderland to 16½° at Liverpool. The mean high temperatures observed by day ranged between 72¼° at Sunderland and 63¼° at Newcastle-on-Tyne, with an average value of 66¾°. The mean low temperatures observed by night varied from 53¼° at Bristol to 49¾° at Manchester, Newcastle-on-Tyne and Sunderland, with a general average of 51½°. The mean daily range of temperature in the week was 15¼°. The mean temperature for the week was 57¾°, the highest being at Blackheath, 60¼°, and the lowest at Newcastle-on-Tyne, 55°. Rain fell on every day in the week at most stations, the amounts varying from 2¼ inches at Bristol, to four-tenths of an inch at Leicester and Hull; but at Newcastle-on-Tyne no rain was measured. The average fall over the country was 1 inch nearly. The weather during the week has been fine, but somewhat cloudy.

In Scotland, the highest temperatures ranged between 69° at Paisley and 65° at Greenock; the lowest temperatures varied from 46½° at Greenock to 37° at Perth, their general averages being 66¾° and 40¾° respectively. The range of temperature in the week was 26°. The mean temperature for the week was 55½°, the highest being at Leith and Paisley, 56°, and the lowest being at Glasgow and Perth, 54¾°. The amounts of rain measured at the several stations during the week varied from 2 inches at Greenock to a little over half an inch at Aberdeen; the average fall over the country was 1¼ inch.

At Dublin, the highest temperature was 68°, the lowest 43¼°, the mean 57°, and rainfall, 1.38 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns].

PLANT HOUSES.

PLANT STOVE.—The selection of suitable soils in which to grow the different descriptions of plants in general cultivation is a subject of the greatest importance, and one that too often does not receive sufficient attention. There is no time in the year so suitable as the present for obtaining a supply of the different descriptions of peat, loam, &c., required; consequently it may not be out of place to say something on the subject. There are several reasons why the plant-grower should give the preference to the

early autumn over any other time in the year for procuring this supply. One of the first is that at this time the fibrous roots of the different grasses, Ferns, &c., that constitute the most important and essential element in the potting soil, are now arrived at maturity, and consequently will last much longer—that is, are longer in decomposing than if they were collected earlier in the summer, before the season's formed roots had attained their matured tough condition. The presence of this fibrous material in the soil in sufficient quantities, and in a condition calculated to retain its sponge-like character, can scarcely be over-rated. It is indispensable, not only as a medium for retaining porosity, but also as absolutely food for the plants. Nothing that can be added to the soil in the shape of manure, even in the case of plants that are benefited by its application, can compensate for the absence of this fibre. By being stacked up whilst dry, it also is much mellower, and does not get into that adhesive condition which is the result of its being put together wet; and if it has to be conveyed any distance the carriage is much less. Loam of a more or less suitable description is generally procurable in most parts of the country, but where it can be obtained of a decidedly yellow colour, free from the red iron-like impregnation that is so common in some parts, so much the better. In respect to peat, it is very different; this is not to be met with over so wide a range of the country as loam, and is quite as varied in its nature. That which is produced in the southern and midland parts of the kingdom is much the best. Nothing that I have seen north of Staffordshire is fit for growing good hard-wooded plants in; they will go on for a time in it, but ultimately turn seedy, and dwindle away. It appears deficient in the essential elements necessary to long sustain fine-rooted evergreen plants, which, as a rule, cannot bear their roots being mutilated by the shaking-out required where a partial or considerable renewal of the soil is attempted. The makeshift in shape of peat which gardeners have frequently to use, is the most penny-wise proceeding possible. Peat in its natural state, that grows nothing but heather, is quite unfit for any plant confined to a pot, being too poor and hard, deficient in vegetable fibre; such as is found producing a thick carpet of fibrous-rooted grass and Ferns, more especially the common Brake, is the best, and should be selected and kept separate, using the hardest and closest for *Heaths*, and such as is of a more spongy nature for the *New Holland plants* and *Azaleas*. The open air is the best place to keep it in, as under cover it gets unnaturally dry. It is better not to get in more at a time than is sufficient for a twelvemonth's supply, as it does not improve by being kept longer, as the fibre decays. The same holds good with loam that is required for *Camellias*, or any plants that have not their soil often renewed. To such soil, at the time of stacking it, nothing in the shape of manure should be added. For such things as *Pelargoniums*, *Fuchsias*, *Cinerarias*, *Calceolarias*, *Primulas*, *Chrysanthemums*, &c., that are either of an annual nature, or that are shook out, and the soil renewed yearly, it may lie together for two or three years betore being used; but in potting with such as has laid so long, and in which the fibre has consequently so far gone as to be less efficacious in keeping it open, a little more sand should be used to insure the necessary porosity. At the time that loam is put together for such plants, it will be benefited by having one-fifth of good horse-droppings added to it in layers as the heap is made. This should in all cases be built up in a sharp ridge-like fashion, so as to throw off the rains. *T. Baines, Southgate, N.*

FRUIT HOUSES.

PEACHES AND NECTARINES.—After all the fruit in the latest houses is gathered, the trees may want a little fire-heat to ripen the wood well, should the autumn be cold and wet. A good syringing with soft-soap or Gishurst must be given to prevent the Peach scale from attacking the wood, which it sometimes does after all the fruit is gathered. Where the trees are much infested, the best way to get rid of it altogether is to wash them with water, as hot as it can be used, with the engine. This must be done late in the autumn, when all the leaves have dropped, and when the trees are properly dressed with the composition before being forced this pest will disappear in the course of a year or two's trial. In the earliest forced houses—presuming that the lights have been taken off, and the trees exposed to the sun and air, and the wood thoroughly ripened—as soon as the cold autumn rains set in they may be shut up, so as not to get too much drenched. If painting is required all the trellis and woodwork should be well washed with hot water before this is done. *William Tillery.*

PINES.—The luxuriant condition of growth which is always noticeable at this season in young growing Pine plants which have been liberally and properly treated, indicates the beneficial effects arising from those natural means which are so important in cultivation generally. As these influences are now rapidly decreasing in duration and force, more care will be necessary in the management, to prevent the growth in the plants becoming soft and weakly. To avoid such consequences, and for the purpose of consolidating the growth, a drier atmospheric condition about the plants should be maintained, even at the expense of fire-heat when unfavourable weather prevails. Only syringe the plants occasionally, and that should be done early in the afternoon on sunny days. When water at the roots is absolutely necessary, give a plentiful supply of weak guano or manure water in a tepid state; keep the bottom-heat steady at from 80° to 90°, and, above all, give every attention to the airing. Proper ventilation is always an important affair in connection with Pine culture, but at no period in the year is this matter of more importance than at this season. In the case of such plants as those in question, let 80° be the point at which to open and shut up the house, and above that degree of warmth ventilate liberally, and especially so on sunny days; minimum temperature at night throughout this month, 65°. All fruiting plants should now be collected together in a suitable structure for finishing the fruit perfectly, when much will depend on artificial means. Towards the end of this month the most likely plants for starting into fruit early in the ensuing year should be selected from those which were started about last March. These should be brought together where they can be at a comparative state of rest for a month or six weeks. Such requirements indicate practically the usefulness of suitable compartments for Pine culture. Encourage those plants on which the fruit is swelling with a liberal supply of heat and moisture; range the night temperature from 70° to 75°, and that in the day-time from 80° to 90°, shutting up the house at 85°. *G. T. Miles, Wycombe Abbey.*

VINES.—I would again suggest the desirability of getting the earliest Vines pruned as soon as the wood is sufficiently matured, and, where the principal roots are established in outside borders, some kind of covering should be kept in readiness for putting on when change of weather is apparent; but should the weather continue dry and warm, glass lights, if available, will be found the most suitable covering for the present. These, if properly fixed, while throwing off heavy rain, will also allow of the sun penetrating the soil. Late vineries which are now finishing off their crops will require a dry warm atmosphere, with plenty of air. Keep the laterals well stopped in, as too much young foliage only favours damp, and keeps the roots excited, when they ought to be going to rest. Look over ripe Grapes for decaying and shanking berries, and carefully protect from the ravages of wasps, which are unusually troublesome this season, *Trentham Black* and *Madresfield Court* being varieties to which they pay special attention. I find sewn canvas, 1½ yard wide, strained the whole length of the house over the ventilators, answers well. It is easily put on, and, being light and open, it admits of a free circulation of air—so essential to the perfect keeping of ripe Grapes. Where Vine borders are known to be in an unsatisfactory state, and it is thought advisable to lift and relay the roots, a good supply of new turf should now be secured for forming the staple of the fresh compost. *W. Coleman.*

KITCHEN GARDEN.

With the genial rains of the past fortnight, vegetation generally is progressing rapidly, and as the natural result of a long period of dry weather, weeds also are putting in an appearance in considerable numbers. Take every opportunity n favourable weather to use the hoe amongst all growing crops, so as to prevent the necessity of hand-weeding, always a tedious and unremunerative process. At this season a few days suffice to mature the seeds of quick-growing weeds, such as Groundsel, Chickweed, &c., and these, if allowed to ripen now, are speedily scattered so as to become an endless source of annoyance next season. Late *Turnips*, *Winter Spinach*, &c., should be thinned moderately, so as to allow room for the plants to mature their growth. *Onions* which have been taken up should now be taken under cover and stowed thinly in a dry room or on shelves; the larger should be tied in bunches, so that they can be removed to a cooler situation in February, and thus prolong the season of use. *Potatos* should still be taken up in favourable weather, but avoid putting together in large quantities in a wet state. If pits or frames are ready, *Lettuce*, *Endive*, &c., should now be pricked out for winter use. Sow *Cauliflowers* under glass, to be pricked out at a later period. Where means are at command, a first planting of *Dwarf French Beans* should be made in pots, placing in a moderately warm house as close to the glass as possible. *Tomatos* will now be ripening fast. Cut the more forward in clusters, and hang in a dry, airy house—this will give an opportunity of maturing the later-set fruit. *Strawberries* in pots will now require considerable attention. If growing freely, well thin the plants, so that light and air can get freely between them, keeping in the most open situation, so as to get the plants well ripened in good time to have a season of rest before starting to force. *William Cox.*

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

1. EASTERMAN GIANT.—I send herewith a leaf and a flower of a plant commonly used across the Border, in Cumberland, as an ingredient in herb puddings, and known by the name of "Easterman Giant." I am at a loss to account for this name, and shall be much obliged if you could also let me have its botanical name. *J. A. C.* [The plant is the Bistort, Polygonum Bistorta, so called from the twisted rootstock. It was formerly used in medicine as an astringent, but we never heard of the use our correspondent mentions, nor have we previously heard the name he gives it. Will some correspondent obligingly answer the question? EDS.]

2. STRAWBERRY JAM.—Having repeatedly failed in making Strawberry Jam to keep, would any one kindly give scientific principles? We have boiled, frequently, excellent dry fruit, with equal parts of the strongest crystallised sugar, from 20 to 45 minutes, according to various recipes, resulting only in as many disappointments and a second boiling. Can any one explain the chemical action in boiling sugar and acid to a jelly? *S. Y. A.*

3. NEW ROSES.—Will some amateur rosarian kindly give me his opinion as to the best New Hybrid Perpetual Roses of the year? *J. A. C.*

Notices to Correspondents.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisments should be addressed to the Publisher.*

CUCUMBERS: *J. L. W.* Your plants are affected with a severe form of gumming, which is frequently brought under our notice, but the cause of which is shrouded in mystery. Until more is known on this point, we can only recommend you to have a general clear-out, burning the plants and soil, and making a fresh start with a change of seed, and soil from a fresh locality.

CYANOPHYLLUM: *G. R. F.* It may have an occasional dose of manure-water if pot-bound.

FERNS: *G. R. F.* The free-growing sorts may have a moderate dressing of weak liquid-manure if their pots are well filled with roots, but it must be used cautiously.

FUNGI: *H. Munro.* 1, I do not find any Puccinia: it is possibly a bad state of some Ravenelia; 2, Puccinia Circeæ; 3, Pycnidia of Melampsora betulina. *M. J. B.*

NAMES OF FRUITS: *F. F. Plums:* 1, Large Black Diamond; 2, Yellow Virginale blanche.—*A. A.* Your Apple is unknown to us.—*J. M.* Sops-in-wine.

NAMES OF PLANTS: *G. Renrut.* 1, Pteris crispa; 2, Blechnum occidentale, var.; 3, Cystopteris fragilis; 4, a Selaginella, imperfect; 5, Blechnum fraxineum; 6, seedling Thamnopteris; 7, Doodia media; 8, immature Gymnogramma; 9, Adiantum setulosum.—*Alick.* 1, Campanula fragilis, var. glabra; 2, Helichrysum petiolatum; 3, Asplenium flaccidum.—*H. R. Long.* Hyacinthus non scriptus.—*James Cocker & Sons.* Cystopteris bulbifera, and Juniperus chinensis.

RHOPALA: *G. R. F.* Cut down about February, and grow on freely after the stem has broken afresh.

THE OLD CLOVE CARNATION: *X.* Messrs. Austin & McAslan, Nurserymen and Seedsmen, Glasgow, inform us that they have a stock of this plant.—*Stinsford* sends what appears to be an unseasonable flower of the true old Clove Carnation, and adds that our correspondent, who inquires for it at p. 306, is welcome to pipings. If *X.* will send us his address, we will forward to him that of "Stinsford," with whom he can then communicate.

TRITONIA AUREA: *Cor.* The leaves are injured by thrips. *M. J. B.*

CATALOGUES RECEIVED.—R. B. Matthews (65 and 67, Victoria Street, Belfast), Catalogue of Dutch Flower Roots for Winter and Spring Flowering.—Minier, Nash & Nash (60, Strand, London), Catalogue of Flower Roots.—P. Van der Meer (Nordwyk, near Haarlem, Holland), Catalogue of Bulbs, &c.—George Yates (Underbank, and Royal Oak Mills, Stockport), Catalogue of Flower Roots, &c.—Felton & Sons (23, High Street, Birmingham), Descriptive Catalogue of Dutch, Cape, and other Bulbs.—James Dickson & Sons (108, Eastgate Street, Chester), Catalogue of Select Roses, and Catalogue of Bulbous Flower Roots.—Isaac Bruning & Co. (1, Market Place, Great Yarmouth), Catalogue of Flower Roots for 1874.—John Harrison (Darlington), Descriptive Catalogue of Fruit Trees, Hardy Ornamental Trees, Shrubs, &c.; also Catalogue of Flower Roots, and a Descriptive Catalogue of Roses, &c.—Thomas Meehan (Germantown Nurseries, Philadelphia, N.Y.), Wholesale Price

List of Trees, Shrubs, &c.—P. J. Looymans & Sons (Oudenbosch, Holland), General Trade Catalogue.

COMMUNICATIONS RECEIVED:—J. H. G.—Nemo.—J. C., Shadwell.—J. B.—J. C. & Co.—G. P. (the articles sent by parcel post have not arrived).—W. Shand (thanks).—J. P.—T. H., Dundee (anticipated).—J. P. McM.—An Old Subscriber.—A. B. (next week).—J. W. S.—G. M.—J. L. T.—J. A.

Markets.

COVENT GARDEN, September 10.

The alterations that have taken place in this market during the past week are so slight as not to be worth noticing. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Nectarines, per doz.	2 0– 6 0
Cherries, Morellos, per lb.	0 6– 2 0	Nuts, Cob, p. lb.	1 0– 1 0
Currants, p. ½-sieve	4 0– ..	Oranges, p. 100	16 0–20 0
Figs, per doz.	1 0– 3 0	Peaches, p. doz.	2 0–10 0
Filberts, per lb.	1 0– 1 6	Pears, p. doz.	2 0– 3 6
Grapes, English, p. lb.	2 0– 6 0	Pine-apples, p lb.	3 0– 6 0
— Muscats, do.	2 6– 6 0	Plums, ½-sieve	1 6– 2 0
Lemons, per 100	12 0–20 0	Strawberries, p. lb.	..
Melons, each	2 0– 3 6	Walnuts, p. bush.	16 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Beans, Fr., per bush.	5 0– ..	Mint (green), p. bun.	0 6– ..
— Scarlet, do.	3 0– 5 0	Mushrooms, per pott.	1 0– 2 6
Beet, per doz.	1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle	0 9– 1 6	Parsley, per bunch	0 4– 0 6
Brus. Sprts., p. sieve	3 0– 4 0	Parsnips, p. doz.	0 9– 1 0
Cabbages, per doz.	2 0– 3 0	Peas, per quart	1 0– 2 0
Carrots, new, p. bun.	0 9– ..	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	— black, Turnip, do.	– 0 6
Celery, per bundle	1 6– 2 0	Shallots, per lb.	0 3– ..
Cucumbers, each	0 6– 1 0	Salsify, per bundle	1 6– ..
Endive, per doz.	1 0– 2 0	Spinach, per bush.	2 0– 3 0
Herbs, per bunch	0 2– 0 4	Tomatos, per doz.	1 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Turnips, per bundle	0 3– 0 4
Leeks, per bunch	0 2– 0 4	Veg. Marrows, doz.	1 6– 2 0

New Potatos:—Round, 60*s.* to 100*s.* per ton; Kidneys, 0*s.* 9 to 120*s.* per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Carnations, per doz. bunches	3 0– 6 0	Pelargoniums, per 12 sprays	0 6– 1 0
Corn-flower, p. doz. bunches	2 0– 6 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Eucharis, per doz.	4 0– 9 0	Pinks, mixed do.	2 0– 4 0
Escholtzia, p. 12 bun.	2 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Gardenias, p. doz.	3 0– 9 0	— Outdoor, do.	0 4– 1 0
Gladiolus, doz. sprays	0 6– 1 6	Spiræa, per 12 sprays	1 0– 2 6
Heliotropes, per doz. sprays	– 0 6	Stephanotis, 12 sprays	3 0– 9 0
Mignonette, 12 bun.	2 0– 6 0	Sweet Peas, 12 bun.	3 0– 6 0
		Tuberoses, p. doz.	1 0– 2 0

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Balsams, p. doz.	3 0– 9 0	Heaths, in var., do.	12 0–30 0
Begonias, do.	6 0–12 0	Hydrangea do.	9 0–18 0
Bouvardias do.	9 0–18 0	Liliums, in var., each	1 0– 3 6
Calceolarias, shrubby	6 0–18 0	Mignonette, per doz.	4 0– 6 0
Coleus, p. doz.	3 0– 9 0	Myrtles do.	3 0– 9 0
Cyperus do.	6 0–12 0	Pelargoniums do.	6 0–18 0
Dracæna terminalis	12 0–30 0	do., double do.	4 0– 9 0
,, viridis doz.	12 0–24 0	do, Scarlet do.	3 0– 9 0
Fuchsia do.	4 0–12 0	Rhodanthe do.	6 0–12 0

SEEDS.

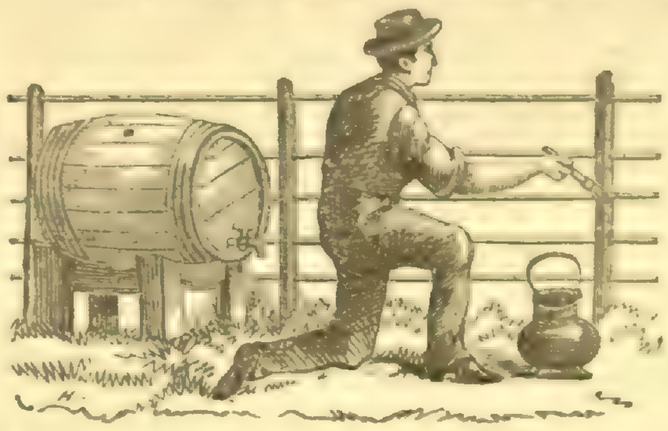
LONDON: *Sept.* 10.—Owing to the recent rains there is a good deal of business now doing on our market. The articles most in request are naturally those needed for immediate sowing, viz., Winter Tares, Rye, Trifolium, Mustard, and Rapeseed. Clover seeds excite as yet but little attention. Tares, being in smaller supply and increased demand, are held with more firmness. For Trifolium incarnatum a good many orders continue to come to hand, which are executed at fully late rates. There is no change to report in the value of either Rape or Mustard seed. Some 500 qr. of new Essex Mustard have unfortunately been sunk while on their way by water to London. Canary seed still sells at the extravagant rates that have now been current for some weeks. In Hemp and Linseed there is not much doing. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

A moderate supply of new English Wheat was on sale at Mark Lane on Monday, and the quality and condition of the produce were good. Prices were without alteration from Monday last. In foreign Wheat sales progressed slowly at late rates. Malting Barley was dull, and 1*s.* per quarter cheaper; but grinding and distilling qualities sold at late prices. Malt was dull, and drooping in value. Oats were in fair supply, and the trade was quiet at previous quotations. Maize was steady, at late prices; and Beans and Peas changed hands at last Monday's currency. The flour trade was dull; country marks and American descriptions were 6*d.* per sack and barrel lower.—On Wednesday there was no activity in the demand either for English or foreign Wheat, but the tone of the trade was steady at Monday's quotations. The supply of Barley is increasing, and transactions were at barely late rates. Malt sold slowly on rather lower terms. For Oats the tendency of prices was downwards. Beans were firm in value, and Peas supported former quotations. The flour trade was without alteration.—The average prices for the week ending Sept. 5 were:—Wheat, 49*s.* 9*d.*; Barley, 44*s.*; Oats, 29*s.* 2*d.* For the corresponding week of last year: Wheat, 63*s.* 4*d.*; Barley, 42*s.* 5*d.*; Oats, 27*s.* 1*d.*

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE. Illustrated Price Lists free. HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

Oil Paint no Longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

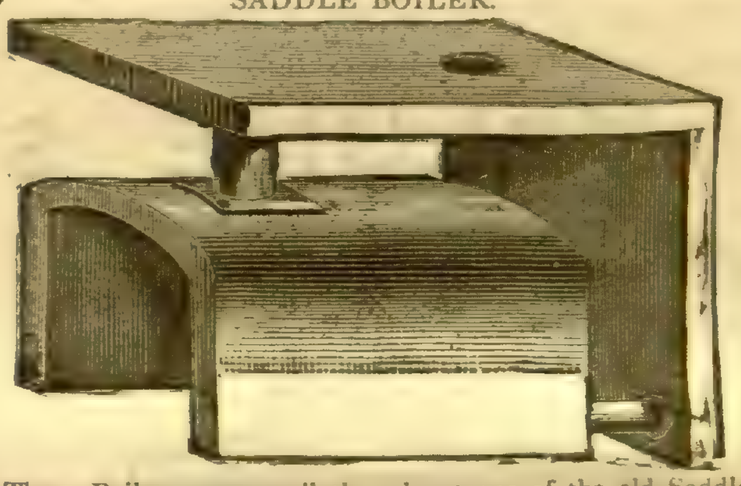
CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

Is indispensable to Nurserymen, Gardeners, and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1*s.* and 1*s.* 6*d.*, and sent post free with directions, for 1*s.* 3*d.* and 1*s.* 10*d.*, by the Proprietors—

WILLIAM ROLLISSON & SONS, Tooting, London, S.W., and at 48, Little Britain.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.
High.	Wide.	Long.	Feet.	£ s. d.
20 in.	18 in.	18 in.	300	7 0 0
20 ,,	18 ,,	24 ,,	400	8 0 0
20 ,,	18 ,,	30 ,,	500	9 0 0
24 ,,	24 ,,	24 ,,	700	12 0 0
24 ,,	24 ,,	30 ,,	850	14 0 0
24 ,,	24 ,,	36 ,,	1,000	16 0 0
24 ,,	24 ,,	48 ,,	1,400	20 0 0
28 ,,	28 ,,	60 ,,	1,800	25 0 0
30 ,,	30 ,,	72 ,,	2,600	35 0 0
36 ,,	36 ,,	96 ,,	4,500	50 0 0
48 ,,	48 ,,	108 ,,	7,000	75 0 0
48 ,,	48 ,,	144 ,,	10,000	100 0 0

And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Suthwark, London, S.E.

AGRICULTURAL LOCOMOTIVES,
STEAM PLOUGHING MACHINERY,
ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES,
STEAM ROAD ROLLERS.

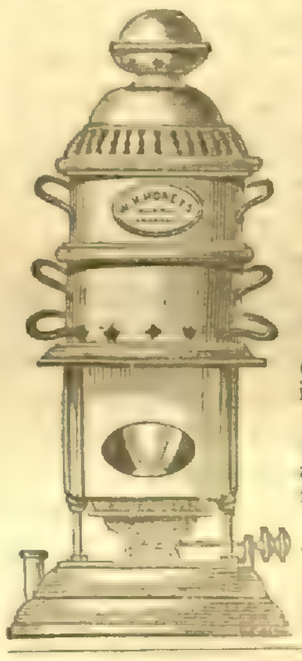
For Prices, Description, and Reports of Working, apply to the Manufacturers,

AVELING & PORTER,
ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

ESTABLISHED 1856.

KEEP OUT THE FROST.



WILLIAM H. HONEY'S PORTABLE VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

Prices, in block tin, 30*s.*; in copper, 50*s.* Copper, with glass, to give light and heat, 55*s.* Either will be sent on receipt of post-office order.

To be seen in operation at

WILLIAM H. HONEY,
263, REGENT STREET, W.
Catalogue free. No agents appointed.

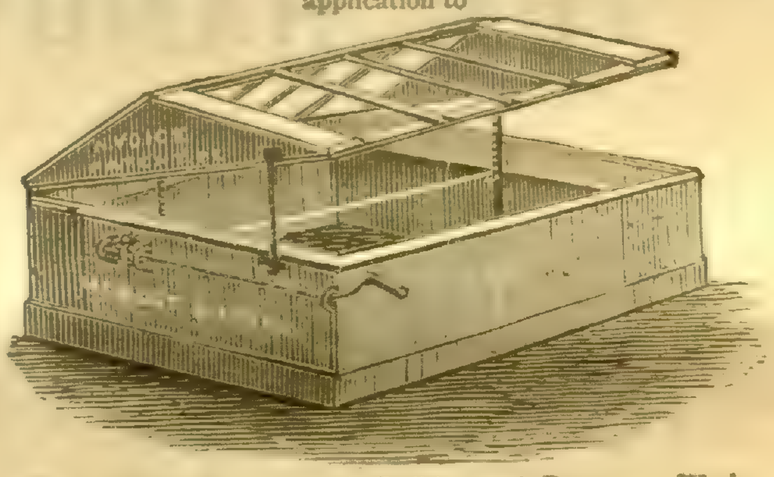
J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

Highland Cattle.

JAMES BRUCE, CATTLE AGENT, begs to inform his Customers that at the present time he can SEND them ANY DESCRIPTION of HIGHLAND or POLLED CATTLE, 15 per cent. under last year's prices.
Ruthwall, Annan.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E., ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.

Price List on application, or six stamps for Catalogue.

The Improved Imperishable Labels !!!
IMPORTANT NOTICE.

J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.

J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose.

All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

J. G. SMEATON & CO.,
Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.

Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.

CONTENTS:—
INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4d.; Stamped, 5d.

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London .. Mr. George Street, 30, Cornhill, E.C.
Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham. Mr. R. S. Kirk, 90, New Street.
Liverpool .. Lee & Nightingale, 15, North John Street.
Bristol .. James & Henry Grace, Royal Insurance Buildings.
Edinburgh .. Robertson & Scott, 13, Hanover Street.
Glasgow .. W. Porteous & Co., 15, Royal Exchange Place.

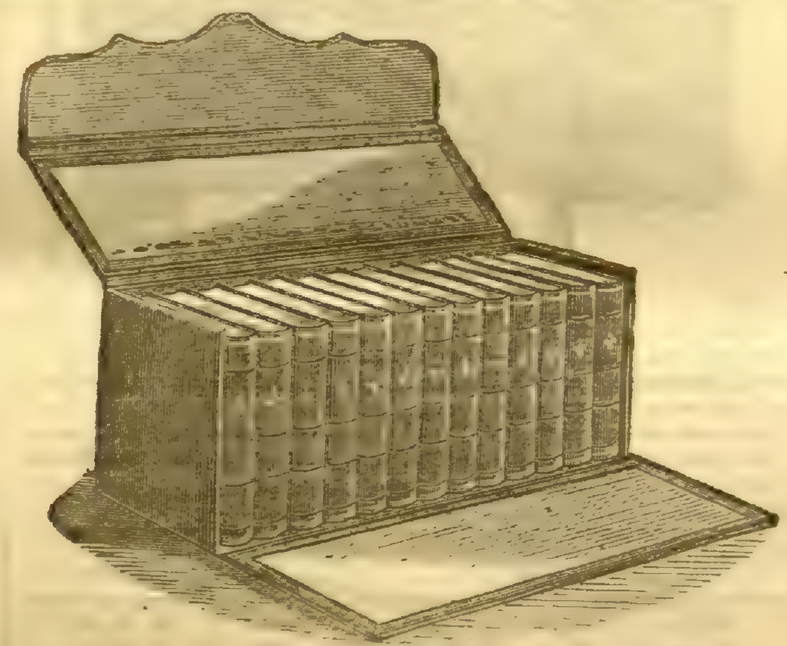
Copies of each Journal are filed at the above Offices for the use of Advertisers.

"NOTHING COULD BE PRETTIER THAN THIS DIAMOND EDITION OF THE POET."

Opinion of "The Sun."

"The paper is toned, the type is exquisitely beautiful, the text is Shakspeare '*pur et simple.*' It is, besides all these, a very marvel of cheapness, as the result of a happy thought most charmingly realised."

THE HANDY VOLUME SHAKSPEARE.



IN BINDINGS SUITABLE FOR PRESENTS.

BOUND IN GREEN CLOTH, *limp, red edges, in a neat cloth case*, price One Guinea.

IN CRIMSON FRENCH MOROCCO, *gilt edges, in an elegant leather case*, price One Guinea and a Half.

IN THE BEST GERMAN MOROCCO, *gilt edges, in an elegant case* (New Style) price Two Guineas and a Half.

IN THE BEST TURKEY MOROCCO, *limp, gilt edges, in case to match, with Lock*, price Three Pounds Ten Shillings.

IN THE BEST RED RUSSIA, *limp, gilt edges, in case to match, with Lock*, price Three Pounds Ten Shillings.

This choice Miniature Edition of "Shakspeare" is in 13 Volumes, 32mo size, and contains the whole of the Plays, Poems, and a Glossary. The Volumes are printed on a slightly toned paper of fine quality, with a new, clear, and readable type, on a page free from Notes—and the Text has been arranged from a close comparison of the most trustworthy editions.

THE AGRICULTURAL GAZETTE,
SATURDAY, SEPTEMBER 12, 1874,

Contains –

ORIGINAL ARTICLES on Wheat: Sheep: Stubbles—Farm Calendar for the Week—The American Horse Distemper—Agricultural Machinery (Illustrated)—Poor Law Relief—Farm Labourers' Perquisites—Irish Agricultural Statistics—Piecework in Farming—Rod and Line in Yorkshire—Fast Trotting—Cricket The Canadian Sprague Mower (Illustrated)—The next Session of Parliament—Bee Show at the Crystal Palace—Sheep in Selkirkshire—Shorthorn Sales—Harvest Reports Notes on the Alder (Illustrated)—Turkeys—Canadian Agriculture.

HOME AND FOREIGN CORRESPONDENCE on the Root Crop—Economical Labour—The Bucks Farmer on Scottish Agriculture—The Object of Ploughing—Rational Enjoyment *vs.* Intemperance—Agricultural Notes from France—Jersey Cattle in America.

FARM NOTES AND MEMORANDA from numerous Counties, &c.

REPORTS OF THE MEETINGS of the Manchester and Liverpool, North Lancashire, Staffordshire, Leyland Hundred, Wigton and Penrith Agricultural Societies are given.

ALSO—

The Veterinarian—The Poultry Yard—The Bee-keeper—The Garden of the Farm—Recent Fairs—Notes of the Week—Ram Sales—Markets, &c

Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

Just Published, imperial 8vo, on fine toned paper, with eleven Illustrative Plates,

THE NATURAL PRINCIPLES of LANDSCAPE GARDENING. By JOS. FORSYTH JOHNSON (Landscape Gardener), Curator, Royal Botanic Gardens, Belfast.

Price 7*s.* 6*d.*, post free 7*s.* 9*d.*, from the Author.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.: or to the Author.

Works on Botany, by Dr. Lindley.

THE VEGETABLE KINGDOM; or, THE STRUCTURE, CLASSIFICATION, AND USES OF PLANTS. Illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25*s.*, with upwards of 500 Illustrations.

EXTRACT FROM THE AUTHOR'S PREFACE.

'The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be brought by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects."

By the same Author.

INTRODUCTION to BOTANY. Fourth Edition, greatly enlarged; with six Plates, and numerous Wood Engravings. Two Volumes, 8vo, 24*s.*

*** It has been the Author's wish to bring every subject that he has introduced down, as nearly as possible, to the state in which it is found at the present day. In doing so, he has added so very considerable a quantity of new matter, especially in what relates to Vegetable Anatomy and Physiology, that the present Edition may be considered, in those respects, a new work.

DESCRIPTIVE BOTANY; or, THE ART OF DESCRIBING PLANTS CORRECTLY, in Scientific Language, for Self Instruction and the Use of Schools. Price 1*s.*

MEDICAL and ŒCONOMICAL BOTANY; or, AN ACCOUNT OF THE PRINCIPAL PLANTS EMPLOYED IN MEDICINE OR DOMESTIC ŒCONOMY. In One Volume, 8vo, with numerous Woodcuts, price 5*s.*

SCHOOL BOTANY; or, THE RUDIMENTS OF BOTANICAL SCIENCE. In One Volume, 8vo, half bound, with 400 Illustrations, price 5*s.* 6*d.*

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

WANTED, a HEAD GARDENER, where ten are kept. None need apply who have not been Head or Second in a Large Establishment. Copies of Testimonials not requiring return may be sent, with other particulars, to Mr. TEMPLETON, West Dean, Chichester.

WANTED, a HEAD GARDENER, by a Lady—a good Managing Man—for a nice place; 20 acres, with Meadow Land, two Cows, &c. Two Men and two Boys kept. Greenhouses, Vines, and all Fruits. Must understand all branches of Gardening, and have a character of at least three years from last place. Not over 35 years of age, married, no family, or a boy who can be employed. A good cottage on the premises; Wife to see to poultry. £65 per annum. Charge of House in absence of Family.—Apply by letter first, with full particulars and name in full, to D. L. P., Post Office, Hounslow, W.

WANTED, a WORKING GARDENER, married, where two men are kept. There is a Kitchen Garden, Flower Garden, and Pleasure Ground, also a Greenhouse and some Plant Pits. An industrious Man, of good character, indispensable. Wages £1 1*s.* per week, with an allowance of coal and a lodge.—Send references, &c., to M. T., Post Office, Woodstock, Oxon.

Roundhay Park.

WANTED, as GENERAL FOREMAN, a well-educated married Man, age 28 to 40. Must thoroughly understand Gardening in all its branches, have had experience in large places, and be able to direct Men in the Making of Roads, Laying-out Grounds to Plan, &c. An excellent cottage, with liberal wages, to a competent Man of good moral character.—Apply, by letter, in own handwriting, with copies of testimonials and wages required, to Mr. CLARK, Manager, Roundhay Park, Leeds.

WANTED (where an Assistant is kept), a married MAN, of middle age, without family, to take Entire Charge of a small place in Yorkshire. There are Flower and Kitchen Gardens, Vinery and Greenhouse, all of which are very small, but must be well kept; also a few Acres of Grass Land, two Cows, and a pair of Carriage Horses. A comfortable cottage, with liberal wages, to a well qualified Man, whose character will bear investigation.—Apply, by letter only, with copies of testimonials and wages required, to Mr. CLARK, Manager, Roundhay Park, Leeds.

WANTED, a thoroughly competent MAN (married), to Grow for Market Hard and Soft-wooded Plants, with a knowledge of Propagating, Budding, Grafting, and able to bring things on in quick succession. None but steady, trustworthy Men need apply, as the situation is a responsible one. Wages 30*s.* weekly.—Apply, by letter, with age, references, &c., to H. J. ROSE, Oak Hill Nursery, Surbiton, S.W.

WANTED, a young MAN, of at least five years' experience in Orchard-houses—if married, no child over two years old. Wages 17*s.* 6*d.* weekly, with lodging or small cottage.—C. W. PREEDY, Esq., Hitchin.

WANTED, a sober industrious MAN, experienced in Planting and General Nurserywork. Wages 21*s.*, to a competent Man.—R. THORNHILL, Nurseryman, Bowdon, Cheshire.

WANTED, a young Man, about 18 or 20 years of age, as IMPROVER, in a Nobleman's Garden, where a general system of Gardening is carried on. A Premium required.—D. JUDD, The Gardens, Hawkstone, Shrewsbury.

WANTED, a JUNIOR CLERK and SHOPMAN, a neat Writer, and of fair experience in Putting Up Seed Orders neatly and carefully. Wages 21*s.* per week.—Apply by letter only, stating experience had, to PAUL AND SON, The Old Nurseries, Cheshunt, N.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD), where four or more are kept.—Age 29, married, no family; has had thirteen years' experience in large Establishments both in England and Scotland. Character will bear the most strict investigation on every point. Personal references to present and previous employers.—GARDENER, Henleafe Park, Westbury-on-Trym, near Bristol.

GARDENER (HEAD).—Age 35, married; thoroughly understands his duties. Good character.—J. H., 5, Commercial Place, Station Road, Herne Hill, S.E.

GARDENER (HEAD, WORKING), where help is given.—Age 28, married: thoroughly understands the profession. Has served six years as Foreman at Keythorpe Hall. Can be highly recommended by present and previous employers.—J. R. M., Keythorpe Hall Gardens, Leicestershire.

GARDENER (HEAD, or good SECOND).—Age 28, single; has a thorough knowledge of the profession. Two years' excellent character from present situation.—H. B., Roxborough, Loughrea, County Galway, Ireland.

GARDENER, in a place where trust and confidence are required.—Age 31, married, respectable; thoroughly understands the profession in all its branches. Seven years' character from present employer.—D. G., Mr. Joyce, Florist, Meadow Cottage, Godalming.

GARDENER.—A LADY, breaking up her household, highly recommends her Gardener as thoroughly efficient and satisfactory in every respect.—Miss CALVERLEY, Ashcott, Bridgewater, and Mr. COULDREY, Gardener, South Stoke, Bath.

GENERAL MANAGER.—The Advertiser, having been a large Grower of Orchids, &c., as an Amateur (formerly F.H.S.), desires an appointment in the Establishment of a Lady, Nobleman, or Gentleman, as general Caretaker and Overlooker of the Estate and Gardens. Good references.—M. T. C., Post Office, Tonbridge, Kent.

GARDENER (SINGLE-HANDED).—Thoroughly understands Greenhouse, Flower and Kitchen Gardening. Four years in last situation.—A. B., Crown Inn, Morden, Surrey.

GARDENER (UNDER, or SINGLE-HANDED).—Two and a half years' good character.—G. B., St. Leonard's Green, near Hastings.

GARDENER (UNDER, or SECOND).—Age 20; thoroughly experienced, sober; well recommended. Permanent place, near London.—MELLISH, *Gardeners' Chronicle* Office, W.C.

GARDENER (UNDER).—Age 21; six years' experience. Character will bear the strictest investigation.—H. J., 6, Selby Street, Analaby Road, Hull.

GARDENER (UNDER).—Age 23, single; well acquainted with Vineries, Pineries, and Cucumber and Flower Houses. Five and a half years' good character.—B. B., Post Office, Burghfield, near Reading.

FOREMAN, in a good Garden.—Has a knowledge of the profession in all its branches. Excellent character, references, &c.—Rev. Canon KING, Christ Church, Oxford.

GARDENER (JOURNEYMAN), in a large Establishment.—Age 23: understands Melons, Cucumbers, and has a good knowledge of Grapes, Stove and Greenhouse Plants Good character.—E. F., Post Office, Chilsfield, Kent.

FOREMAN.—Age 28, single; good Propagator; thirteen years' practical experience. Can be well recommended.—W. B., 2, Salisbury Road, Upper Holloway, N.

FOREMAN, in a Nursery.—A young Man, well acquainted with Stove and Greenhouse Plants, Ferns, &c., Budding, Grafting, and the general routine of Nurserywork. Good references.—J. H., The Nursery, Edgend, Marsden, near Burnley.

FOREMAN, or FOREMAN and PROPAGATOR.—Twenty-five years' practical experience.—A. Z., Rose Cottage, Morden Road, Mitcham.

IMPROVER, in a Large Establishment (age 21).—THOMAS SIMPSON, The Gardens, Broomfield Lodge, Chelmsford, can confidently recommend a young Man as above, and will be glad to answer any inquiries.

IMPROVER, under a Nobleman's or Gentleman's Gardener.—Age 18; respectable.—For particulars address Mr. EDWARD THORNE, Swan Tvow Inn, Kempsey, near Worcester.

APPRENTICE, in a Nobleman's or Gentleman's Garden.—A strong, active youth, 16 years of age; has been twelve months in the trade. A Premium given.—C. B. B., Pemberry Cottage, College Street, Highbury Vale, London, N.

To the Seed Trade.

SHOPMAN or TRAVELLER.—Married; ten years in the business. First-class references.—M. 212, H. Greenwood, Advertising Agent, Liverpool.

SHOPMAN (ASSISTANT).—A young Man; has served his apprenticeship in a first-class House, to which reference can be made.—E. O'S., 126, Stephen's Green, Dublin.

SHOPMAN.—Age 25; nine years' experience in the Retail Seed and Nursery Trade.—J. M., Post Office, Dumfries.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.

Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA, BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*

MANUFACTURE OF COCOA.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*

Made simply with boiling water or milk.

Sold by Grocers, only in packets, labelled

JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS, 48, Threadneedle Street, and 170, Piccadilly, W.

Works:—Euston Road, and Camden Town, N.W.

PURE AERATED WATERS—ELLIS'S RUTHIN WATERS—Soda, Potass, Seltzer, Lemonade, Lithia, and for GOUT, Lithia and Potass.

Corks Branded "R. ELLIS AND SON, RUTHIN," and every label bears their trade mark. Sold everywhere, and Wholesale of R. ELLIS and SON, Ruthin, North Wales.

LONDON AGENTS:—W. BEST AND SONS, Henrietta Street, Cavendish Square.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W., and of all Chemists throughout the World.

J. LINDEN,

52, RUE DU CHAUME, GHENT, BELGIUM.

PALMS SUITABLE FOR TABLE DECORATION.

COCOS WEDDELLIANA, 1 foot high, 5 to 6 leaves, splendid plants, 30*s*. each.
KENTIA BALMOREANA, 1 foot high, 6 to 7 leaves, 80*s*. per dozen.
THRINAX ELEGANS, 1 foot high, 9 to 11 leaves, 40*s*. per dozen.
GEONOMA GRACILIS, 1 foot high, 4 to 6 leaves, 164*s*. per dozen, (this splendid new Palm greatly resembles Cocos Weddelliana).
DÆMONOROPS MELANOCHÆTES, 1 foot high, 6 to 7 leaves, 80*s*. per dozen.
EUTERPE ELEGANS (far more elegant than E. Edulis), 1 foot high, 3 to 4 leaves, 30*s*. per dozen.
GEONOMA SPIXIANA, 2 feet high, 5 to 7 leaves, 40*s*. per dozen.
CHAMÆDOREA ELEGANTISSIMA, 2 feet high, 3 to 4 leaves, 30*s*. per dozen.
WELFIA REGIA, 1½ foot high, 4 to 6 leaves, 24*s*. per dozen.
LIVISTONIA ROTUNDIFOLIA, 10 to 12 inches high, 6 to 8 leaves, 60*s*. per dozen.

All the above are beautifully grown Plants, and fit for immediate use for decorative purposes.

DRACÆNA REALI, 40s. each. This was the Grand Attraction at the Florence International Exhibition.

Our ENGLISH SPECIAL CATALOGUE, with descriptions of Azaleas, Camellias, and Rhododendrons, is now ready, and may be had gratis on application to our Agents.

ALL ORDERS CAREFULLY PACKED, and PLANTS ADDED GRATIS TO COMPENSATE FOR CARRIAGE.

STEAMERS DIRECT FROM GHENT TO LONDON EVERY WEEK.

AGENTS IN LONDON, Messrs. R. SILBERRAD & SON, 5, HARP LANE, GREAT TOWER STREET, E.C.

NEW APPLE—"LADY HENNIKER."

Raised by Mr. JOHN PERKINS, Gardener to Lord Henniker, Thornham Hall, Eye, Suffolk.

Obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, 12th November, 1873.

The following description is taken from the *Journal of Horticulture*, for January 8, 1874.

The fruit is very large, roundish, narrowing a little towards the apex, and with blunt angles on the sides, which terminate in prominent ridges round the eye. Skin yellow on the shaded side, with a faint blush of red, which is covered with broken streaks of crimson on the side next the sun. Eye large and open, with short segments, and set in a very deep and angular basin. Stalk very short, set in a very deep, wide russety cavity. Flesh very tender in the grain, well flavoured, and with a pleasant perfume.

A first-rate Apple, chiefly valuable as a cooking variety, but useful also in the dessert. Season from October to February.

EWING & CO., THE ROYAL NORFOLK NURSERIES, NORWICH,

Have much pleasure in introducing this splendid novelty, for which they are now booking orders. Having purchased the entire stock of it from Mr. Perkins, they purpose distributing maiden plants on and after the 1st of November next. The price will be as follows :—

Strong Maidens, 7s. 6d. each. Three ditto, 20s. The usual Discount to the Trade.

A circular with full particulars will be forwarded gratis and post free to applicants. A list of those Nurserymen who have ordered a supply, and who will consequently have Plants to offer next autumn, will be advertised shortly.

IMPORTANT NOTICE.

TANTON'S ROLLER CRUSHED BONES FOR VINES, PLANTS, &c.,

As exhibited at South Kensington, Crystal Palace, Brighton, &c., &c., are ready for delivery, by the Bushel, Hundredweight, or Ton. Price on application.

SAMPLE PECK SENT TO ANY ADDRESS ON RECEIPT OF THIRTY STAMPS.

RANSLEY TANTON, F.R.H.S.,

SEED and MANURE WAREHOUSE, BOROUGH END, LONDON BRIDGE, S.E.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, September 12, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 38.—Vol. II. { New Series. } SATURDAY, SEPTEMBER 19, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

America, a clearing in a forest of Central (with cut) 360
American blight, a preventive and cure of .. 370
Artisans' Dwellings' Company 365
Campanula isophylla .. 366
Canine madness 362
Carnivorous plants .. 354
Centaury, the (with cut) . 357
Cherries, best varieties of 362
Colchicum speciosum .. 366
Decabelone elegans .. 366
Dendrobium arachnites . 354
Drudge, the horticultural 356
Easter mangiants and herb puddings 355
Ebony from seaweed .. 366
Farm, the 362
Ficus elastica fruiting (with cut) 359
Flowers at funerals .. 353
Fuchsia Ben d'Israeli .. 366
Garden operations .. 374
Giant bunches of Grapes 369
Guano deposits 365
Hamilton Palace Gardens 359
Hawkes' Bay, Jottings in 365
Kew Gardens 369
Lilies and Lily culture .. 365
Natural history 362
Oxalis lobata 366
Pelargonium Society, the 370
Phosphorescence of fungi and wood 361
Pinus densiflora var. albifolia (with cut) .. 366
Plants, new garden .. 354
Pleocnemia Leuzeana (with cut) 354
Rampion: its culture and usefulness 360
Roses and Rose shows .. 368
Rye-grass seeds, killing and colouring 369
Societies:—
Brighton and Sussex Horticultural .. 370
Bury and West Suffolk 373
Glasgow and West of Scotland 372
Hayle Horticultural .. 372
Newbury Horticultural 372
Preston Horticultural 371
Royal Caledonian Horticultural 373
Saffron Walden Horticultural 373
Sawbridgeworth Horticultural 373
Sittingbourne Horticultural 373
Spathicarpa platyspatha 365
Sweet Flag, the 370
Trees and shrubs in Cornwall 370
Vegetable horse, the .. 370
Villa garden 373
Vine-borders, covering .. 370
Violet, the 357
Weather, the 376
West India fruits .. 367
West, notes from the far 370
Wistaria sinensis .. 370

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is $6.30 gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth*, 16*s*.
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

ROYAL POMONA PALACE and GARDENS, MANCHESTER.
A GRAND EXHIBITION of NATIVE and EXOTIC FRUITS, CHRYSANTHEMUMS, FLORAL BOUQUETS, CONIFEROUS PLANTS, &c., will be held on TUESDAY, WEDNESDAY, and THURSDAY, December 1, 2, and 3 next.
Schedules are now ready, and may be had from the various Seed Establishments in Manchester, or from JAMES REILLY.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—The GREAT INTERNATIONAL FRUIT and FLOWER SHOW will be held in Edinburgh on WEDNESDAY and THURSDAY, September 15 and 16, 1875.
JOHN STEWART, Sec.
WM. YOUNG, Assist. Sec.

GIBSON TESTIMONIAL.
For full particulars, see *Gardeners' Chronicle*, p. 204.
Amount already promised, £411.
Subscriptions are received by
Mr. THOMAS MOORE, Treasurer, Botanic Gardens, Chelsea, S.W.; or,
Mr. HARRY J. VEITCH, Hon. Sec., Royal Exotic Nursery, King's Road, Chelsea, S.W.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to
CARTERS', The Royal Seedsmen, High Holborn, London.

STOVE PLANTS for SALE.—Alocasia metallica, Alocasia macrorhiza variegata, Cissus discolor, Croton variegatum, Areca Verschaffeltii—fine specimens, with several others. For particulars apply to
W. WELCH, Highgrove Gardens, Reading, Berks.

Dutch Bulbs.

CHARLES TURNER'S large importations have arrived in excellent condition, and he is prepared to execute Orders on receipt. CATALOGUES on application.
The Royal Nurseries, Slough.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete ever published.
Hale Farm Nurseries, Tottenham, London, N.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other Dutch Roots, in fine condition. Early orders are requested. CATALOGUES post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s*. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

J. LINDEN, 52, Rue du Chaume, Ghent, Belgium. The English CATALOGUE of Azaleas, Camellias, Rhododendrons, &c., is just published, and may be had gratis of
Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Fine Strawberries.

CHARLES TURNER recommends the following, to fruit in the order named:—La Grosse Sucrée, President, Vicomtesse H. de Thury, Sir J. Paxton, Royalty, Sir C. Napier, Frogmore Late Pine, and Elton Pine. These are all good growers and have fine flavour. CATALOGUES on application. The Royal Nurseries, Slough.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s*. to 60*s*. per dozen. Extra strong Fruiting Canes, 7*s*. 6*d*. to 10*s*. 6*d*. each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s*. each.
RICHARD SMITH, St. John's Nurseries, Worcester.

Horticulture.

THOMAS RIVERS' Descriptive and Illustrated CATALOGUE of FRUITS is now ready. Also, CATALOGUE of SELECT ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Trade List.

GEORGE GRAY AND SON, of the Nurseries, Brox, Chertsey, Surrey, will be pleased to forward their LIST of FRUIT TREES, ROSES, and other NURSERY STOCK, free on application. Prices will be found very moderate.

HARDY WELSH WINTER VETCHES, and all other seeds for present sowing.
JAMES DICKSON AND SONS, 108, Eastgate Street, Chester.

The New American Potatos.

SNOWFLAKE, BROWNELL'S BEAUTY, | EXTRA EARLY VERMONT, COMPTON'S SURPRISE.

HOOPER AND CO. are large holders of these very choice sorts, and can give special advantages to buyers in the trade during the autumn. Prices on application.
HOOPER AND CO., Covent Garden, London, W.C.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL IN RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

WANTED, 1000 or less 2-yr. old KESWICK CODLIN APPLE TREES. Send lowest price to
J. G. MITCHINSON, Seed Stores, Penzance.

WANTED, good STANDARD TREES of the following sorts (6 feet stems):—Early Morocco Plum, Cluster Damsons, Hessle Pears, Williams' Bon Chrétien, and other good sorts. State price per 100 to
EDWARD THOMAS, Harold Nursery, Sittingbourne, Kent

WANTED, strong ALDER, BIRCH, &c. Gentlemen in the Trade are requested to state, early, what they offer in good seedling and transplanted Nursery Stock for Cash on Delivery.
JOSEPH TREMBLE AND SONS, Seedsmen, &c., Penrith.

WANTED, LARCH FIR, from 1½ to 2 feet high. State price and quantity.
GEORGE TOWNSEND, Nurseryman, Fordham, near Soham.

ADIANTUM FARLEYENSE.—Strong stocky plants, with fine fronds, 30*s*. per dozen.
J. MORSE, Nurseryman, Dursley.

SUNDEWS—DROSERA ROTUNDIFOLIA.—See *Gardeners' Chronicle*, page 260. One Plant 9*d*., or six strong in flower, or seed, 2*s*. 6*d*. Free by Post.
A. W., Highampton, Devon.

SWEET VIOLETS.—Extra strong blooming Plants of LEE'S VICTORIA REGINA at 6*s*., 9*s*., and 12*s*. per dozen; 1*s*. each post free. Also CZAR, KING, QUEEN, and other varieties. See Autumn Catalogue, free.
B. R. DAVIS, Seedsman, Florist, &c., Yeovil.

Lily of the Valley.

ROBERT NEUMANN, The Nurseries, Erfurt, begs to offer large quantities of strong flowering roots, for forcing, of the above, at 45*s*. per 1000.
Also strong clumps of SPIRÆA (HOTEIA) JAPONICA.

Wheeler's Superb Herbaceous Calceolaria.

GEO. WHEELER is prepared to offer packets, post free, at 1*s*. 6*d*., 2*s*. 6*d*., and 3*s*. 6*d*. each, of his very superior Strain. Being dwarf and robust the habit of the Plants is all that can be desired, and may generally be grown without the aid of sticks to support the flower-stems.
Young plants of the above may be sent safely by post, when ready, at 3*s*. per dozen.
The Nurseries, Warminster, Wilts.

CINERARIAS.—Seedlings of the finest Strains, including Dark and Light Blues, Strong Plants from Seed Pans, 1*s*. 6*d*. per dozen, 10*s*. per 100.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

Spiræa japonica.—To the Trade Only.

H. B. SMITH is now booking orders for strong Flowering Clumps, at 25*s*. per 100, and £12 per 1000, for cash.
H. B. SMITH, Ealing Dean Nursery, Ealing, London, W.

To the Trade.—Spiræa japonica.

ALFRED TOOVEY, having several thousands of the above (strong plants, for forcing) to offer, can sell them at the following very low prices, viz.: 16*s*. per 100 clumps, or £6 per 1000 clumps. May be had immediately.
Nursery and Seed Establishment, 214, Rue Josaphat, Schaerbeck, by Brussels.

ROSES for SALE.—Five Hundred very fine, large Specimen-sized trained Plants, grown in Pots. The Best Varieties in Cultivation.
The above Stock can be seen on the grounds after September 21. All applications to be addressed
THOMAS EAST, Wolveton Gardens, Dorchester, Dorset.

Roses, Roses, Roses.

EWING AND CO.'S Illustrated, Priced, and Descriptive CATALOGUE will shortly be ready. All Rosarians should possess a copy, which will be forwarded, gratis and post free, to applicants.
The Royal Norfolk Nurseries, Norwich.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

Surplus Stock of Large Azaleas and Tea Roses.

H. BOYCE, having many more than he can find room for, will dispose of them cheap. They are particularly well set for blooming early, and well adapted for cut flowers.
Also a fine Stock of VINES from Eyes, of all the leading kinds. Clapham Road Nursery, S.W.

British Fern Catalogue.

ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

To the Trade only.

PALMS.—Latania borbonica (from three to four years), 2*s*. each; Corypha australis, strong plants, 5*s*. each, smaller 20*s*. per dozen; Areca rubra, £3 per 100; Euterpe Edulis, £3 per dozen.
A. TOOVEY, Nursery and Seed Establishment, 214, Rue Josaphat, Schaerbeck, by Brussels.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1*s*. per bushel, or 6*d*. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

Newly Imported Plants.

CYPRIPEDIUM JAPONICUM, eyes just starting; NERINE JAPONICA, a new hardy Amaryllid; CALOCHORTUS LUTEUS, bulbs very large; BLOOMERIA AUREA, new; IRIS IBERICA, IRIS CAUCASICA, LILIUM DALMATICUM.

The New Plant and Bulb Company, Colchester.

LARGE STANDARD TREES for SHELTER and IMMEDIATE EFFECT.—Acacia, Mountain Ash, Birch, Chestnut, Norway Maple, Poplar, Sycamore, and Willow, all 10 to 12 feet high, at 9*s.* per dozen, £3 per 100; Birch, Maple, Poplar, Sycamore, Willow, 12 to 15 feet, 12*s.* per dozen, £4 per 100; Birch, Poplar, and Willow, 15 to 20 feet, 15*s.* per dozen. Forest Trees of all sizes at very low prices. Berberis, Mahonia, 2 to 3 feet, 12*s.* per 100, £5 per 1000; Scotch Fir, 4 to 5 feet, every plant a specimen, 6*s.* per dozen, £2 per 100. All the above extra transplanted and well rooted. Early orders solicited.

R. THORNHILL, Bowdon Nurseries, Bowdon, Cheshire.

STRONG BLACK CURRANTS, 12*s.* per 100, £5 per 1000; RED CURRANTS, 10*s.* per 100, £4 per 1000; GOOSEBERRIES, 12*s.* per 100, £5 per 1000; RASPBERRIES, Red Antwerp, 8*s.* per 100, £4 per 1000; extra fine 4-yr. APPLES, best sorts, 9*s.* per dozen, £3 per 100; 2 and 3-yr. APPLES, fine, 7*s.* per dozen, 50*s.* per 100; extra fine 4-yr. PEARS, 12*s.* per dozen, £4 per 100; 2 and 3-yr. PEARS, fine, 9*s.* per dozen, £3 per 100; a few extra strong Pyramid APPLES, PEARS, PLUMS, and CHERRIES, 2*s.* 6*d.* to 5*s.* each. Early orders solicited.

R. THORNHILL, Bowdon Nurseries, Bowdon, Cheshire.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

Now ready, Gratis and Post-free,

Beautifully Illustrated, and containing complete Cultural Instructions.

SUTTONS' CHOICE COLLECTIONS OF

SPRING FLOWERING BULBS.

For Spring Blooming in the Open Ground.

Collections containing from 140 to 1000 Bulbs, according to Size.

Price 5*s.*, 10*s.* 6*d.*, 21*s.*, and 42*s.* each. Larger size Collections Carriage Free.

For Spring Blooming in Pots or Glasses.

Collections containing from 70 to 280 Bulbs, according to size.

Price 10*s.* 6*d.*, 21*s.*, and 42*s.* each. Larger size Collections Carriage Free.

SUTTON & SONS,

THE QUEEN'S SEEDSMEN, READING.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS

BEG TO ANNOUNCE THAT THEY HAVE RECEIVED THEIR

ANNUAL SUPPLY OF HYACINTHS AND OTHER BULBOUS ROOTS

from Holland, and are pleased to say that they are in SPLENDID CONDITION.

J. VEITCH AND SONS have pleasure in announcing that they have gained all the principal PRIZES for HYACINTHS and TULIPS in the Trade Classes, for the last four years, at the various Spring Exhibitions.

For the convenience of those Customers who do not desire to enumerate their own Varieties of Hyacinths, J. V. & SONS will be pleased to make up liberal Selections of the best Varieties at the following prices:—

	Per Dozen.
Single Blue, various shades	6*s.*, 9*s.*, and 12*s.*
„ Red „ „	6*s.*, 9*s.*, „ 12*s.*
„ White „ „	6*s.*, 9*s.*, „ 12*s.*
„ Yellow „ „	6*s.*, 9*s.*, „ 12*s.*
Double Blue „ „	6*s.*, 9*s.*, „ 12*s.*
„ Red „ „	6*s.*, 9*s.*, „ 12*s.*
„ White „ „	6*s.*, 9*s.*, „ 12*s.*
„ Yellow „ „	6*s.*, 9*s.*, „ 12*s.*

For prices of Tulips, Narciss, Crocus, and other Bulbous Roots, see ILLUSTRATED BULB CATALOGUE, now published, and sent, Post Free, on application.

JAMES VEITCH AND SONS, ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

LONDON. *Now Ready, Gratis and Post Free,* VIENNA.

DICK RADCLYFFE & CO.'S

ILLUSTRATED

AUTUMN CATALOGUE

OF

HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.,

FRUIT TREES, & HORTICULTURAL ELEGANCIES.

COLLECTIONS OF DUTCH BULBS, 10s. 6d. to 63s. each.

For DETAILED LIST see D. R. & CO.'s ILLUSTRATED CATALOGUE.

DICK RADCLYFFE AND CO., 129, HIGH HOLBORN, LONDON, W.C.

J. LINDEN,

52, RUE DU CHAUME, GHENT, BELGIUM.

TO THE TRADE ONLY.

PALMS SUITABLE FOR TABLE DECORATION.

COCOS WEDDELLIANA, 1 foot high, 5 to 6 leaves, splendid plants, 30*s.* each.
KENTIA BALMOREANA, 1 foot high, 6 to 7 leaves, 80*s.* per dozen.
THRINAX ELEGANS, 1 foot high, 9 to 11 leaves, 40*s.* per dozen.
GEONOMA GRACILIS, 1 foot high, 4 to 6 leaves, 164*s.* per dozen. This splendid new Palm greatly resembles Cocos Weddelliana.
DÆMONOROPS MELANOCHÆTES, 1 foot high, 6 to 7 leaves, 80*s.* per dozen.
EUTERPE ELEGANS (far more elegant than E. Edulis), 1 foot high, 3 to 4 leaves, 30*s.* per dozen.
GEONOMA SPIXIANA, 2 feet high, 5 to 7 leaves, 40*s.* per dozen.
CHAMÆDOREA ELEGANTISSIMA, 2 feet high, 3 to 4 leaves, 30*s.* per dozen.
WELFIA REGIA, 1½ foot high, 4 to 6 leaves, 24*s.* per dozen.
LIVISTONIA ROTUNDIFOLIA, 10 to 12 inches high, 6 to 8 leaves, 60*s.* per dozen.

All the above are beautifully grown Plants, and fit for immediate use for decorative purposes.

DRACÆNA REALI, 40s. each. This was the Grand Attraction at the Florence International Exhibition.

PTYCHOSPERMA ALEXANDRÆ, 10 inches high, 4 to 5 leaves, 40*s.* per 100.
THEOPHRASTA IMPERIALIS, 10 inches high, 5 to 7 leaves, 40*s.* per dozen.
ARECA MONOSTACHYA, young seedlings, 4 to 5 leaves, 40*s.* per 100.
PANDANUS VEITCHI, nice plants, 5*s.* each.
PANDANUS TENUIFOLIUS, magnificent plants, 1½ to 2 feet high, 15 to 20 leaves, 40*s.* per dozen.

Our ENGLISH SPECIAL CATALOGUE, with descriptions of Azaleas, Camellias, and Rhododendrons, is now ready, and may be had gratis on application to our Agents.

ALL ORDERS CAREFULLY PACKED, and PLANTS ADDED GRATIS TO COMPENSATE FOR CARRIAGE.

STEAMERS DIRECT FROM GHENT TO LONDON EVERY WEEK.

AGENTS IN LONDON, Messrs. R. SILBERRAD & SON, 5, HARP LANE, GREAT TOWER STREET, E.C.

WANTED, a small NURSERY, on an acre and a half or two acres of land, for a term of years, with immediate possession, within 12 miles of London.
J. C., 1, Wellington Place, North Dulwich, S.E.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes.

THE CHEAPEST AND MOST DURABLE
SHADING.
"FRIGI DOMO" CANVAS.

Two yards wide	.. ..	1s. 10d. per yard run.
Three yards wide	.. ..	3s. per yard.
Four yards wide	.. ..	3s. 10d. per yard.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 4d. per yard.
E. T. ARCHER, Stanstead and Brockley Roads, Forest Hill, London, S.E. All goods carriage free to London.
NOTICE.—REMOVED from 3, CANNON STREET, CITY.

WANTED, in two or three months, Two or Three Acres of productive GARDEN GROUND and HOUSE, suitable for a Market Gardener, within 10 or 12 miles of Covent Garden. Apply to
J. L., 6, Augusta Place, Lyncomb Hill, Bath.

Hyacinths in Pots.

POTS made expressly for HYACINTHS can be supplied by
J. MATTHEWS, The Royal Pottery, Weston-super-Mare.
Price List free.

Rhubarb and Seakale Forcing.

STRONG, well made POTS for the above can be supplied by
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List free.

GARDEN POTS, ORCHID POTS, ALPINE POTS, FERN PANS, SEED PANS, and all other GARDEN POTTERY of the best quality can be supplied by
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List free.

WANTED to RENT, a small NURSERY and SEED BUSINESS, within 30 miles of London, and in or near a good Market Town. Address, with full particulars, A. M., 2, St. James' Street, Islington, N.

TO BE SOLD, cheap, 200 tons of SILVER SAND—not less than 2 tons in one lot. For samples and prices, address
C. W. T., 18, St. Thomas Street, Islington, London, N.

GREEN'S BOILER for SALE.—Only used one season. To be sold for half-price in consequence of being replaced by a larger one. Will do upwards of 1000 feet easily. Price, complete, £15. Apply to
H. B. SMITH, Ealing Dean Nursery, Ealing, W.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.
For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.
For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

WINTER and SPRING FLOWERS.

CARTER'S COLLECTIONS OF BULBS

For the OPEN GROUND, adapted for ORDINARY GOOD GARDEN SOIL.

COLLECTION No. 14, *Price* 21*s.* (*Packing and Carriage Free*), *contains* :—

Hyacinths, 12, in three colours.
Narcissus, Double white, 12.
,, Poeticus, or Pheasant-eye, 12.
Double Daffodils, 25.
Tulips, extra fine mixed, double, 12.
,, ,, ,, single, 12.
,, finest mixed, late, 12.
,, Duc Van Thol, 12.
Polyanthus Narcissus, fine mixed, 6.
Campernel Jonquils, 6.
Star of Bethlehem, 12.
Triteleia uniflora, 6.
Dog's-tooth Violets, 6.
Crocus, blue, 25.
,, striped, 50.
,, large yellow, 50.
Crocus, white, 25.
Anemones, extra fine mixed, 24.
Iris, extra choice mixed English, 12.
,, extra fine mixed Spanish, 12.
Lilium candidum, 3.
,, tigrinum, 3.
Ranunculus, extra fine mixed, 24.
Snowdrops, 50. Winter Aconites, 24.

Other Collections, price 10*s.* 6*d.*, 42*s.*, 63*s.*, and 84*s.* 20*s.* value Carriage Free.

THE NEW AND BEAUTIFUL COLEUS, "DUCHESS OF EDINBURGH."

Awarded First-class Certificates: Royal Horticultural Society, June 17, 1874; Royal Botanic Society, June 20, 1874.
JAMES CARTER AND CO., having purchased the Entire Stock of this charming Plant, are prepared to supply Orders at once. As the demand must be great, Orders will be executed in strict rotation as received.
Extra Strong Plants 7*s.* 6*d.*, post free 8*s.* Smaller Plants, 5*s.*, post free 5*s.* 6*d.*

CARTER'S, THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

CHOICE IMPORTED and ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 22, at half-past 12 o'Clock precisely, a

COLLECTION of CHOICE IMPORTED and ESTABLISHED ORCHIDS,

including Eleven good Plants of the exceedingly beautiful and rare CATTLEYA EXONIENSIS, several established Plants of ODONTOGLOSSUM ROEZLII, ODONTOGLOSSUM ANGUSTATUM, VANDA LAMELLATA, various MASDEVALLIAS and other choice things; a large importation of EPIDENDRUM VITELLINUM MAJUS from Mexico. Also an Importation of the rare CYPRIPEDIUM CANDIDUM, with various other Imported Orchids.

On view morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

Have the largest and most complete Stock in the Trade of

HOT-WATER BOILERS, | PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

They are thus enabled to offer these Goods at Low Prices, notwithstanding the very great increase in the cost of all kinds of Iron.

NEW PATENT CLIMAX BOILER (1874).

GOLD MEDAL BOILER (Birmingham, 1872).
PATENT EXCELSIOR BOILER (1871).

HOT-WATER APPARATUS ERECTED COMPLETE.
PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE.

CARSONS' PAINT,

PATRONISED BY THE QUEEN,
The British, Indian and Colonial Governments, 8000 of the Nobility, Gentry, and Clergy, Railway and Canal Companies, Collieries, Ironmasters, &c., &c.,
Is extensively used for all kinds of

OUTDOOR WORK.

It is especially applicable to
WOOD, IRON, BRICK, STONE & COMPO.
CAN BE LAID ON BY UNSKILLED LABOUR.
Sold in all Colours.
2 cwt. free to all Stations.
Prices, Patterns, and Testimonials sent Post Free.

WALTER CARSON & SONS,
LA BELLE SAUVAGE YARD,
LUDGATE HILL, LONDON, E.C.,
And 21, BACHELOR'S WALK, DUBLIN.
NO AGENTS.

DOUBLE FLOWERED CINERARIA.—This Novel Strain has received *a Silver Medal at the International Horticultural Exhibition at Florence;* First-class Certificate from the Royal Horticultural Society, Kensington. Packets of Seed, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Also

PRIZE STRAINS

of Primula, Calceolaria, Pelargonium, Cyclamen, Gloxinia, Begonia, Cineraria, Fuchsia, Coleus, Auricula, Carnation, and Petunia; each 2*s.* 6*d.* per packet.

Mr. WILLIAM BULL'S
Establishment for Choice Seeds and New and Rare Plants,
King's Road, Chelsea, London, S.W.

September and October are the Best Months
for SOWING our

INTERNATIONAL PRIZE CYCLAMEN PERSICUM SEED, saved from the finest exhibition collections extant. We offer New Seed of our unrivalled strains of this so justly popular flower, and call special attention to our sweet-scented white variety.

Per pkt.—	s.	d.
CYCLAMEN PERSICUM album odoratum (white sweet-scented)	3	6
,, ,, atrorubrum grandiflorum (dark red)	3	6
,, ,, fl. roseo (rose-coloured)	2	6
,, ,, carmineum (carmine)	2	6
,, ,, maculatum (crimson spotted)	2	6
,, ,, purpureum (dark purple)	3	6
,, ,, variegatum (white edged, striped or spotted)	2	6
,, ,, coccineum (bright crimson)	3	6
The above eight varieties, one packet of each	21	•
,, ,, mixed	2	6

Special quotations to the Trade.

F. SANDER AND CO., New and Rare Seed Importers and Growers, Royal Herts Seed Establishment, St. Albans.

DR. DENNY'S GERANIUMS.
SECOND SET.

JOHN COPELIN
Begs to announce that the Price of the above is now reduced to 10*s.* 6*d.* per set.

TYSSEN STREET NURSERIES, WEST HACKNEY, LONDON, N.

NEW PLANT CATALOGUE 1874,
Gratis and Post Free.

B. S. WILLIAMS'
NEW PLANT AND GENERAL
CATALOGUE OF NURSERY STOCK
Is now ready, and will be forwarded to all applicants.

It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

PANCRATIUM NOTATUM
AND
CRINUM PRATENSE CANALICULATUM,
Vide Illustrations, Descriptions, and Prices in
MR. WILLIAM BULL'S
BULB CATALOGUE,
Just issued.

ESTABLISHMENT for NEW and RARE PLANTS,
KING'S ROAD, CHELSEA, LONDON, S.W.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT,
QUEEN VICTORIA STREET,
CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH
Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),
FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to
THOMAS THORNTON,
Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

PAUL'S ROSES.

"Mr. Wm. Paul has been deservedly placed at the head of English Rose growers."—*Standard.*
"The Roses of Mr. Paul are things to see once and dream of for ever."—*Athenæum.*
"Mr. Wm. Paul is famous for his Roses all over the world."—*The Graphic.*
"Mr. Paul is the most successful Rose grower in England."—*Journal of Agriculture.*

WM. PAUL,
PAUL'S NURSERIES, WALTHAM CROSS, HERTS,
BEGS TO ANNOUNCE THAT HIS
NEW ROSE CATALOGUE
Is now ready, and will be forwarded Gratis and Post Free on application.

The Public is respectfully requested to observe—

1. That the stock is in the finest possible condition. The growth is healthy, moderate, and well matured, rather than gross and ill-ripened.
"Despite the much talked of disadvantages of the season in regard to Roses, Mr. Wm. Paul manages to bring together a marvellous assortment of cut blooms."—*Daily Telegraph*, July 9, 1874.
2. Every Plant in this Establishment is for Sale, no reserve being made for prize winning or other purposes.

PRICES OF ROSES FOR 1874-75.

STANDARDS, large, full, and finely shaped Roses, selected from the exhibitor's point of view. Per dozen, 15*s.* and upwards; per 100, £6 and upwards.

STANDARDS, for Garden and House Decoration, hardiness of constitution and freedom of flowering being here specially considered. Per dozen, 15*s.* and upwards; per 100, £6 and upwards.

STANDARDS, Newer Sorts. Per dozen, 24*s.* and upwards; per 100, £8 8*s.* and upwards.

STANDARDS, Tea-scented, for Garden or Conservatory Decoration. Per dozen, 24*s.* and upwards; per 100, £10 and upwards.

DWARF STANDARDS. Per dozen, 12*s.* and upwards; per 100, £4 10*s.* and upwards.

DWARFS ON THEIR OWN ROOTS, summer kinds. Per 100, £2 10*s.*

DWARFS ON THEIR OWN ROOTS, from the open ground, Hybrid Perpetuals. Per 100, [£3 3*s.*

DWARFS ON THEIR OWN ROOTS, in pots, Hybrid Perpetuals. Per dozen, 12*s.* and upwards; per 100, £4 10*s.* and upwards.

DWARFS ON BRIAR. Per dozen, 12*s.* and upwards; per 100, £4 10*s.* and upwards.

DWARFS ON MANETTI. Per dozen, 10*s.* 6*d.* and upwards; per 100, £3 3*s.* and upwards.

DWARFS, Tea and Noisette. Per dozen, 15*s.* and upwards; per 100, £6 and upwards.

DWARFS, New Varieties of 1874. Per dozen, 30*s.* and upwards.

DWARFS, New Varieties introduced by the Establishment:—FIREBRAND, Standards, 3*s.* 6*d.* each; Dwarfs, 2*s.* 6*d.* each. DIANA, Dwarfs, 3*s.* 6*d.* each. PEACH BLOSSOM, Standards, 5*s.* each; Dwarfs, 3*s.* 6*d.* each. ST. GEORGE, Standards, 5*s.*; Dwarfs, 3*s.* 6*d.* each.

DWARFS, extra sized, for Forcing or Greenhouse Culture. A large and splendid stock. Per dozen, 24*s.* and upwards.

DWARF ROSES for Bedding or Massing, a fine selection. Per 1000, £25 and upwards.

My Rose Shows at the Royal Horticultural Gardens, South Kensington, and the Crystal Palace, Sydenham, where thousands of Roses in pots, the sole produce of my Nurseries, have been shown year by year, and the show of Cut Roses at the Royal Botanic Gardens, in the Regent's Park, where 8000 trusses of flowers were staged last July, have, one or the other of them, been visited by—

HER MAJESTY THE QUEEN,
THEIR ROYAL HIGHNESSES THE PRINCE AND PRINCESS OF WALES,
THE DUKE AND DUCHESS OF EDINBURGH,
and several other members of the Royal Family;

HIS IMPERIAL MAJESTY THE EMPEROR OF RUSSIA,
THEIR MAJESTIES THE KING AND QUEEN OF THE BELGIANS;
and Thousands of Visitors, many of them Amateur and Professional Horticulturists.

These Shows, as artistic displays, and the plants and flowers of which they were composed, have also received the highest encomiums of the Horticultural and General Press. The idea which prompted them was not conceived or worked out in opposition to existing Rose shows, but to occupy ground which they failed to touch—to show Roses in a free and natural rather than in a crowded, formal and artificial state—in a state in which any one might produce them with ordinary advantages and ordinary cultivation without the technical knowledge of the florist's art.

WORKS on ROSE GROWING by WILLIAM PAUL, F.R.H.S.

THE ROSE GARDEN. Third Edition. Price 7*s.* 6*d.*, post free 8*s.*
"Infinitely the best work ever written on the Culture of the Rose."—*Botanic Garden.*

ROSES IN POTS. Fourth Edition (in the Press). Price 2*s.*

ROSES AND ROSE CULTURE. A Shilling Book on Roses. Second Edition.
"In this little shilling book, Mr. Wm. Paul tells Amateur Rose growers all that is really necessary for them to know."—*The Garden.*

PAUL'S ROSE MANURE.
In Boxes, with directions for use, 2*s.* and 4*s.* each.

DR. SCOTT, *Sandwich, says:*—It is by far the best Manure I have ever tried."

THOMAS LAXTON, Esq., *Stamford, says:*—"I shall certainly use it again."

A. H. KENT, Esq., *Blechingly, says:*—"An invaluable boon to Amateur Rose growers."

MR. DOUGLAS, *Loxford Hall Gardens, Ilford* (writing in the *Journal of Horticulture*), *says:*—"The best Manure for this purpose is Mr. W. Paul's Rose Manure."

IMPORTANT.
Address, WILLIAM PAUL (the Christian Name in full), PAUL'S NURSERIES,
WALTHAM CROSS, HERTS.

The Finest Hardy Plant of the Year.

HELIANTHUS CALIFORNICUS INSIGNIS (OTTO).—See description of this gorgeous plant in report of South Kensington, Crystal Palace, &c., &c. In Packets, post free, 12 Seeds, 2*s.* 6*d.*; 6 Seeds, 1*s.* 6*d.*
Mr. TANTON, F.R.H.S., New Plant and Seed Merchant, Borough End, London Bridge, S.E.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6*s.*, 9*s.*, and 12*s.* per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40*s.* cash. Baskets and Packing included.
Crown Nursery, Reading.
N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1*s.* per packet, post-free.

Dutch Flower Roots.

B. S. WILLIAMS begs to announce that his ANNUAL CATALOGUE of DUTCH FLOWER ROOTS, containing a Descriptive List of Choice Hyacinths, Tulips, Narcissus, Crocus, &c., also a Select List of Fruit Trees, Roses, Vines, &c., is now ready, post free to all applicants.
Victoria and Paradise Nurseries, Upper Holloway, N.

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, **Chester.**

NEW PLANTS.
The Three best New Plants of the season are:—
CROTON MAJESTICUM,
DIPLADENIA BREARLEYANA,
CROTON SPIRALE.
Price, 2 and 3 Guineas each.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

GENERAL NURSERY STOCK.—A fine assortment of Forest Trees, Limes, Acacias, Birch, Elm, Poplars, Hornbeam, Chestnuts, Laburnums, &c.; also a good collection of Evergreens, Roses, Spiræas, Syringas, &c. LISTS, Wholesale and Retail, upon application to
JOHN COLLINGS, Maybank Nursery, Kingston, Surrey.

SHRUBS, for Potting.—A fine collection of Arbor-vitæs, Box, Berberis, Red Cedars, Cupressus, Ivy, Jasmine, Laurustinus, Pinus, Pyrus, Thujopsis, Yew, Honeysuckle, Roses, &c. LISTS on application to
JOHN COLLINGS, Maybank Nursery, Kingston, Surrey.

THIRTY TONS of ITALIAN RYE-GRASS SEED.—Best Irish-saved Seed, equal to the best Foreign, at £15 per ton, delivered free in Liverpool or Glasgow.
Also a few tons of LATE AMERICAN ROSE POTATOS, at £10 per ton. Terms cash. For samples, &c., apply to
MICHAEL GRANT, Elm Grove Nursery, Newry.

Camellias and Indian Azaleas.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to acquaint his Customers and the Trade in general that his Stock of Budded Plants of the above is unusually fine, and ready for delivery on the following terms, viz.:
CAMELLIAS, with bud, from £7, £8, and £10 to £12 per 100.
INDIAN AZALEAS, with bud, splendid stuff, from £5, £6, and £7 to £12 per 100.
Early Orders solicited to secure good choice.
Cash, or reference, from unknown Correspondents required.

To the Trade only.

A. M. C. JONGKINDT CONINCK'S WHOLESALE LIST, including a fine stock of Maiden Apples, Pears and Plums, Moss Roses, Dwarf, Half-standard and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants, is now ready, and will be sent, post free, on application.
Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

Novelties.

NEW SWEET-SCENTED RHODODENDRONS now offered for the first time, the most novel and beautiful ever raised. NEW INDIAN AZALEAS and a fine Collection of AZALEA MOLLIS. A Descriptive Priced List forwarded to any address on application to
ISAAC DAVIES, Nurseryman, Ormskirk.

M. Souchet's New Gladioli.—Gladioli, New Roses, &c.

EUGÈNE VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Gare d'Ivry, Paris, has the honour to announce to his numerous friends that his SPECIAL CATALOGUE of GLADIOLI is now to be had, free of charge, on application by letter (post paid); also that relating to the NEW ROSES of 1874.
The GLADIOLI will be sent out in the Autumn, in 50, 100, and 1000 of each variety, at the lowest possible price (for which, and conditions, see Catalogue).

To Gentlemen, Market Gardeners, and Others.

MITCHELL'S CHAMPION of ENGLAND BROCCOLI.—JOHN MITCHELL, retiring from the Business, has a small quantity of New Seed to dispose of. The Best LATE WHITE ever grown. Will be sold in ¼ lb., ½ lb., and 1 lb. packages, at One Guinea per pound. Sent to any part of the world on receipt of Post Office Orders made payable to
JOHN MITCHELL, Ponders' End, Middlesex.

STRONG AUTUMN SOWN CABBAGE PLANTS can now be supplied of the undermentioned kinds (all true to name):—
EARLY BATTERSEA, ENFIELD MARKET, NONPAREIL } at 3*s.* 6*d.* per 1000.
ROBINSON'S DRUMHEAD, at 3*s.* per 1000.
W. VIRGO AND SON, Wonersh Nurseries, Guildford.

New Apple, Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now Booking Orders for this splendid Novelty, which obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, on November 12, 1873. Circulars with full particulars will be forwarded gratis and post-free to applicants. The price for strong maidens on and after November 1 next, is 9*s.* 6*d.* each, or three for 20*s.* The usual discount to the Trade.

SATURDAY, SEPTEMBER 19, 1874.

FLOWERS AT FUNERALS.

THE use of flowers at funerals is both ancient and general. At the present day nothing is more usual than a wreath or a cross of blossoms placed upon the coffin lid; and this custom is not confined to any sect or creed, but finds its place in all. It is unnecessary to enter into any dissertation upon the symbolism or fitness of such a custom, both are obvious enough and speak for themselves; but a few collected notes upon the plants principally used upon such occasions may form a suitable postscript to the paper on "Churchyard Flowers," which you published a few weeks since (p. 136, August 1).

Among the plants in most general use in former days, and retained in certain districts up to the present time, is the Rosemary. References to its employment are frequent in writers of the Shakspearian period; and Shakspeare himself mentions it in more than one passage, as in *Romeo and Juliet*:—

> "Dry up your tears, and stick your Rosemary
> On this fair corse."—(Act iv., sc. 4.)

From this passage we see that Rosemary was used not only at the funeral itself, but also for placing on the corpse; and Dekker, in one of his plays, has the words—"My winding-sheete was taken out of Lavender to be stuck with Rosemary." The same writer, speaking of the Plague Year, says, "Rosemary, which had wont to be sold for twelve pence an armefull, went now at six shillings a handfull." Gay, in the *Shepherd's Calendar*, has the following lines:—

> "To show their love, the neighbours far and near
> Followed, with wistful look, the damsel's bier:
> Sprigg'd Rosemary the lads and lasses bore,
> While dismally the parson walked before."

It is especially in the North of England that this custom is retained.

The origin of strewing the graves or corpses with Rosemary, and carrying it to the funerals for that purpose, is somewhat uncertain. It cannot have been the same as that which induced the ancient Romans to make use of Cypress, "which, being once cut, will never flourish nor grow again, as an emblem of their dying for ever;" but rather as a symbol of immortality, which, as we shall see, is the meaning of other plants employed at funerals. According to the *British Apollo* for 1708 (where it is asked "Whence proceeds that so constant formality of persons bearing a sprig of Rosemary in their hand, when accompanying the obsequies of a deceased person?"), "that custom had its rise from a notion of alexipharmick, or preservative virtue, in that herb, against pestilential distempers: whence the smelling thereto at funerals was probably thought a powerful defence against the morbid effluvias of the corpse; nor is it for the same reason less customary to burn Rosemary in the chambers of the sick."

Box was very commonly used at funerals, and is still employed, although sometimes only as a substitute for Rosemary, when that cannot be obtained. Thus a newspaper account of the Hindley Colliery accident in 1868, contains the following passage:—"I find an old Lancashire custom observed in the case of this funeral. By the bedstead of the dead man the relatives, as they took their last look at the corpse, have formed a tray or plate, upon which lay a heap of sprigs of Box. Each relative has taken one of these sprigs, and will carry it to the grave, many of them there dropping it upon the coffin. Ordinarily the tray contains sprigs of Rosemary and Thyme; but these poor Hindley people, not being able to obtain those more poetical plants, have, rather than give up an old custom, contented themselves with stripping several trees of Boxwood; and hence it is the mourners carry the bright green sprigs which I have seen." This use of Box is general in several parts of the North of England; Wordsworth tells us that a basinful of the sprigs is placed at the door of the house from which the coffin is taken up, and that each person takes a sprig and throws it into the grave.

Other evergreens were used at funerals, the emblematic meaning of which was to signify the immortality of the soul. Thus Collinson, in his *History of Somersetshire*, says that it was usual for mourners to carry branches of Yew in procession to the grave, and to deposit them therein; and Brand tells us that the same practice was common in Suffolk. Coles says that Cypress garlands "are of great account at funeralls amongst the gentiler sort, but Rosemary and Bays are used by the commons both at funeralls and weddings. They are all plants which fade not a good while after they are gathered, and used (as I conceive) to intimate unto us that the remembrance of the present solemnity might not die presently, but be kepte in mind for many years." In America, sprigs of evergreen are thrown into the grave of a Freemason, as an emblem of immortality; and this society employs at funerals a tree which, so far as our present knowledge goes, is used by no other body—the so-called Acacia (Robinia Pseud-Acacia). The use of this is apparently becoming general in this country. In an account of the funeral, on August 25, of the late Mayor of Woodstock, who was a member of this order, we read that "each brother who carried flowers and slips of Acacia dropped them on the coffin, which concluded the ceremony;" and this custom is by no means unfrequent. It appears that there is a tradition among the Freemasons that the cross of our Saviour was made of Acacia wood; and in spite of the trifling anachronism that the Robinia is an American tree, and could not by any possibility occur in Palestine, it is regarded by them as sacred on that account. Thus we read in an old French work, that "the Acacia, so celebrated in Freemasonry, is to recall the memory of the cross of the Saviour of the World, because it is made of this wood, of which Palestine is full." (!) In Germany the avenues leading to the Catholic churches are often made of this Robinia; and the above reason is assigned for its employment in such places.

Another tree which was used in funerals, or, rather, which was buried in the tombs of certain persons, has lately been occupying the attention of archæologists at Chester. It appears that in the tomb of Ralph Higden, who was formerly a monk of that town, and whose burial-place was discovered during the restoration of the Cathedral, there was found, besides the usual accompaniments of such a corpse, the remains of a Hazel wand, "a peculiarity which drew from Mr. Matthew Bloxam," says the *Standard*, "some curious particulars respecting this custom."

> "He pointed out that when in 1859-60 the Abbé Cochet excavated the site of the old church of Etran, near Dieppe, eighteen tombs were discovered. One contained a body wrapped in linen, the face upwards, and the hands crossed on the breast. One only had a Hazel stick lying over the breast, about 40 or 50 centimetres long. The coffin was of ragstone, had a hollow for the head, and seemed to belong to the twelfth century. Four tombs in the Abbey of St. Wandrille contained bodies of ecclesiastics with leather boots and a Hazel wand, the

same length as the tomb. In 1858 some skeletons were discovered at Tremblay, Department of the Eure, some of which had a stick lying by the side of them. Two coffins in tufa were found in All Saints' Church, Angers, containing bodies of abbots, as their vestments indicated. In one was found a stick, about 5 feet long. In some tombs of the thirteenth century, at the church of Ste. Genevieve, Paris, were found in 1807 wands which, to all appearance, had been placed in the hands of deceased ecclesiastics. Montfaucon speaks of a Hazel stick, discovered in 1645, in the coffin of Queen Bilichilde, wife of Childeric II., in the choir of St. Germain des Prés. In the Swabian graves at Oberflacht were found Hazel wands 7 feet long. (*Proceedings of the Society of Antiquaries*, second series, vol. i., p. 257.) Bishop Pilkington, in his *Exposition upon Nehemiah*, alludes to 'the laying of the mete-yard in the grave with the dead man,' but he does not explain the usage. Mr. Bloxam concurred in the remark that the presence of the wand indicated a pilgrim, which Dean Howson said was borne out in Ralph Higden's case, who made a pilgrimage to Compostella."

In the fourth century Palms and Olive-branches were carried at the funerals of Christians, and Laurels and Ivy leaves were sometimes placed in the coffin. Among the Jews it was customary on returning from the grave to pluck up grass and throw it behind them, saying, "They shall flourish out of the city like grass upon the earth;" this was done as an emblem that the body, though dead, should spring up again like the grass. *B. M.*

New Garden Plants.

DENDROBIUM ARACHNITES, *n. sp.**

Since the time when Sir W. Hooker described his unique Dendrobium amboinense, no such remarkable and extraordinary gorgeous Dendrobe has been discovered. Imagine a dwarf stem three inches high, with shining internodes a little thicker at their upper ends, and then add a flower with linear sepals and petals, nearly two inches long when dried, and a long pandurate lip narrower towards its obtuse tip. All these organs appear, when dried, whitish-yellow, with a deep lilac blotch at the base of the lip. I have only a single flower, not cohering with the stem. To judge, however, from the little scars on the stem it must be a Eudendrobium. I believe a single plant of it has been found in Burmah by Mr. Boxall, who must have been filled with enthusiasm at the sight, since he dried it! One feels that the Burmese plants incline to the Malayan type, since it is impossible not to think of Renanthera flos-aëris (Arachnanthe moschifera). I was favoured with the flower and two stems by Mr. Low. Of course I can only describe the things as they are, and am unable to say that the stems may not become longer. *H. G. Rchb. f.*

PLEOCNEMIA LEUZEANA, *Presl, Tent. Pterid.* 183; —*Id. Epim. Bot.* 50. POLYPODIUM LEUZEANUM, *Gaudichaud, Frey. Voy.* 371, t. 6. ASPIDIUM LEUZEANUM, *Kunze, Bot. Zeit.* xiv. 474. NEPHRODIUM LEUZEANUM, *Hooker, Sp. Fil.* iv. 61.

This very handsome subarborescent Fern was exhibited in February last by Mr. W. Bull, of Chelsea, and was at that time deservedly awarded a First-class Certificate. We believe Mr. Bull procured the plant at Mr. Linden's sale, when the stock was purchased as that of a Dicksonia from the Philippine Islands. It was, however, well known previously to students of Ferns as the Polypodium Leuzeanum of Gaudichaud, the Aspidium Leuzeanum of Kunze, and the Pleocnemia Leuzeana of Presl, including under the latter name several Ferns from different tropical countries which Presl separates, but which are generally considered to be either synonymous or as geographical varieties of the original plant of Gaudichaud, collected in the Moluccas. Mr. Bull's plant doubtless agrees more closely with the Pleocnemia Cumingiana of Presl, but the differences between the forms are scarcely to be considered of specific value.

The genus Pleocnemia belongs to the group of Aspidieæ, and has no relationship with the Dicksonieæ. It is characterised by its globose sori, the reniform indusia of which are, however, very fugacious. The veins of the segments are simple or forked from a costæform mid-vein, the lower opposite ones being joined in an arcuate manner so as to form elongated costal areoles; while the intermediate ones usually form one series of irregularly hexagonal areoles next the costæform veins, and the upper ones are free.

The typical Pleocnemias, as we have said, consist probably of a single species, varying more or less according to climate. They are ample herbaceous Ferns, with tree-like trunks, in some cases, according to Presl, reaching 20 feet in height, with bipinnato-pinnatifid or tripinnate fronds, the lower pinnæ of which are bipartite. These fronds are from 4 feet to 6 feet long, and, in the plant before us, are deltoid in outline, spreading in an arched or somewhat deflexed manner, and having the pinnules set on below the upper edge of the rachis, so that the upper surface of the fronds acquire a ridge-and-furrow character, which our artist has not omitted to note in the annexed woodcut (fig. 74). The pinnæ are from 12 to 18 inches long, and the ultimate segments oblong, with a small recurved tooth in the sinus. The sori are globose, and soon lose all trace of the membranous indusium. The species, taken in the broad sense, is found in the Eastern Archipelago, in India and China, and in the Samoan and Feejee Islands. It is an ornamental Fern of extremely elegant character. *T. M.*

* Eudendrobium (?) pseudobulbo brevi gracili demum nitido, juxta apices articulorum paulo incrassato; flore maximo; sepalis tepalisque linearibus obtuse acutis elongatis; labello pandurato antrorsum angustato obtuse; carinis elevatis geminis in basi; columna minuta tridentata; mento parvo obtusangulo.

CARNIVOROUS PLANTS.

DR. HOOKER'S address to the Department of Zoology and Botany of the British Association at Belfast is by far the best and clearest statement of the position of the believers in carnivorous plants that I have met with, and not only merits respectful consideration on account of the position and abilities of the author, but the evident sincerity of his search after the truth almost, in common fairness, requires that any one who thinks he can throw light on the subject should contribute his views and observations in reply. It is with this feeling that I shall note the result of one or two attempts that I made during the last six weeks to ascertain whether our common Pinguicula had carnivorous properties or not. It may be remembered that at the last meeting of the Scientific Committee of the Royal Horticultural Society (on which occasion Dr. Hooker was in the chair) Professor Thistleton Dyer brought before the meeting some experiments that had been made by Mr. Darwin upon the Pinguicula, which led him to believe that, like Dionæa, it, too, was a carnivorous plant, deriving sustenance from the insects which it captured on its leaves. I have been staying in the Ochil Hills in Kinross-shire, where I had an abundance of material to observe, and a fair proportion of both dry and wet weather so as to see the behaviour of the plant under both conditions. The first thing of which I convinced myself was that, whether it was carnivorous or not, Pinguicula was rightly regarded by Mr. Darwin as coming under the same category as Dionæa and Drosera. It was a fly-catcher and a fly-dissolver—whether it was a fly-digester is a different thing—but neither on that point, any more than on the other, can it be separated from them. If the one digests, the other will no doubt do so likewise. If the one does not, neither will the other. A comparison of the points on which the carnivorous theory rests, will show how far these different plants correspond, and will at the same time enable me to say how far my observations do, or do not, confirm or warrant the conclusion of Mr. Darwin, Dr. Hooker, and others. Dr. Hooker enables me to contrast them easily, for he puts the salient points in favour of carnivorous feeding very clearly.

In Dionæa the phenomena consist—1, of a certain amount of irritability by which insects are captured; 2, of electricity displayed during contraction, in the same way as during muscular action in animals; 3, of the exudation of an acid secretion by which the captured insects are dissolved; and 4, of the digestion of the insects and the assimilation of their substance by the plant.

Now, first, as to the irritability, I am bound to confess that my experiments have only a qualified value. Mr. Darwin and others have found that after a fly has been entangled in the sticky secretion formed on the surface of the leaf of Pinguicula vulgaris, the margins of the leaf slowly and gradually curl over it so that at the end of twenty-four hours the insect is completely covered by it. I could not get my Pinguiculas to do this. In fact my experience is wholly negative. As any one can verify, the leaves are found with their margins in all stages of curling over, some with no insect on them much more curled over than others with several. I do not mean to say that they have no irritability, but I think I can safely say that it is so slight and so slow that it cannot have any purpose in relation to the flies that may be entangled on the surface of the leaf. The idea is that from the curled-over dome of the margin the secretion that comes from the leaf drops down on the insect, thus enveloping it in the liquid. I could see nothing to support this view. The secretion is so far glutinous that it does not fall. Each drop stands on the summit of a small crystalline-like cone from which it has exuded, and the whole leaf is studded with rows of these cones which at the throat or base of the leaf become elongated with from one to three foolscap-like crystalline cells, one on the top of the other. When the insect alights, or is blown on to the leaf, it gets entangled in this sticky secretion, and it is killed, and speedily killed (long before the curving of the margin of the leaf could have any effect upon it), by the secretion adhering to and closing up the spiracles by which the insect breathes, just on the same principle that a drenching with oil is used in our modern hospitals, &c., to kill the vermin with which dirty patients or inmates may be swarming on their admission—a remedy for the same reason found most effectual in destroying the itch insect. So far as regards Pinguicula, therefore, any irritability it may possess does not appear to be capable of being exerted injuriously to the insect; but in Dionæa it does, and in the general argument we must admit the facts found in any one as an element in its support against all; and so far as the inferences drawn by Dr. Hooker and others in favour of these plants being carnivorous are derived from their irritability, its existence and relevancy must be admitted. This does not mean that irritability is essential to digestion. It is not essential, for we can very well conceive of a plant being carnivorous and yet not irritable; as, for example, the Pinguicula, which I may be quite right in considering as not irritable, and quite wrong in regarding as not carnivorous, or the reverse. The two phases are not necessarily nor mutually interdependent. In connection with their irritability, however, an additional argument beyond its mere existence has been drawn from some phenomena which have been observed in connection with it. At the meeting of the British Association at Bradford in 1873 Dr. Burdon Sanderson announced that irritability in plants is accompanied with electrical phenomena analogous in their nature to those which occur when nervous or muscular actions are induced in animals. The following are the words of the published report:—"Strange as it may seem, the question whether these contractile movements are accompanied with the same electrical changes as those which occur in the contraction of muscle and in the functional excitation of nerve has never yet been investigated by vegetable physiologists. By a most remarkable series of experiments (which will be published subsequently), made with the aid of Sir Wm. Thomson's galvanometer, Dr. Burdon Sanderson has shown that these currents are subject, in all respects in which they have been as yet investigated, to the same laws as those of muscle and nerve." Now, there was certainly nothing to surprise physiologists in this discovery. The phenomena of the Sensitive Plant, when subjected to the vapour of chloroform (identical with that on animals), and other curious facts, had prepared men's minds for it. But it would appear that either a great stride has been made on this subject since this time last year of which I have not heard, or Dr. Hooker has overestimated the meaning of Dr. Sanderson's discovery. He says in his address:—"Quite recently the subject has acquired a new interest from the researches of Mr. Darwin into the phenomena which accompany the placing albuminous substances on the leaves of Drosera and Pinguicula, and which, in the opinion of a very eminent physiologist, prove, in the case of Dionæa, that this plant digests exactly the same substances and in exactly the same way that the human stomach does." If this refers to new experiments not yet published, of course those of us who do not otherwise accept Mr. Darwin's and Dr. Hooker's conclusions must be allowed to reserve our judgment until we see what they are. But, if he alludes to Dr. Burdon Sanderson's last year's experiments, then, although it may be that the Dionæa exhibits electrical phenomena after contracting identical with those shown by the stomach of animals during the process of digestion, these will prove nothing unless it can be shown that they are both special and peculiar to digestion, and in some way different from those resulting from mere muscular action, and it will not be easy to separate the digestive from the muscular action, seeing that the coats of the stomach are in active muscular operation during the process of digestion.

I therefore admit the occurrence of irritability and of electrical action during its operation. I also admit the exudation of an acid secretion from the surface of the leaf which assists in dissolving the insects. In Dionæa it would appear, indeed, that this secretion only takes place after the insects have been captured. This, however, is certainly not the case with Pinguicula, which has the secretion always present, unless artificially removed, as by rain or otherwise. Dr. Hooker says—"To Ellis belongs the credit of divining the purpose of the capture of insects by the Dionæa, but Curtis made out the details of the mechanism by ascertaining the seat of the sensitiveness in the leaves; and he also pointed out that the secretion was not a lure exuded before the capture, *but a true digestive fluid poured out like our own gastric juice after the ingestion of food.*" I have not access here to the *Proceedings* of the Boston Natural History Society of 1834, in which Curtis' paper appears, so as to see how far the words that I have put in italics are matter of inference or of actual observation; but the following passage, quoted by Dr. Hooker from Dr. Curtis' paper, would rather lead me to think it is a point requiring more verification, viz.: "At other times I have found them (the insects) enveloped in a fluid of a mucilaginous consistence, which seems to act as a solvent, the insects being more or less con-

sumed in it." The phrase "at other times" rather suggests the idea that there were times when he did not find them so, and as a great deal depends upon this point, it would be well that the matter should be put out of doubt by actual observation. This can surely easily be done. Whoever has a plant should be able to do it without trouble. All that he has to ascertain is—1, whether the secretion is never present until after an insect has been captured; and, 2, whether it is always present after one has. If it is not so, then it leaves Dionæa in the same category as Pinguicula; but if it should be so it is a strong argument on the carnivorous side, but still by no means conclusive. The fact of the pouring out of the secretion after a fly has been taken leaves us still a long way from digestion; but it seems all but conclusive in favour of an intention to deal with the fly in some way and for some purpose or other. It may be a mechanical consequence of the movement of the leaf in catching the fly, but although it may be intended to dissolve the insect, it by no means follows that it is intended to digest it; still, such a sequence looks so like the operations of Nature in the adaptation of structure to purpose, that if it turns out that the result of the movement of the leaf is to press out a certain amount of fluid secretion, I do not see how it can well be disputed that it is done for a purpose, and that purpose apparently the dissolution of the fly.

I now come to the last of the stages of the supposed carnivorous operation, the digestion of the fly or albuminous matter by the plant. I have held out with Dr. Hooker untired this length, but here I must leave him. I cannot believe in feeding without a mouth or digestion without a stomach. We are not dealing with an amœba but with an organism whose operations Dr. Hooker compares to those of the human stomach. His position is that it digests "the same substances and exactly in the same way that the human stomach does." As to the substances being the same it comes to nothing. There are two agents at universal work all over world, engaged continually in dissolving what can be dissolved—the stomachs of animals and the agents of natural decay; their action is similar and their powers limited by the same bounds. But when we come to the plant digesting in exactly the same way as the human stomach does I am entitled to ask, where is the apparatus by which it does so? Had he said in some way analogous to the operation of digestion in a sponge or in a foraminifer, I might have, from my ignorance of how they do it, been forced to hold my peace; but when the human stomach is given as the type, I am entitled to ask, where is the apparatus for digestion?—something more than gastric juice is needed for that purpose; where are the complicated apparatus of epithelial cells, the follicles, the villose coat, and all the means of assimilation? It is perfectly plain that Dr. Hooker only uses the comparison with the human stomach as analogous and not identical; and even here he will scarcely deny that, put it any way he likes, the analogy is of the feeblest.

Again, assuming that there is such an apparatus, although we cannot discover any trace of it, or anything different in the minute analogy of Dionæa and Pinguicula from that of any other plant, I think it is fair to assume that it will be a complicated apparatus—seeing that the supposed commencement of the operation is on the pattern of the human stomach, and the histological arrangement of the human stomach is extremely complicated. Would it not be an anomaly in the economy of Nature if a complicated apparatus should be provided to do something which is of no advantage to the plant, and which it seems to be able to do quite well without? Of course there are no flies for the Pinguicula to feed on in winter, and yet it grows as well then as in summer. For three weeks of the time I observed it we had a great deal of rain, and the leaves were washed free from all remains of flies—yet the plants seemed to thrive better and better. Drosera was in the same predicament, and I presume Dionæa must be so too.

There is, however, a simulation of the process of digestion in Pinguicula, which doubtless also occurs in Dionæa, and which, I think, is probably the circumstance which has had most weight in leading Mr. Darwin and his supporters to the carnivorous view. The entrapped insects do melt away under the influence of the secretion, but no more, I apprehend, than they would do under the influence of any other feeble acid. Now the secretion is slightly acid—not quite so much as the juices of the plant itself, but still slightly so. The juices of most plants are acid. If you break a blade of grass, and apply a piece of litmus paper to it, you get a slightly acid reaction. It is the same with most other plants, with sometimes a surprising intensity, as in the case of Sorrel; so, if you break a leaf of Pinguicula, you find that the juice is acid. It is not an unnatural assumption that the secretion exuded will participate more or less (less rather than more) in its acidity; and so it does. It is feeble, and is not imbibed readily; but if a tiny morsel of litmus paper is laid gently on the leaf, and left there for some time, it becomes slightly tinged with red. Here is a means to dissolution which is applied universally all over the world to assist decay; but something more is needed to make digestion. If you apply the litmus paper to the moist or half rotten leaves of Sphagnum or Polytrichum growing alongside the Pinguicula, you will find them much more acid than the Pinguicula, but no one will, consequently, propose to endow them with digestive powers. It may be that the action of both is the same, and produces the same result, viz., that of scavengers. If we reflect on the myriads upon myriads of flies and midges that we see disporting in the air, and if it be true that the duration of life of most of them is, as we are told, only a few hours, it must be subject of surprise that we see so little of their remains. Where do their dead bodies go? If they are thrown by the wind on acid-decaying vegetation or on plants whose secretions are acid, we can understand how they soon disappear, and why we do not see them except when they undergo the dissolution of their elements on something whose colour or form allows them to be easily seen,—not that I suppose for a moment that the primary purpose or intention of the secretion on the leaf of Pinguicula was for any such purpose, for I regard it as a rule without exception that the primary object of every structure or property with which a plant is endowed is for its own advantage, and only secondarily and indirectly for that of others, or for the general benefit. But there are an immense number of properties and structures whose advantage to the creature possessing them we cannot see. What advantage do any of the medicinal or poisonous properties of plants confer on the plants themselves? Why should it seem more extraordinary to us that we cannot define the benefit conferred on Pinguicula by the liquid secretion of its leaf than that on the Rose by the fragrant gaseous secretion of its petals?—and I do not believe that, had the question not been complicated by the curious machinery of Dionæa, for which it is so difficult to find a purpose, we should ever have heard of carnivorous plants or digesting vegetables; and of course the solitary character of the example aggravates the difficulty of believing that a special digesting apparatus would be provided for the doubtful advantage of one species at one season. But all this is *jus alieni* to me. I advance no theory on the subject. All that I have to do is to give my reasons why I cannot accept the theory propounded by Mr. Darwin. *Andrew Murray.*

FIG. 74.—PLEOCNEMIA LEUZEANA.—A, Pinnulæ and sori × 3 dia.; B, Scales from veins × 100 dia.; C, Sorus × 20 dia.; D, Dehiscing sporangium × 50 dia.; E, Spore × 500 dia.

EASTER MANGIANTS AND HERB PUDDINGS.

CERTAINLY a puzzling-looking name, and one which it is difficult to explain satisfactorily, but not so uncommon as the Editors seem to think, although it has seldom appeared in print. Throughout Cumberland it is in general use, though, as far as I know, it does not occur in other counties. The third syllable is short—at least, so I am informed by a friend who is familiar with the name in Cumberland—and it is

sometimes altogether omitted, the plant being called Easter-giants or Eastern-giants.

Why Easter? and why giants? may fairly be inquired. Well, the first half of the name is not difficult to explain, although the second is somewhat of a poser. There can be little doubt that Easter refers to the season when the herb puddings—into the composition of which the Bistort largely enters—are chiefly eaten, and on this account, also, the plant was called Passions. Brand, in his *Popular Antiquities*, says :—

"In the north of England a herb pudding, in which the leaves of the Passion-Dock are a principal ingredient, is an indispensable dish on this day (Good Friday). The custom is of ancient date, and it is not improbable that this plant, and the pudding chiefly composed of it, were intended to excite a grateful reminiscence of the Passion, with a suitable acknowledgment of the inestimable blessings of the redemption."

This is all very well as far as it goes; but the author follows up his remarks with a statement that "this plant, in the parts of fructification, produces fancied representations of the cross, hammers, nails, &c." No doubt he had the Passion-flower in his mind at the time, and, misled by the resemblance of name, applied to the Bistort the legendary details of the former plant. The custom of a herb pudding on Good Friday is probably traceable to the pre-Reformation period: the law of the Catholic Church as to the fast of that day being very stringent. It might be supposed by some that under the name Passion-Dock, Rumex Patientia might be intended; but this does not appear to be the case, for in Gerarde's time the Bistort was called Passion in Cheshire, where, he says, "It is used for an excellent pot-herb." The use of the plant on Good Friday would probably extend over the following days, and the application of the name Easter to it would then be natural enough. The same word is probably at the root of the old name of the plant, Distarloit, which is given by Lyte and subsequent authors, and seems to be preserved in one of its Cumberland names, Easter-ledges. Oster, or Eoster, were old Saxon forms of Easter, and is connected with *ost*, the East, or, as some have supposed, with "Eostre," the name of a Saxon deity, whose feast was celebrated every year in the spring, about the same time as the Christian festival" (*Chambers' Book of Days*).

The second half of the name is, as I have already said, a poser. It has been suggested that it is derived from the French *manger*, to eat; but nothing in French books bears out such a supposition, and it is difficult to suppose a partly Saxon, partly French name, or that such would become general in one district of England.

The culinary properties of the Bistort seems to be pretty well known, and the leaves and young shoots somewhat generally employed in the North of England. Caley says that in his time they were sold about Manchester under the name of Patience Dock, and used as a substitute for greens; and Deering says that about Nottingham "the good women gather the leaves in the spring, and boil them as they do Spinach and other garden greens; they call them Meeks and Gentle Dock." I have also a note of their employment in Ayrshire, where they are used in making broth; the plant is there known as Pencuir Kale. In some parts of France, too, the leaves of Bistort are used in place of Cabbage. The strongly astringent properties of the roots led to their employment in medicine; and the leaves also were used in old times in an infinity of diseases. To London botanists the Bistort is interesting as having, with Saxifraga granulata, held its ground through all the changes which took place in the transformation of Battersea Fields into Battersea Park. Both are, or were until very lately, to be found in the damper portions of the park, near the piece of water.

Herb puddings were by no means unfrequent in former days, and the Pennyroyal owes its popular name of Pudding-grass to its employment in them. "Chopped and put into a bag," says Coles in his *Art of Simpling* (1657), "it giveth a savoury relish" (!); and another writer of the same period tells us that it was "used in hogs' puddings." The leaves of the Primrose were formerly used as a pot-herb, and in salads; and a recipe for a Primrose pudding appears in some cookery books. Evelyn recommends that the stems of the Marsh Thistle (Carduus palustris) should be peeled, and "baked in a pie," like the four-and-twenty blackbirds of the nursery rhyme; but whether they would make "a dainty dish to set before a king" may fairly be doubted.

Another dish which owed its name and peculiarity to a plant was the Tansy cake, which was apparently popular in former days, though it would assuredly be voted unpalatable in our own. Tansy cakes or Tansy puddings were made of the young leaves of the Tansy chopped up with eggs, and were usually eaten in Lent, in memory, it has been supposed, of the bitter herbs which were eaten by the Jews with the Paschal lamb. Threlkeld, in 1727, speaks of their use at Easter: he says, "From the tender leaves, or their juice, with eggs, are made cakes called a Tansy, at the Paschal season; but whether it is so advantageous to the stomach as to drive away all the blasts of wind contracted by the idle conceit of eating fish and pulse for forty days in Lent, as some say, is what I much doubt of; for I have seen several who have broken an hale constitution by that presumptuous fasting, that neither Tansy nor Steel could ever repair it." Should our friends, whose "Culinary Notes," lately appeared in these pages, desire to experience for themselves what a Tansy is like, the following recipe from the *Closet of Rarities* (1706) may be useful to them :—

"*A curious Tansie: the new way.*—Take about a dozen new-laid eggs, beat them up with 3 pints of cream, strain them thro' a coarse linen cloth, and put in of the strained juices of Endive, Spinage, Sorrel, and Tansie, of each three spoonfuls; half a grated Nutmeg, 4 ounces of fine sugar, a little salt, and rose-water; put it, with a slight laying of butter under it, into a shallow pewter dish, and bake it in a moderately heated oven; scrape over it loaf-sugar, sprinkle rose-water, and serve it up."

Here is a more ancient form, which was published in 1676 :—

"*How to Make a very good Tansie.*—Take fifteen eggs, and six of the whites, beat them very well; then put in some sugar, and a little sack; beat them again, and put about a pint or a little more of cream; then beat them again; then put in the juice of Spinage, or of Primrose leaves, to make it green. Then put in some more sugar, if it be not sweet enough; then beat it again a little, and so let it stand till you fry it, when the first course is in. Then fry it with a little sweet butter. It must be stirred and fryed very tender. When it is fryed enough, then put it in a dish, and strew some sugar upon it and serve it in."

Perhaps the most remarkable feature of this "tansie"—which we should now-a-days call an omelette—is its resemblance to the play of *Hamlet* with the part of "Hamlet" left out, inasmuch as Tansy does not appear to enter into its composition at all! More modern recipes for Tansy puddings will be found in our columns for 1873, pp. 1210 and 1372. *B. M.*

THE HORTICULTURAL DRUDGE.

THE cause of the labourer has come to the front, and the agricultural drudge has, in the late onslaught, lost the battle, and that in the very time of harvest when all the world predicted that his services must be had and could not be done without. He is now suffering the effects of defeat, and seeking in all humility his old quarters, homeward bound—

> "As mountain waves from wasted land
> Roll back to ocean blue."

"Ill starred though brave," the labourers had staked their very existence upon the success of their Union, and now in bitterness of soul they see that they have been leaning upon a broken reed. They still deserve the hearty sympathy of all who live by "labour and tillage;" but it is not the cause of the farmers' man that concerns me, but that of the garden man. Even for him I do not send round the hat to beg, but would rather kindly and faithfully state both to his employer and himself the true position of the unskilled garden labourer, whom I have called drudge, whose work will distinguish him from such as aspire to better things than to be garden drudges to the end of their days.

Now, when the question of wages has been raised in the public papers, disagreeable remarks have been made and insults offered, thereby injuring the cause, whereas politeness would have been much more becoming and of more avail.

In music we see the same notes set to various measures, so as either to charm the audience or grate upon the ear. The skilful musical composer weights his argument by doubling back, so as to repeat the salient points, and courts applause by uniting the audience in the chorus and refrain. We cannot do better than imitate such good example, and, like the composer, try the art to please; and even if we fail, the trail left of such a trial will be no disgrace to those who have gone over it. The late William Cobbett calculated the difference of the value of money and labour at the time of the dissolution of the monasteries in England and up to his day, and gives some doggerel lines* of the time to prove his assertion, thus—

> "Before the friars went hence
> A bushel of the finest Wheat
> Was sold for eighteenpence."

The price of said Wheat is now 7*s.* 6*d.* per bushel of 60 lb.—just five times the sum then paid. This shows that the purchasing power of money has fallen off, say 400 per cent.; and any man having a fixed salary would soon find, to his cost, that his 1*s.* 6*d.* would not buy him a peck of Wheat much less a bushel.

The rhyme above quoted also mentions—

> "Vourteen eggs a penny
> That were both good and new."

In Stockport Market last week eggs were sold at nine for 1*s.*—I had my quotation on the spot—enough money to have purchased 150 fresh eggs "before the friars went hence." What would be said now-a-days of the rate of wages paid by the husbandman of Holy Writ who hired his Vine dressers at all hours of the day and paid all hands an even tariff, each man getting only a penny—*denarius*, the Roman penny, about equal to 7½*d.*, the eighth part of an ounce of silver? Thus, at 5*s.* per ounce, a crown piece would pay eight men their usual hire for the day, or about 3*s.* 9*d.* per week, for the drudge or unskilled day labourer. Let no one think lightly of this kind of reckoning, for the Parable of "the Labourers in the Vineyard" is purely and simply the word of God. The day is the same in the Holy Land now as it was then, and the heat as insupportable as ever, but the labourers at a 1*d.* a day (7½*d.*) are not to be found either here or there.

Labourers had an idea in my time that the use of machinery was against their interests, but the evidence of one of my schoolfellows, stated in a few words, was conclusive on that point. In Lancashire, he said, there was more machinery used than elsewhere, and yet the wages in that county were higher than in most other localities; whereas in Hindostan, where he lived, there was little machinery, and wages were low, ay, even lower than the Scripture 7½*d.*

Machinery does little or nothing for horticulture, and certainly neither raises nor depresses wages in the least. The drudgery of horticulture, like the "laws of the Medes and Persians, altereth not;" the reward does not increase as the labour rises. It was once the custom on certain estates in Ireland—too numerous to mention—to give the garden labourers 9*d.* a day, and carpenters were paid on such estates 1*s.* a day. It is too fresh in my memory to be forgotten, that in the London nurseries, in the Royal Gardens at Kew and Kensington, at the Earl of Mansfield's, Caenwood, and other seats round London, with many others, the labourers were paid 12*s.* a week. The deerhounds and other sporting dogs in the Royal kennels had no stint of carrion, and the horses kept for pleasure in the Royal mews were quite a show, so sleek and fat, so well cleaned and cared for were they, and, being valuable animals, this was no more than was needful; but any one who has lived in the metropolis will see clearly what 12*s.* a week will purchase in the way of food, lodgings, clothing, &c., for a man, not to speak of a family; so that the labourer had to come to worse than prison diet, and make up rations of Cabbage and Potatos with bread soaked in watery broth by way of first course, and Potatos, &c., for the second course. I am only echoing what the ablest men of my time have said long ago, for he who composed the "Song of the Shirt" applied to the seamstresses what I am applying to garden labourers—

> "O God! that bread should be so dear!
> And flesh and blood so cheap!"

It was cast up against a certain illustrious personage that he had the fattest pigs and the leanest labourers to exhibit.

In the days of Abercrombie and Mawe it was the custom for the gardener-in-chief to wear hair powder and livery. Now it has always appeared to me that liveries concealed the poverty of the wearer, or rather covered it over, and the braid and buttons that flecked the uniform garnished the domestic, by no means well paid, notwithstanding his outward appearance.

Had it not been for the Potato plant the soil of Ireland would have been untilled, for the "nimble ninepence" above mentioned, even the slow shilling a-day, could not have maintained the lives of the people. Cobbett complained that any people should be so reduced as to live upon Potatos, and actually blamed the staff of life, calling Potatos the accursed root, instead of blessing the plant that fed the people in what O'Connell termed their "agony and despair," until better times should come. In Cheshire the Potato was taxed heavily to feed the drudge of the garden, for in my time there was an "institution" over the fireplace of the plant stove for warming dinners, which dinners consisted mostly of Potato pie with a wall of stiff paste—a *pièce de résistance;* and had it not been for this heating contrivance it is doubtful whether these pies of the "fruit that grows at the root" could have been available for human food, such was the strength of the walls. Hungry lads on half-pay were there and suffered sadly, and when I pleaded for a rise in their wages I got no encouragement. This occurred while I filled my first situation in England, and as I gained experience I left off taking the bull by the horns, and have not since asked for a "rise" either for myself or those that laboured with me.

Of the London nurserymen paying low wages little can be said, as their several businesses had to bear their own expenses; and as they were generally the medium through which good situations were got, gardeners out-of-place took service in the nurseries until something to their advantage turned up. Still, as several London nurserymen had been gardeners, and knew better than any one else the sufferings of the drudge,

* Cobbett's *History of the Reformation.*

something better than 12*s.* a week, and that only in fine weather, might have been expected. To this rule, however, there were many honourable exceptions. I received the greatest kindness and consideration from more than one London nurseryman, and feel deeply grateful for the same. Only across the river Thames from Kew Gardens, with its 12*s.*, stood, and still stands, Syon House, the princely residence of the Dukes of Northumberland, and as far as the owner was concerned it was by far the best ruled residence I have ever seen. Much of the comforts of the young men who were lodged in the garden arose from the personal superintendence of the Duchess. The labourers were paid 15*s.* a week, and when it was necessary in watering to work overtime that, too, was paid for. I remember a case where the foreman managed to get the men paid for their overtime in kind, in the form of bread-and-cheese and beer, and I begged that they should get paid in cash and succeeded, and was quite astonished to find that every man, as he drew 20*s.* instead of 15*s.*, thanked me, showing that even that small favour was gratefully received by the garden drudge. There are plenty of good masters and mistresses like their Graces the late Duke and Duchess of Northumberland, who reckon the labourer worthy of his hire.

All the heavy work of horticulture is done by unskilled labourers, and the same may be said of agriculture, of the building trade, and of railway engineering. The risk of life and limb in hard heavy work is always great, and the exposure to cold and wet in foul weather in outdoor work saps the foundations of the labourer's health, leaving a fearful reckoning to old age; therefore I need not say what a benefit it is for a labourer in the heyday of life to be able to buy wholesome food and good warm clothing. Before the tailors combined against all mankind I recollect getting a suit of Sunday clothes for 40*s.*; I now pay about double for an article of the same value. I had almost said with Burns—

"Man's inhumanity to man,"

but speaking of tailors altered the case.

The wages of the drudge, that were just enough when things were low-priced, have now put him on half rations—not that he has changed, but the world around him. If I ask the baker why bread rises and falls, he may not be able to give the reason, but he vouches for the fact; and the butcher, with meat now selling at 10*d.* and 1*s.* per pound, will not be argued out of his price by telling him that twenty years ago his father sold it for half the money. Ay, even the chimney sweeper, that formerly would have swept poor people's chimneys for the soot, which sold at 6*d.* to 9*d.* per bushel, has raised his price enormously. I have watched the "upright" (for that is the proper term for sweep) do my kitchen chimney in twenty minutes, and charge 1*s.* 6*d.*, being at the high figure of 4*s.* 6*d.* an hour, and the soot into the bargain. Reasoning with the "upright" would not mend matters, and to save setting one's house on fire we must pay the sweep his hire, and that at the rate current; for it is only for a fixed period that any living man, whether employer or employed, can have any share in all that is done under the sun. Before I was born I had no share in what was going on, and in a short time the silence of the grave will change the active into the passive with us all. The Present, short as it is, is our only theatre, a very narrow band between the Past and Future, such as that pointed to by the Grecian chief when he harangued his host—

"This narrow spot is all you have to lose or keep,
Here stand the Trojans, and there rolls the deep."

I calculate the soldier's pay at something over 2*s.* 6*d.* a-day, since, besides his daily pay, his clothes, lodgings, &c., he has laid up for him a sum of money sufficient to yield a pension for life. As a civilian he would have had to lay up several hundreds of pounds to yield such an annuity as his pension; but, although the soldier has had this provision for his declining years, the drudge in the Royal gardens has no "Chelsea" provided for him. The carpenter and bricklayer have each a fixed tariff of about 7½*d.* per hour, and their labourers are paid not less than 3*s.* per day, so that each chicken of every trade has some mother's wing to get under in the way of protection. The labourer in the garden, in perhaps one case out of a thousand, gets a pension from his employer in old age.

Notwithstanding all this "the labourer is worthy of his hire." Cattle cannot be kept upon half, or even three quarter rations; the amount is well known; a farm will carry just so many. To keep a horse in a serviceable condition certain payments must be made. A well-paid servant does much for his master beyond the dry ten hours and a half's work, and the keep of a man, to do justice to himself as well as to his employer, should be not less than what is given to his fellow men. Although any combination among garden labourers to raise their wages, otherwise than by good conduct and agreement, without the interference of any third party, would be worse than useless, since the garden is to the farm but a small affair, and the experience gained by the Union need not be thrown away, still, the chorus and refrain cannot be gainsaid, for it is recorded in the Blessed Book that "the labourer is worthy of his hire." In Birmingham I noticed a sign-board, "Sawing done for the hire." That man certainly had hit the right nail on the head, for the definite article here altered the sense; it was truly said—

"For gold the sailor ploughs the sea,
The farmer ploughs the manor."

All other argument is useless. So little is done for charity that, by comparison, it is nowhere, if set side by side with well paid wages, for who would give even half-pay as a gift?—but what is there to be done that labourers will not dare to do "for the hire"? The garden drudge had no interest in the beauty that his labour has called forth, his reward must be a cash payment; he labours "for the hire." *A. Forsyth, Salford.*

THE CENTAURY.

IT is not of the large genus Centaurea, with its 300 or 400 species, more or less, and probably more than less, that we are going to speak, but only of the plant which is represented and described under that name in ancient and modern writers. Not, however, that it is altogether easy to determine what this is. At least two claimants to the honour are in the field,

FIG. 75.—THE CENTAURY, FROM AN ANCIENT MS.

and it is at any rate probable that neither of them is the plant intended by Pliny under this title. According to this writer it "tooke the name from Chiron the Centaure, who was healed herewith of the hurt he received in his foote, by one of Hercules his arrowes, that fell from his owne hand thereon, in overlooking them, when he received Hercules as his guest, and, therefore, of some was called Chironium." Such is Parkinson's version of the story, and he applies both name and legend to our great Knapweed (Centaurea Scabiosa). But there is no doubt that the Centaurea of the old herbalists was the plant which we still call in English, Centaury (Erythræa Centaurium), which name also included Chlora perfoliata. In the Saxon Herbarium of Apuleius, this latter is described as "the wort which the Greeks called Centaurea major, and the Engle Churmell the greater, and which also some men call earth-gall;" and its healing properties are referred to in the passage which tells us how "this same wort is very efficacious to heal new and wide wounds, so that the wounds soon come together; and so also similarly it has effect so that flesh shall cleave together if it be soaked in the water in which the wort is." Erythræa is called Centaurea minor in the same work, and both are said to be the plants found by Chiron the Centaur, "whence they also obtain the name Centaureæ."

The curious figure which we here give (fig. 75) of the Centaury is from a MS. in the Ashmolean library at Oxford. It does not at all enlighten us as to what plant was originally meant by Pliny, as it is impossible to gather from it the object intended by the artist. A French abbé tells us that when Anacharsis was upon Mount Pelion, he visited the cave of Chiron the Centaur, and was there shown a plant, the leaves of which were good for the eyes, the secret of preparing which was in the hands of one family, who were lineally descended from Chiron himself. This, however, appears to have been a shrub, so cannot be either of our Centauries.

The centaur in our figure represents the imaginary being—half horse, half man—so called by classical authors. The notion appears to have originated from the mounted cowherds who kept the flocks of oxen in the meadows of Thessaly, and who drove them before them with goads. At the present day in some parts of France the keepers of oxen are always mounted, and armed with a three-pointed goad. This junction of man and horse led to the representation of the two forming one body, as shown in the figure and in classical statuary.

A notice of another plant which curiously resembles the Mandrake, to which we have already referred, in many particulars, may be given here: it is from the Saxon Herbarium of Dioscorides, and is identified by Mr. Cockayne with Eryngium maritimum, although it appears probable that this identification is incorrect. "Of this wort it is said that its root is compared to the head of the monster which men name the Gorgon, and the twigs have, as is also said, both eyes and nose and colour of sepents. Also the root will make any man resemble itself, whilom of hue of gold, whilom of silver. And when thou wilt take up this wort with its roots, then beware thou that no sun shine upon it, lest its hue and its might be spoiled through the brightness of the sun. Carve it off then with a crooked and very hard iron, and he who will carve it, then let him be averted, for it is not permitted that man may see his root unharmed. He who hath this wort with him, avoideth every evil footswathe or track coming on against him; yea, for it the evil man turneth himself about, or giveth way to him." *B. M.*]

THE VIOLET.

SOME little while ago a remark was made by a correspondent of the *Gardeners' Chronicle* upon the vagueness or variety in the application of the name Violet. To those who have not gone over the ground it may be useful perhaps to have a little summary of the early history of the word, and some illustrations of the senses in which it was employed by the writers and botanists of bygone ages. It is from these that we have inherited many of our modern erroneous names, sometimes merely transcribing, sometimes translating from the Latin; and very curious is it to observe how appellations bestowed when science was only beginning to find its feet, still hold their ancient place, often sadly perplexing beginners, and leading not infrequently to droll mistakes, through innocently accepting them as *bonâ fide*. In the whole compass of the classical and mediæval literature of plants and flowers, there is no name so difficult to deal with satisfactorily as the present; all one can do is to collect the facts and make the best of them.

The English word "Violet" is, of course, a simple contraction of the French *Violette*, which came in turn from the Latin *Viola*, a word in common use with the authors of ancient Rome. Singular as it may appear, this Latin *viola* is identical with the Greek *ion*, a word of equally frequent occurrence in the literature of the ancient country of Homer and Plato. The circumstance admits of ready explanation. One of the earliest tribes or sections of the primitive Greeks was that one which bore the name of the Æolians. They resided in Asia Minor upon the shores of the blue Ægean, a lovely and fertile country, from which, nevertheless, a large party thought it well and wise to emigrate westwards, seeking, as so many thousands of Englishmen have since done, a new home beyond the seas. They made their way to the region we now call Italy, and landed there about 1120 B.C. Established there, in course of time, like other enterprising colonists, they engrafted upon the language of the aborigines a considerable amount of their own Æolic Greek, and along with the words and grammar certain features which survived, though in Æolia itself they disappeared. Among these features was a proneness to employ the sound of *f* or *v* at the beginning of certain words which commenced with a vowel. Instead of simple *ion*, they said what in English we should represent by *fion*, or *vion*, or perhaps *wion*. The sound was figured by a distinct letter in their alphabet, occupying the same place that *f* does to this day in our own and in all the related languages of Western Europe—standing, that is to say, the sixth in order—and in the languages referred to the original place has been occupied ever since. Scholars have given to this letter or sound, as employed by the Æolians, the name of the *digamma*, the form of the written character being that of the simple gamma, or Γ, with another gamma upon the summit. In the poems of Hesiod and Homer, as originally put on paper, the digamma was regularly employed. After awhile

however, it became disused; the alphabet was shorn of its sixth letter, and to fill the gap thus created, Z was brought from the terminus and put in its place. Hence the oddity, as it appears to every one who commences the study of Greek, of Z, the letter we are accustomed to finish with, being encountered only a minute after starting. The original position corresponded with that of the Hebrew *vau* or *waf*, and in the initial of this last, or *w*, as sounded in "wine," represents, perhaps, most nearly what was in use among the ancient Æolians. V and W, it is well known, are a kind of partners. Numbers of Latin words retain the digamma where the corresponding Greek ones are without it, as *ver*, the spring; *videre*, to see; and *vicus*, a street or village, and thus perfectly prepare us for *viola*, as only another way of writing *ion*. The change of *l* into *r* is also quite in accordance with the laws or principles which rule in the "republic of letters." The four liquids, *l*, *m*, *n*, *r*, are constantly found taking each other's places. In the spelling-book, of course, it would be only a blunder, but in philology such things are a sort of reflection of Mr. Grove's "Convertibility of Forces," and *ion* becomes *viola* as easily as heat turns into light. The disappearance of the digamma from a given dialect, and its retention in another, is by no means without illustration even in the languages of modern Europe. We have ourselves dropped it in *who* and *whose*, while in *one* and *once* we have the sound without the character, though curiously enough we drop it again in *only*. It must not be overlooked that when *ion* became *viola* the verbal gender also changed, the former word being masculine, and the latter feminine.

Enough of etymology. Whether Homer intended our modern Violet by his *ion* it would be hazardous to assert, and still more hazardous to deny. No one can say positively, and, until clear proof has been supplied of the occurrence of the Viola odorata in the countries where he lived, and in plenty—so considerable as to have been likely to have attracted his attention—the botanist will at all events be allowed to pause. Mr. Bentham gives us the geographical distribution of the V. odorata—"Europe and Russian Asia, extending northwards to Southern Sweden." Sibthorpe, however, does not include it in his *Flora Græca*, the only species of Viola which is described in that splendid work being the V. gracilis—a sort of poor field tricolor with purple corolla. That Homer's *ion* was even a purple flower is by no means manifest, for the wool spun by Helen was simply "ion-coloured," and what that colour may have been twenty-seven centuries ago the mere allusion to the *ion* of course does not serve to indicate, though Homer certainly applies the same epithet to the sea, elsewhere called "black."* In Pindar the *ion* is indisputably a dark-hued flower, an adjective derived from it being applied very elegantly to the rich tresses of the Muses—Jove's

"Nine azure-eyed, flower-producing daughters,"

and again to the locks of the pretty little maid Evadne, who, like the Muses, was "ion-haired."† Deep purple was admired so profoundly by the ancients, and this colour so nearly approaches a burnished and raven-like black, such as that of what we ourselves call "raven locks," that to suppose any other colour here intended, seems impossible. Hesychius goes so far as to interpret the Pindaric epithet by "black-haired." Whatever this may prove as to the *ion*, it is scarcely needful to point out that we are no nearer to the Viola odorata. Light is thrown, perhaps, on the inquiry as to the colour intended by the bestowal upon Ulysses by Athenë of "hyacinthine locks." Massive and luxuriant ringlets, such as would befit a Greek prince in the heroic ages, especially when about to be restored to his home and his wife by a tasteful and painstaking goddess, may probably be the leading idea of this beautiful epithet, and perhaps the special one. But it is congenial to the spirit of Homer's descriptions to suppose that colour was intended as well as form; and every one knows that nothing in flowers can furnish a more finished picture of a massive and royal ringlet than one of those intensely deep black-violet Hyacinths which mingle in contrast so superb with the white, the rose-coloured, the yellow, and the blue, when removed from the bulb and leaves, and held upside down. This of course presumes that old Homer was acquainted with the Hyacinthus orientalis, which is much more likely than that he knew of the Viola odorata. In another of the Olympian odes, Pindar seems to point directly in his *ion* to some such Composite flower as the Aster, the Farewell Summer, or Michaelmas Daisy, speaking of its "yellow and empurpled rage," the more especially from the associations in which we find it.‡ Here some suppose him to intend a Cruciferous plant, such as the Wallflower, founding the conjecture, so it would seem, upon one of the applications of Viola in use among the Romans, as will be noticed presently. Theocritus, who makes many allusions to flowers, speaks of the *ion* in different places as "dark-hued," and as "white,"§

* See *Odyssey*, iv. 135; *Iliad*, xi. 299, and xxiv. 79.
† See *Pyth.* i. 2, and *Olymp.* vi. 30.
‡ See *Olymp.* vi. 55. § *Idyll*, vii. 64, and x. 29.

the latter of which epithets was probably the parent of Virgil's *palleus*, applied to the flowers of the "Viola" in his second Eclogue.

Here we are introduced to the employment of Viola by the ancient Romans. Whatever in its Æolic form the word may have denoted with the Greeks, there can be little doubt that with the younger nation it covered certain Crucifers, probably the Wallflower and the Dame's Rocket, and that lovely plant, the Matthiola tricuspidata, which like the incana and the sinuata, and the Cakile maritima, grows upon the sea-coasts all around the Mediterranean, and in the profusion of its bright lilac and fragrant bloom, the odour reminding one of the Primrose, and in the pleasant gleam of its silvery foliage, gives to scenes otherwise cheerless a sweet and long-enduring charm, and could hardly fail to attract attention. The Wallflower grows commonly in dry and rocky places in Southern Europe; the Dame's Rocket in hedges, bushy places, and open woods. Some of these plants, at all events, are intended in the *leucoion* of Dioscorides, literally the "white ion," a word subsequently Latinised into *leucojum*. Ovid appears to employ Viola in the same broad or collective sense, which pertains in classic verse to rosa and lilium. Persephone was gathering "Violets" on the morning when she was carried away by the admiring deity; while in that beautiful passage in the Fasti, where he enjoins us to pay kindly respect to the tombs of the departed by strewing flowers upon them—"They ask," he says, "but humble offerings: to them is affection more pleasing than a costly gift. Enough for them . . . are chaplets . . . and plucked Violets."* Who can read these tender words without thinking of Marina, daughter of Pericles, Prince of Tyre, in Shakspeare, when she enters with her basket of mourning tribute:—

"No, no, I will rob Tellus of her weeds,
To strew thy green with flowers: the yellows, blues,
The purple Violets, and Marigolds,
Shall, as a chaplet, hang upon thy grave
While summer days do last." †

In the earlier portion of this wonderful old storehouse of antiquities, the Fasti, Ovid seems to speak of his "Violets" as flowers originally derived from some foreign country. In the days of the old simplicities, prior to the times when luxury had introduced costus, and frankincense, and saffron,

"Si quis erat, factis prati de flore coronis
Qui poterot violas addere dives erat,"

—"rich was he accounted who to the chaplets of wild flowers could add Violets."‡ Had the Viola odorata been as plentiful in Italy nineteen centuries ago as it is reported to be at present, one would think that Ovid could hardly have alluded to it in terms like these. There is yet another difficulty in the way. In the *Metamorphoses* Ovid associates the Viola not only with the Lily, as in the legend of Persephone, but with the Poppy, and in a way that shows he certainly did not intend a flower so diminutive as that which bears the name in our own age. The comparison is of a youth, smitten in the forehead by a quoit, dying of the wound as he reclines upon the bosom of his unfortunate playmate:—"As when in a well-watered garden one snaps a Violet, a Poppy, or yellow-stalked Lilies, they droop and bend to earth their languid heads, and sink with their tops to the ground."§ Long ago, because of the inconsistency of supposing the common sweet Violet to be intended in this beautiful episode, Viscount Mahon suggested the Iris or Fleur-de-lis as likely to be Ovid's Viola, supporting his views with the statement that in the island of Sicily, to this day, the Fleur-de-lis is called the Violet, and pointing to the description of the different kinds of Viola given by Pliny, one of these being "yellow," a colour not uncommon in the genus Iris, but not pertaining to the sweet or genuine Violets, while the native abodes are rocky hills, exposed to the sun, whereas the Violet *ipsissima* is proverbial for loving the shade.‖ Virgil speaks of the Viola as useful to the honey-bees,¶ and for some reason, by no means obvious, in our ignorance of what flower was before his mind, gives it the epithet of "soft."** The same epithet is applied by him to the *caltha*, probably the modern Marigold, and to the "Hyacinth," whatever that was.†† Virgil's other epithet, "palleus," as above mentioned, by no means signifies simply pale or whitish, being applied also to yellow and green. Ovid, recounting the fable of Midas, who was gifted for a time with a power of transmuting all things into gold, says:—

Tollit humo saxum: saxum quoque palluit auro.

"He takes up a stone from the ground: the stone likewise pales into gold!"‡‡ Valerius Flaccus, referring to the wood of the Box tree has *palleus Cytorus*;§§ and Pliny has *gemma e viridi palleus*.‖‖ These things show us that we must not be in too

* Lib. ii. 539. † Act iv., sc. 1. ‡ Lib. i. 345, 346.
§ Lib. x. 190-193. ‖ See the *Literary Gazette* for April 24, 1830. ¶ *Georgic*, iv. 32. ** *Ecl.* v. 38.
†† *Ecl.* ii. 58, and vi. 53. ‡‡ *Met.* xi. 110.
§§ *Argonautics*, v. 106. ‖‖ Lib. xxxvii., cap. 8.

great haste to decide what plant an old poet may intend, purely and without further inquiry on the ground of an epithet seeming to harmonise with one's prejudice. Horace has a very curious expression—"violet-tinctured paleness," applying it to certain unenviable conditions of the masculine countenance.*

Coming to the early botanists and herbalists, or the authors immediately preceding the time of Shakspeare, we find Viola used in a dozen different senses. In Dodonæus, our Canterbury Bells are Viola Mariana, while the Sweet Violet, true and genuine, is Viola nigra sive purpurea. Lobel calls the latter in its two varieties, Viola martia purpurea and Viola martia alba. In Dalechamp Sweet Williams are Viola barbata angustifolia. In Bauhin's *Pinax* the common Honesty, or Lunaria, is registered as Viola lunaria major. In Dodonæus, again, the purple Rocket is Viola matronalis; while in Gerarde the Hottonia is Viola palustris. The last-named author describes the Snowdrop and the Snowflake among his "bulbous Violets," an item of nomenclature which is followed by Parkinson in the *Paradisus*, and was probably derived in the first instance from Fuchsius, who, in 1542, figures the Snowdrop as Viola alba. In Matthiolus, A.D. 1586, it is refreshing to find our own loved English wild flower, Shakspeare's Violet, prettily figured as Viola purpurea, but a century afterwards, in Plukenet and in Hermann, the old multiformity of application buds anew, the common Nasturtium being Viola indica scandens and Viola acris americana; while in Barrelier, who died A.D. 1673, the Gentiana pneumonanthe appears as Viola calathiana. The Gentian may have been so named because of its colour, which, of course, counts for nothing in scientific classification. The Tropæolum, it must be acknowledged, was referred to the genus Viola on very fair grounds, considering the state of botany in the seventeenth century. Two or three of these appellations, now in the Latin form quite obsolete, have unfortunately been retained as the "English" names of the plants, as when the catalogues speak of the Water Violet, the Dame's Violet, and the Calathian Violet, with the unhappy addition of Dog's-tooth Violet, the latter applying to the genus Erythronium.

What a comfort that, with the greatest of poets, when he speaks of the Violet, we never need hesitate. Shakspeare's Violet—by adopting which word for the "English name," how delightfully would our vernacular be enriched—is always and unmistakably the Viola odorata. With Shakspeare, moreover, we always have something new and different from his predecessors. Granting for the moment, what cannot be true, that the classical poets always meant this identical plant, how they fail in respect of that full and loving appreciation which in Shakspeare, whatever he talks of, makes us never seem so much to be told a thing as to see it. This comes of his knowing the plants he spoke of. The charm of his allusions is their independence and their reality. It is all very well for an author to employ pretty images, and to introduce allusions to things that have been honoured and reverenced for ages; but he fastens himself on our hearts only when we feel that they are his very own, by virtue of personal observation and companionship that began in childhood, growing with his growth and strengthening with his strength. A sad mistake is it to suppose, as many do, that the mere use of beautiful imagery will elevate a line, a composition, or a stanza, into the realm of the poetical. It is poetry only when the words employed declare quick and personal intimacy with the only fount of great ideas,—living Nature as it comes fresh from the hand of God, when it is the reflex of something at once familiar and passionately beloved, no matter how it may be veiled by the imagination. When Shakspeare mentions Violets, we feel that we are once more gathering them for ourselves. We have no occasion to ask where he acquired his knowledge or learned his lesson; the verse is fashioned palpably as well as sweetly in harmony with a picture that has become a part of himself, and which is a sort of talisman at the same time to our most cherished sympathies and recollections. He puts us back into the golden days of langsyne. How poor, comparatively, are the Virgilian *violaria*, or "beds of Violets," even could we be assured that they were the genuine odorata when placed beside the picture at the opening of *Twelfth Night*:—

"That strain again; it had a dying fall:
O, it came o'er my ear like the sweet south
That breathes upon a bank of Violets,
Stealing and giving odour."

Or beside that other, in the *Midsummer Night's Dream*:—

"I know a bank whereon the wild Thyme blows,
Where Oxlip and the nodding Violet grows."

"Beds of Violets," artificial things usually, no doubt are very agreeable; but how sweetly is their natural habitat set before us by the introduction of this little word "bank"—itself a thing so peculiarly

* *Odes*, lib. 3, x. 14.

of the country, and so suggestive of rural loveliness as regards the haunts and homes of the earliest wild flowers. In the presence of it we scarcely care to remember even old Homer's "soft meadows of Violets." *

Here, by the way, we are reminded that Shakspeare himself is no infallible demigod, but human in his errors and deficiencies, like all other men, and therefore in that very degree so much the more companionable, for he likewise places Violets in "meadows," where, unless quite exceptionally, they do not grow :—

> "When Daisies wild and Violets blue,
> And Lady-smocks all silver white,
> And Cuckoo buds of yellow hue,
> Do paint the meadows with delight."

Never mind: the slips are outweighed infinitely by the accuracies, and he who stops to consider the former, depend upon it, has little capacity for merit and excellence. It is impossible for a man to damage himself more thoroughly than by getting into the conceited habit of searching for errors and blemishes instead of beauties.

An argument against the true and genuine Violet, the V. odorata of modern botany, being the *ion* and the Viola of the ancients, except in particular instances, is found perhaps in the infrequency of any allusion to the scent. There is a celebrated passage in Horace, when, describing the advance of luxury, he says that if things go on as they do, the Olive plantations, once so fruitful, will give place to groves of Myrtle and beds of Violets, diffusing odours.† Here, no doubt, as in other cases, though not many, the true Violet is the flower intended, and the allusion, as far as it goes, is complimentary; but for the thorough recognition of the prime feature of the Violet we still have to come to Shakspeare. One passage has been quoted, another is found in the comparison of their fragrance to "Cytherea's breath," and another is embodied in the thrice-familiar lines spoken by Salisbury in *King John*:—

> "To guard a title that was rich before,
> To gild refined gold, to paint the Lily,
> To throw a perfume on the Violet,
> To smooth the ice, or add another hue
> Unto the rainbow, or with taper light
> To seek the beauteous eye of heaven to garnish.
> Is wasteful, and ridiculous excess."‡

Shakspeare's associations of the Violet with the spring are also of a kind that began with himself:—

> "Welcome, my son! Who are the Violets now
> That strew the green lap of the new-come spring?"§

So in *Hamlet*—

> "A Violet in the youth of primy Nature,
> Forward, not permanent."‖

No one, either, before Shakspeare, ever thought of flowers coming of the dissolution of the fair and chaste:—

> "Lay her i' the earth;
> And from her fair and unpolluted flesh
> May Violets spring. I tell thee, churlish priest,
> A minist'ring angel shall my sister be
> When thou liest howling."¶

Or of a comparison more delicate than Perdita's—

> "Violets dim,
> But sweeter than the lids of Juno's eyes."**

This last appears to involve an allusion to the white variety, the petals of which, exqusitely half-nutant, are not excelled in purity even by the eyelids of the daughter of Saturn. That in the dark-hued varieties Shakspeare noticed the "blue veins" upon the petals, he tells us in the poem of "Venus and Adonis." In the feudal times the Violet was the emblem of fidelity.

> "Violet is for faithfulnesse,
> Which in me doth abide;
> Hoping, too, that from your heart
> You will not let it slide."

Hence when, in *Hamlet*, Ophelia gives the herbs and flowers to her brother Laertes, she adds, "I would give you some Violets, but they withered all when my father died." The secret allusion is of course to the conduct of the queen. *Leo. Grindon, Manchester.*

FICUS ELASTICA.

IT is but seldom that the India-rubber Fig, Ficus elastica, produces fruit in this country, on which account we have given a rough illustration (fig. 76) of the fruits nestling in the axils of the leaves of the upper part of a plant sent for our inspection by Mr. Boyce, of Clapham. The fruit is shown of natural size, and the blade of the leaf is cut away.

* *Odyssey*, v. 72. † *Odes*, lib. 2. 15. ‡ Act iv., sc. 2.
§ *Richard II.*, act v., sc. 2. ‖ Act i., sc. 3.
¶ *Hamlet*, act v., sc. 1. ** *Winter's Tale*, iv. 3.

HAMILTON PALACE GARDENS.

THESE gardens, as is generally known, have been remodelled within the last dozen years, and are exceedingly well appointed. With the death of the father of the present Duke came a cessation of labour in the expansive way, but it is due to the present noble peer to say that he has in no way reduced the working power of the establishment; in fact, the order that pervades the immense demesne is a subject of general remark. The gardens proper are in a faultless state of keeping, and this refers not only to the acres of glass, but to the acres of ground devoted to both flower and kitchen gardening. Mr. Currie, the Duke's active head gardener, has indeed the place well in hand, and deserves to be complimented for his successful labours.

The Palace itself is one of the noblest piles that our

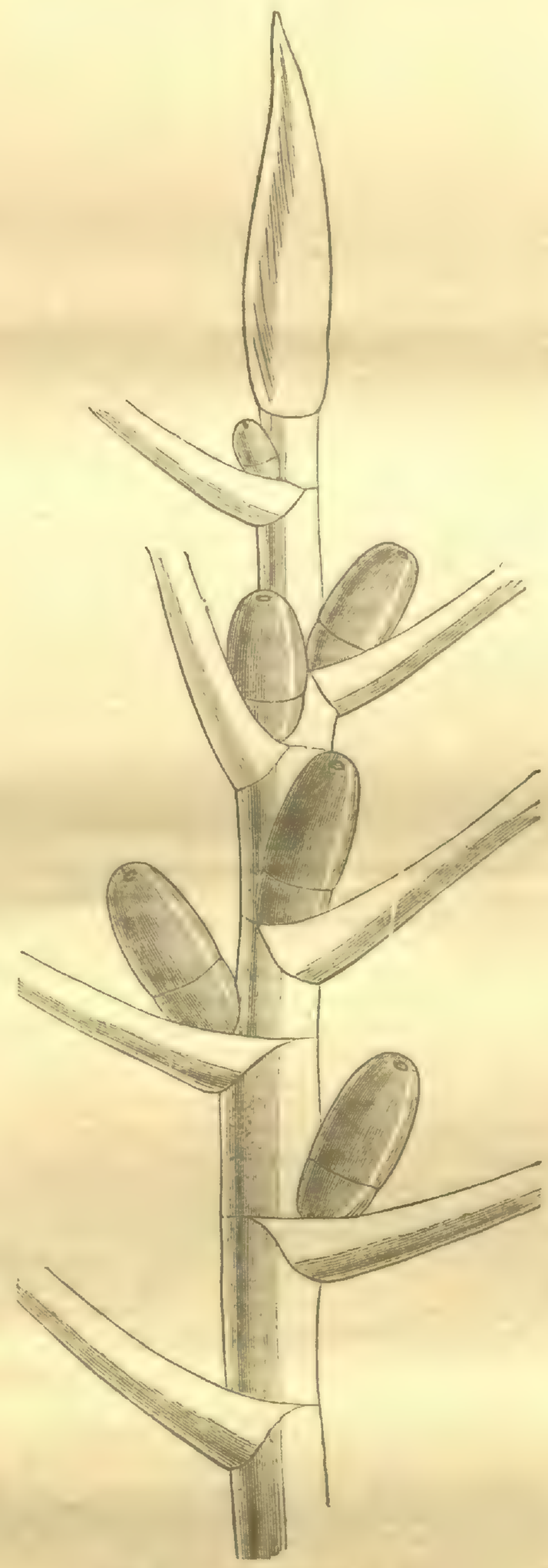


FIG. 76.—FICUS ELASTICA IN FRUIT.

aristocracy can boast of, only it has not been set down in the most eligible position. If the estate or the park had been limited in size there might have been some excuse for this; but when we see that it covers thousands of acres, wooded in the best style, and presents features of hill and dale such as one rarely meets with in the lowlands of Scotland, we cannot but be impressed with wonder at the low level of the site and its proximity to the ancient burgh of Hamilton. Taking it, however, with all its faults, it is admirable. Belts of timber shut it out from the town, and far as the eye can reach are to be seen trees of the noblest character. The old Oaks of the Cadzow Forest, under which the white wild cattle browse, have been frequently noticed. Many of them are fast crumbling down, but in their places are rising trees equally remarkable. Hamilton demesne is particularly rich in timber, and the planter of two or three centuries ago has been fully alive to landscape effect. He has not adopted the puny style of setting down single trees in salient positions, but has chosen clumps, so as to give clothing to the distant landscape picture; and then his avenues, which extend in some cases three miles in length, although keeping up the avenue feature, are not planted like so many Pelargoniums in a ribbon border, but at unequal distances, and in most cases, like the noble avenue at Windsor, in double lines. One can scarcely over-rate the importance of giving effect to this idea, which adds immensely to the attractive features of the landscape when the trees reach maturity. The designer must, in the course of Nature, be consigned to the "narrow house appointed for all living," before his scenic effects can be fully developed, for he that plants trees must plant for posterity. Let us pass a tribute of praise, however, to the wisdom and the foresight of a true landscape planter. The Oak and the Beech, the Elm and the Lime, and last, but not least, the Horse Chestnut—one of the noblest of specimen trees for individual planting—cross your eye as you promenade, and give dignity and nobleness to the ground which they adorn.

About and around Hamilton Palace is one of the best examples of adorned park scenery which we ever had the pleasure to witness. There is solidity without confusion—the park in all its distinctness, the trees in all their beauty of outline, as individuals and as taking position in clumps and in avenue lines, without emerging into the forest or giving the idea of a jumble together of forest and park scenery. The Mausoleum, on the right wing, but at a respectful distance from the Palace, is concealed by suitable vegetation; you can only catch a glimpse of its squat glass dome, some 150 feet above the ground level, rising above the tree-tops. It is a perfect sample of masonry, more so than a model of architecture; and the Duke who conceived and carried out the plan lies in a sarcophagus in the temple above the vaults.

But a truce to this sort of description. Let us proceed at once to look to the horticultural aspect of the place, and we can do so fortunately in this instance without quitting our post of observation. On the east side of the house is a large panel surrounded by a substantial ornamented wall, with open highly ornamented balustrade, to be in keeping with the pile with its elaborate Corinthian columns and massive entablature. This panel has been laid out for purposes of ornamental flower-gardening, and very effective it looks from the suite of rooms generally occupied by the family when they are present. Whatever may be said of the merits of mixed flower-gardening—and doubtless as a system it has been only indifferently patronised—such a position with all its surroundings is the sort of place for parterre gardening pure and simple. In this case the design is a series of geometrical beds without much of what one would call design about them; still, filled as they are with bedding-out plants, they look very attractive. Mr. Currie has year by year altered the colour and shading of the group until now he has it about as complete and faultless as it is possible with the groundwork at his disposal. What gives an air of easiness to the whole mass is the occasional Irish Yew or Lawson Cypress which has been dotted down, together with the vases which are filled to advantage to catch the eye. It would be something like repetition to go over the individual beds, naming the articles and how they are grouped, as we see much of that sort of thing in all descriptions of gardens. One thing pleased us well, and that was that the colours were in considerable breadth, shaded here, contrasted there, and not in parallel patches like strips of ribbon. Moreover the designer had his eye well upon the disposition of yellow in his designs. It is a strong colour, and if not kept well under, as one might say, it is apt to eclipse and destroy what otherwise would be effective grouping. Verbenas came out particularly well, the sort called Admiral Dundas being without exception the best crimson bedder employed, so far as we have seen, in Scotland. Crimson King comes in next, and of course Purple King, which is a prince among bedding Verbenas, the soft and withal decided tone of purple telling amazingly where well introduced. Pelargonium Cloth of Gold is another superb plant, beating even the renowned Mrs. Pollock for a clear decided piece of colouring. Where it does well, of course Mrs. Pollock is splendid, but I look upon Cloth of Gold as still more splendid. And then for a pure Zonal there is nothing to beat Vesuvius; it is the foremost among bedding Zonal Pelargoniums; and who that has a flower garden would be without the variegated Jacob's Ladder (Polemonium cœruleum) and the variegated Thyme? These, in the hands of a good planter, are two charming plants for effect, and here delight everybody. Another grand thing for taller work is the variegated Veronica Andersoni; the colours are so pure and distinct, and the habit so pleasing, that it must be regarded as a gem of the first water. Here they are all in good combination with other things. But we are charmed with the brilliancy of a bed of scarlet, each flower relieved with a white eye, and we find it to be Nasturtium Cooper's Defiance; with its pale green peltate leaf,

I note it as one of the firstlings of my selection. To this I have to add the beds of succulents, which are eye-pleasing and full of detail, only they are so dear to keep and grow and plant out, in comparison with many other things, but they are somewhat a grotesque feature with their formal habit wherever planted. The walks are of white and red gravel, the subsidiary ones being white; and what with a nice fountain and basin, in keeping with the Palace, shooting up its waters amongst a glow of floral beauty, the whole effect elicits many encomiums from the thousands of visitors who are permitted to walk past when the family are absent.

Moving towards the kitchen garden by the serpentine walk in the park we find, on entrance borders beautified by flowers, and some of them utilised by a complete collection of herbs in excellent style of keeping, each having its division, and each cared for, and not, as we sometimes see, left to assert its position after Nature's fashion. Turning at right angles, we enter into the houses which formed at one time the only bit of glass and forcing about the Palace gardens. These couple of houses still yield good useful Grapes, which come in to fill up a gap of supply. Above them again on the rising ground are plant-houses, chiefly reserved for Azalea cultivation, although some of them do duty for miscellaneous plants for general decorative purposes. To right and left of these is the old vegetable garden, a spot rich in all that vegetables care for, as the produce shows. Above and beyond this, again, is the new garden, where there is about the most complete set of forcing-houses in the country. There is none so thoroughly well-finished that we know of, and the elevated plateau is well fitted for allowing the subsidiary ranges to be in proximity, without shutting out the influence of the sun from the back and principal ranges. It was built at considerable cost certainly, but then it is clean, first-rate in every way for the growth of Vines and Peaches, and the most pleasant of walks when the houses are full of fruit. The back range is divided into eight compartments, six of which are vineries, the one on either wing being a Peach-house: the centre block of two houses, each 60 feet long by 20 feet wide, give scope for the production of fruit; the two on each side are a little narrower and shorter, and the Peacheries are narrower still. All have excellent crops of good useful Grapes, improving every year, and all are kept in the highest possible style.

The range immediately adjoining and parallel is also a most useful one, being completely filled with plants, of which there is an excellent collection. This range forms a sort of double line, with a partition cutting up the centre of the span, running east and west. One of these houses is an orchard-house, another a stove fernery, another a greenhouse fernery, another a show-house kept full of blooming plants; another is used as a Melon and Cucumber-house, another as a house for new and rare plants, another as a house for the best of the stove plants, and another for a Heath house. Again, on either side of this block are Peach cases, each 100 feet long, divided in the middle, bringing quantities of good fruit; and in front of these are a series of useful pits, heated for the purpose of conserving such things as Cinerarias, bedding-out plants, and such other things as all large places stand in need of to keep up the constant furnishing. It would take more time and more space than can be afforded to name even the best of the plants grown in this establishment. Of course the Crotons are unequalled in size and in form; then the useful Palms, that are portable, for decorative purposes, are well represented, and so are the beautiful Dracænas, that figure well in all modern plant establishments; and Heaths, and even Orchids, of which we noticed the best variety of Phalænopsis amabilis picta in cultivation—one of the gems of the noble Orchid race.

All the plants that require it are nicely staked and cared for; cleanliness is the order of the day, and the houses are kept regularly painted and glazed up to the mark. Mr. Currie, indeed, merits much praise for the quiet, unassuming, but persevering way in which he conducts this large establishment, and he is most attentive to all gardeners who visit it, notwithstanding the many calls upon his time.

In addition to the duties of the garden he attends to the rearing and keeping of nursery stock for a portion of the supply that is needed throughout the estate; and the crops of Larch, Scotch Fir, Silver Fir, and all such, are uniformly good. *A.*

RAMPION:
ITS CULTURE AND USEFULNESS.

RAMPION may be used as a culinary vegetable and as a salad. It is not nearly so frequently grown as, from its merits, it deserves to be; but whether this is owing to the fact that it is not well known, or being known cannot be successfully grown, it is difficult to say; certain is it, however, that it is grown very indifferently by many who have experimented with it, at least, so far as my own observation has gone. Perhaps the greatest drawback to its being more extensively used consists in the fact that it persists in forming bunches of ramose or fibrous-roots, as opposed to the more desirable fusiform shape, which it may be induced to form. In the former case the roots may not inaptly be likened to badly grown Salsify, only that it is, as a matter of course, much smaller in size. Even the Salsify has been grown and exhibited with the roots in shapeless bundles, somewhat like the half-closed hand, with the addition of innumerable minor fibrous roots, instead of in the form of clean straight ones, fit for the cooking process. I refer to these latter from the simple fact, that precisely similar conditions of culture are requisite to ensure good straight fusiform or spindle-shaped roots to each.

Rampion delights in a light open or porous soil. The site, or plot, whereon it is intended to grow it must, if success is to be hoped for, be prepared specially for it, and in the following manner. First let me remark, however, that the best site to grow it upon is a moderately shady and moist one; such, for instance, as the foot of a west wall. An important point in preparing the ground is to place a good layer of thoroughly decomposed manure from 4 to 5 inches below the surface, and to avoid as much as possible manuring the soil above this, yet at the same time keeping it free and open, in order that the tender roots may reach the manure; because, as these remarks would lead the reader to infer, if it be checked in its downward progress by a too tenacious soil, or if a too richly manured soil exists, the growth, either by being arrested in the former case, or by receiving too powerful an initial growth-force in the latter, is sure to put out what we may term numerous "maiden fibres," and the primary intention to maintain the fusiform shape is at once destroyed. Besides, these primary fibres readily form secondary or duplicate fibres, and the mischief goes on increasing rapidly, to the entire loss of the fusiform shape. On the other hand, if the initial root or radicle can be induced to go straight down through the first stratum, it will, not being able to find food suitable for its juvenile wants, hurry downward into the prepared and enriched artificial substratum, and there, leaving a neat, long fusiform basis above, will ramify and feed gluttonously, and go on increasing amidst all the fluctuations of weather that may ensue, giving in due season its crop, and that of the most useful kind.

As I have indirectly suggested above, Rampion delights in moisture, that is, a certain amount of latent moisture constantly existing in the soil, without being in such quantity as would be likely to sour or sodden it. Hence it may not be unnecessary to add, that during all dry, or even moderately dry periods, it would be advantageous to the crop to give thorough periodical waterings.

The site, or situation, having been prepared, it will be advisable to make at least two separate or distinct sowings—the first some time early in the month of April, and the second some time towards the end of May. Where the crop is valued I would suggest at least a third sowing, commencing with an earlier one in March, and following with others as above suggested, or at about a month apart.

The best way to sow the seeds is in drill-rows, somewhat shallow and drawn about 6 inches asunder. As soon as the seedling plants are well through the ground, and large enough to handle separately, they must be very carefully thinned out, to about 4 or 5 inches apart. More than usual care must be taken in the performance of this last operation, owing to the fact that each plant forms small, but very dense, bunches of leaves at the crown, which leaves require, as regards each separate plant, all the space around them for their proper development. Hence, if two or more seedling plants are through oversight permitted to occupy one and the same site—and they are easily overlooked—the consequence is that neither will be able to produce a root fit for use. Other aids to successful culture consist in the customary stirring or hoeing between the crop, which should take place frequently.

Rampion may be used, and indeed is frequently used, both as a culinary vegetable and as a salad. It will be necessary to watch when the roots attain to a proper size, and to draw them young, to be able to appreciate them properly. In cooking them they need some such attention as Asparagus does under the same process. When employed as a salad the roots should be drawn and used like Radishes; they require first well scraping, hence the more need that they grow straight, their thick outer coat being somewhat tenacious. The leaves when tender or young are used green, in the same way as those of the more commonly grown Lamb's Lettuce, and which, by the way, they somewhat resemble.

Finally, there is a little difficulty in determining botanically which is the true Rampion, though I believe the subject of my remarks is the Campanula Rapunculus. On this point I would, doubtless in common with many, like the Editors to set me right. *William Earley.* [The true Rampion is Campanula Rapunculus. EDS.]

A CLEARING IN THE FORESTS
OF CENTRAL AMERICA.

IN the midst of the great primeval forest which covers the Atlantic slope of the Central American watershed is a small clearing of about 50 acres, occupied by the hacienda, mines and workshops of the Chontales Mining Company. Santo Domingo, as this small settlement is called, is situate in lat. 12° 16′ N., and long. 84° 59′ W., nearly midway between the Atlantic and Pacific, and has been rendered more than usually interesting from the fact of its having been the headquarters and residence for upwards of four years of Thomas Belt, the author of *The Naturalist in Nicaragua*, and also the *locale* where the late Dr. Berthold Seemann made several important botanical discoveries, which were duly noticed at the time in the pages of the *Gardeners' Chronicle.*

The accompanying *fac simile* of a sketch (fig. 77) made on the spot, and untouched since, gives some idea of the early days of a mining settlement in the woods of Tropical America. It was made on March 18, 1867, about a year previous to Mr. Belt's arrival in Nicaragua.

The scenery in the surrounding virgin forests, with their marvellous arborescent growths, has already been noticed in the *Gardeners' Chronicle* (January 17, 1874, p. 87) to which may be added the following extract from Mr. Belt's work:—

"Unlike the plains and savannahs we crossed yesterday, where the ground was parched up in the dry season, the Atlantic forest, bathed in the rains distilled from the north-east trades, is ever verdant Perennial moisture reigns in the soil, perennial summer in the air, and vegetation luxuriates in ceaseless activity and verdure all the year round. Unknown are the autumn tints—the bright browns and yellows of English woods, much less the crimsons, purples, and yellows of Canada, where the dying foliage rivals—nay, excels—the expiring dolphin in splendour. Unknown the cold sleep of winter—unknown the lovely awakening of vegetation at the first gentle touch of spring. A ceaseless round of ever-active life weaves the forest scenery of the tropics into one monotonous whole, of which the component parts exhibit in detail untold variety and beauty. To the genial influence of ever-present moisture and heat we must ascribe the infinite variety of the trees of these forests. They do not grow in clusters or masses of single species, like our Oaks, Beeches, and Firs, but every tree is different from its neighbour, and they crowd upon each other in unsocial rivalry, each trying to overtop the other. Therefore we see the great, straight trunks rising a hundred feet without a branch, and carrying their domes of foliage directly up to where the balmy breezes blow and the sun's rays quicken. Lianas hurry up to the light and sunshine, and innumerable epiphytes perch themselves high upon the branches.

"In commencing a clearing, the brushwood is first cut close to the ground, as it would be difficult to do so after the large trees are felled. The big timber is then cut down, and in April it is set fire to. All the small wood and leaves burn well; but most of the large trunks are left and many of the branches.

"The Indians cut down patches of the forest and burn it to plant their corn, as all along the edge of it they do still. The first time the forest is cut down, and the ground planted with corn, the soil contains seeds of the forest trees, which after the corn is gathered spring up again, and regain possession of the ground, so that in twenty years, if such a spot is let alone, it will scarcely differ from the surrounding untouched forest. But it does not remain unmolested. After two or three years it is cut down again, and a great change takes place. The soil does not now contain seeds of forest trees, and in their stead a great variety of weedy-looking shrubs, only found where the land has been cultivated, spring up. Grass, too, begins to get a hold on the ground; if it prevails, the Indian or Mestizo does not attempt to grow corn there again, as he knows the grass will spoil it, and he is too indolent to weed it out. Often, however, the brushwood has been cut down and burnt, and fresh crops of corn grown several times before the grass has gained such an advantage that the cultivator gives up the attempt to plant Maize. There is then a struggle between the weedy shrubs and the grass. The leaf-cutting ants come to the aid of the latter. Grass they will not touch, excepting to clear it away from their paths. The thick forest they do not like, possibly because beneath its shade the ground is kept too damp for their fungus beds. But along the edge of the forest, by the sides of roads through it, that let in the air and sunshine, and in clearings, they abound, and are especially fond of the leaves of young trees, many of which are destroyed by them.

"Should the brushwood ultimately prevail and cover the ground, the Indian or Mestizo comes again after a few years, cuts it down, and replants it with Maize. But, as most of his old clearings get covered with grass, he is continually encroaching on the edge of towards the North-East. As this process has probably the forest, beating it back gradually but surely

been going on for many thousands of years, I believe that the edge of the forest is several miles nearer the Atlantic than it was originally.

"In this way many acres in the neighbourhood of Pital were taken from the forest, and added to the grass lands whilst I was in the country. The brushwood land does not yield such good crops as the virgin forest, but it is nearer to the huts of the cultivators, who live out on the savannahs, so that whenever the weedy shrubs gain possession of a spot sufficiently large for a clearing, and choke off the grass, these places are again cut down and burnt, and thus the forest is never allowed to establish outposts or advanced stations in the disputed ground.

"What would be the result if man were withdrawn from the scene I do not know, but I believe that the forest would slowly but surely regain the ground that it has lost through long centuries."

In the drawing to the left are the houses of the commissioner and cashier of the mines. Since this drawing was made, Mr. Belt has cleared away the weedy bushes which covered the slope in front of these houses down to the river, and planted young Orange, Lime, and Citron trees, which bore fruit previous to his departure. In the foreground is the dell covered with fallen logs and rubbish, where now Mr. Belt has established a garden for fruit, vegetables, and flowers. This locality is a favourite haunt of plants with variegated leaves. There are fine species of Costus (including, besides, the well-known C. zebrinus and Malortianus, several new ones), two beautiful species of Cissus, one with bright scarlet flowers (introduced by Dr. Seemann into England), and several Marantaceæ and Aroideæ. But the finest of these is the one named by Dr. Seemann Cyrtodeira chontalensis, a Gesneraceous plant. Unfortunately, the spot where the Cyrtodeira grew has been cleared and burnt. In the forest a species of Caoutchouc, Vanilla, Sarsaparilla, Quassia, Fustic, and other valuable woods abound, and there are many vegetable productions either rare or perfectly new to science. Amongst the most noteworthy are various species of Marcgraavia (nepenthoides), a lofty climber, every umbel of which terminates in five flower-bearing pitchers filled with water or sweetish liquid, which attracts insects, and the insects attract numerous insectivorous birds, who convey the pollen from flower to flower. There are also a large white Sobralia and a tree with fingered leaves (Herrania purpurea) and small round seeds, from which chocolate superior to the ordinary cacao is prepared by the Indians.

"The natural indigenous grass that springs up in clearings in the neighbouring forest is a creeping species, and is rather abundant about Santo Domingo. It has a bitter taste, and cattle do not thrive on it, but rapidly fall away in condition if confined to it. They do better when allowed to roam about the outskirts of the forest amongst the brushwood, as they browse on the leaves of many of the bushes. This grass is not found far outside the forest, but is replaced on the savannahs by a great variety of tufted grasses."

In the woods are found various species of the curassow (Crax), as well as of Penelope and Tinamus, also numerous trogons, mot-mots, toucans, and woodpeckers, whilst the humming-birds occur in countless numbers.

Most of the miners are from Honduras, and amongst them are found the so-called "toros," or earth-eaters, who have a vicious habit of chewing a certain steatitic clay called "jabonada," which produces a kind of soapy foam when moistened with saliva.

For further details of this interesting region the reader is referred to Dr. Seemann's works, Captain Bedford Pim's *Gate of the Pacific*, and Mr. Belt's lately published book, of which a lengthened notice was given in our first volume for the present year.

FIG. 77.—MINING SETTLEMENT AT SANTO DOMINGO, IN THE FORESTS OF NICARAGUA.

PHOSPHORESCENCE OF FUNGI AND WOOD.

THE cases in which a development of light has certainly been observed in living plants have hitherto been confined to fungi and a few kinds of luminous wood. Among fungi a series of the large Hymenomycetes are known as certainly phosphorescent, belonging chiefly to the torrid zone. In the temperate zone, and especially in the middle and north of Europe, the phosphorescence of these growths is by no means constant. Here it is especially the rhizomorphous forms of highly developed fungi, and the mycelia of these so frequently expanded on wood, that are phosphorescent.

M. Ludwig, a short time since, gave reason for supposing that the luminosity of dead and decaying wood is also attributable to the presence of a living fungus. He has recently made further observations in reference to this on a number of root-stocks of young Pine trees attacked by Rhizomorpha, as he describes in an inaugural dissertation, made at Hildburghausen (*Naturforsches* for July).

Four separate pieces were moistened and put in a cellar, and the same evening they were brightly luminous under the bark, while roots of old Fir trees, free from Rhizomorpha, treated in the same way, did not show the least phosphorescence. The former were observed to be luminous for fifteen days, whereas the latter gave no signs of light even in a longer period.

The phosphorescence proceeded from the white fungus mycelium lying between bark and wood, and which could easily be separated with the bark. The phosphorescent parts of the separated bark were observed to be exactly those in which mycelium was found when light was admitted. Separated from its base, and put on a damp plate, the mycelium was luminous, with the same intensity, several days, while the piece of bark from which it had been taken was no longer luminous. In the wood of the moistened roots, also, only those pieces were phosphorescent which were attacked by the mycelium; but in the neighbourhood of the mycelial growths, and where these were removed, the wood was also luminous to a depth of 2 mm.; and when it was moistened the phosphorescence extended further, and became more intense. A microscopical examination showed that, so far as the phosphorescence reached, the wood was penetrated with fungus cells; hence there can be no doubt that here, too, the phosphorescence was due to the hypha of fungus.

As regards the luminosity of decayed wood, M. Ludwig has (in a former communication) shown the existence of a fungus on it. The rarity of the phenomenon is against the idea that it is produced by a chemical process in decomposition of the wood. To the process of corruption a special "moment" has to be added, viz., the development of fungus, in order to light being produced. The objection that the luminosity, as a rule, spreads over the whole wood, while the fungus is only found at particular parts, may be met by saying, that in the above case of fresh wood also, the phosphorescence occurred at parts that seemed free from fungus, and yet, with the microscope, the presence of fungus-cells in these parts was established. And, in fact, M. de Bary has observed a piece of decayed Beech-wood entirely penetrated with fungus filaments. Thus the phosphorescence of rotten wood may be explained in the same way as that of living trees.

As regards the nature of the phosphorescent light, and the necessary condition of its production, M. Ludwig makes observations as follows:—

"The light of the mycelium and wood which I examined showed in the microscope a lively to-and-fro wave motion, that of wood especially, in freshly cut and water-moistened columns. Smaller pieces of mycelium gave, at a distance of about 3 m., at which their phosphorescence could yet be perceived, a quickly scintillating light, now brightening and now disappearing. The intensity of the light from my mycelia was weak; at 4 mm. distance I could no longer perceive it, still I succeeded in examining its constitution. I brought some of the brightest pieces of mycelium (the wood was too weakly luminous for

these experiments) under a microspectral apparatus, in a quite dark room with closed windows. The spectrum was of course very feeble, and without determinate colours; at first I saw only a weak bluish glimmer; but after continuing two hours in the dark the outlines of the spectrum became distinct. I now marked a number of dark lines, and a very broad absorption band. On turning the prism, and comparing with the spectrum of a lit candle, I found the beginning of the phosphorescence spectrum in the bright blue, from which it extended into the ultra-violet. The absorption lines were situated in the bright blue, while the broad absorption band was in the still visible ultra-violet part of the spectrum.

"Temperature had an influence on the intensity of phosphorescence. At the lowest temperature of 4.5° C. the mycelia were weakly luminous; even at 10° they were still pretty dull. On gradually raising the temperature they were most strongly phosphorescent from 25° to 30°, and thereafter the intensity decreased. Pieces of mycelium and wood, which at 45° were nearly extinguished, began again, on cooling, to be luminous, if I moistened them. With a sudden change of temperature from 40° to 10° (in water) the luminosity immediately disappeared, but in a few hours it was renewed: a transition from 30° to 15° gave no marked difference of intensity.

"I found the upper limit of possible phosphorescence to be at the temperature of 50°; the fungus was at once extinguished in this, and the phosphorescence could not be renewed. Fabre obtained for A. olearius, D.C., also 50°; Tulasne, for Rhizomorpha, 55°; Humboldt, for decayed wood, 40°, as upper limits of temperature. The lower limit seems to be near freezing-point. Bacon and Heinrich saw wood luminous under 0°. The latter kept root wood luminous fifteen days in an ice cellar at 0°; it was only extinguished on freezing.

"In ordinary water the luminosity of mycelium and wood continued unweakened; not so in boiled water, from which all the air has been expelled. I boiled some water, and allowed it to cool in a close glass; then I put small pieces of bark, with mycelium, and thin splints of wood of similar nature into the boiled and into ordinary water (containing air) of equal temperature. In the former the phosphorescence was extinguished in twenty to twenty-five minutes, while it continued in the latter for several days. Fabre arrived at a similar result with A. olearius, only the phosphorescence in the boiled water went out in a few minutes. In Humboldt's experiments the phosphorescence continued even in the boiled water, but the water appears not to have been thoroughly boiled. Moreover, it is to be remembered that decayed wood is of very loose consistence, and that therefore large pieces, such as Humboldt employed, must themselves have always contained air.

"Moisture and contact with atmospheric air are the primary conditions for phosphorescence of fungi. Rumpf observed this with A. igneus, and the observers of A. olearius confirmed it. Phosphorescence was present only so long as a considerable amount of moisture covered the surface of the fungus. Pieces from the interior of the fungus (according to Tulasne, from the axile cord of Rhizomorpha) become luminous, as a rule, only after long contact with atmospheric air. In the case of my Pine wood, the dark subcortical mycelial growths firmly enclosed in the bark first began to be luminous a long time after removal, and after moistening with water. Heinrich found the same with luminous wood.

"Acccording to Humboldt's and Heinrich's experiments on wood, and those of late observers on the larger Mushrooms and the Rhizomorphæ, the phosphorescence goes out very soon in carbonic acid, nitrogen and hydrogen, as also in all dropable liquids, with the exception of water: it continues, on the other hand, in oxygen, without, however, increasing much in intensity.

"It may hence, be inferred, that it is the oxygen in atmospheric air which occasions the phosphorescence, and that the phosphorescent fungus hyphæ, during this physiological process, consume oxygen. Such a consumption of oxygen was experimentally verified.

"In the eudiometer I put little pieces of bark with phosphorescent mycelium, using caustic lye for absorption of liberated carbonic acid; and it was found that in six hours the fungus had absorbed about two cubic centimetres of oxygen. In water, in which mycelium had been phosphorescent some days, there was a considerable quantity of carbonic acid.

"In addition to the above-mentioned external relations, the phosphorescence is dependent on circumstances resulting from the growth relations and individual differences of the fungi, the nature of which is still quite unknown. Thus Tulasne found that among far the most numerous specimens of A. olearius, which were luminous throughout, many were phosphorescent only in the lamellæ. In some quite old specimens the stump was luminous only on the outer surface, and became phosphorescent within only after prolonged contact with the air. Delile found only the hymenium phosphorescent in his specimens.

"In cases, also, where all the parts of the fungus were phosphorescent, Tulasne found the light generally quite irregular on the stem and on the lamellæ, without any coincident inequality being present in their substance; and some branches of Rhizomorpha that were apparently quite similar, Schmitz found to have very different phosphorescent capacity, though subjected to like conditions." *A. B. M.*

CHERRIES.

[THE following varieties are those recommended by our correspondents for culture in their respective districts. EDS.]

BUCKS. — Bigarreau, Bigarreau Napoléon, Elton White Heart, Black Circassian, May Duke, Florence, Frogmore Early Black. *G. T. Miles, Wycombe Abbey.*

CORNWALL.—May Duke, Morellos, and Bigarreaus. *H. Miles, Enys, Penrhyn.*

HERTS. — Morello, May Duke, and Black Eagle. All varieties equally good. *E. Bennett, Hatfield House.*

KENT.—Black and White Hearts, Elton, Bigarreau, Black Eagle, and Crown. *Thos. Woodford, Eastwell Park, Ashford.*

MERIONETH. — May Duke, Late Duke, Bigarreau, Elton, and Black Eagle. *Jas. Bennett, Rhug Gardens, Corwen.*

MID-LOTHIAN.—On walls: May Duke, Elton, and Tartarian. *M. Dunn, Dalkeith.*

NORFOLK. — May Duke, Black Eagle, Bigarreau Napoléon, and Morello. *Wm. Smythe, Elmham Hall.*

NORTHAMPTON. — May Duke, Late Duke, Black Eagle, Knight's Early, Morello, Carnation, and Elton. *J. Worraker, Milton, Peterborough.*

—— May Duke, Late Duke, and Morellos, most grown in this district. *J. Smith, Althorp Gardens.*

RUTLAND.—Among dessert varieties I find none equal to Bigarreau Napoléon, Elton, and Belle de Choisy. For tarts there is nothing equal to the Morello. *J. Smith, Exton Park.*

THE FARM.

WHEAT SOWING.—A few hints upon Wheat sowing, now that the season approaches for this important farm work, can hardly be out of place. Our remarks will have reference to the following heads:—1. Preparation of the land for the Wheat crop; 2. Choice of seed; 3. Preparation of seed; 4. The sowing of seed.

1. In ploughing for Wheat, our practice is to do the work as deep as circumstances will admit of. If the soil be situate on a rock, as on the mountain limestone or oolitic freestone, the depth of ploughing can seldom exceed 4 inches; but on the finer loams we have often done this work to the depth of 7 inches; and when we can turn up the soil nicely and regularly to this depth we feel more certain of favourable results. After ploughing, our plan is to press down with the Cambridge or Crosskill, or a combined roller, and then, after harrowing, the ground is ready for the seed.

2. In choosing seed, the first consideration should be that of change; as a different sort, as well as a change of seed from that usually sown, will mostly produce a better crop. Having decided upon the sort—a point which will depend much upon circumstances—the next matter will be the choice of the sample.

Now, as regards sort, in small holdings, and under good cultivation, we recommend white Wheat, as it furnishes a better sample of corn, and the whiter the straw the more it will be valued, especially in a gentleman's stable; and if for market, a clean white straw is always appreciated. Choice for seed should be made in favour of new Wheat, just threshed; if old seed be used, it should be threshed just before sowing.

Quality of sample is most important—*e.g.*, the grain should be bold and even, all tail and broken grains should be carefully separated, and a blighted sample should be refused. It should be in good condition; and we find that the heavier its weight per bushel the better; so that if two samples were offered us for seed, one 62 lb. and the other 64 lb. per bushel, we should—other things being equal—choose the latter. There will be a difference in price when all these matters are considered; but a shilling an acre is hardly worth thinking about in so important a matter as that of seed.

3. In our own practice, we find that when all the foregone recommendations have been attended to the seed requires nothing to be done to it before sowing. There are, however, those who consider that under any circumstances the pickling of the seed, to prevent that disease known as "black-ball," is advisable. Thus the author of the article "Wheat," in Morton's *Cyclopædia of Agriculture*, has the following remarks:—

"It is no guarantee against this enemy to employ seed which may have been entirely free from it during its growth. The spores of the fungus which produces it may, for aught we know, be lurking about in barns or sacks, or even in the air itself, and so be brought in contact with Wheat employed for seed. The old agricultural pharmacopœia gave chamber-lye and caustic lime as the grand recipe for the destruction of black-ball, and sometimes washing with salt and water was recommended. Both plans might mitigate the evil, but neither of them ever prevented it. Fortunately sulphate of copper (blue vitriol) was thought of, and there can be but one opinion as to its perfect efficacy, when properly applied, in preventing black-ball."

In our own practice we have confirmed the value of the use of the sulphate of copper to diseased seed; and if from any chance we employ a suspicious sample, we always use it, but never when we have a choice of seed; and from various experiments in regard to this matter we conclude that, to have a crop free from disease, the best way is to ensure the most perfect parents, or the best possible seed, and never have we had better Wheat, both red and white, than this year, and yet not a bit of our seed was pickled. But we must state, that though we have sometimes sown smutted Wheat which had been duly pickled with the sulphate of copper, yet we have never, under such circumstances, been so free from the black-ball as when we have sown a more carefully selected sample. Still, as the expense is not great, and the process simple, we give directions for the use of the copper pickle.

This process we perform by dissolving a quarter of a pound of sulphate of copper in a quart of water for each bushel—*i.e.*, 2 lb. of sulphate and 2 gallons of water to each quarter of Wheat—and, when cold, sprinkle the solution on the seed, which is spread out evenly on the floor, by means of a watering-pot with a fine rose. Mix thoroughly well together, and turn over some three or four times before using. The Wheat will keep good for some days, so there need be no hurry in this matter. Care should be taken to procure genuine sulphate of copper; the solution should be perfect, and if done in quantity it will be found that a little less of the chemical will do,—say 1½ lb. to each quarter of the seed. This will really be inexpensive; for, as it makes the seed swell, so much less is sown per acre by the ordinary drill.

4. We prefer a dry time for drilling Wheat, and when prepared for this work the first consideration will be the setting of the drill, and the determination of the quantity of seed to be sown per acre.

Now, as regards the distance of the rows, we may say that all our neighbours prefer 7 inches apart; we, however, find 9 inches, or even 10 inches, better practice. Some sow 2 bushels of seed to the acre; we prefer 1 bushel; but it must be borne in mind that thin seeding requires, besides good seed, clean land and a timely sowing; so that these matters must be much guided by circumstances. In thin seeded crops the plants usually tiller to a great amount, and with rows further apart, the ears are always longer, and the corn finer and better.

These, then, are some of the considerations which should guide us in our present Wheat sowing. With spring-sown corn the matter is somewhat different; our remarks, therefore, should be considered as applying to autumn sowing, and this, too, as early as may be.

Natural History.

CANINE MADNESS.—Until a specific remedy shall have been found to cure the dreadful disease known as hydrophobia authentic facts relating to it are valuable, and must be interesting to everybody—gardeners, whether professional or amateur, included; for everybody either keeps a dog, or is continually thrown in the way of dogs. No apology is therefore needed for reproducing recent communications on the subject. Our readers shall be first reminded of one or two particulars not popularly known.

First, hydrophobia occurs with very different frequency in different countries, in a manner quite inexplicable by our present knowledge. With us, happily, it is comparatively rare. In France, for instance, it is much more common than in the United Kingdom, to a degree quite unaccounted for by its more southern latitude or any other obvious cause. The number of deaths there from that frightful malady is annually so great as to startle strangers who for the first time become cognisant of the fact; for when once hydrophobia has really seized its victim it never quits its hold. The doubtfulness, however, of the actual

seizure may often, especially within our islands, give cause for well-grounded hope. Cases to the point shall shortly be cited.

Moreover, the unequal prevalence of hydrophobia is not confined to European countries only. Mr. Darwin found the same irregularity occurring in South America. In one valley in Northern Chile an order had recently been issued that all stray dogs should be killed, and he saw many lying dead on the road. A great number had lately gone mad; several men had been bitten, and had died in consequence. On previous occasions, hydrophobia had prevailed in the valley. In the same isolated spot this strange disease showed itself time after time, as if it had taken root there. It has been remarked that certain villages in England are in like manner much more subject to this visitation than others. On the other hand, there are countries which appear to be quite free from it. Even in South America it is stated to have been unknown previous to 1803; it broke out in Central America, and then travelled slowly southwards. On inquiry, Mr. Darwin did not hear of hydrophobia in Van Diemen's Land nor in Australia, and Burchell says that, during the five years he was at the Cape of Good Hope, he never heard an instance of it. Webster asserts that at the Azores hydrophobia has never occurred, and the same statement has been made with respect to Mauritius and St. Helena, naturally suggesting the question—Would it be possible to stamp it out once for all in the British Isles?

Note that the countries thus favoured by exemption are all of them more or less hot countries; which calls forth, secondly, the fact, that canine madness is not confined to summer. The dog days are not the only mad-dog days. In France, terrible and numerous cases occur even in the depth of winter. In winter, therefore, danger from hydrophobia must not be regarded as impossible. Thirdly, hydrophobia means the dread of water; but an aversion to, or a horror of, water may exist without the presence of true canine rage. Its existence, therefore, in a patient does not necessarily imply a fatal and hopeless condition of that patient. Further, which is important, dogs really infected with madness will sometimes at first eat and drink nearly as usual, they will even seem thirsty and anxious for drink; so that a dog's drinking or lapping water is no infallible sign of his being in perfect health. Change of voice is a warning symptom. So long as a dog barks in his usual tone the chances are that he is not affected; but if he makes strange utterances, characteristic of the malady to those who have heard it before, it is time to keep an eye upon him and be on your guard.

How long can the disease remain latent? is also a serious question, which M. Henri de Parville, in the *Journal des Débats*, has recently endeavoured to elucidate. When may a person bitten be considered out of danger? is a point of the gravest import. It has hitherto been admitted—and M. de Parville thinks it not far from the truth—that if no rabid symptoms have appeared several months subsequent to the bite there is nothing further to be apprehended. Statistics taken in different departments of France have given results which appear conclusive respecting the time of incubation of hydrophobia. Every person bitten is not given up for lost; the virus may not have penetrated beneath the skin, and also the contagious principle must fall upon conditions suitable to render it active. The chances of escape are considerably increased if no inconvenience is felt two months after the bite. According to the last inquiry made in France, out of 106 bites, seventy produced rabid symptoms within the course of sixty days. After the ninetieth day, the probabilities are in favour of complete immunity. Out of the 106 cases noted, after the hundredth day only one or two accidents occurred; in the eight month there was but one; notwithstanding which, a quite recent case has been communicated to the Paris Academie de Médecine tending to prove that the period of incubation may be of much longer duration than is generally supposed, and in which the disease declared itself two years and a half after the bite of a mad dog.

This instance, perhaps unique in medical science, is considered by M. de Parville as contestable. The facts are these: On the 18th of June, 1874, Monsieur X., forty-eight years of age, doctor and apothecary, presented himself, at eight in the morning, at the municipal Maison de Santé. He was received by the doctor of the establishment, M. Féréol, who was struck by the strangeness and wildness of his manner. The pupils of his eyes were dilated, and although he affected to be calm his extreme excitement was evident. He spoke of his profund aversion for liquids and allowed it to be supposed that he considered himself as hydrophobic. They showed him a looking-glass; he turned away his head and was seized with a spasm of the larynx, accompanied by panting respiration. If they offered him a drinking glass, even empty, he immediately pushed it aside; even passing the hand before his eyes brought on a spasm. He had been two days without taking nourishment. On the back of his left hand they observed a scar—"It is the mark," he said, "of a mad dog's bite." In Decemeber, 1871, a little bitch of which he was exceedingly fond had bitten him deeply. He had already remarked a curious change in her conduct; she nibbled and gnawed everything that came in her way. One of his pupils tried to prevent her; the animal rushed at him and bit him. X. laid hold of her to punish her, but she bit him also. Confined in a chamber, she refused food and drink, and after a few days was seized with a fit of rage; X. then made up his mind to kill her with a few drops of prussic acid at the end of a stick. Besides Monsieur X. two others persons were bitten, who still remain alive and well. The wounds were cauterised with ammonia and with nitrate of silver, but not with red-hot iron; whether they were cauterised immediately or not, M. Féréol was unable to ascertain. In any case, there is no doubt that the little bitch was really mad, for a pup, to which she had recently given birth, and which she had licked, also died mad a few weeks later. This accident weighed on X.'s mind, so much so as completely to overcloud his spirits. Nevertheless, time sped on and no dangerous symptom appeared; but towards June 18 of the present year he suddenly felt extremely lassitude, great weakness, and inability to sleep. Without acquainting anybody with his real intention, under the pretext that he had to take a journey, he went straight, alone, to the Maison de Santé, or private asylum, where he speedily got worse, with a fatal result. In this case a man in excellent health, who had never committed alcholic excesses, with no predisposition to insanity, acquired or hereditary, is suddenly seized with hydrophobia and dies in three days. From this Dr. Féréol concludes both that X. died of true canine madness, and that the incubation of the disease may last exceptionally nearly three years.

The question thus raised is serious, and cannot, evidently, be readily settled. We cannot admit, without great resistance, that any given virus can remain latent for whole months in the organism, and then wake up all of a sudden, resuming its activity and pervading the whole economy. Certainly, the hypothesis would be convenient to explain epidemic diseases which return at long intervals without any apparent importing cause or vehicle, but it does not appear to rest on any sure foundation. On the contrary, it would rather seem to be opposed to experience. Viruses always do their work, or become speedily exhausted, overcome by the organic forces. Nevertheless, it cannot be doubted that cases of hydrophobia do occur several months—a year, even—after the bite. Then why not grant M. Féréol, it will be asked, that the duration of the incubation may reach two years and a half? The objection, at bottom, is only specious; it is almost a begging of the question, for, in fact, it ought first to be demonstrated that the cases signalised are really, like that related by M. Féréol, cases of rabid hydrophobia.

The influence of the imagination on the body is no secret. The old legend of the plague is only too true. "Plague, thou hast slain 80,000 men," said some one. "No," answers Plague; "I have slain 10,000, and Terror has slain all the rest." Alas! yes, it is so. The fear of evil makes the evil come. Men sound in mind and body have been seen yielding to the impression of a fixed idea. Physiology possesses in her archives examples of this action of the mental on the corporeal system. When the attention is fixed on certain organs, it deranges their functions if long-continued. Numerous cases of hydrophobia are known to have been developed under the influence of retrospective imaginations. M. Brouardel has even designated a special form of nosomania under the name of imaginary hydrophobia.

Dr. Chateau, secretary of the Medico-practical Society, when he was chief of the clinical department at the Hôtel-Dieu, had to search whether any lesion could be found in the larynx of a man who died of canine madness. The evening of the operation, at dinner, thoughts of this man all at once occupied his mind; he was seized with strangury, and could not eat. For a month he could not bear the brightness of a polished object. Every time the hydrophobic patient recurred to his mind, he experienced spasms. For two years he could hardly bear the sight of a mirror. M. Chateau mentioned these facts to his colleague at the Hôtel-Dieu, who confessed that three days after the *post mortem* he suddenly felt similar symptoms, which lasted a considerable time.

According to Dr. Finol, a woman is bitten and manifests every sign of canine madness; she goes into the Charité, and leaves it, cured, in the course of a few days. But she falls in by chance with a medical student, who persuades her that she has had true hydrophobia. She is taken ill again, is obliged to return to the hospital, where she speedily dies.

In 1843 a man suffering from hydrophobia is brought to the Hôtel-Dieu, and secured with a straight waistcoat; but in struggling with M. Husson, M. Demarquay, and a young attendant named Guérin, he covered their faces with the foam from his mouth. Next day the patient was dead. Young Guérin, much affected, requested leave of absence. While walking away from the hospital he is bitten by a passing dog. He enters the Salle Sainte-Jeaune, where M. Demarquay cauterises the wound with red-hot iron. Guérin leaves, saying that he shall be back before six weeks are over, to die in the service. In fact, forty days afterwards Guérin arrives exceedingly ill. He can swallow nothing, and the sight of brilliant objects provokes a violent spasm. These symptoms last eight-and-forty hours. M. Demarquay then tells him that he has not hydrophobia, since the other patient died in eight-and-forty hours. MM. Husson, Rostan, and Vigla urge the same consideration, and succeed in inspiring him with a gleam of hope. He was soon able to drink, and got well again.

Another case, reported by M. Duluc:—A young girl is bitten on the knee and licked on the lips by a dog manifestly mad, on March 9, 1868. Thirty days afterwards she is delirious, ceases to eat, has a horror of drink, and threatens to bite. "Bite me, if you will," says M. Duluc, good-humouredly, offering his cheek. The happy movement produces its effect. The patient, reassured, drinks, eats, and is soon cured. It is therefore incontestable that imagination plays an important part in these matters. Instances might be quoted of undeniable and mortal hydrophobia occurring in persons bitten by dogs that never went mad. Hydrophobic symptoms evidently coincide with certain states of insanity, or appear to show themselves spontaneously under the influence of exaggerated fears.

In certain cases, persons who had been bitten by dogs that happened to be in a peculiar state of over-excitement, have been known to die after exhibiting symptoms of hydrophobia. Those same dogs, nevertheless, have not subsequently, it is affirmed, gone mad, which would suggest the belief that, under certain circumstances of temporary over-excitement, the saliva of dogs may acquire dangerous properties; but until we know the exact nature of canine madness the public cannot be too strongly urged to be upon their guard. The preceding considerations tend to augment the gravity of the evil. The saliva of the dog may contain, in certain cases of organic disturbance, or through inheritance, a contagious principle. There exist examples of persons being infected by simple caresses. Nor ought it to be concealed that observations made by MM. Leblanc, Constantin, Fitte, and Paul Simon, and published in the *Recueil de Médecine Vétérinaire*, place it beyond doubt that madness may be spontaneously developed in dogs under the influence of unfulfilled genesic requirements. Prudence, therefore, cannot be too strongly recommended to persons who keep dogs about them.

Administrative measures, muzzles, and so on, are illusory, or worse. The grand point is to acquaint everybody with the gravity of the peril, and to spread the knowledge of its symptoms as widely as possible. The characters of canine madness are within everybody's comprehension. M. de Parville has specified them in detail in the eleventh volume of his *Causeries Scientifiques*. Let people take the trouble every day to examine their dogs with some slight attention, and observe whether they manifest any unusual habit, such as melancholy, restlessness, hallucination, haggard looks, and the like. It would be so easy thus to avoid the danger. From the outset the mad dog's saliva carries with it the contagious principle, and the animal is more than ordinarily inclined to caress his master. A slight fissure in the skin, and inoculation takes place.

It would be a good thing if, on the back of every receipt for dog-tax, the symptoms of canine madness were printed, in order that everybody might be acquainted with them, and be able to refer to their description at a moment's warning. Mistrust the dog in whose ways and doings you observe any sudden change—who appears to see phantoms in the air, and rushes without reason to attack imaginary enemies. The mad dog eats and drinks well during the first period of the disease. As it progresses, he gnaws wood, such as the doors of rooms; tears cloth, stuffs, and linen; eats wool, straw, or whatever comes in his way; with his paws he imitates the gestures of an animal trying to get rid of a bone that sticks in his throat. The voice is hoarse, and the bark transformed into broken howls. Dogs who present these symptoms should be sacrificed without hesitation.

Finally, M. de Parville reminds us, there is as yet no known remedy for canine madness. Diverse substances have been tried—cicutine, chloral; diverse treatments—injections of hot water, sudations, &c. It is impossible to say that success has ever been attained. We ought not, on that account, to despair of the future; and an antidote to hydrophobia may one day be discovered, just as iodine has lately been found to destroy the virus of carbuncles resulting from envenomed puncture. Perhaps a temperature approaching to 70° Centigrade might suffice to disorganise the dangerous principle. Until better informed, one sole measure should be unhesitatingly applied, namely, immediate cauterisation with red-hot iron; in this way only can we be certain, in our ignorance of its nature, to burn the contagious principle, whatever it may be, before it has entered into the organism. At present—why not confess it?—this is all the information science has to offer.

Notice.

ROYAL SCHOOL of MINES, Jermyn Street, London, S.W.—The 24th SESSION will BEGIN on THURSDAY, the 1st of October. Prospectuses may be had on application.

TRENHAM REEKS, Registrar.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS' PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS' Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,

THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

THE LONDON MANURE COMPANY

(ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

Autumn Sowing.

ODAMS' MANURES, Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.

Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

PEAT EARTH.—Fibrous Peat Earth for American and New Holland Plants, Ericas, and for Potting, delivered on Rail at Blackwater, South-Eastern Railway, and Farnborough, South-Western Railway, in truckloads of 4 tons and upwards, at 12*s.* 6*d.* per ton. Extra fibrous quality, for Orchids and Ferns, 25*s.* per ton. Sphagnum Moss for Orchids, 10*s.* per sack.

T. WALKER, 46, Cannon Street, London, E.C., where samples can be seen.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

Scott's Wasp Destroyer.

J. SCOTT, SEEDSMAN, Yeovil, offers his well-known preparation to Fruit Growers at 1*s.* 9*d.* and 2*s.* 9*d.* per bottle, post free, on receipt of stamps. No one who has fruit to preserve should be without it. It is also useful in the destruction of Flies, Cockroaches, and Crickets. See testimonials. None Genuine except the Corks bear "Scott, Seedsman, Yeovil."

The Trade supplied. Prices on application.

MILDEW

May be entirely prevented as well as cured by

EWING'S INFALLIBLE COMPOSITION. Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions for use.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing, Second sized Archangel, 100*s.*; Petersburgh, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices. at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Manures, Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of

POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.

87, Bishopsgate Street Without, E.C.

MARENDAZ AND FISHER, RUSSIA MAT MERCHANTS, 9, James Street, Covent Garden, W.C.

Large Stock of ARCHANGEL MATS, heavy and close-woven ST. PETERSBURG MATS, just arrived.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,

Stanley Bridge, King's Road, Chelsea, London, S.W.

PLANS and ESTIMATES on application.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

Old Barge Wharf, Upper Ground Street, London, S.E.,

ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.

Price List on application, or six stamps for Catalogue.

FOR SALE, the LEASE of a SMALL NURSERY, situated in the parish of Bow, consisting of ¾ acre of ground, three Glass Erections, large Dwelling-house and Shop; no Stock. Price £200. Let off all the rent.

Z., Post Office, Broadway, Stratford, E.

To Nurserymen, Florists, and Persons seeking a LUCRATIVE BUSINESS.

TO BE SOLD (in consequence of the death of the Proprietor), the FREEHOLD of an OLD-ESTABLISHED NURSERY, in a high state of Cultivation, well stocked with Fruit and Forest Trees and Shrubs; Cottages, Glasshouses, Sheds, Stabling, and every convenience for the Nursery Business, in full working order. The Stock to be taken at a valuation. To an energetic man with capital this is an opportunity that seldom occurs.

For particulars and cards to view, address H. LITTLER, 55, Bow Chambers, Cross Street, Manchester.

SALES BY AUCTION.

Lee, S.E.—Important to Gentlemen and the Trade.

FOURTH ANNUAL SALE of WINTER-FLOWERING HEATHS, and numerous other POT PLANTS, the whole being in splendid condition.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. B. Maller to SELL by AUCTION, on the Premises, the Burnt Ash Nursery, Lee, Kent, adjoining the Lee Railway Station, on TUESDAY, September 22, 1874, at 11 for 12 o'Clock precisely, an extensive and valuable assortment of choice GREENHOUSE PLANTS, including 4000 winter-blooming Heaths, in first-class condition and full of flower-buds, and consisting principally of hyemalis, gracilis (autumn and spring), Wilmoreana, colorans, Syndriana, persoluta alba; also a fine healthy young stock of 10,000 smaller Heaths, in 60-pots, of the most approved varieties suitable to the trade; likewise 1000 fine Cyclamen persicum, Poinsettia pulcherrima, 400 Solanums, Primulas, Begonias, Cytisus, Dracænas, handsome standard Laurustinus and Bays, selected Palms, Tree and other Ferns, including 100 fine Adiantum cuneatum, 500 Epiphyllums, Dendrobium nobile, specimen Camellias and Azaleas, variegated Yucca, Magnolia grandiflora, Exmouth, Tea and other Roses in pots, Fruiting Vines, &c.

High Beech, Loughton, Essex, E.

CLEARANCE SALE of GREENHOUSE and Other PLANTS, POULTRY, eleven HIVES of BEES, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Rosherville Nursery (close to the King's Oak, High Beech, Loughton, Essex), on FRIDAY, September 25, at 11 for 12 o'Clock, without reserve, by order of the Proprietor, who is about relinquishing the Premises, the whole of the choice GREENHOUSE PLANTS, consisting of several large Camellias (Double White and imbricata), 6 to 7 feet high by 3 to 4 feet across; specimen Azalea indica, 6 feet by 4 feet; quantity of Ferns, Callas, Lily-of-the-Valley, Spiræas, Geraniums, Amaryllis, and general Outdoor Stock, Roses, &c.; also a few Fowls, Geese, Ducks, eleven Hives of Bees, Mowing-machine, Chaff-cutter, &c.

On view the day prior to Sale. Catalogues may be had on the Premises, and at 98, Gracechurch Srreet, E.C.

N.B.—Particulars of the Nursery, which is to be Disposed of, can be had of the Auctioneers and Valuers.

Stoke Newington, N.

CLEARANCE SALE of GLASS ERECTIONS and POT PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Kirtland to SELL by AUCTION, without reserve (the Nursery having been sold for building purposes), on the Premises, The Albion Nursery, Albion Road, Stoke Newington, Middlesex, N., on MONDAY, September 28, at 11 for 12 o'Clock precisely, the whole of the GLASS ERECTIONS, a large quantity of HOT-WATER PIPING, BOILERS, and BRICKWORK; also the PLANTS in POTS, consisting of choice Greenhouse Plants, including some very large specimen Double White and other Camellias, several fine Azalea indica, fine Ericas of sorts, Solanums, Primulas, Pelargoniums, and numerous other plants.

Full particulars will appear next week.

American Nursery, Windlesham, near Bagshot.

PRELIMINARY NOTICE of an IMPORTANT UNRESERVED SALE of NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by the Mortgagee, with the concurrence of the Executor of George Baker, deceased, to SELL by AUCTION, without reserve, on MONDAY, October 5, and four following days, a large quantity of well-grown NURSERY STOCK, including 10,000 named Rhododendrons, consisting of all the best varieties in cultivation, and well set with buds; 5000 Kalmia latifolia, equally well set; thousands of Ghent and other Azaleas, 8000 bushy Portugal Laurels, 9000 Hollies, and large quantities of other Stock, which will be more fully detailed in future advertisements.

N.B.—One month will be allowed for the clearance of the Stock.

Cypripedium candidum.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 22, at half-past 12 o'Clock precisely, an Importation, in good condition, of the exceedingly rare CYPRIPEDIUM CANDIDUM.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 22, at half-past 12 o'Clock precisely, a Collection of Established ORCHIDS, comprising many choice species, and including several good established plants of Odontoglossum Roezlii.

On view the morning of Sale, and Catalogues had.

Cattleya exoniensis.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 22, at half-past 12 o'Clock precisely, eleven good plants of the exceedingly beautiful and rare CATTLEYA EXONIENSIS.

On view the morning of Sale, and Catalogues had.

Epidendrum vitellinum majus.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, September 22, a large Importation of EPIDENDRUM VITELLINUM MAJUS, just received from Paso del Macho, Mexico, many of them in very fine specimens or masses, and all in excellent condition, breaking freely into growth.

On view the morning of Sale, and Catalogues had.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, September 24, at half-past 12 o'Clock precisely, an Importation of ODONTOGLOSSUM EHRENBERGI, from Mr. Roezl; a Collection of ESTABLISHED ORCHIDS, being duplicates from a well-known collection; a choice Collection of FERNS, suitable for Wardian Cases or for planting on Rockwork; imported stems of TREE FERNS in fine condition, and several Importation of ORCHIDS, &c.

On view the morning of Sale, and Catalogues had.

Great Clearance Sale of Trees and Shrubs.

MR. J. T. KERRISON has received instructions from Mr. B. Whitham to SELL by AUCTION, at the Nurseries, Reddish, near Stockport, on WEDNESDAY, September 30, and three following days, on account of expiration of the lease of a portion of the grounds, without the slightest reserve, about 10 Acres of general NURSERY STOCK, comprising Ash (common and Mountain), Arecas, Acacias, Beech, Chestnuts, Elms, Firs (Scotch and Austrian), Laburnums, Limes, Maples, Oak (scarlet), Poplars (in variety), Privet, Sycamore, &c.; also Arbor-vitæs, Berberis (in sorts), Box (in variety), common Hollies, Cupressus, Portugal Laurels, Retinosporas, Rhododendrons (named), and Ponticums (fine bushy plants), Thorns (scarlet and pink), Yews (English), &c.

Catalogues (which will be ready September 14), and further information, may be obtained from the Auctioneer, 290, Stamford Street, Ashton-under-Lyne; or from Mr. WHITHAM, The Nurseries, Reddish, near Stockport.

Clearing Sale of the Meadowbank Collection of PLANTS.

MR. DOWELL has been instructed by the Executors of the late Mr. Thomas Dawson to SELL by AUCTION, at Meadowbank, the remaining portion of that well-known COLLECTION of PLANTS, on WEDNESDAY, THURSDAY, and FRIDAY, September 30, and October 1 and 2. It comprises many valuable Orchids (being the last of the collection), a magnificent assortment of Amaryllis, second to none in the kingdom; several splendid specimen Azaleas, comprising some of the best exhibition sorts; a select lot of Plants of fine foliage, including Crotons, Dracænas, &c.; some good Camellias, and a choice lot of Sikkim Rhododendrons, as well as a general lot of hardwood and softwood Stove and Greenhouse Plants.

Full particulars of which will be given in Catalogues, which will be issued on and after September 15, and may be had from Mr. DOWELL, 18, George Street, Edinburgh; or, from Mr. JAMES ANDERSON, Gardener, Meadowbank, Uddingston.

All the plants will be sold without reserve, and may be viewed two days prior to sale. Meadowbank is 7 miles from Glasgow, and is within five minutes' walk of the Uddingston Station, Caledonian Railway.

Edinburgh, 18, George Street, August 28, 1874.

Oatlands Park Nursery, Weybridge, Surrey.

IMPORTANT NOTICE to GENTLEMEN, the TRADE, and Others PLANTING.

MR. W. ABRAHAM has received instructions from Mr. Jesse Chapman (Proprietor of the above) to SELL by AUCTION, EARLY in OCTOBER, a large portion of his NURSERY STOCK, consisting of many thousands of choice Ornamental Coniferæ, Evergreen and Deciduous Trees and Shrubs of unusual excellence, and every plant moved within the last two years.

Furthers particulars in future advertisements, or on application to Mr. W. ABRAHAM, Horticultural Auctioneer and Valuer, Goldworth Nurseries, Woking, Surrey.

SPIRÆA JAPONICA.—Extra large clumps that have been planted out three years (not divisions). Price per 100 or 1000 of

CHARLES YOUNG, The Nurseries, Balham Hill, and Upper Tooting Park, S.W.

Dutch and other Flower Roots.

JAMES DICKSON AND SONS have received large and superior consignments, in excellent condition. Priced CATALOGUES post free.

108, Eastgate Street, Chester.

FOR SALE, six CAMELLIA PLANTS, from 8 to 12 feet high, healthy, and well furnished with flower buds; also four large AZALEAS. Apply to

DANIEL WOOD, Norwood Nursery, Beulah Hill, S.E.

Noteworthy Horticulturists and Botanists.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6*d.* each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.
W. WILSON SAUNDERS, F.R.S.
Rev. M. J. BERKELEY, F.L.S.
M. DECAISNE.
G. F. WILSON, F.R.S.
Dr. MOORE, of Glasnevin.
Professor REICHENBACH.
Rev. S. R. HOLE, M.A.
E. J. LOWE, F.R.S.
JAMES MCNAB.
ROBERT HOGG, LL.D.
Dr. REGEL.
JAMES BATEMAN, F.R.S.
BERTHOLD SEEMANN, Ph.D.
ARCHIBALD F. BARRON.
Hon. MARSHALL P. WILDER.
JOHN GIBSON.
Professor ASA GRAY.
I. ANDERSON-HENRY.
Professor KARL KOCH.
Baron VON MUELLER.
JOHN SMITH (Kew).
Professor WESTWOOD.
Dr. THWAITES.
Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5*s.* 11½*d.* | Six Months .. 11*s.* 11*d.*
Twelve Months .. £1 3*s.* 10*d.*

FOREIGN SUBSCRIPTION.

£1 6*s.* *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10*s.* 4*d.* *for* 12 *months, including postage to*—
AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14*s.* 8*d.* *for* 12 *months, including postage to*—
RUSSIA, ITALY, DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 19, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Sept. 21—Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY, Sept. 22—Sale of Established and Imported Orchids, at Stevens' Rooms.
WEDNESDAY, Sept. 23—Sale of Hyacinths, Tulips, Crocuses, and other Dutch Bulbs, at Stevens' Rooms.
THURSDAY, Sept. 24—Sale of Established Orchids, Tree Ferns, Amaryllis, and Imported Orchids, at Stevens' Rooms.
SATURDAY, Sept. 26—Sale of Dutch Bulbs, at Stevens' Rooms.

THE present is an opportune season for a few words on LILIES and LILY CULTURE, inasmuch as the earlier ripening kinds are now ready for being transplanted for another season's growth. The Lilies may well claim some consideration on account of their beauty and variety—and we may also add their popularity, for assuredly Lilies are at the present time held in high estimation by cultivators.

The examples of Lilium auratum, to which we referred at p. 329, indicate tolerably well the conditions which are most suitable to the growth of that grandest of all Lilies. These conditions may be set forth under the heads of soil, situation, and general management. As to soil, it is evident that peat-earth, such as is used for the culture of Rhododendrons, either alone or mixed with good loam to the extent of one-third at least, is perfectly congenial to this Lily. Mr. MCINTOSH'S plants were growing in the Rhododendron beds, and in the Rhododendron soil of the Knap Hill nursery, which is a natural peat, with a cool bottom, but not water-logged, the Lilium auratum grows like a weed, and flowers with a degree of freedom and vigour which is not usually met with under other conditions. The soil must be deep, as the plants are otherwise liable to suffer from drought during hot weather; hence the advantage of a naturally cool and moderately moist subsoil. The Knap Hill soil is a natural peat, improved by cultivation, but in artificially prepared beds of peat and loam in about the proportions above indicated, and at least 3 or 4 feet deep, Mr. WILSON also succeeds in growing this Lily to very great perfection. We may, therefore, conclude that there is not much doubt on this point—a deep bed of soil, consisting either wholly or principally of peat, and lying upon a cool bottom. The conditions as to situation most conducive to the health and vegetative development of the plant are such as provide a mild atmosphere free from aridity. Hence a position towards the lower part of a slope where the high ground forms a shelter from searching winds, is the most favourable, especially for strong blooming plants, whose magnificent heads of bloom render them very liable to suffer injury from exposure. Low situations, not wet ones, where a moist hazy sort of atmosphere hangs about the plants, is no doubt congenial to them; but then in such situations they are very apt to be caught by late spring frosts, so that they require and really deserve a little protection at this period, for the effect of a spring frost of anything like severity is of course to destroy all hope of a satisfactory bloom, or possibly of any bloom at all, for the season—though, fortunately, if the punishment of the stem is not too severe, the bulbs are not injured, but rather perhaps improved, for another year. Then as to general management, if the roots are planted out in a congenial situation and are doing well, experience says, "Let well alone." Mr. MCINTOSH'S plants have been planted four years, and have each year gone on increasing in strength and beauty; Mr. WILSON'S plants indicate the same thing; and Mr. WATERER'S plants—such of them as are left in the ground undisturbed by purchasers—bloom with the utmost vigour year after year. Nothing beyond this need be desired; only it must be remembered that in too damp a situation the bulbs might rot, for L. auratum is a touchy plant if it does not get all its requirements; and if there is wireworm about it is pretty certain to be attacked by this troublesome pest. Hence, if the plants show any signs of distress the bulbs should certainly be taken up and well examined, and replanted in the best possible manner.

Conditions of this sort suit not only the auratums, but the speciosums and tigrinums. Probably they will also suit L. Krameri when it is plentiful enough for outdoor culture; and very similar treatment is certainly congenial to all of the longiflorum race.

All these, moreover, do remarkably well in pots under glass, in a cool greenhouse temperature. The pots should be deep rather than wide, and well drained, to prevent water-logging of the soil, and the compost may be about one part of rich loam to two parts of fibry peat. When grown and bloomed successfully in pots, Lilies are splendid ornaments for the conservatory, and there is a great variety among them, carrying the blooming season through several of the summer months. L. californicum, Humboldtii, and pardalinum are fine Lilies for either pot or border culture, and well deserve all the trouble which may be taken with them. L. canadense and its varieties are both interesting and distinct; L. Washingtonianum and its variety purpureum, figured at p. 323, are again very distinct and beautiful Lilies, but they are not yet so well understood as some of those previously named. L. Leichtlinii and its forms are very charming—but we must desist, as our object is not so much to make a catalogue of species as to point out the foregoing considerations in reference to Lily culture.

—— THE Directors of the Artisans, Labourers', and General Dwellings' Company have obtained a site of 80 acres in the west of the metropolis near the Harrow Road, on which the work of erection of a new city, to be called the QUEEN'S PARK, and to accommodate not less than 16,000 persons, is about to be commenced. This new city will be constructed on the same general principles as those which have been carried out on the Shaftesbury Park Estate, near Clapham Junction, and no stronger evidence of the necessity of the work can be found than the fact that already, when not a single brick has been laid, applications for upwards of 1000 houses have been made. The share capital of the company, which was £250,000, has all been taken up, and is now increased to £1,000,000. Four out of the 80 acres are to be appropriated in the centre to a garden and recreation ground; the roads and streets will be planted throughout their entire length with trees, and special inducements will be offered to the inhabitants to lay out the gardens both front and back in as tasteful a manner as their time and means will permit. These inducements have hardly been found necessary at Shaftesbury Park, for long before the announcement was made that prizes would be offered for the neatest forecourt or best show of flowers the inhabitants had been vieing one with the other in these respects, and during the past summer thousands of persons have visited the estate as much to see the various displays of flowers as to view the houses. The foundation stone will be laid next month, when the work will be put in progress; but this ceremony will be purely formal, as it is intended to ask Her MAJESTY to lay the memorial stone early next season.

—— AZARA INTEGRIFOLIA VAR. VARIEGATA originated some years ago in the Royal Gardens, Kew. It is there planted against the wall of the new range, where it appears to thrive, and may continue to live with slight protection in winter. It progresses but slowly in pots. The leaves are orbicular or obovate, and nicely variegated with yellow in the way of Euonymus; they are rather larger than those of E. radicans. Cuttings are easily struck. The original forms an evergreen shrub in the temperate-house. It is native at Conception in Chili.

—— A report by Commander COOKSON upon the GUANO DEPOSITS on the islands of Lobos de Tierra, Lobos de Afuera, Macabi, and Guanape (in continuation of reports to the Admiralty relative to the deposits in Peru), has, according to the *Society of Arts Journal*, recently been printed. At the time of the visit of H.M.S. *Petrel* to the first-named island there were no inhabitants, except a few Indian fishermen, from whom no information could be gained. The island is six miles long, and in some parts three broad; the beds of guano there are a considerable distance apart, and are estimated to amount to 600,000 tons. The working of the guano there will shortly be commenced by the Guano Shipping Company at Macabi, and 100 Chinese labourers have already been sent to make piers and erect the necessary buildings. The same company has undertaken the working of the beds upon the island of Lobos de Afuera, under a contract with the Peruvian Government, by which the company receives 85 cent. per ton shipped, and defrays the expense of all the necessary works, such as building piers, laying tramways, making shoots, &c. The estimated quantity here is 500,000 tons. The labour employed by the Shipping Company is all Chinese.

—— SPATHICARPA PLATYSPATHA of WENDLAND, a member of an extremely interesting and curious genus of AROIDEÆ, is flowering in the cool Orchid-house at Kew. It is remarkable from the spadix being entirely adnate to the spathe. The above is of Arum-like habit, growing about 8 inches high. The leaves are broadly ovate, cordate, light green, and glossy, the petiole and blade of about equal length. The scape rather exceeds the foliage; the spathe is oblong-lanceolate, opens flat, and curves from base to apex. The flowers are along the centre, the males alternate in two or three rows, and between these on the outside are the females, each of which have three or four staminodia on their inner side. After flowering the scape is prostrated and the spathe shuts up, but not as in bud. It closes in a conduplicate manner, and becomes tightly compressed. This plant agrees perfectly with specimens of S. sagittata, Schott, except that the spathe is slighly broader. It is a native of Brazil, and thrives well with cool Orchid treatment.

—— "Jottings in Hawke's Bay" (New Zealand) is the title of an interesting article in *The Otago Daily Times*, from which we extract the following on the THISTLE AS AN AGENT IN PREPARING THE GROUND for English grass seeds :—

"A large portion of the province is already in English grass, but there is a quantity of Fern land as yet untouched and waiting to be laid down. It costs on an average something like thirty shillings an acre to lay down Fern land in English grass; and the doing so is materially assisted by Thistles. Fringing the margin of the shore, on a bright sunny slope, on Mr. NAIRN'S run—one of the best, if not the best, of the coast runs in Hawke's Bay—some few years ago, so the story runs, a shepherd betaking himself to his boundary, came across a luxuriant crop of Thistles, that, like JONAH'S Gourd,

seemed to have sprung up full grown in a night, and forthwith hastened back to his employer to tell him the wondrous tale. Great was the consternation of Mr. NAIRN; dire the forebodings of his friends and neighbours. A great scourge had sprung up in their midst, and it would spread before very long over the face of the country. Thistles had been found on NAIRN'S run—yes, actual Thistles. Mischievous! why, it was simply ruinous. So men told one another with bated breath. But how could it have happened? How could Thistles have obtained a footing up there on that lonely country side, so far away from track, or house, or whare, or dwelling of any kind? It seemed inexplicable—a perfect mystery, in fact; but before very long the mystery was cleared up. A shepherd had been dismissed from the station some time before, and the man had wreaked his vengeance by scattering Thistle seeds. May perdition seize him, the villain! May—— But we can understand the dire anathemas that would be hurled at his head. The denunciations called down, by the help of candle and book, on the head of the unfortunate jackdaw of Rheims were mildness itself compared with the deep imprecations hurled after the heels of this miscreant shepherd. But after a time the excitement died out. The Thistles, indeed, spread and multiplied; but there was no help for it,—spread they must. But after a time men began to observe a strange phenomenon in connection with these Thistles. They began to observe that after two or three years all the older Thistles died out, and then it dawned on their minds that this great Thistle nuisance was, in truth, no nuisance at all, but a blessing in disguise. The thing is now an admitted fact. The Thistles are found to loosen the ground and pulverise the soil; they are, in fact, looked upon as most efficient agents in preparing the ground for the reception of English grass seeds. Indeed, Thistle seed is now scattered over the burnt ground when the grass seed is sown, and the Thistles are of material assistance in keeping down the young Ferns."

—— A pure white variety of CAMPANULA ISOPHYLLA, a very choice species, is flowering on the rockwork at Kew. It was raised from seed some time ago in the Royal Gardens, and is a welcome addition for rockwork cultivation with the original. It may be increased from cuttings. C. isophylla is "native of the ancient Liguria," and is extremely limited as a wild plant; it has been said to grow only on one rocky promontory in the whole world.

—— An American periodical gives a process for making artificial EBONY FROM SEA-WEED. It consists in first treating the plants for two hours with dilute sulphuric acid, then drying and grinding them up. To sixty parts of this product, five parts of liquid glue, five parts of gutta-percha, and two and a half parts of india-rubber are to be added, the latter two being first dissolved in naphtha. Afterwards ten parts of coal-tar, five parts of pulverised sulphur, and five parts of pulverised resin are added, and the whole heated to about 300° Fahr. When cooled, a mass is obtained which in colour, hardness, and capacity for receiving a polish, resembles ebony, and is much cheaper. A process for obtaining a product of this sort from sea-weed was patented some years ago in this country by Mr. T. G. GHISLIN, but there was never much commercial result therefrom.

—— COLCHICUM SPECIOSUM, the finest of the genus, is flowering in the herbaceous ground at Kew. The flowers are beautiful in bud, and when open are about 5 inches in diameter. It has no tesselation, the colour is first rose, changing to nearly white. It was figured in the *Botanical Magazine* for January of this year, where we are informed that it is "the largest known species of the genus." Native of Caucasus.

—— Is FUCHSIA BEN D'ISRAELI known in the trade? Mr. LAURENCE, of the Farnham Castle Gardens, has a ring of it in a large circular bed in the flower garden attached to his residence, and it is very effective. It was given to him by Mr. PLIMLEY, florist, of Acton, and is a very dwarf, compact variety, and a most abundant bloomer. The plants we allude to have been covered with flowers, and are still showing a lot of buds. These plants will be potted up directly for a later display.

—— Among the few old customs of our ancestors still surviving in this country, that of "RUSH-BEARING" WAKES is (says the *Pall Mall Gazette*) not yet quite extinct; and the other evening the principal streets of Manchester were enlivened by a procession accompanying the rush-cart, which must have gladdened the eyes and hearts of the Conservatives of that city. Heading the procession was a troop of about twenty morris-dancers attired in fantastic costumes and wearing hats covered with flowers. After these came the rush-cart, drawn by nine gaily caparisoned horses. The rush-stack was an exceedingly large one, and weighed about 3 tons. At the top were seated two men, who were surrounded by Union Jacks, and in front was a collection of silver cups, plates, and other articles with which the rush-cart was decorated. There were also men with money-boxes inviting subscriptions, and the exhilarating strains of a drum and fife added much to the charm and brilliancy of the spectacle. This is the bright side of the picture; but, on the other hand, it is stated that, what with the antics of the morris-dancers and the occasional stoppages of the procession, the traffic of the streets was seriously impeded, that the police several times were compelled to order the procession to "move on," and that it proved a source of much alarm to restive horses. It is very unfortunate that romance cannot in these degenerate days get on without clashing with reality, and that even the LORD MAYOR'S show, perhaps the most esteemed of all the remaining "old customs," is looked upon by many persons as a horrible nuisance. That "rush-bearing" wakes still linger in remote parts of England is a singular example of our tendency to cling to the habits of past ages. Rushes have long since ceased to occupy the position of importance they formerly held, when in SHAKSPEARE'S time the English stage was strewed with them. As a covering for floors they have been superseded by carpets, which, as a means of concealing dirt, are open to pretty much the same objections as those urged against rushes by ERASMUS in a letter to Dr. FRANCIS, physician to Cardinal WOLSEY, in which he complains of them as a frequent cause of pestilence.

—— The annexed illustration (fig. 78) pourtrays another excellent invention by Mr. VOICE, of Horley. It is a patent system of STRAINING WIRES FOR TRAINING Peas, Scarlet Runner Beans, &c., as a substitute for stakes. The engraving shows four rows of the Beans, each 30 feet long, as they commence clinging to the wires. Two stumps of wood are driven into the ground at each end, and two wires are then fixed horizontally from one stump to the other, and tightened by VOICE'S patent screws. The bottom wire should be 10 inches, and the top wire about 4 feet, from the ground. A coil of wire then passed over the two horizontal wires and spread along, allowing one round of the coil to every 12 inches, forms a very neat trellis to which the Beans cling until they reach the top, when they entwine round each other, and again cling along the top of the wires and form a cluster which protects them against the early frosts.

FIG. 78.—VOICE'S TRAINING WIRES.

Under these conditions, too, the Beans do not dry up and become old and seedy so soon as they do on sticks or poles—which in most places are now difficult to get, and seldom last more than one season. The cost of the wire and stumps, we understand, is very trifling, and as they will last for some years owners of small gardens will at once see their usefulness.

—— DECABELONE ELEGANS is again flowering in the succulent-house at Kew. It has the habit of Stapelia, and with cultivators of that genus will be highly prized on account of its very different flowers. It is quite new, and will be rare for some time. The stems are tufted; they have 7—9 angles, on these are closely placed elevations bearing three-branched spines—a central with two at right angles. The flowers spring from the base of the young shoots. The corolla is funnel-shaped, 2 inches long and 1½ in diameter at the mouth, with five triangular acute teeth slightly recurved. On the interior are numerous papillæ, decreasing in size and number from the base, and, subject to the same proportion, are spots of port wine colour on a yellowish white ground. The exterior is smooth, thickly covered with broken lines and dots, coloured as within, but light and dull. The corona is remarkable; it consists of five parts, each divided in two nearly to the base; the divisions taper to a thread and terminate in pear-shaped processes. On account of these the generic name was given. It is a native of Loanda, and Dr. WELWITSCH collected specimens in 1853. It was figured in the *Botanical Magazine* for August of this year. With the above there is cultivated another species, possessed, it is supposed, only by the Royal Gardens. "It is closely allied to D. elegans, the flowers being extremely similar, but the branches appear to have more numerous angles, and the two lateral setæ of the spines are more slender and deflexed instead of erect." (*Dr. Hooker, Bot. Mag.*)

—— On either side of the staircase of the entrance to Farnham Castle are two long recesses filled with Palms and other plants, and a row of FRANCOA RAMOSA on either side, which has been giving an abundance of its pretty spikes of white flowers, and is still blooming freely. This is an old neglected plant, but wonderfully useful for cut flowers as well as decorative work.

—— KNIPHOFIA MACOWANI, a new and very rare species, is flowering in the Cape-house at Kew. It may prove quite hardy, but is adapted for pot culture from its dwarf habit of growth, attaining a height of about 16 inches. The leaves support themselves, are light green, about 3 lines broad, edges and keel spinulose. Scape as long as the leaves, raceme dense, 4 inches in length, bracteoles linear lanceolate acute, 4 lines long, perianth 11 to 12 lines, not constricted, stamens included. The flowers are light orange-yellow in colour.

—— The beautiful little OXALIS LOBATA is now flowering in Mr. TYERMAN'S garden, in Cornwall, and tempts us to call attention to this very interesting genus of plants, which would do so much to make our gardens more interesting at this season of the year. They are all of the easiest possible cultivation, and in dry soils perfectly hardy, or at the utmost a slight protection from heavy rains during the dormant season would make them quite secure. The bright yellow flowers of O. lobata, which are large compared with the leaves and short stature of the whole plant, which is barely a couple of inches high, make a really pretty and pleasing feature, and are sure to arrest the attention of the most casual observer. When planted in masses the ground looks studded with golden stars. O. elegans is, as its name implies, beautifully elegant; the leaves, which are of great substance and smooth, grow 3 to 4 inches high, and the flowers rise 6 or 8 inches above the leaves, of a pleasing rich purple-lake with dark centre. O. Deppei is well known, its dull reddish flowers being produced well above the neat foliage for several months in succession, and, like the beautiful O. Bowiei, would make excellent variety in the modern flower garden. O. floribunda, with its numerous varieties, are hardy perennials, and are almost perpetual flowering. O. Smithii, with finely divided foliage, will become a general favourite when better known; at present it is scarce. Where the soil and situation are at all genial, we are quite certain that all the summer-flowering kinds will prove much more satisfactory when grown in the open borders "than as they usually are, cramped in pots;" even that weedy species, O. lactæflora, is much more interesting in the open ground.

—— The tree of which an illustration is given at p. 367, is said to be upwards of a century old, and is still in a flourishing state, though growing in so confined a space. According to the *Revue Horticole*, from which we copy our illustration (fig. 79), the tree is Pinus densiflora var. albifolia, and is growing at Shiba, the site of the mausolea of the old Tycoons of Japan, at Yeddo. The heighth of the tree is 1 metre 50 cent., the diameter of the pot is 50 cent. We can but admire the patient skill of the Japanese gardeners, even though we may wish that in this particular instance it had been exerted in another direction. Still, the case is valuable, as showing what may be done even with a tree generally supposed to come of an intractable race.

—— A correspondent of the *Field* (F. BOYLE) incidentally mentions, in a recent article consisting of zoological notes made during the late expedition to Ashantee, that at Sutah he first saw a beautiful LILY, of which many roots were carried off. "I secured six only," he writes, "but all of them are lively at this day. Captain GRUBBE, I recollect, loaded one of his spare Kroomen with Lilies, so that he looked like a black Jack-in-the-Green. Over 200 roots were taken on board by the commander of the Naval Brigade. We rather hope to surprise the botanical world next year with our Sutah Lily."

—— On Saturday last the police at Bagshot, Surrey, received information of the following desperate attempt to murder. It appears that on Friday evening two gardeners were employed in a shed at Mr. NOBLE'S Nursery, Bagshot Heath, Surrey, their names being HALL and CORDEROY. Some few angry words passed between them, when HALL thrust the knife he was using into the lower part of the stomach of CORDEROY, who is a young man, and who has recently been married. The wound is a serious one, and the unfortunate man is not expected to survive. HALL, it is stated, appears very callous about the unfortunate affair.

—— A vigorous young plant of MUSA ENSETE has formed a strong spathe, and is about to flower, in the gardens of F. PRYOR, Esq., at Wood End, Chichester. The plant is about 20 feet in height. Some months ago it got too tall for the conservatory, and occasionally its huge leaves broke the squares of glass and protruded through the roof. In consequence of this, the gardener, Mr. VICKERY, dug a hole in the conservatory border, until he came upon the chalk, many feet down. Here he turned the plant out of the tub on to the chalk bottom, with the result as above stated. Have any of our readers fruited this variety?

WEST INDIAN FRUITS.

(*Continued from p.* 232.)

The most southerly of the Windward Group, and the next in importance to Jamaica of the British possessions in the West Indies, is the Island of Trinidad. The general aspect is that of a level country, bearing no resemblance to the other Antilles. The mountains have not the towering majesty which distinguishes those of St. Vincent, Dominica, Cuba, &c., and are clothed from their base to their summits with stately forests. The slopes of the hills and the plains are traversed by numerous streams, one of which, the Caroni, is navigable for vessels of a considerable burden. Along the western coast of the island there are bays and inlets where ships of all sizes may ride securely, and anchor without the smallest risk in any convenient depth of water. The climate is intertropical and insular—that is to say, it is cooler than a continental country under the same latitude, and its temperature is more equal. Compared with the sister islands, it enjoys the advantage of total exemption from hurricanes, or from droughts, which are equally destructive to vegetation, and the nights are deliciously cool from December to April. There are only two seasons—the dry, and the wet or rainy. The dry season commences with January, and ends with May, while the rainy season sets in with June, and lasts till the middle of December. February, March, and April are the driest months of the year. The heat of the sun is then scorching; the grass becomes parched, the leaves of the plants wither, and the smaller streams are dried up. But after the first showers at the end of May the face of the country is completely altered in an incredibly short time, and the vegetation looks everywhere green and luxuriant. In July and August the rain continues to pour for hours, whilst the lightning is incessant, and the thunder almost deafening. In October the northerly wind commences, and becomes steadier in December, with occasional squalls; the skies clear almost immediately after. This change marks the transition from the wet to the dry season. The temperature ranges in the shade from 70° to 85°. The months which exhibit the maximum are April, May, June, and September, those showing the minimum are January, February, and March.

The greater part of the island is uncultivated; the low grounds are in part marshy, while the more elevated portions are for the most part covered with a dense vegetation of forest and underwood. The forests contain an immense variety of useful timber. At the Vienna Exhibition upwards of 200 specimens were exhibited, consisting of Acacia, Cedar, Lignum-vitæ, Mahogany, Mountain Cabbage, Cannon-Ball tree, &c. The heavy appearance of an endless woodland is only broken here and there by vast savannahs. Even where Cocoa and Coffee are cultivated the country preserves the appearance of forest land, since those plants are protected by the shade of the "Bois Immortelle," a tree which attains a considerable size. In January and February this tree exchanges its leaves for a thick covering of bright red blossoms, the ground underneath being literally carpeted with flowers, whilst birds of various species and of the most brilliant plumage, join in gay concert above. Several other trees become, at certain periods, like the Immortelle, a regular mass of flowers. Those of the Poui are of a brilliant yellow, of the Roble an orange colour, and very fragrant; others, again, are white, pink, or violaceous. The Bamboo grows in clusters of hollow-jointed reeds, and forms, as it were, an immense sheaf, about 50 feet high, from 6 to 10 feet in diameter, and contains about 100 stems, surmounted by a foliage resembling an assemblage of waving plumes. Sometimes on each side of a river for several miles, their feathery summits unite overhead, at intervals, in immense arches. There are but few neat or even useful residences in the country districts, and although Nature has liberally supplied a very fine growth of fruit trees, yet the island can scarcely boast the resemblance of an orchard. The appearance presented by the landscape when approached at Port of Spain, the chief town, is well depicted by one visitor. He says:—"As the sun rose in the firmament the mist was gradually lifted from the surface of the plain, in some places it seemed to be folded up as a garment, but generally it moved towards the base of the mountains in its expanded form, and gradually mounting upwards reached their very summits before it disappeared. The city and the plain appeared as sparkling with diamonds by the light reflected from the myriads of dewdrops that hung from every tower and tree. Not a breath of air as yet stirred the foliage, nor could we discover one living thing. The beauty and brilliancy of the crimson-orange flowers of the Immortelle, which were everywhere fully expanded, gave a singular appearance to the landscape like fiery meteors shining in an atmosphere of variegated green."

Fig. 79.—DWARFED JAPANESE PINE TREE (SEE P. 366).

Under the dominion of Spain the island made little or no progress, the whole trade with Europe being confined to a few bags of cocoa and some indigo. The introduction of the sugar-cane has been attributed to Monsieur La Perouse, a Frenchman, who planted it at La Brea, near the pitch lake, and in a short space of time there were many large plantations in cultivation. During the governorship of Sir R. Woodford, at the beginning of the present century, every article of produce was more than trebled, and Trinidad first began to know her own strength. It was not, however, in the staple products only such improvements were made; every variety of fruit and vegetables that could be found in the New World, or Eastern climes, was brought to Trinidad, where it was cultivated with the greatest care. Around Government House a large tract of rich land was converted into a nursery garden, and an able and scientific gardener was brought from Europe to superintend. It was found that many of the fruits and spices from India became most productive, more especially the Cinnamon and Nutmeg trees. The effect of the Emancipation Act was felt severely, in consequence of the paucity of labourers, the black population being indisposed to labour in the fields, which they regarded as a continued mark of degradation, but their places have now been partially supplied by immigration from India and China. At the present time a larger quantity of sugar is exported from these islands than from Jamaica or Barbados. The soil is in general deep, stiff and tenacious, and, with proper attention, it is believed that a supply of sugar sufficient for the entire consumption of the United Kingdom might be produced. The propagation of the cane takes place by cuttings, the top joints being selected for this purpose, because they are less rich in saccharine matter than the lower parts of the cane, while the vegetating powers are equally strong. In preparing a field for planting with the cuttings of cane the ground is marked out in rows 3 or 4 feet apart, and in these lines holes are dug from 8 to 12 inches deep, and with an interval of 2 feet between the holes. Where the ground is level, larger spaces are left at certain intervals for the facility of carting; but there are many situations at the sides of steep hills where no cart can be taken, and in such cases these spaces are not required. The ripe canes are conveyed to the mill in bundles on the backs of animals, or are passed down to the bottom of the hill through wooden spouts. The planting of canes does not require to be renewed annually; in such a case the utmost number of labourers now employed on a sugar plantation would be wholly inadequate to its performance. The most general plan is for a certain portion of the land in cultivation to be planted annually and in succession, the roots and stoles of the canes of the former year being left through the remaining parts of the plantations. From these, fresh canes, which are called rattoons, spring up, and are nearly as large the first year as plant canes. Rattoon canes have a tendency to deteriorate, at least in size, for which reason the progressive renewal of the plants is adopted. In good land rattoon canes are reproduced for seven or eight years, in superior virgin land, newly cleared, for fifteen years and upwards. Canes are cut at a growth of between twelve and fifteen months. A system of culture had obtained in Trinidad during the time of slavery, the apparent advantages of which were found to be far more than counterbalanced by its disadvantages: it was known as the stand-over system. Canes, though ripe, were allowed to stand over for the next crop, at which time they would be twenty to twenty-four months old. This system is now abandoned by all judicious planters. The plough is used only on a few estates, and the hoe is still the favourite instrument. This may be attributed to the nature of the soil, it being generally a clay loam, in undulating districts; and also to the very heavy showers which prevail during the planting season, viz., from June to October, and which work down the loosened soil from the slopes and heights above. The crop begins as soon as the weather permits—in the beginning of January—and continues till June, when the rainy season sets in; advantage is also taken of good weather towards the end of the year, in the fall, as it is called, viz., November and December. When the canes are fully ripe they are cut down close to the stole, and being then divided into convenient lengths, are tied up in bundles, and conveyed to the mill. The manufacture of sugar is a somewhat complicated process, requiring for its successful performance not only some degree of chemical knowledge, but likewise a considerable amount of practical knowledge. There are but few water-mills in Trinidad, and no wind-mills, steam-engines and cattle-mills being preferred; a central *usine*, capable of manufacturing fifty hogsheads a-day, has been erected on one of the estates. The average crop of each estate, with an engine, may be estimated at 250 hogsheads; some, however, manu-

facture as many as 600 hogsheads, weighing each 1600 lb. nett—a total of 960,000 lb. A few cattle-mills of a superior power can turn out as many as 300 hogsheads in a crop season. Some sugar estates have been abandoned since the emancipation; a few have been newly formed; but in general the cultivation has been much extended on each estate. The sugar of the island is put up in hogsheads, tierces, and barrels, wherein it is shipped to Europe.

The Cocoa Palm thrives admirably in Trinidad, and is cultivated to great advantage in several districts, either for sale in the nut, or for the manufacture of oil. To a European a grove of these Palms is a very interesting scene, the radiating tuft of fronds (Palm leaves) which surmount the tall stem-like crown is so unlike any object that even a single Cocoa-nut tree stands out conspicuously from the surrounding vegetation, so as to catch the eye at a great distance. In walking through an extensive plantation it is strange to see on every side the tall straight stems, like slender columns, unvaried by any other vegetation, and to be canopied by the rigid pinnated fronds rustling and rattling against each other as they are swayed by the breeze. Along the sea-shore, in the very sand of the beach, the Cocoa Palm grows best, salt not only being necessary for its healthy growth, but to its very existence. The whole of the eastern coast might be made to produce an immense quantity of Cocoa-nuts. The beach is lined with those Palms, which grow there accidentally, the nuts having been originally washed on shore from the wreck of some vessel, and in their position they often serve as guides to the mariner. The finest specimens may be seen flowering at the early age of three years, which is very unusual indeed; this Palm commencing to bear fruit generally at five or six years. Its period of full bearing is at eight years and upwards, when it brings forth a bunch of flowers every month, each bunch having nine nuts on an average, and some as many as twenty; each tree is calculated to yield from eighty to one hundred nuts annually. The tree continues to yield fruit for sixty or seventy years. Cocoa Palms are planted at 24 feet apart, and require very little attention. When arrived at maturity, a Cocal or Cocoa-nut walk forms an exellent pasture-ground for sheep, cattle, or any other grazing animal; poultry, pigs, &c., also fatten wonderfully on the pulp, or the refuse of the nuts after the oil has been expressed. It is calculated that thirty-three nuts give 1 gallon of oil, and the extraction of the oil is rather a primitive process. The cultivation of the Cocoa Palm evidently suits the habits of a population who are indisposed to labour; but, so useful are the purposes to which this tree is applied, that it is, under any circumstances, a matter of surprise that it is not carried out on a far more extensive scale.

The Plantain, or Banana, thrives everywhere. It requires planting but once, for the old stem being cut down after fruiting, numbers of suckers spring up from the roots. There are many varieties, but only three distinct species. The Horn Plantain—from the resemblance the fruit bears to the horn of a young bull, the French and the Dominica Plantain, and the Banana. The Horn Plantain is more extensively cultivated than the other species, being hardier, and not requiring frequent replanting; but, though the fruit is much larger, its bunch is not so well supplied, having ordinarily but twenty-five, and often fewer, Plantains or fingers to the bunch. The fruit of the French is smaller, but the bunch is supplied with a much greater number of fingers, averaging about sixty or eighty, but sometimes from 100 to 130. The Dominica is exactly like the Horn Plantain; the bunch, however, resembles that of the French, but the fruit is somewhat shorter and plumper. The Banana is not so luscious as the Plantain, but it is more agreeable. Those brought to this country are gathered unripe, but upon being kept for some time, they acquire a rich golden colour.

The plant is very successfully cultivated in the tropical-house at Kew, at the Botanical Gardens, Regent's Park, and in many private establishments, where the great clusters of fruit may be seen growing in perfection. The fruit can be eaten raw or cooked, and it will produce more nutritive matter on a given quantity of land than any other plant. When ripe, it is eaten either as a fruit, or prepared in various ways with sugar and spice as confectionery. When green, it is either roasted, dressed with meat, or simply boiled, and afterwards crushed in a mortar so as to form a thick paste, which is used instead of bread; in fact, field labourers contend that it is better suited to the support of their strength in manual labour than bread; at any rate, it forms the staff of life to the generality of Creoles. Its nutritive value is considered greater than Potatos; it is also superior in general opinion to that of Cassava and Rice. For an immense portion of mankind the Banana is what Wheat, Barley, and Rye are to the inhabitants of Western Asia and Europe, and what the numerous varieties of Rice are for those of the countries beyond the Indus. *E. T. B.*

(*To be continued.*)

Home Correspondence.

Roses and Rose Shows.—The second proposition which I undertook to discuss was "that Rose plants grown for prize blooms, however fine the plants may be, are not intrinsically so valuable as plants grown otherwise." Let me relate how the plants which are expected to produce prize blooms are cultivated. First of all the best possible Rose soil, a soil which few possess, is selected, and large quantities of stocks are planted on it, after it has been deeply dug and highly manured, in order that a great breadth of highly fed plants may be had to cut the flowers from. Large quantities of water are given throughout the growing season, the flower-buds are freely removed at an early stage of growth, so that each plant is allowed to develope only a limited number of flowers, and every appliance is resorted to to encourage a strong growth, as such is necessary to get size in the flowers. Mr. Prior remarks (p. 244):—"Large plants may be produced, veritable Titans or Tichbornes in bulk, but more pithy than woody, &c." Here lies one of my objections to sale plants which have been grown for prize blooms; the quantity of pith in strong shoots is greater relatively than in moderate shoots of Roses, and the wood is less hard and sound. Now what are the consequences? In the first place these gorged shoots do not ripen sufficiently in our climate, as in the gross shoots of Peach trees, and the plants suffer more from frost: then the state of the roots being equally gross, the shock of removal is greater, and this is a second cause of suffering. To me it is an oft-told tale, and accords entirely with my own experience, that plants with moderate sized, well-ripened shoots always thrive best after removal. The "Tichborne" plants of the prize-growers often die, and oftener still produce short feeble growths the first year after removal; some of these latter die also, while those which live are longer than others in realising the desired end of soundly constituted, well-shaped plants. Let us suppose—which is seldom the case—that the purchaser of such plants has the fine soil, can dig it as deeply, manure it as highly, and water it as constantly as the prize grower. Even then the violence of the shock these highly-wrought plants receive by removal places him at a disadvantage. But supposing, as is usually the case, that these plants are going into a good ordinary garden where the soil is only ordinarily good, and where amidst the numerous claims pressing upon the grower's time and consideration they can only receive ordinary care and attention. Why it is like moving a rich man from his daily table of soup, fish, poultry, meat, &c., to a diet of bread and cheese or cold meat. Men, from custom, seem to thrive well under both conditions; but the sudden transition from the one to the other can hardly be accomplished without material physical suffering. Hence, I hold that the fact of being able to win prizes with Rose blooms does not logically lead to the conclusion that the prize-winner's sale plants are the best. Reasoning from analogy, would any one maintain that the exhibitors of prize sheep, prize oxen, and prize pigs, produce the best mutton, beef, and pork? Now I argue that the exhibitors of "fat" Roses are entitled to all the money and all the honour of their prizes—which, as in the case of exhibitors of prize cattle, are not won without a large expenditure of money; but to assume from their "fat" flowers that their "fat" plants are better than other people's plants is not only unwarrantable, but is contrary to evidence and contrary to fact. *W. Paul, Paul's Nurseries, Waltham Cross, Herts.*

The Rose Controversy.—Your correspondent, Mr. G. Paul, seems to forget that he was the attacking party in this controversy. If he is making good his case, why the remarkable change of front displayed in his last letter? Your correspondent tells us that he applied for space at the Rose show, but did not get it. Is it good taste after so applying to depreciate what he incorrectly terms the "happy thought of Mr. Sowerby," and the labour of another grower and exhibitor? Against his opinion of this show (which he did not see and inaccurately describes) are arrayed the opinions of all the gardening papers, the leading daily papers from the *Times* downwards, the Council of the Royal Botanic Society, and nearly 10,000 visitors. The idea which prompted it was not conceived or worked out in opposition to existing Rose shows, but to occupy ground which they failed to touch; to show Roses in a free and natural, rather than in a crowded, formal, and artificial state—in a state in which any one might produce them with ordinary advantages and ordinary cultivation, without the technical knowledge of the florist's art. For this effect I think I should claim the sympathy and support, rather than excite the alarm and arouse the prejudices, of rival growers. I have said that some good show Roses are also good garden Roses, but that many are not. If he demurs to this we here differ in opinion, and let the public be the judge between us. I am not surprised that he finds we agree on so many points about Roses and Rose showing. Of course we do; for here as in most other questions nearly all men think alike on many points. But the points on which we differ he does not meet and answer fairly, but raises and argues on others as to which we are generally agreed. I have never disputed that many Roses are equally good as show Roses and garden Roses, but have clearly asserted it. I say that "the standard of size and shape required at the Rose shows shuts out many of the best Roses for garden decoration." He says that his assertion, "all Teas are moderate growers," was only "meant to refer" to such as were moderate growers. His criticisms on my examples of "show Roses," "garden Roses," and "show and garden" Roses, do not alter or modify my opinion of the distinctions I endeavoured to point out. He may claim Boule de Neige, Safrano, and other similar good garden Roses as show Roses, but I do not think many Rose growers will endorse that opinion, or that they will be found in many 1st prize stand varieties. "Devienne Lamy" and "Marquise de Mortemart" may be in his opinion "doubtful Roses for show," but they have been shown fine, and many who have bought them through the flowers shown have found in these instances, as in many others, that good show Roses and good garden Roses are not always identical. To class Comte Raimbaud with Roses of "dull colours," "dear from old associations," shows, to put the most favourable construction on that statement, that the writer is not an accurate observer of objects, or a faithful chronicler of events, as that Rose is very bright, and by no means an old Rose. One would think, from the whole tenor of his letter, and from the remarks of some other writers, that I was opposed to the improvement of the Rose, whereas I am, and always have been, advocating it, and have been for years, and still am, zealously engaged in working for it. I love progress, but it must be upwards, not downwards. I have no sympathy with the so-called progress which, in placing one foot forward in an unsound position, is compelled to turn and retrace its steps. I have never objected to the florists improving the form, &c., of the Rose, but to their neglect of the constitution of the plant, which the public cannot form a correct judgment of from the flowers on the exhibition tables. I quite agree "that the public, after a season or two, won't buy them" (that is, bad growers), but then the mischief is done; they have bought them, and probably at high prices, through the fine flowers shown—to find by experience, which they pay for, that they are not worth the trouble of growing. There are, in my opinion, very few Rose growers of ten years standing who cannot recall many instances of this kind. Your correspondent, in naming four Roses sent out by him, ought in common fairness to have told your readers that two of them, namely, Lord Clyde and Duke of Edinburgh, were raised by me, when partner with the late Mr. G. Paul, in the now defunct firm of A. Paul & Son. *W. Paul, Paul's Nurseries, Waltham Cross, Herts.*

—— It appears to me that the real issues between the controversialists in the matter of Roses and Rose shows are, on the one side, the desire to see Rose shows permanently established on a sound basis, and on the other a too conservative leaning to precedent. Each aims at maintaining the Queen of Flowers firmly seated upon her well-earned and legitimate throne. If this be granted, we may then the more calmly survey the combatants in array, and judge with greater fairness their respective positions. Here are two distincts lines of defence, comprising, first, the old stolid massing and marshalling in solid squares, with extended fronts; and on the other the subdivision of the whole into so many coloured regiments, each supposed to care for itself, yet capable of producing an effect of the most telling description. I approve of the latter, because I consider we cannot too greatly develope the variable features real beauty possesses, however much you divide, dissect, or vary its parts. Lest people become sick of the monotony of the old way—lest, in fact, we would risk the disaster of another Sedan amongst the Roses—let every effort be made to please every variety of taste, to create new votaries and to extend and diffuse a love of the Rose. To deny this is equal to saying that, because wheaten flour can be made into excellent bread, no other kind of confectionery ought to be made therefrom. So much for this controversy from one point of view. There is, however, in all this a matter which is of great importance to gardeners; and it is because this issue has not yet been noticed that I trouble you with these remarks. During the London season, perhaps, there is no show so really popular with the gentry and possessors of country mansions and gardens as is the annual Rose show. Many visit it especially from the love they have for Roses, from their desire to take or compare notes for the further beautifying of their country residences during May and June, and for the sake of future consultation and comparison with their gardeners. Of the many visitors some know how these immense blooms are grown; others are informed by their gardeners,

who may know also; but many go away—and this is particularly so in the case of what, for want of a better term, we will call "small amateurs"—with their note-books filled with the names of the immense blooms, plants of which they forthwith order, and transfer to their gardeners' care, or, it may be, cultivate them themselves, and await the result. Now that result, is it not known to all Rose growers? Even if the very same plant that produced that grand bloom of Duke of Edinburgh noted at the show be sent, will it have other blooms equal to the maiden one? The answer is, Certainly not. This being so, and admitting the impossibility that exists of educating all Rose growers alike in these matters, I hold that the framers of schedules, the representatives of any Society whose aim is the advancement of the interests of horticulturists and floriculturists, should attempt to do so. Young gardeners suffer greatly from such a state of things as the above. We have young employers constantly assuming the responsibilities of old establishments, and in many instances having young gardeners who have not yet established themselves; and the want of greater knowledge on the part of both exposes the latter, often unfairly, to a charge of a want of ability, because they cannot produce such huge blooms, each after its kind, as were noted, and of which plants were purchased. If this be true, can custom, be it ever so fixed, exonerate the seller from a suspicion of trade sharpness? Again, as regards the "amateur Rose shower," I have visited him "many's the time," but I have rarely found in his garden better Roses than were grown by his nearest neighbour. But having the watchword, fraternal or otherwise, presently he has taken me to a spot where he grows his "Roses for showing," and which I reach, after having nearly broken my neck in falling over old tin pots and every conceivable kind of *débris*, to say nothing of Nettles and Thistles, which the good ground in that selected spot so freely grows. And what do I see? Is it a feature likely to conduce to Rose growing by those who witness it? Quite the reverse. Is it not more likely to create an aversion to Roses at shows? One bloom, one spike, is grown, with its maiden robustness; it is fed, and watched, and tended, not for the advancement of Rose growing, not even always for the love of it, but for the prize offered. Rose growing, if for showing alone, is not conducive to the advancement of a national fondness for the Rose or for gardening. I make, in conclusion, this proposition—Let prizes be offered for legitimately garden-grown Roses, not maidens. If it consist of but one class it should be done. But I would offer it for Teas, Hybrid Perpetuals, Bourbons, Mosses and Noisettes. Then should we ascertain how finely British gardens can produce the Rose generally; then should we create an emulation whose upshot and whose glory would be cultural skill, perseverance, and aptitude, as opposed to money and time, with the opportunity. Then would Rose growing and the purchase of new Roses "go up," and all could walk and read the merits of a Rose for purposes in direct opposition to his own. I would by no means do away with the display of maiden blooms, but, by offering for "maiden blooms" only in such classes as may be devised, so inform all what are the peculiarities of culture under which each is produced. Do not stick too closely to the old method of showing, if the only reason be that it is old, because too often with age comes feebleness, and so, in the natural order of things, dissolution, and a falling apart of what might once have been a noble superstructure. *William Earley.*

— It may reasonably be hoped that out of the attempts made to depreciate the merit of Mr. Wm. Paul's novel use of cut Roses some improvement in the present method of exhibiting Roses may be discovered. If, however, questioning a system is to be held as constituting an attack on individuals, there is an end to all hope of attaining improvement, or eliciting truth. In my first communication on the subject I had no intention of entering into the regions of personality, or wounding the susceptibilities of the thinnest skinned exhibitor, but the tone adopted by some of your correspondents necessitates specific reply. And first, as to my "Practical" assailant, to whom I beg to present a very requisite piece of advice—"In future do not misstate an opponent's remarks, inasmuch as such a mode of discussion indicates either the lack of ordinary intelligence, or an incapacity to understand the scope of fair discussion." In the first place I neither "attacked good cultivation," upon which, peradventure, our ideas may differ, nor did I "decry good tilthy ground." On the contrary, I instanced the latter as one of those adventitious advantages possessed by most trade growers over the ordinary range of private cultivators. As to insinuations of my want of knowledge upon the subject, together with the most part of "Practical's" observations, they are altogether beside the question. A writer for nearly twenty years in various horticultural organs of high repute, who has done not a little to popularise and promote the taste for Rose culture, and who enjoys the run of some of the largest Rose grounds in the kingdom, with the opportunity of exchanging ideas with their proprietors and intelligent foremen, is not likely to be the ignoramus that "Practical" would imply, and can well afford to pass by anonymous inuendoes. On one point only shall I join issue with him, viz., that bigness is a test of quality in plants. It is hard and well ripened rather than large wood that produces fine flowers, and indicates a healthy constitution. I will just quote an opinion *àpropos* to the matter of one of the superintendents of a large London park, when remarking upon the size of plants at a certain place—that they were too near to the manure heap to move well. To suppose that any one would select "small stunted plants," or that any respectable nurseryman would sell such, is simple balderdash. I did not "attack the exhibitors," but simply ventured to question the morality of a system by which varieties were in too many cases got up and presented in the stands under false characters, by which means consequently the Rose-purchasing public might be deceived. A simple illustration of this will suffice. Here is a Rose which naturally blooms in clusters. All the buds but one are removed, I observe. Messrs. Geo. Paul & Sons admit the "praiseworthy practice of disbudding." This "lone one left on the stem" appears in a prize stand. Will any one pretend that such a sample is a fair representation of the ordinary flowers of the variety? "The general fattening up by every possible device" is no mere "vague generalisation," but a well-understood and comprehensive term for the *arcana* of over-stimulation to produce size, well known to the initiated, and which indeed constitutes that superior skill in cultivation upon which prize-takers, or the would-be such, plume themselves. Like Mr. Prince, I observe that Messrs. Paul disclaim the practices upon which, in my zeal to secure progress in the flower and fair-play for Rose buyers, I was unlucky enough to animadvert. Nothing yet advanced has convinced me of any error in the propositions I ventured to advance, to which I will add the following:—1. That blooms in prize stands are no criterion either of the natural character of the varieties they purport to represent, nor of the superiority of the general stock of plants at the nurseries from which they come. 2. That the mode in which the blooms are staged at present is unnatural and inartistic. 3. That size is not the highest property in the flowers of the Rose. 4. That it is desirable that some authoritative canons as to the properties upon which Roses are adjudged prizes should be laid down by a council of rosarians. 5. That Rose shows as at present conducted are not calculated to promote the true progress of the flower. These will suffice for the present to furnish a goodly amount of controversy, and open the lists to champions of all opinions, who, it is to be hoped, will conduct the contest with "arms of courtesy" rather than with the naked steel. There is one advantage in the form in which they are enunciated—that they afford little scope for misrepresentation. I would just add that the term "immoral," which appears to have excited so much soreness, was not of my introduction, but was imputed to me most unwarrantably by one of your correspondents, who took up the cudgel in behalf of the present system. Mr. G. Paul, in *propria persona*, *naively* inquires "if we are not losing sight of the object of our discussion?" But who set the example of wandering off into uncalled-for personalities? Certainly not the writer. *W. D. Prior.* [We trust that our correspondents, in carrying on this interesting and valuable discussion, will confine themselves to the points at issue, and specially not wander off into personalities, which are useless and may be mischievous. EDS.].

Killing and Colouring Rye-grass Seeds.—I wish to call the attention of your readers, and more particularly those connected with the seed trade, to a species of adulteration which is at present practised by one or two firms in the North of Ireland. I refer to the colouring of perennial Rye-grass seeds, and I warn all those who deal in this article to carefully examine the colour and smell and also to test the growth of seeds before purchasing. The parties who practise this art only buy cheap dark coloured seed from the farmers, which is got for nearly half the price of sound bright-coloured seed. This stuff is brought to their stores, heated on a kiln, and then coloured with brimstone, thereby destroying its vitality to a great extent. I have seen seed thus coloured, and it looks quite as well as good sound seed, but its growth is scarcely over 40 per cent. An honest dealer has but a small chance of doing business, as these seed doctors can afford to sell their coloured seed from 2*s.* to 3*s.* per quarter less than any one else, and consequently they do the largest business. I know for a fact that from 10,000 to 20,000 quarters of this very article finds its way to the English seed shops from one house in the North of Ireland. If you or any of your correspondents could suggest a means to stop this dishonest practice, you will be doing a great service to the farmers, who are the people who really lose by kiln-drying and colouring Rye-grass seeds. *Ventilation.* [The firms in question, and our correspondent, assuming his, seem to have forgotten "The Adulteration of Seeds Act, 1869," from which we take the following extract:—"Every person who, with intent to defraud, or to enable another person to defraud, does any of the following things—that is to say (1), kills or causes to be killed any seeds, or (2) dyes or causes to be dyed any seeds, or (3) sells or causes to be sold any killed or dyed seeds—shall be punished as follows: that is to say (1), for the first offence he shall be liable to a penalty not exceeding £5; for the second and any subsequent offence he shall be liable to pay a penalty not exceeding £50: moreover, in every case of a second or any subsequent offence against this Act, it shall be lawful for the Court, besides inflicting upon the person guilty of such offence the punishment directed by this Act," to publish the same at the expense of such offender, in such newspaper or newspapers, or in such other manner as the Court may think fit to prescribe. EDS.]

Giant Bunches of Grapes.—The gardener who told "Pomona" that monstrosities could be produced by grafting is quite right. This spring I put two shoots together of the Muscat of Alexandria, and two shoots together of Mrs. Pince's Black Muscat. As near as I can tell the former will weigh 12 lb. and the latter 15 lb. Put four or five of them together, and Mr. Hunter's Belfast bunch will sink into mere insignificance. *A. Donaldson, Latimer, September* 12.

Kew Gardens.—Pending the lecture visits I ventured to suggest last week, I try to get as much instruction as possible by going through the Botanic Gardens and greenhouses. It is an old complaint that when you particularly want to know a plant or shrub that interests you no name is to be found upon it. One day this week I visited the greenhouse—No. 5, I think. Here there were groups of plants (eight or ten together) without any name, either of genera or species. It may be that these are "here to-day and gone to-morrow"; but several of the permanent climbers are similarly unnamed. Many of the plants have the names of the species, but not of the genus. Nothing can be more misleading to nine-tenths of the visitors. Many honest folks come away with the impression that the name of a given Coleus is generically Princess of Wales or Duchess of Edinburgh. If every member of the family had "Coleus" upon it the least observant would be invited to notice what they had in common. When I asked why this was not done I was told, "Oh! it is supposed everybody knows the Coleus." Of all the heresies that can exist in a national botanic garden this is the worst. Look at the class of people who enter the gardens in crowds, and remember the back streets in which they pass their lives. Why should it be assumed that they know what the gardens are expressly designed to teach them? I only give the Coleus as an example; but just consider how easy it is with a piece of lead pencil to write the name of a plant upon a bit of wood which would last a long time if a little paint were used. The rule should be rigorous and unyielding—to name everything in the houses and the grounds. If I were the director I would make some one responsible, and inflict a fine for every breach of the rule. I tried the walls, which are now the subject of your welcome series of articles, "The Old Walls of Kew." I found the same neglect—some plants named, many not. Just the same with the trees. One can imagine a good many boys in London anxious to know the Elm, Beech, and other common forest trees, which they read and hear about: are they to be told at Kew, "Oh, everybody knows their names?" No one would tell them so but an intolerable prig. Most of us know an Oak when we see it, but am I to burst into uncontrollable laughter if I see an Oak labelled in a botanic garden? And would not the botanical equivalent in some measure take off the edge of the absurdity? I write as a tyro, and in the interest of unlearned persons, but they are just the people who have a right to expect to be instructed in botanic gardens supported by the State. If an order were issued that everything exhibited shall be named, and the old walls, permanent climbers in green-houses, and the big trees, specially seen to, the gardens would gain greatly in value and interest. Before I conclude, let me call attention to the Catalogue or Guide. It was published in 1872—that is to say, before the large temperate-house was built. [If our correspondent means the large temperate house in the pleasure grounds, he is wrong here: it was finished in 1867. He probably means the new "range." EDS.] Can this be called a *Guide to Kew?*—and is the whole of the edition to be sold off before another is published? This is a matter not unworthy the attention of the First Commissioner of Works. A *Guide to Kew* should be published quarterly for 6*d.*, like the *Postal Guide* issued by the Postmaster-General. The doings of plants can be foretold with almost as much certainty as the sailing of ships or the places of stars, and, if a quarterly Guide were to be had, people living in

London would know exactly what to look for and what to find on any day they could spare for Kew. There are plenty of publishers who would do it for a small subvention, and the House of Commons never grudges judicious expenditure on and about Kew. *A Journalist.* [It would be obviously impossible to affix a label to every tree or plant in the garden, as our correspondent wishes, but there should be (indeed there are, to a large extent) certain botanic departments where the labelling is and should be strictly attended to. In the more popular and "show" departments this extensive style of labelling is impracticable. A competent botanist might be told off expressly to see that the plants were duly and correctly labelled wherever practicable, and, if necessary, the staff should be increased to meet this requirement. In the meantime our correspondent may be thankful that the labelling is much more thorough than formerly. It is, we suspect, a case of funds; but the present First Commissioner is, it is to be hoped, more practicable than one of his predecessors. EDS.]

Covering Outside Vine Borders.—I was surprised some time since to see in your pages a correspondent (Mr. W. Paul, of Edinburgh) advocating uncovered Vine borders for early forcing. The prevailing practice in all cases with which I have for more than twenty years been acquainted, is to cover them up with fermenting materials. If I remember right, Mr. Paul's success was complete, with not a shatter of anything upon them. I believe he began forcing in November. Will you allow me to ask other Grape growers, through your paper, whether it is safe to practise the non-covering system, as it will not only save labour but a corresponding amount of anxiety, and get rid of an ugly mass of litter all through the winter months?—and will you, Messrs. Editors, kindly give us your opinion? *A Gardener Down West.*

The Pelargonium Society.—May I be permitted to say a word or two with reference to the first and second items in the prize list of the newly formed Pelargonium Society, as given at p. 301, Sept. 5? The first item is intelligible—"Twelve Zonal Pelargoniums, distinct varieties, of the florist class, &c." Well, in these days, when the acme of perfection seems almost to have been attained as regards shape, size, depth of colour, substance of petal, and strength and size of truss, by so many well-known and highly esteemed, and yet increasing varieties, the merest tyro would know how to select twelve first-rate things from the number of such in cultivation. But who in the world is to make anything of the second item in the list? "For twelve Zonal Pelargoniums, distinct varieties, of the decorative class, &c." Why, are not all Zonal Pelargoniums decorative? Does it mean that this second lot are to be a repetition of the first? Or is it to consist of those grown for foliage only? Is the section known by the name "nosegay" meant? or is it a combination of all three classes? A little more light on this subject will be requisite for the guidance of those who wish to enter the lists for competition next July. Further, I do not altogether agree with Dr. Denny in his remarks (*vide Gardeners' Chronicle* of Saturday last, p. 323), that "the nomenclature of all the sections, too, is most unscientific, if not absurd. For instance, 'Zonal' applied to plants without a zone. As for the term 'nosegay,' it is positively ridiculous." I am free to admit the obtuseness of my perceptions, but I can scarcely see what science has to do with the classification and nomenclature of the variations of this or any other class of plants which are the result of cross-breeding, either natural or artificial, and which receive distinctive appellations, according generally to the fancy of the raisers. The important thing is that, by whatever name the sections of Pelargonium are distinguished, we should have a distinct understanding as to what are the properties which render any variety eligible for this or that section. I will only further say that the inauguration of the Pelargonium Society is a step in the right direction; one very great advantage will no doubt be that we shall be saved from being inundated with worthless and undistinguishable varieties, as the result of their authoritative supervision. If the Pelargonium Society do really mean business, they ought, without delay, to bring out such a schedule as cannot by any possibility be mistaken, defining what are the properties of the flowers to be shown in the different classes, and so settling the vexed question of sizes of pots, that there may be no reasonable ground for the irascibility of competitors. *Wm. Chitty, Stamford Hill.*——Dr. Denny's remarks respecting Mrs. Turner and other Pelargoniums with large trusses of flowers being too good to be grown out-of-doors I think will be echoed by many others. We do not want all Pelargoniums for bedding—pot culture is quite as essential to many as bedding out. The time will come, and is not far distant, when the Pelargoniums will play a very conspicuous part in greenhouse and conservatory decoration, blooming as they do the greater part of the year. In order to encourage size of truss, shape, colour, &c., I would suggest that prizes should be awarded for a single cut truss of the largest dimensions in the various colours and classes; also prizes for the best thirty-six dissimilar blooms (cut), twenty-four do., and twelve; also prizes for the six best cut trusses (new, or not in commerce), that should be shown in stands similar to the Dahlia. This way of exhibiting would greatly add to the number of exhibitors; and if they do not create quite a *furore* my name is not *Edward Bennett, Hatfield, Herts.*

Neats'-foot Oil a Preventive and Cure of American Blight.—Having read in your valuable paper for several past weeks that several of your correspondents were pestered by American blight, allow me to give you a little of my experience in the matter, if you can spare me a short space after so much discussion anent the subject. I, myself, have tried paraffin oil, Gishurst Compound, and many other so-called remedies, but last year I was induced to try upon my fruit trees best neat's-foot oil, which, I was told was, and which proves itself to be, a sure cure for American blight. The following Apples were among those most affected by the pest:—Wyken Pippin, Grenadier, Ribston Pippin, Besspool, Hanwell Souring, Blenheim Orange; but after applying the remedy, by means of a small brush commonly used for harness-work (I found that the best means of applying the oil), to my great surprise I have this season seen no appearance of blight in the slightest degree. Not only does it prevent blight, but also seems to heal up old wounds, and make the trees to be of a more vigorous growth. In the spring of the year the application appears like a coating of bird-lime upon the trees, and proves itself a valuable preventive against birds at that season, as the feathered tribe do not fancy its glutinous nature. After Midsummer the trees are as clean and clear as though possessed of new coats, forming a marked contrast to those unhealthy trees pestered with the blight; therefore, from practical experience, I confidently recommend pure neats'-foot oil as a sure preventive and cure of the American blight, and have no hesitation in saying that those who try it will be of the same opinion as myself. *George Milton, Berry Hall Gardens, Solihull, Warwickshire.*

Wistaria sinensis.—This can be grown as a standard if planted on a lawn or in shrubberies, and supported by a stake for two or three years. The shoots disposed to climb shouldbe pinched in; it will then soon get strong enough to support itself and lose its habit of a climber. I have several on a lawn, with stems upwards of 3 inches diameter, 8 feet high and as much across, standing without support, and several others in the shrubberies. They flower freely twice a year with me, and the colour being so different to shrubs makes them very effective. *G. Wood, Rochford.*

The Vegetable Horse.—I am very glad you have placed on record such an excellent representation and description of this very remarkable natural phenomenon. I passed that way yesterday, and every time I see it it appears more wonderful and striking; and by daylight, standing out as it does entirely singly and alone, and with nothing to intervene between it and the clear sky, it can be seen with wonderful clearness and distinctness, and appears like a colossal statue of enormous size placed upon a corresponding pedestal. *John Chennell, Royal Gardens, Windsor, Sept.* 14.

The Sweet Flag.—Having read with pleasure an article in the *Gardeners' Chronicle* on the Sweet Flag, in which the author seems doubtful as to the kind of Rushes used for floors, I beg to send you an extract from an old book of simples that may perhaps throw some light on the subject. The book from which I make the extract is called the *Booke of Simples*, and was written by William Bulleyn, A.D. 1562. It is in the form of a dialogue between Hillarius and Marcellus. In answer to Marcellus, Hillarius says:—

"Commonly knowen, and of sonderie kindes, as Rushes growyng in Rivers and runnying streames, as there be greate plentie rounde about the Isle of Ely, my native countrey, whereof the plain people make Mattes and horse collers of the greater Rushes, and of the smaller they make lightes or candelles for the winter. Rushes that grow upon drie groundes bee good to strewe in Halles, Chambers, and Galleries to walke upon, defendyng apparell (as traines of gownes and kertles) from duste. Rushes be olde Courtiers; and when they be nothing worthe, then they be caste out of the doores, so be many that dooe tread upon theim. A Rushe is called Juncus—that is, a Bulle Rushe. . . . There is also Juncus odoratus, of twoo sortes. Plini doe call the first Triangularis: it smelleth as swete as the Rose when it is broken."

The rest of Hillarius' discourse upon Rushes concerns their medicinal properties. I need hardly say that I have given you both spelling and capitals as in the book. The passage is headed in the margin "Sir Thomas Rushe." *M. S. Lockwood, Prescot.*

—— Mr. Leo Grindon has omitted one reference in Shakspeare to the use of Rushes. The last scene in *Henry IV.* begins,—"More Rushes! more Rushes!" But whatever plant may have been used for this purpose, I am sure that in Shakspeare's mind the reference was to the ordinary Rush, because he has so many allusions in other places to its worthlessness and weakness. As to the native country of the Acorus calamus it is worth noting that it is not mentioned by Ray in 1660, in the *Phytologia Britannica* in 1650, or by Parkinson in 1656. There is a chapter "Of the Sweet-smelling Flagge" in Cole's *Adam in Eden*, 1657, which describes its native countries, and makes no mention of England. *H. N. Ellacombe, Bitton Vicarage.*

Trees and Shrubs in Cornwall.—I have measured a Laurel at Penjerrick near the ground 7 feet 10½ inches; the three principal branches at 3 feet from the ground are 4 feet 3 inches, 3 feet 8 inches, and 3 feet in circumference. It grows in a sheltered, moist valley, running down to the coast at Main Porth, between Falmouth and Mawnan Church. In the same valley is the finest Picea Webbiana that I have seen. It grows between two large Oaks (for Cornwall) and has all its branches perfect, as far as injury from frost is concerned. The lower ones are killed by want of air, but the head and upper branches are in perfect health. As you have published more than one description of Mr. Fox's beautiful place, your readers may be interested in a shrub growing in the land where the shrubs are said to be trees, and the trees scrubs. *H. R., Plymouth.*

Notes from the Far West.—The first and last flower show of the year was held at Penzance on August 26, and in the midst of this famous early vegetable-producing district, novelties of an unusual description might naturally be expected, but such was not the case. The familiar objects usually to be found at a country show only were there. The only exception perhaps was the unusually fine vegetables shown by the cottagers, and the same exhibitors produced in great abundance collections of cut flowers, their French Marigolds being very good. The amateur exhibits were singularly deficient, which may be partially accounted for by the announcement that the prizes were honorary. I am told the support to the society has greatly fallen off lately. This is much to be regretted, particularly as circumstances are so favourable for holding a first-class exhibition. The noble hall of St. John in which the shows are held is really a beautiful structure, and well adapted for such displays. The gentlemen composing the committee of management are worthy of every respect and support. The whole district for miles round is one gigantic garden, and the private gardens of the resident gentry are both numerous and beautiful, in almost all cases displaying much love and good taste for gardening. I trust the first town in England, as Penzance certainly is geographically, will not allow one of its principal summer attractions to fall through for want of the necessary support, particularly as the town is usually thronged by tourists and summer visitors, and it should be both the duty and pleasure of the residents to provide every possible intellectual enjoyment and welcome pleasure for the guests—take example by Broughton, Southport, &c. *J. S. T.*

Crystal Palace Fruit Show.—In your report of the Crystal Palace fruit show I was surprised that you described the Queen Pine shown by me as "anything but handsome, and past its best." I send you a photograph of the fruit, which will speak for itself; and I beg to deny the latter part of your statement. The fruit was not cut till the 17th (more than a week after it was judged), and both my employer and his friends pronounced it "highly flavoured and full of juice." Before the fruit was judged it was considered an easy 1st by men well qualified to give an opinion. *T. W. Bond, gr. to Gilead A. Smith, Esq., Oatlands Park, Weybridge.*

Reports of Societies.

Brighton and Sussex Horticultural: Autumn Show: *Sept.* 9 *and* 10.—This show was doubtless as good as any previous autumn show throughout the whole twenty-two years the Society has been in existence, and in some features it was probably superior to any of its predecessors. Fruit, cut flowers, and plants were all well represented. In fact there was such an overflowing abundance that some difficulty was experienced in getting things staged and arranged in time for the judges. As usual the show was held in the Pavilion saloon and grounds. In bright weather these rooms answer the purpose very well, for some things particularly well, but should it happen to be gloomy dull weather, the light coming from one side only is insufficient, and the beauties of many plants and flowers are but imperfectly seen. This is especially the case where the spectator's back is turned to the light, and the object small, such as cut flowers, for instance. Considerable care and

judgment ought therefore to be exercised in selecting the most suitable plants for the inside of the building. Plants and flowers generally are much more effective under canvas. Ferns, on the other hand, seem to be more at home where there is less light; but for some reason or other the Ferns exhibited for the Railway Cup were placed in the large tent, and so arranged that it was difficult to make a fair comparison of the merits of the respective collections. Mr. Gilbert, nurseryman, of Hastings, carried off the cup with a nice healthy lot of medium-sized plants. The terms were eight exotic varieties, and the successful collection consisted of Adiantum farleyense, Pteris argyræa, Gymnogramma Laucheana, Dicksonia antarctica, D. squarrosa, Alsophila excelsa, Cyathea medullaris, and C. dealbata. Mr. Jobson, gr. to W. H. Stone, Esq., Havant, was 2d, with a collection almost or quite equal to Mr. Gilbert's. They were most of them larger plants, and at a cursory glance might have been considered even superior to the cup lot. Messrs. Balchin & Nell, of Brighton, took the 3d prize, and an extra prize was awarded to Mr. Cypher. Another handsome cup, given by Mr. J. Ashbury, M.P. for Brighton, was offered for the best collection of thirty-six varieties of Gladiolus. Messrs. Kelway, of Langport, the well-known growers, gained this cup, with a magnificent collection, in which every spike was good. Mr. McLeod, gr. to the Right Hon. H. Brand, took the 2d prize, with a very good collection, but his spikes were small and badly put up, the boxes being too narrow, and the flowers crowded. In the notice of a show anything bearing upon the arrangements or staging finds a legitimate place, for we frequently see that cultural skill is defeated by absence of taste in displaying not only cut flowers but plants, and even fruit and vegetables. Mr. McLeod's Gladioli were good, though small, but they were utterly ineffective. They were disposed in three lines, the lines themselves, and the spikes in each line, much too close together; but the worst feature about them was that the spikes of the three rows were behind each other, instead of alternating—thus the first row alone could be properly seen. Mr. Seale of Sevenoaks was 3d. His were finer flowers and better set up, but the spikes were all past their prime.

Although the cups brought out no great competition, and nothing unusually good, a series of small prizes for scarlet and Zonal Pelargoniums had induced, one would imagine, all the talent of the county to come forward. The Pelargoniums shown at Brighton have rarely, if ever, been surpassed, and they certainly formed the most striking and attractive feature of the exhibition. They were both numerous and good. They formed three classes in the first division open to all England, namely, four Zonal, not scarlet, four scarlet, and four double-flowered. Three prizes were offered in each class of £1, 15*s.*, and 10*s.* respectively; but small as these amounts are, there were many desirous of the honour of taking them. Where the quality was almost universally good it is almost invidious to single out any particular exhibitors, but Mr. Miles of Cliftonville certainly deserves a word of praise for his champion plants, which were splendidly flowered, well-formed and healthy. Mr. Miles took 1st prize both for his Zonals and scarlets, Mr. Balchin and Mr. H. Hemsley contributed the next in order of merit.

Before leaving the tent where the Pelargoniums were displayed the stove and greenhouse plants, specimen plants, Dahlias, and a few other things should be noticed. Mr. Gilbert took the 1st prize for eight stove and greenhouse plants with the following varieties:—Rondeletia speciosa major, Bougainvillea glabra, Allamanda Hendersoni, Ixora javanica floribunda, Erica mammosa, E. cerinthoides coronata, Statice imbricata, &c. Mr. Morse, Messrs. Balchin & Nell, and several others, contributed good collections. An exceedingly good Stephanotis was remarkable in Messrs. Balchin & Nell's lot. In the class for four plants Mr. Knight, gr. to W. D. Shadwell, Esq., of Fairlight, gained the 1st prize; Mr. Holman, gr. to the Earl of Chichester, 2d; and Mr. Fowler, gr. to Lady Wellesley, Eastbourne, 3d. Fuchsias were better represented than they have been for some years past, though by no means so good as formerly. Mr. Miles' six plants, that took the 1st prize, were the only really good young plants.

In Dahlias Mr. Keynes took 1st prizes for both shows (forty-eight varieties) and fancies (twenty-four varieties); and Mr. Barnard and Mr. Seale exhibited capital stands of flowers. There were also some good lots in addition, for which there were no prizes. In the second or county division there were several very good exhibits; and Mr. Allfrey, gr. to Lady Melville, Henfield, staged flowers almost or quite equal to those shown by Keynes, gaining 1st prizes in both classes.

Lilies are fast gaining in favour, and here, although there were only two collections—one from Mr. Martin, Shermanbury, and the second from Mr. Umpleby, gr. to Miss Dealtry, Hayward's Heath—they were superior to what provincial shows produced a year or two back.

In the miscellaneous class there were two things in the marquee deserving of mention—Mr. H. Hemsley's improved tree and white flowered Mignonette, and Mr. W. Palmer's patent syringe plunge, a practical appliance that must come into general use.

Returning to the Pavilion rooms the first thing to strike us in the class for table decorations were the stands filled by Mrs. Seale, of Sevenoaks, than which anything more elegantly or tastefully arranged is rarely seen. Miss Kenward, of Lewes, gained the 1st prize in the class open to amateurs only, with a set of stands well deserving the honour. The remaining exhibits in these classes were more or less deficient, and notably so the stand to which the judges awarded the 2d prize in the amateurs' class.

Roses and Asters and collections of cut flowers were all strongly represented, and considering the battering the outdoor flowers had experienced, the show was up to the average. In Roses, Mr. Knight, of Hailsham; Messrs. Mitchell, Piltdown; Mr. Seale, Sevenoaks; and Mrs. Woollard, Cooksbridge, were the chief exhibitors. The competition in Asters was very strong, but there was not anything approaching a perfect stand, owing, doubtless, to the cause already mentioned. For French tasseled, twenty-four varieties, the successful exhibitors were Mr. Betteridge, Mr. H. Hemsley, and Messrs. Balchin & Nell; German quilled, Mr. Betteridge, Chipping Norton, Mr. Laking from the same place, and Mr. Verrall, of Lewes. There were many good things in other classes of plants and cut flowers: of the latter, the stands exhibited by Mr. Fowler, Mr. Gilbert, Mr. Jobson, and Mr. Morse, all were good.

Verbenas were exhibited almost up to the old standard by the Rev. C. H. Hales, to whom the 1st prizes in both divisions were awarded.

We have left little space to fruit, which was unusually good, especially Apples. The collections of ten dishes were perhaps, taken altogether, below the average. The Duke of Richmond's gr., Mr. Rutland, contributed very largely in this department, though he took only 3d prize for the collection, being beaten by Mr. Vickery and Mr. Ward. And here it may be mentioned that Mr. Rutland, who has probably the finest collection of Orchids in the county under his charge, contributed a splendid plant, as a specimen, of Cattleya crispa, and also a good example of Peristeria elata. Grapes and Peaches are always good at Brighton, and the competition was so strong and the various exhibits so near in quality that all deserve mention; but the list of names alone would occupy much space.

In conclusion, a fine, large, profusely flowered specimen of Bougainvillea glabra, exhibited by Messrs. Jackson, of Kingston, is worthy of notice. The great success of this last show at Brighton promises a renewed lease of prosperity to the Society. (*From a Correspondent*).

Preston Horticultural: *Sept.* 9 and 10.—The autumn show of this Society took place in the spacious rooms of the Corn Exchange and the large glass-covered area which they surround. So far as affording ample space for the quantity of plants, fruits, cut flowers, and vegetables brought together, and room for the visitors to promenade with comfort, few buildings in the kingdom are better adapted. But there exists the usual objections to room exhibitions, in the shape of dust, and the less effective appearance of the plants individually, always inseparable from showing in a building, however well adapted it may be; and the greater the advantages offered in the size of the place, the more the different subjects exhibited suffer by the damaging influence of the building. The show was superior to any the Society has previously had, and was in every way a good one, all the different and very numerous classes being well represented. Plants both flowering and fine-foliage were produced in large numbers and good condition. Ferns were splendidly shown and numerous. Zonal Pelargoniums made quite a feature, profusely flowered just to the day, with sufficient and not too much foliage. Fruit was shown in large quantities, both exotic and hardy Grapes were in abundance, and very fine, especially Muscats, which had the thorough finish of colour about them seldom seen; the Black Hamburghs, Alicante, and Black Prince were also splendid. Culinary vegetables were in such quantities and condition as growers in the parched-up southern parts of the kingdom have had little chance of seeing this season. The staging of the different exhibits was well done and very effective, especially as seen from the galleries that surround the central area of the building. The whole of the arrangements were well carried out by the committee, who work with a will, and their indefatigable secretary, Mr. Troughton, whose knowledge and abilities in carrying out even the most minute details connected with a horticultural exhibition, and which go so far to insure success, are of no ordinary description.

In the class of ten stove and greenhouse plants, five in bloom and five ornamental, Mr. H. Thoruber, gr. to T. M. Shuttleworth, Esq., Howick House, near Preston, was 1st, with a very fine lot, comprising Allamanda Chelsoni, Bougainvillea glabra, Dipladenia amabilis, the lovely Eucharis amazonica, in fine condition, and Statice profusa; his foliage plants were a magnificent Gleichenia Speluncæ, 8 feet through; G. flabellata, equally fine; Croton undulatum, Cycas revoluta, and a grand plant of Dasylirion gracile. Mr. J. Smith, gr. to T. Wilkinson, Esq., Bolton, 2d, with a smaller but meritorious group, in which was a well done Erica Fairrieana, Phœnocoma prolifera, two very good Crotons, Veitchii and Hookerii, in finer condition than these plants have yet been produced. Messrs. G. & W. Yates, Manchester, exhibited well in this class, but were disqualified by not showing in accordance with the schedule, which required an equal number of flowering and foliage plants—they having six flowering and four foliage; an extra prize was awarded them. In this group were good plants of the best variety of Anthurium Scherzerianum, a well-flowered large Crowea saligna major, a most useful autumn plant either for exhibition or decorative purposes; a fine Phœnocoma, and a couple of good Palms.

Six foliage plants: Mr. Thoruber 1st, most noticeable amongst which was a well-grown large Gleichenia semivestita, Cocos Weddelliana, and Encephalartos villosa; 2d, Mr. E. Payne, gr. to J. Forshaw, Esq., Fulwood, with a well-done, even lot, in which was a good Maranta Veitchii, Gleichenia Speluncæ, and probably the best pot of Dionæa muscipula ever seen; it was shown under a large bell-glass, and was a most interesting plant. Messrs. G. & W. Yates were 3d.

Twelve miscellaneous plants: Mr. Thoruber was again 1st. In this group was a splendid example of Nepenthes Hookerii, some 6 feet high and 2 feet through, beautifully furnished with pitchers of the highest possible colour; the new Croton majesticum, one of the very best of the genus; Vriesia reticulata, Macrozamia corallipes, M. plumosa, and others in good keeping; 2d, Messrs. G. & W. Yates, who had amongst others, in fine condition, Agave filifera, Yucca filamentosa variegata.

Six exotic Ferns: 1st, Mr. Thoruber, with a not over-large but grandly done lot, in which were Gleichenia hecistophylla, G. Speluncæ, such a plant as is seldom seen of the beautiful Cheilanthes elegans, and Davallia elegans, 5 feet across; 2d, Mr. J. Beaton, gr. to Colonel Birchall, who showed a well-grown even group.

Four stove and greenhouse plants: 1st, Mr. E. Payne, with a good Dipladenia amabilis, Allamanda Schottii, and Plumbago capensis, large and finely-flowered. This plant is not so much grown as it deserves to be, having given place to other things not nearly so deserving of general cultivation. 2d, Mr. R. Wilbank, gr. to J. Brown, Esq., Preston. In this collection was a large, well-flowered Brugmansia Knightii, which, when finely shown, as this was, is very effective.

Cockscombs were, as usual at the North Country shows, really well done, and few more useful decorative plants are grown. Lilies, in threes, were finely shown by Mr. Atkinson, who was 1st, with auratum and speciosum, well flowered; 2d, Mr. T. Miller, Woodplumpton, with all varieties of speciosum.

Lycopodiums, in fours, were produced in splendid condition, large and fresh. Mr. Atkinson was 1st with beautifully done plants, his best being L. Willdenovi, and L. cæsium arboreum (lævigata); 2d, Mr. Thoruber, with a nicely grown lot.

Twelve hardy Ferns: 1st, Mr. Thoruber, his plants being fresh and distinct in character—a condition not always met with in groups of hardy Ferns, that often contain too many of one genus to give them their wonted interest; 2d, Mr. Beaton, with smaller, but nice evenly grown plants.

Zonal Pelargoniums were shown in quantities, and in as fine a condition, both as to size of plant and profusion of flower, with enough healthy foliage, as it would be possible to produce them.

Six Tricolors were also well done, not large, but finely coloured.

Cut flowers were produced in good condition and in large quantities, forming a very important feature of the show, especially the Gladioli. For twenty-four: Mr. Troughton, Preston, was 1st with a fresh even lot, well matched in size, and a good assortment of colours. Eighteen Gladioli: 1st, Mr. T. Miller; 2d, Mr. Troughton; these two collections were so evenly balanced that it took very close inspection to determine which was 1st. Twelve Gladioli: 1st, Mr. J. Walsh, Bolton, who distanced all his opponents with grand spikes, very effectively shown; 2d, Mr. Newsham, with good but smaller flowers; 3d, Mr. T. Miller. Dahlias, from the recent moist weather in the northern counties, were produced in a condition not possible in the South, through the effects of continued drought. The veteran grower, Mr. C. Rylance, of the Bold Lane Nursery, Ormskirk, was 1st for twenty-four, with a beautiful stand, amongst which in fine condition were Harry, Flora Wyatt, Willie Eckford, and George White. Eighteen: 1st, Mr. Walsh, with a finely done lot; 2d, Mr. Newsham. Twelve: 1st, Mr. Newsham; 2d, Mr.

Gould. Asters were well shown and in considerable quantities, and Phloxes in twelves were well brought out. Antirrhinums were also quite a feature, and French Marigolds, beautifully striped and edged, almost as large as the African type, were shown in twelves.

Fruit was well and plentifully shown, especially Grapes, of which Lancashire contains a number of first-class growers. Nine dishes of fruit: 1st, Mr. Upjohn, gr. to the Earl of Ellesmere, Worsley, Manchester, who had amongst others very fine Alicante Grapes, a good Melon, Peaches, Cherries, and a nice Pine; 2d, Mr. Read, Northwich, Cheshire, who had Black Hamburgh, Muscat of Alexandria, and Black Prince Grapes; a nice Pine, good Williams' Bon Chrétien Pears, Moorpark Apricots, &c.; 3d, Mr. Bruce, gr. to J. Fildes, Esq., Manchester, in whose collection were finely finished Black Hamburgh, Muscat of Alexandria, Bowood Muscat, Barbarossa, and Black Alicante Grapes, and a good Pine, the fault of the lot being that it contained too many Grapes.

Black Grapes: 1st, Mr. Atkinson, with grand bunches of Alicante, perfect in every way—colour, berry, and bunch; 2d, Mr. W. Taylor, gr. to D. Irvine, Esq., with Black Hamburgh; 3d, Mr. Bruce.

Muscats were shown in beautiful condition—grand in colour and general finish. 1st, Mr. Bruce, with Muscat of Alexandria; 2d, Mr. Atkinson, who had Canon Hall Muscat, small in bunch but fine in berry and colour; 3d, Mr. Newsham, whose bunches were very good, but a shade short in colour to be successful in such company.

Two bunches of Grapes, one white and one black: 1st, Mr. Bruce, with Muscat of Alexandria and Barbarossa, both very fine; 2d, Mr. J. Ferguson, showing Buckland Sweetwater and Black Hamburgh.

One Pine: 1st, Mr. A. Jamieson, Haigh Hall, Wigan, with a good Smooth Cayenne.

Culinary vegetables were in the finest possible condition, and in such quantities as to severely tax the discrimination of the judges. Potatos (collection of twelve sorts): 1st, Mr. J. S. Baron, with a splendid lot of English varieties, the large coarse American kinds finding no favour in this neighbourhood, proverbial for the excellence of its Potatos; 2d, Mr. J. Rigby; 3d, Mr. Gould.

Collection of vegetables (twelve varieties): 1st, Mr. Gould, with a good even lot; 2d, Mr. E. Myerscough. Six varieties. 1st, Mr. J. S. Baron; 2d, Mr. J. Gould. These collections were all remarkably good, and fit for table, containing nothing of second-rate quality.

Mr. Troughton showed a very complete collection of roots, seeds, fruit, garden implements and elegancies, beautifully arranged, occupying a considerable space in the large room. Mr. Huddart, Preston, had an extensive and varied lot of stove and greenhouse plants. Mr. T. Hodson & Son, florists, Preston, also showed a good collection of plants. Mr. Walton, Edge End Nursery, near Burnley, had a smaller but very good mixed lot of plants. Mr. S. D. M. Sykes, Preston, exhibited a quantity of cork garden ornaments, consisting of vases and rustic stands, beautifully made and very effective for room or Fern-house plant growing.

The cottagers' productions, which are here largely encouraged, were an exhibition in themselves, filling one of the extensive rooms. The window plants were well done, and bore the stamp of having been grown, and not provided for the occasion. The cut flowers, consisting of Gladioli, Asters, Stocks, Dahlias, Marigolds, Pansies, and Phloxes, were remarkably good. The bouquets of hardy and cultivated outdoor flowers were not mere bunches, but would compare favourably for arrangement with the productions of those more practised in the art. The vegetables would have held their own in any competition in the country.

At an excellent luncheon given to the judges, the committee and exhibitors met, presided over by the Mayor, supported by a number of gentlemen interested in gardening matters, after which subjects connected with the advancement of horticulture were freely discussed. This is as it ought to be, and tends much to the promotion of the pursuit. (*From a Correspondent.*)

Newbury Horticultural: *Aug.* 25.—There are in all probability more flower shows held in the West of England during the two last weeks in August than at any other period of the summer. These meetings are so numerous, in fact, that it frequently happens that two are held on the same day within a few miles of each other. A well-known popular gathering is the one annually held at Newbury. This year it took place in what is known as the Shaw Avenue, formed of lines of noble Elms leading from the lodge gates of Shaw House at the upper end of the town to the fine old mansion, the residence of H. R. Eyre, Esq. This interesting place has many historical associations, some of which date back to the troublous times when Cavalier and Roundhead were arrayed against each other in the civil wars of the seventeenth century, and it is said that the marks of the balls fired by the soldiers of the Commonwealth can be seen in many places. There are extremely interesting and well-kept grounds surrounding the house, and the visitors to the show had the privilege of walking about them at their leisure.

The Newbury show is essentially a popular one, and if the weather is fine, large numbers of persons come in from the surrounding villages to partake in the festival in honour of Flora and Pomona held in this clean and eminently respectable and well-to-do Berkshire town. There is always a good show, not large, but the exhibits of capital quality. There is a good band, and, to give a little zest to the enjoyment of the country folks, there is the added attraction of some wonderful gymnastic performance. If the day be only fine, by 5 o'clock in the evening—one hour after the cheap admissions have commenced—the show ground literally swarms with visitors from all parts.*

A remarkably fine lot of vegetables was staged in the classes set apart for mechanics and artisans, and for cottagers also, for the last is for those employed as ordinary labourers—a very good definition of a cottager. It is not a little remarkable that in all the classes for vegetables prizes are offered for long red and short Carrots, but inevery instance it is added that Intermediate Carrots will disqualify. Why should this exclusion be visited on one of the most useful sorts of Carrots that can be grown in a cottage garden? Again, in the classes for mechanics and cottagers there are classes for three Cabbages, not Battersea; and thus the onus is thrown on the judges of deciding what is or what is not Battersea Cabbage—a rather difficult task. But why should the Battersea Cabbage also be tabooed at Newbury? Potatos in these classes are a fine feature always, they do well in the soil about this thriving town; and the same holds good throughout the show. The judges have a tendency to encourage mere size in some instances, and the consequence showed itself in the large American varieties being in the ascendant.

Fruit was very good, and with the cut flowers made a nice display. At Newbury they use a very small prize card, and it is very difficult in a crowded tent to pick out the exhibitor's name. Grapes were fairly shown; Peaches and Nectarines good, and under the head of very good can be grouped Plums, Apples, Pears, and Cherries. In the schedule the number of fruit in each class is rigidly set forth, as, for instance, Nectarines, dish of six; Plums, dish of twelve; Apples, nine, and so on; but with the most delightful inconsistency, a note is appended "In dishes of fruit an extra one or two not to disqualify." The question naturally suggests itself—would three disqualify?

In the plant classes good examples are the rule. In the open class for six stove and greenhouse plants, the best group came from Mr. King, gr. to R. V. Lead, Esq., Devizes Castle; and included Bougainvillea glabra, Stephanotis floribunda, Rondeletia speciosa major, Statice profusa, and Allamanda Hendersoni. Generally the other stove and greenhouse plants were represented by these well known forms, and such as Rhynchospermum jasminoides, Eucharis amazonica, &c.; some nice variegated plants, fair Fuchsias, Pelargoniums, Petunias, &c., completed this department.

Cut flowers were represented by Dahlias, Asters, Verbenas, Roses, Gladioli, and collections of bouquets, but there was nothing calling for special mention.

Close by the entrance to the show ground was a cottage, the front of which was covered with Passiflora cœrulea, flowering most profusely. Some of the houses in the town were handsomely draped with creepers and other plants; and gardening appears to be prosecuted with vigour and success. (*From a Correspondent.*)

Hayle Horticultural: *Aug.* 28.—The seaport town of Hayle on the north coast of Cornwall held its annual flower show on the 28th ult. This may more properly be called a cottagers' show than those of its big neighbours who use that title, being principally supported by the numerous mechanics employed by the extensive firm of Messrs. Harvey & Co., and by the tradespeople of the place. Of course the show was greatly aided by the several members of the above firm, particularly Mr. Vivian, whose gardens are famous for their collections of Roses and fruit trees, in which this gentleman is well-skilled, and who contributed largely to make the show a success. Miscellaneous collections of cut flowers were the great features of the show, for which a liberal and special prize is given, and which fell to the lot of Mr. Hutchinson of Truro and Capt. Carew of Penzance; in both cases fewer in number and a little more care in their arrangement would have been better. Dahlias and Roses were very good.

Vegetables, the most important objects in this locality, were really fine, particularly the cottagers', who on this occasion really did hold out an example of good cultivation worthy of imitation by the professional gardeners. Such Onions, Carrots, and Parsnips are rarely seen.

Tourists, particularly botanists and those of horticultural tastes, would do well, in passing through to see the wonders of Land's End, to halt at the little station of Hayle, and not to be afraid of the smoky, busy bustling of the little town, but make inquiries for the residents of the numerous surrounding pretty villas that are close by. They will find much to interest: the wild plants on the sandhills will be sure to interest the former, and the latter will find many pleasing examples of good taste and skilful culture in the well-kept gardens; and such magnificent examples of Aloes, Dracænas, Yuccas, variegated Phormium tenax, &c., as are growing in the highly cultivated gardens of Mr. Rawlings are rarely to be found in this country. *J. L. T.*

Glasgow and West of Scotland Horticultural: *Sept.* 9.—The last show of the season was held in the City Hall, and contained many good examples of plants, fruits, flowers, and vegetables. It was not perhaps the largest show we have seen at this season, but the quality was unmistakable, and the growers seemed to plume themselves upon exhibiting only what afforded evidence of the highest cultural skill. The arrangement was highly effective. Plants in flower are scatce at this season, and it was consequently pleasant to see the warm tints of the Gladioli shine out even among variegated foliage. The fruit, too, placed in the centre, and flanked on either side by noble exotic vegetation, looked much better than when isolated, as it was wont to be.

The principal exhibitors were Messrs. J. & R. Thyne and Messrs. Smith & Simons, who had each a table of remarkable plants. Messrs. Thyne put up a lot which, for variety and beauty, could not probably be rivalled out of London. Along the centre of their group was the beautiful silvery fan-leaved Palm, Chamærops stauracantha, the handsome pinnated-leaved Geonoma Schottiana, one of the best of its class; and the Mexican Astrocaryum, so prominent with the arching character of its pinnated fronds, which have a fine bright sheen on the lower surface. These were fronted with the handsome gold and silver and green-leaved Yuccas, many-coloured Dracænas, and high-coloured Crotons, while the beautiful piebald Ficus Parcellii, and the Maidenhair Ferns, helped to make this a rich and rare collection. Messrs. Smith & Simons had a less valuable, although an equally showy lot of plants—pinnated Palms, highly-coloured Dracænas, good variegated Pandanads, numerous Ferns—all set together to the best purpose, and forming a capital background for the general assortment of plants.

The principal competition groups came from the gardens of Mr. Goldie, Mr. Findlay, and Mr. A. B. Stewart, Langside. Each of these gentlemen had valuable specimens—indeed, it is questionable whether the ornamental groups of four plants were ever better competed for. By far the most valuable plants were in Mr. A. B. Stewart's group—his Cocos Weddelliana one of the rarest and most beautiful of ornamental Palms, being one of the best plants in Scotland. Mr. Goldie's specimens were really well handled, particularly his group of six flowering plants. The Heaths, too, were a fine lot, the sorts called Erica Turnbullii and E. Marnockiana being brilliant in colour and full of flower. Mr. Todd had an excellent Pleroma, one of the finest blue-flowered melastomaceous plants in cultivation. The Ferns were in perfection, the Adiantum Farleyense being quite a picture, as also was the New Zealand Todea, with its finely-cut drooping filmy fronds. The Pelargoniums, variegated and otherwise, from Mrs. Cooper, were well put up by Mr. Neil Campbell; and the Petunias and Cockscombs, ranged along the side tables, were creditable to the respective exhibitors.

On the fruit table the black and white Grapes were in much greater numbers than usual. Mrs. MacNab, Paisley, had samples of Black Alicante, perfect in every way, black as Sloes, with not the slightest stain on a single berry. Mr. Smollett, Camden House, had much more palatable fruit in the Black Hamburgh, which was placed 2d; but then the colour was a little wanting, and judges so often give the prize to what pleases the eye best, as they are not expected to taste any of the samples. Mr. Wm. Eadie had very fine Gros Guillaume, large in bunch, and in most respects faultless in appearance. The best white Grapes were the samples of the Bowood Muscat, from Mr. Dickson, St. Andrews. The lots from the different competitors who took prizes were all much above the average; indeed, it seemed a pity to pass over so many excellent dishes without awarding some of them prizes. A well-grown, well-flowered plant of the New Zealand Glory Pea (Clianthus Dampieri) was shown by Mr. Thomas Hill, Merrylee, on the centre of the fruit table. The Apples were a splendid exhibition.

The saloon was principally reserved for the contributions from gentlemen who do not employ gardeners, and most worthy these exhibitions were. The plants in pots were wonderfully fine; indeed some of the amateurs have learned the art so well as to induce them to try their skill with gardeners, and in some instances not without success. The plants that seem to be better grown and flowered than

others are the varieties of Heaths, the Lily-like Vallota purpurea, the Japanese Lily, and the verticillate-leaved Tremandra with its bright purple flowers. These and Pelargoniums and Fuchsias form the staple plants at this time of the year, and they appear to much advantage when well grouped. Not the least important novelties were the prizes offered for window plants and window boxes grown within the parliamentary boundary of the city, and although they looked poor in comparison with others grown in the pure country air, still they were presentable, and might be improved by increased competition. The cut flowers, one and all, were much above the average. The Gladioli, Dahlias, Asters, Marigolds, and Pansies were superb. The stands of first-prize Dahlias and first-prize Gladioli, among gardeners (Mr. J. Hardy, Greenock; Mr. G. Watson, Govan; Mr. A. Campbell, Gourock; and Mr. A. S. M'Intosh), particularly deserve to be singled out as highly meritorious. Messrs. Robertson & Galloway of Helensburgh, and Hugh Dickson of Belfast had beautiful lots. We noted particularly a fine rosy-purple Gladiolus shaded with yellow, shown by the Helensburgh firm, which was quite a novelty. The vegetables were fully equal to any we have seen, the Potatos, Peas, Onions, Leeks, and Parsnips being first-rate.

At the dinner which subsequently took place Colonel Buchanan of Drumpellier, President of the Society, occupied the chair, supported by Messrs. B. S. Williams of London, Hugh Dickson of Belfast, J. Anderson of Meadowbank, A. Duncan of Christchurch, New Zealand, &c. The President, in replying to the toast of "The Glasgow and West of Scotland Horticultural Society," testified to the pleasure that he had in being with them that day; and added that he felt that it was his duty, looking to the considerable stake he had in the district, to support all institutions which had for their object the refinement of taste and the encouragement of labour.

Sawbridgeworth Horticultural: *Sept.* 8.—The cottagers' and amateurs' show was held in the park adjoining the mansion at Hyde Hall, the seat of H. L. Bischoffsheim, Esq. The exhibits in the cottagers' and amateurs' classes were shown in separate tents, the entries were numerous, and the productions remarkably fine. A large tent was devoted to stove and greenhouse plants, but flowers, fruits, &c., were sent by several of the neighbouring gentry, and amateur and professional growers. Amongst those worthy of notice were the following:—Mr. Glassey, gr. to Sir H. J. Selwin Ibbetson, Bart., stove and greenhouse plants, cut flowers, fruit, &c.; Mr. T. Powell, gr. to J. Odams, Esq., Bishop Stortford, Ferns, Coleus, and stove plants; Mr. W. Carville, gr. to Miss Arkwright, Harlow, Coleus, Ferns, and Caladiums; Mr. E. Spivey, gr. to J. A. Houblon, Esq., stove and greenhouse plants; Messrs. T. Rivers & Son, collection of fruit and cut flowers; Messrs. E. P. Francis & Co., Hertford, three boxes of cut Roses; Mr. H. Glasscock, Bishop Stortford, two stands of Dahlias; A. Watkins, Bishop Stortford, stove and greenhouse plants, &c.; Mr. J. Wills, Brompton, bridal and ball bouquets. The principal attraction at the show was a tent in which Mr. Weeks, the head gardener at Hyde Hall, had constructed a model of the Queen's Palace at Osborne, with terraces, walks, flower gardens (beautifully laid out), shrubberies, bridge, rockeries, cascades, lakes, fountains, &c., forming a picture which was commented upon by all who saw it. (*From a Correspondent*).

Saffron Walden Horticultural: *Sept.* 9.—This Society holds a large summer exhibition in June, and a smaller one early in September, for the purpose of encouraging the cultivation of many cut flowers, for which Saffron Walden is famous, as well as for the cottagers, whose productions are never sufficiently advanced by the month of June. The show on this occasion took place in the Agricultural Hall. Plants were not numerous, only a few classes being allotted to them, but very creditable examples of Fuchsias, Balsams, Zonal and variegated Pelargoniums, and Ferns, were appropriately grouped in different parts of the room.

For the first time in the history of the autumn exhibition of this Society, Hollyhock spikes, always a grand feature, were absent, for what with the ravages of the terrible fungus and the weather, cultivators were unable to exhibit. Some cut blooms in good condition were shown by Mr. William Chater and Messrs. Lyles & Speed, of Cambridge, the 1st prize going to the former, who had alba superba, Exultum, Mulberry Gem, both very fine dark flowers; Leviathan, Bullion, Coquette, Enchantress, Rosy Morn, Perfection, Elegans, Black Knight, and Ariadne. Dahlias were well shown by Messrs. Lyles & Speed, Chater, and Gibson; and in the Gladioli classes Messrs. Lyles & Speed and the Rev. Mr. Wilks took the leading prizes. Asters are always well shown at Saffron Walden, especially by Mr. Chater, who grows a very fine strain of the quilled type selected with great care by him for many years. The Victoria type is also well grown here. Messrs. Lyles & Speed also had some very fine flowers of both types, and when stands of fresh clean blooms of Asters are set up they are very attractive indeed. Marigolds are a leading flower at Saffron Walden, and the African varieties shown by Mr. J. C. Criestell were large and very double—a fine selected strain. The singularly gay and effective hues of colour seen in the Zinnias shown by Messrs. Lyles & Speed and Mr. Gibson, made them objects of great attraction to visitors. Roses, bunches of Zonal Geraniums, boxes of twenty-four varieties of cut flowers, together with fruit, generally well shown, and vegetables, numerously and finely produced, made up a very creditable and successful exhibition. (*From a Correspondent*).

Royal Caledonian Horticultural: *Sept.* 9.—The autumn show of this society was held in the Music Hall, Edinburgh. The display of fruit was remarkably good, and attracted much attention, the show of Grapes being especially strong. Several enormous clusters were exhibited from Arkleton, Langholm, &c. Among the flowers the Gladioli and Hollyhocks were most attractive. The first prize for the former was obtained by Mr. Service, Dumfries. There was a very fine assortment of greenhouse and stove plants from the nurseries in the vicinity of Edinburgh. The show was well attended. Arrangements are being made for an International competition next year.

Sittingbourne Gardeners, &c.: *Sept.* 10.—The first show of flowers, fruit, and vegetables of the Sittingbourne Mutual Association of Gardeners, Amateurs, and Cottagers, was held in the Corn Exchange, Sittingbourne. The decorations of the hall were of a varied and showy character, two artistically arranged floral devices crowning the ornamentation on either side. These devices were sent by Mr. Thomas Newman, gr. to E. L. Pemberton, Esq., of Torry Hill, and were much admired. In the centre of the hall two tables of ornamental foliage and stove and greenhouse plants were tastefully arranged; while at each end, facing the entrance to the building, were two baskets of splendid foliage and flowering plants, exhibited by Mr. Fairbeard, of Mount Pleasant Nursery, Greenstreet, near Sittingbourne. E. L. Pemberton, Esq., of Torry Hill, exhibited a variety of fine specimen plants, as also did E. Twopeny, Esq., J. B. Hole, Esq., G. Smeed, Esq., G. Eley, Esq., and many other gentlemen. Two fine specimens of the Sempervivum tabulæforme attracted much notice. Some very elegant Ferns were displayed. At the head of the room was a magnificent group of foliage and flowering plants, conspicuous in the centre being a fine Orange tree, heavily laden with fruit, sent by Dr. Grayling. The fruits, vegetables, cut flowers and miscellaneous exhibits were displayed on stands erected against the wall on either side of the room, extending from top to bottom. The collections of Potatos were numerous and extraordinarily fine, especially some exhibited by Miss Gascoyne, of the sort known as Bresee's Prolific. Messrs. Lott & Hart, of Whitehill, near Faversham, showed fifteen varieties, including the new sorts, Vermont Beauty, Extra Early Vermont, Compton's Surprise, and the Rector of Woodstock. There were also some good specimens of that homely bulb the Onion, which were as large as Spanish, and as smooth and well grown. Cucumbers were displayed in rare excellence, including a new pickling sort; and there were likewise some capital exhibits of Parsnips, Carrots, Vegetable Marrows, Celery, Tomatos, Beet, and Beans; indeed the show of vegetables was extremely good. The fruit exhibited was perfection itself, both in colour and shape. The collections of Pears were numerous, conspicuous amongst them being specimens of Williams' Bon Chrétien. The display of Apples exceeded our anticipations both in extent and in the excellence of the fruits shown. Grapes were exhibited in abundance; very luscious they were, and a beautiful sight, as were also the Peaches, Nectarines, &c. E. L. Pemberton, Esq., M.P., exhibited a fine Melon (Ward's Netted); and G. Eley, Esq., a collection of handsome Pear Gourds. Some very fine Strawberries, of good colour for the time of year, were also shown; and the Currants were good. Morello Cherries were on view, and very fine they were.

The collection of cut flowers was large, but not particularly comprehensive; Asters, Dahlias and Roses, formed the chief part. Various specimens of entomology and natural history were also exhibited, and altogether this, the first show of the kind ever held in the Corn Exchange, was successful, and would have been still more so had the committee learnt the golden rule of advertising — that "publicity is business." (*From a Correspondent.*)

Bury and West Suffolk Horticultural: *Sept.* 11. — This exhibition was held in the Corn Exchange, and was one of the best that has been held by the Society. The central table was as well furnished with fruit as though no spring frosts had chased them with, fervour or destroyed its thousands on and off walls. Three fine desserts of six dishes each were shown by Messrs. Nichol, Fish, and Squibbs, the prizes going in the order of their names. Mr. Fish and Mr. Squibbs also showed fine collections of fruit in baskets containing everything in season, and fruit of almost all varieties. Of other fruits, Peaches, Melons, Grapes, Pears and Apples, especially kitchen, were markedly fine, as were Morello Cherries, Nectarines and Plums. Currants, especially red, were also good. The season seems to have told upon Nuts more than upon any other fruit. The following were the chief prize-takers in the fruit classes:—Mr. Nichol, gr. to Capt. Powell, Drinkstone, was 1st for dessert, and he also showed three fine bunches of Hamburghs, not for competition. Mr. Snelling, gr. to Hunter Rodwell, Esq., of Ampton, was 1st for black Grapes and for table Peas; Mr. Squibbs, gr. to the Marquis of Bristol, Ickworth, was 1st for a collection of fruit, and 2d for black Grapes; Mr. Raynham, Straddishall, was 1st for Green Gages and Cucumbers, and 2d for Melons; Mr. Fulcher, Westley, was 1st for table Apples; Mr. Allan, gr. to Sir Charles Bunbury, Barton, was 1st for Filberts and white Currants; Mr. Barrett, Hardwicke, was 1st for red Currants and for kitchen Apples; Mr. Catchpole, Bury, was 1st for Plums; and Mr. Fish, of Hardwicke, was 1st for white Grapes, Melons, Peaches, Nectarines, Figs (Brunswick), and Morello Cherries.

Vegetables were hardly so plentiful or so good as usual in either the cottagers' or the other classes. The Potatos were not so large, though all of them seemed sound; and neither Cauliflowers, Celery, Peas, nor Lettuces were so plentiful as at most September shows: nevertheless some capital vegetables were shown. Mr. Fulcher, gr. to W. Burrell, Esq., Westley, was 1st for red and white Celery and Cauliflowers; and Mr. Fish for Onions and Peas.

The show was rich in cut flowers—Asters, Marigolds, Dahlias, double Zinnias, and Roses, being of excellent quality. Mr. Nichol and Mr. Fish were equal 1st for six Roses, and Mr. Nichol and Mr. Squibbs were 1st and 2d for twelve. Mr. Southgate, Finborough Hall, Stowmarket, Mr. Raynham, and Mr. Petit, of the Royal Botanic Gardens, were the principal exhibitors of Dahlias, and each showed some fine flowers. The Rev. C. Roe, of Sicklemere, also showed stands of fine seedling Dahlias. Cut flowers of Zonal Pelargoniums were remarkably good, the 1st prize for both flowers and plants going to Mr. Fish. The richest flowers in the show were the three collections of stove and greenhouse cut flowers shown by Messrs. Nichol, Fish, and Squibbs, who were awarded the prizes in the order of their names. The pot plants consisted of Fuchsias in fine condition, Pelargoniums, Ferns, Coleus, Lycopodiums—the latter being the admiration of all visitors.

The cottagers' produce was good, especially their Potatos; and the Messrs. Greyson & Son of the Market Hall, Bury, showed an excellent collection of roots and vegetables, consisting of twenty different varieties of Potatos, the Bullock's Heart Swede, so famous with this firm; six varieties of French Beans, and various examples of Pumpkins, Vegetable Marrows, Peas, Cabbages, Carrots, Globe Mangels, grasses, &c. It was highly commended by the judges. There was less honey than usual, but beekeepers in this district read in the *Times* that this has been an exceptionally good season for bees!

As usual the members dined together at the Angel Hotel in the evening, the prize vegetables and fruit contributing to make the dinner the treat of the season to many. The President of the Society, G. P. Clay, Esq., was supported by the Mayor, D. Leech, Esq., and other gentlemen. Speeches were made by most of these and by other gentlemen, including Messrs. Petit, Squibbs, Fish, &c., and a most happy and agreeable evening was spent. It might be well for other and larger societies to wind up their annual campaigns with a good dinner and a liberal dessert. Around these good things the frictions, crosses, and sometimes inevitable losses of the season, might be forgotten, interrupted friendships renewed, and new ones formed, to good horticultural purpose. (*From a Correspondent.*)

The Villa Garden.

There is an impression among some people who are fond of flowers, but who are not very well informed on the routine work of gardening, that there is but one propagating season in the year, namely, the spring. The man who loves his garden, and by working in it at every spare moment shows the active interest he takes in it, is a propagator almost all the year round. Already he has put in numbers of cuttings of Pelargoniums, Calceolarias, and other bedding plants that can be wintered with comparative ease. Incidentally it may be stated that all decaying leaves

should be removed from these from time to time, and the boxes, or pots, or beds in which they are making root be kept tolerably dry. What is wanted in order to stand the winter with success is not a rapid, succulent growth, but a short, stocky development—such plants are safer to winter. The young cuttings of Pelargoniums we rested two months and less ago are now potted singly in small 60-pots, and are already nicely established. Those that had but one straight stem have been stopped, and a young growth is breaking out on either side of the stem. Those that had a bushy growth are now throwing up one or two trusses of bloom each, and will continue in flower during the late summer. One golden rule may here be laid down: If you would winter comparatively tender plants with safety in a cold house during that most trying season of the year, get them well established in pots before the period of rest comes. Pelargoniums in large pots, such as 32 and 24-sized pots, that have exhausted themselves in blooming through the summer, can have their shoots cut back, and the pots stood by on a dry, cool shelf, and the soil allowed to dry off gradually, giving only enough water to sustain life. If some fire-heat can be given during the winter, then remove a portion of the spare soil on the surface, say to the depth of an inch and a half, replace it with some fresh soil, and allow the plants to make a new growth; and a few trusses of flower can be had at Christmas, if there be enough of solar light or internal warmth to develope the flowers.

The shoots cut away from the old plants can still be inserted as cuttings, if more plants of a particular variety be required. These should be inserted singly in very small 60-pots, in some light, sandy soil, and stood close together on a shelf in any part of the greenhouse. They may be kept only slightly moist, and the cuttings will be certain to take root. There is a kind of pot that is very useful for this sort of work. It is intermediate in size between a small 60 and a thumb, narrow at the mouth, but deep. This particular pot can be strongly recommended for striking single cuttings in, in this fashion. The roots of cuttings appear to like to find their way to the sides of the pots as soon as possible; then a vigorous root-action sets in. Herein lies one great advantage in the pots just alluded to; another is, that they can be stood very closely together on an upper shelf, and thus space is economised.

Out-of-doors also there is abundant work now ready to hand in the way of propagation. The summer is fast waning, and autumn, with its tints of russet and green, is coming on to take its place in the eternal annual procession of the seasons. Now is the time to commence preparing for the winter and spring garden, for the day is passing away when flower-beds are allowed to lie tenantless during the winter. We have already turned to account, and, in fact, converted into a nursery garden, a piece of the ground on which we grew Potatos. It was forked over, and we have planted in it nice little tufts of the golden-tipped Stonecrop (Sedum acre aureum), and the silver Stonecrop (S. glaucum). Our plan is to plant out a small patch of these in an out-of-the-way corner, about May, sprinkle some fine soil over them, give them water when required, and during the summer they grow into great size, and give abundance of material for winter work. If divided again into little patches, and planted out afresh at the end of August or the beginning of September; by the end of October they grow into dense tufts, and prove very useful for carpeting small, and edging larger, beds in the spring arrangement. The pretty Aubrietia Campbelli is one of our favourite spring flowers. A large nursery clump is always kept growing in a part of the garden, and as soon as it has done flowering the stems are all cut away, some fine soil (to the depth of half an inch or so) scattered over the plant, and water is supplied in dry weather. It soon throws out young growth, which form nice little tufts, with some roots. These are lifted carefully, and planted out singly in the fresh-dug ground to grow into size; and the softest and most welcome patch of colour in our spring garden is afforded by the Aubrietia. Tufts propagated in this way are much more reliable in the spring display than old plants that have lain neglected during the summer, as they are apt to die off in places, and unwelcome looking gaps show themselves, to the serious defacement of the best-arranged designs. Double Daisies, which are deemed the most useful and the most effective of plants in the winter and spring garden, should be divided in like manner, and planted out without delay. Our plan is to lift these from the spring beds at the end of May, plant them out thickly under a shady wall, throw some good soil among them, and water them occasionally where it is very dry. Plants put out in this way have made a wonderful growth during the prevalence of the welcome rains of the last three weeks, and if these are divided each piece of young growth will be found to have roots attached to it, and if planted out will grow into quite large plants by October. Pansies are being divided in the same way. They, too—at least, those varieties which are suitable for bedding purposes—have been throwing up a dense growth from the roots during the past three weeks. The gardener who exercises a little forethought will have placed some fine soil about them also, in order to afford the spring shoots something to root into. These will divide into a number of plants, whose sole business appears to be to grow into size as fast as possible, and prepare themselves for an effective floral service in March, April, and May.

The foregoing examples will indicate how we can prepare for the autumn planting of the flower-beds; by taking care spare moments are turned to good account as such opportunities offer themselves.

Very soon Hyacinths, Tulips, Crocuses, and other spring-flowering plants, will have to be potted. Let the soil to be used for these be made up at once, and be placed on a heap, and turned occasionally to sweeten it, throwing a piece of matting on it to keep it from heavy rain. Some gardeners attach great importance to allowing soils to be well acted on by the air before they are used. This process is termed sweetening the soil. It is a good practice, as it is sometimes the means of getting rid of sour particles which, during the autumn and winter, sometimes spread among the mould in the pits, and do serious injury to the plants.

FRUIT GATHERING.—Apples and Pears are now fast ripening off, and they should be gathered carefully, and put away on dry, airy shelves to keep. Such Pears as Jargonelle and Williams' Bon Chrétien, one or both of which is almost sure to be planted in Villa Gardens, will not keep; they require to be gathered before they are quite ripe, and eaten almost as soon as gathered. The early Apples will keep much longer. Let it be remembered, however, that the slightest bruise or blemish will prevent the fruit from keeping; therefore, in gathering, they should be handled as carefully as possible. A little experience is very useful in determining the exact, or, at least, about the proper time when the fruit is fit to gather. When Apples and Pears reach a certain point of ripeness they will fall from the tree, and the fruit will be inevitably bruised. A knowledge of the sorts grown is the best experience by which to decide, as far as practicable, when the fruit is fit to gather. This knowledge can only come after two or three years' cultivation; all the reading in the world will not supply it in such a satisfactory manner. Old gardeners say that the colour of the seeds of the fruit is a pretty sure test when the fruit is ripe enough to gather, and therefore they hold, that if the seeds be of a full brown-black appearance, the fruit should be harvested; therefore they open a fruit, and judge of the ripeness by the appearance of the kernels. Another rule laid down by cultivators is, that when the fruit is fully ripe enough to gather, it is easily detached from the tree, but this by no means holds good of all, as in some cases, and especially Pears, they are not readily detached.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns].

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—All hard-wooded plants must be at once got into their winter quarters, as after this time they are not safe outside, even in the south of the kingdom. After such a season as the present has been, they should be in fine order, with exceptionally stout well-matured wood, likely in every way to bloom freely, as also in a better than ordinary condition to resist the attacks of the winter pest, mildew. Nevertheless, examine each plant as it is taken in, to see that no trace of the parasite exists, for should any be affected even ever so slightly, if not destroyed it will spread rapidly when they are taken inside. A weak solution of Gishurst, at 2 oz. to the gallon, syringed over the plants whilst laid down on their sides, is an effectual remedy for the destruction of mildew, on account of its reaching every part of the plant if carefully applied, but it sometimes does considerable injury to both the leaves and the young bloom buds—this especially in the case of such as *Hedaromas* (*Darwinias*) and *Boronias*. Consequently, although not so certain in completely destroying the parasite at a single application, it is safer to dust over with flowers of sulphur. The best method is to lay any affected plant down on its side, wet it thoroughly all over with the syringe, and then apply the sulphur; for this purpose there is nothing that will more effectually do the work than the old sulphur puff. Completely envelope the plants with the sulphur; this will do no harm if it is not allowed to get into the soil, from the surface of which it should be removed by a good washing with the water-pot whilst the plants are laid on their side, in which position they must remain until the foliage is quite dry, otherwise it will run down into the soil and cause serious injury. It is necessary to be careful in this matter with the use of sulphur, as it is no uncommon occurrence for plants to be killed outright or damaged beyond recovery through the effects of its getting into the soil. On evergreen plants it acts similarly to lime. Another remedy for mildew is sulphur-water; this is prepared by putting the water into a tub or other vessel, to which add 3 oz. to the gallon of flowers of sulphur, letting it stand for three or four days, stirring it up each day: the sulphur will settle to the bottom, leaving the water quite clear, in which state it must be poured off and used, but it must not by any means be allowed to get into the soil, for it is strongly impregnated with the caustic properties of the sulphur.

In getting the plants indoors judgment should be used so as to give the lightest positions to those that bear the softest leaves and make growth in the winter. This more particularly applies to such things as *Boronias*, *Phænocomas*, *Tetrathecas* (*Tremandras*), *Pimeleas*, and *Gompholobiums*. For *Leschenaultias* the night temperature should not often be allowed to fall below 45°. From 35° to 40° will be enough for the general stock. Elevate the whole near the glass, and do not overcrowd them, so as to deprive their bottom leaves of the light necessary to maintain their vitality as long as possible; at the same time, the lighter the houses in which the plants are wintered the closer they will bear placing. Such things as *Epacrises* and *Eriostemons* will bear a lower temperature without injury to their leaves than most others. If no separate houses exist for wintering *Heaths* they should be placed at the coolest end of the hard-wood plant house, and, by giving the most air at the end they occupy, this can in some measure be managed; but if a separate house can be afforded them it is much the best plan, as, wherever plants that require treatment somewhat different are placed in the same house, it ends in a compromise not exactly suited to the requirements of either. There is no better season in the year to pot Heaths than the present, especially as soon as they are taken indoors, which always has the effect of slightly exciting growth, both in branch and at the roots; the drying influences of the weather are also reduced, which gives the plants an opportunity of getting into the new soil before much water is required, which is a great advantage. In the selection of soil for Heaths there should be some difference made for the different sections of the extremely hard and slow growing varieties, of which *Erica aristata*, *æmula*, *Devoniana*, *eximia*, *ferruginea superba*, *Lindleyana*, *McNabiana*, *retorta major*, *Savilleana*, *venosa*, *Massoni*, most of the *tricolors*, and *Marnockiana*, are representatives; they require a close hard peat, containing less fibre, not so much of a spongy nature, and with more sand in it, either naturally or added. *E. Austiniana*, *Jacksonii*, *Irbyana*, *Parmentieriana*, the *Aitonianas*, *Cavendishiana*, the *ventricosas*, and *cerinthoides*, belong to a section not so hard in the wood, easier to grow, and which will succeed better in peat not quite so close, and consequently richer in fibre with a little less sand in it. On no account remove any plant from the pot it has occupied without first ascertaining that the soil is moistened through, for if dry in any part of the ball it is scarcely possible to moisten it afterwards. If when any plant is turned out of its pot it is unexpectedly found with a portion of the soil in this dry condition, which will sometimes happen, through the water finding its way down one side—before attempting to transfer it to the new soil it must be soaked by immersion in a vessel sufficiently large to admit of plunging the ball in it for some hours until it is thoroughly wet through; the plant should then be placed on the potting bench for twelve hours, so as to allow the superfluous water to drain off before it is potted, otherwise the new soil will be

in some measure saturated from coming in contact with the wet ball. This dry condition rarely occurs where the plants have been well and evenly potted, but if by any means the soil at the previous potting has been rammed harder at one side than the other, the water gradually finds its way down the looser side, ending in the state described. At this season the plants after potting will not require any shading, but should not for two or three weeks receive any side air if the weather is dry and warm.

Azaleas.—The plants that flowered early, and were started into growth at once, will by this time have completed it and set their buds, and will now be in a condition for removing out of heat. These will consist of the ordinary forcing kinds, of which *Fielder's White* and the *old White*, *coccinea*, *Queen Victoria*, and *Flag of Truce* (double), are amongst the best that are used for early work in producing flowers for cutting, and for conservatory decoration. They do not require much training or tying. The later flowering plants should be at once tied into the required shape. If this is done now, before the growth is complete, the points of the shoots will assume their natural upright position, which will not be the case if the tying is deferred until after the growth is complete and the wood has become quite hardened.

Camellias.—Where these plants have by necessity been turned out-of-doors after their buds were set (a practice that should never be resorted to if it can be avoided), they should be taken in before there is danger from frost or drenching rains, either of which will often cause the buds to fall. If at all affected with scale, either brown or white, they should have a thorough cleansing. A tooth-brush and sponge are the best utensils for removing these insects. A calculation should now be made as to the time when the flowers will be wanted and of the corresponding state of the buds, and if at all backward for the required time the plants should be placed in a house which is kept slightly warmer than an ordinary greenhouse, with a little moisture in the atmosphere; but there must be no attempt at forcing, or the result will be, in all probability, the flowers falling before they open.

SOFT-WOODED GREENHOUSE PLANTS.—*Chrysanthemums* should have their final staking and training. For general decorative purposes the ordinary upright bush fashion is the best, using just as many and no more sticks than necessary to keep the plants in shape. Where good flowers are wanted all the small lateral side branches should be removed from the principal shoots, which latter must be retained in numbers proportionate with the size of the flowers required. If some really fine blooms are wanted of the large varieties, from three to half a dozen shoots are enough, thinning the flowers to a single bloom to each shoot. This thinning should be done as soon as the flowers are large enough to get hold of. The small varieties should also be sufficiently thinned—their blooms will in consequence be much superior, standing longer on the plants than when allowed to remain with more than they can well support. Give plenty of manure water; they will bear it as strong as any plant in cultivation. Syringe them every afternoon overhead, this will keep down greenfly, and preserve the foliage fresh and green down to the base, without which they have a poor appearance; but to retain their leaves as they ought the plants must never be allowed to become anything approaching an over-dry condition. Encourage those most useful winter flowering plants, *Cyclamens*, to make free growth; they do much the better by being treated as intermediate house plants with a little warmth. Seeds sown in the course of the summer will now require potting; some growers use peat, others loam and they will succeed in either. If good loam can be got, with a fair amount of fibre and a good sprinkling of sand, it is in some ways preferable. As soon as the young plants are large enough to handle, pot them into 60's, giving sufficient drainage; a small pit where they can be kept near the glass, with a closer atmosphere than for ordinary greenhouse plants will answer best for them. They should as they require it be shifted into pots a size larger, and be kept continuously growing. The old system of drying them off should never be attempted. Where they are so grown they do not do well. The principal lot of bulbs, consisting of *Hyacinths*, *Narcissus*, *Tulips*, and *Crocuses*, should be at once got, if not already done, and potted. The main thing to be observed is to secure good well-matured bulbs, and to pot as soon as there is any disposition to growth. Plunge the pots in a good bed of ashes under a wall where they can be protected from frost, from whence, when sufficiently rooted, they can be transferred as required to the forcing-pit. *T. Baines, Southgate, N.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—At last the rain has come, and in considerable quantity. A fortnight ago the turf was so burnt and dried up that it looked as if it could never recover; with the rain, however, there has been, as it were, a resurrection of the dried grasses, and now all is as fresh and green as if there had been the most glorious rains all the summer. Unfortunately, though, by reason of the wet, the flowers are almost *nil*—*Pelargoniums* looking especially seedy, *Calceolarias* also are gone, but *Petunias*, *Verbenas*, and *Tropæolums* are bright as ever. The foliage beds have never been brighter all the season than now, indeed we are more than ever enamoured of them, and in spite of predictions to the contrary, foliage or "carpet" gardening must still flourish. Our most effective beds are composed of the following eight varieties of plants (of course worked in various designs, of which I may say that the simpler they are the better):—*Alternanthera amœna*, *Stellaria graminea aurea*, *Sempervivum calcareum*, *Echeveria secunda glauca*, *Mesembryanthemum cordifolium variegatum*, *Alternanthera amabilis latifolia*, *Chamæpeuce Casabonæ*, and *Agave americana variegata*; the two latter are used as "settings" in the parterre, and break somewhat the unavoidable formality of this kind of bedding. Pick off all decaying flowers and foliage soon as perceived, and now that the garden has reached the maximum of beauty for the season, try to prolong its beauty, and consequent enjoyment, by increased assiduity in the matter of neatness and order. All propagation ought ere this to be finished, excepting *Calceolarias* and *Violas*, for which there is yet ample time. Cuttings of all kinds must be sharply looked after, to prevent damping off, and all should be fully exposed on fine days to thoroughly harden, in order to successfully winter them. *Roses* will be all the better for having the bad flowers cut off, and the stocks recently budded should be examined, the ligatures loosened or removed altogether, as required. Cuttings of well ripened wood will strike readily in the open ground inserted at this season. The bulb season has begun, and these should be procured at once, not only to ensure the best roots, but to have them in readiness for planting the moment the beds are cleared of their summer occupants. Annuals may still be sown in patches where they are intended to flower, the only care required by them is thinning out soon as large enough to handle. The best plants now in flower in the hardy herbaceous border are *Sedum Telephium purpureum* (a plant not nearly so much grown as it deserves to be), *Tritoma Uvaria*, *Bocconia cordata*, *Solidago altissima*, *German Asters* and *Phloxes* of various species. All these are fine autumnal-flowering plants, and should have a place in every garden. Clear off dead flowers, and tie up any plants requiring support in this department. Mowing and rolling must now again have attention, there is nothing so effective as this for getting rid of worm casts, generally so troublesome from this time to the advent of severe frost. *W. Wildsmith, Heckfield.*

FRUIT HOUSES.

MELONS.—Considerable attention is now necessary to plants just swelling their fruits, to guard against canker at the collar and in the old growths, and also to prevent the cracking of the fruits. The complete remedy for either of the foregoing evils has been previously pointed out. In case, however, that the cultivator has not been a very diligent reader, it may be well to again state that freshy-slaked lime applied on the first appearance of canker, pressed well into the affected parts, repeating the application if it becomes necessary, will invariably arrest the further progress of the disease; while in regard to cracked fruits, less water, both at the roots and in the atmosphere, is the proper remedy. A mean temperature of summer heat must still be secured, and the supply of moisture gradually reduced, or canker and cracked fruits will be the rule and not the exception. The syringe must now only be used on very bright warm days, and then very slightly—indeed, it is almost better to discontinue the syringe altogether, and rather employ a periodical dusting of flowers of sulphur amongst the foliage and on the pipes, as an antidote to red-spider. Earth up the last batch directly the fruits begin to swell, and remember what has been previously said about securing a number of fruits, on individual plants, of a simultaneous growth. Use the knife freely to admit all the sun possible. The remarks as to syringing are especially applicable to pits and frames, the foliage of plants growing in which must now seldom be wetted, and water at the root be very sparingly used. Renovate the linings to finish off the crop directly the heat is found to be on the wane, and employ a covering on cold nights. Beware of slugs as the fruits ripen. *Thomas Simpson, Broomfield.*

CUCUMBERS.—Advantage should now be taken of any spare moments to collect a goodly quantity of cowdung. It is a good plan to spread it thinly over the floor of a dry shed, and then give it a good coating of freshly slaked lime; allow it to remain thus for a week, after which turn it bottom upwards and repeat the coating of lime—the object of which is to kill worms and grubs, which would otherwise eventually prove a source of much mischief. Continue the preparation of the fermenting materials also, whether dung or tan; the former will require to be well turned every three or four days, while the latter is best turned only once, and that so soon as it is fairly warm through: whichever material be employed in making the beds let it be fairly rammed down. Keep young plants near the glass to ensure a sturdy growth, and nip out the growing points at the second rough leaf. Continue to harvest the seed as it ripens. Many of the best kinds of Cucumbers are very shy seeders, and the only means of perpetuating the stock is by cuttings. It is now a good time to put in a batch of those kinds that it is desirable to retain; plunge in a brisk bottom-heat and cover with a bell-glass for a week. Cuttings grow more sturdy than seedlings, and come into fruit earlier; this, however is not much advantage. Use the syringe, now and henceforth, very sparingly, and, in any case, let it be done directly after dinner-time. Maintain a mean temperature of 76° in pits and frames, be very sparing with moisture, and only on bright days sprinkle the foliage. Husband a good sun-heat by closing early, and employ constantly flowers of sulphur. *Thomas Simpson, Broomfield.*

HARDY FRUIT GARDEN.

There is but little which requires to be done in this department at the present time, with the exception of attending carefully to fast ripening fruit of various sorts, and this, after all, is about the most satisfactory and important part of fruit culture, and ought to be by no means neglected. Trees upon the walls ought to be examined every morning, and all *Peaches*, *Nectarines*, *Figs*, *Plums*, &c., should be removed as soon as ripe. It is generally considered that such fruit as the *Peach*, *Nectarine*, and the finer sorts of dessert *Plums*, are improved in flavour rather than otherwise by the detention of a few days (not too many) on the shelves of a well ventilated fruit-room. On account of the dry weather so long experienced, and the consequent scarcity of insect food, birds of various sorts are exceedingly destructive to nearly all kinds of fruit — *Apples*, *Pears*, *Plums*, &c., being indiscriminately attacked by them, so that it becomes quite necessary to gather them as soon as they are fairly ripe. All sorts which it is found necessary to allow to hang upon the trees for some time to come, such as *Morello Cherries*, late *Peaches*, *Coe's Golden Drop Plums*, and other late sorts, should be securely netted up. Gather the earlier kinds of *Apples* and *Pears* as fast as they become ripe, and place them carefully upon the shelves of the fruit-room. Considerable care should be exercised in the gathering of these fruits, as well as in selecting the proper time for doing so; as if gathered too soon they will shrivel, and if allowed to remain too long upon the trees the flavour is deteriorated, and the fruit will not keep so well; such also will be the case if the fruit is bruised or injured in any degree when being taken from the trees. It should, further, be placed thinly upon the shelves; indeed the paucity of the Apple crop in most places will this season render it quite unnecessary to place the fruit otherwise than in single layers. Fruits which may have been injured by birds or insects, however slight the injury may be, should never be stored amongst the undamaged samples, but should be placed by themselves, and will be found useful for present consumption. For the last time go over all cordon and espalier trained trees, as well as trees trained to walls, &c., and remove all unnecessary shoots, and nail or tie in others, so as to give the ripening fruit, as well as the young wood and spurs, the full influence of sun and air. Plantations of *Strawberry plants* which may have been formed by plants which had been forced during the preceding winter and spring will now be in bloom, or about setting their fruit for an autumnal crop, and should this be considered worthy of preserving, the fruit will soon require the protection of nets to keep the birds from it. The present season, however, has been by no means favourable for this catch crop, as it may be termed; and if its present appearance warrants the assumption of its being unworthy of the necessary trouble of preserving it, the blooms may be at once cut off, together with all runners formed by the plants, so as to give to them increased strength to enable them to produce a satisfactory crop next season. *Autumnal Raspberries* will also soon begin to ripen their fruit, and will, in all localities where birds abound, require the protection of nets. In many establishments this crop of fruit proves exceedingly useful. The plantation should be formed in an open situation, and the soil should be liberally enriched at the time of its formation; and as soon as the fruiting season is fairly over, the canes should all be cut down close to the surface of the soil, while the young canes should be carefully selected in spring, cutting away all weak or superfluous ones. *P. Grieve, Culford, Bury St. Edmunds.*

THE ORCHARD-HOUSE.—In this structure *Fig trees* in pots will now be swelling off their second crop of fruit, and should be placed together in the warmest part of the house and liberally supplied with water, and occasionally with well diluted manure-water. *Late Peaches*, *Nectarines*, and *Plums* should also be placed together, or in situations where they may be freely syringed until the fruit begins to show symptoms of ripening, when it must be discontinued until the fruit is gathered, when the trees may all be placed for a time in the open air, and syringed every night, if the weather keeps dry, and they are at all infested with

red-spider or aphides. Planted-out trees of all kinds should also be well cleaned with the syringe as soon as the fruit is gathered from them, and should not be allowed as yet to become very dry at the roots. Let the ventilators remain open night and day, having the openings covered with the hexagonal netting or some similar material, so as to exclude insects and birds; and during very windy weather the ventilators may also be partially or altogether closed if necessary. *P. Grieve, Culford, Bury St. Edmunds.*

FORESTRY.

Most of the different classes of young forest plants in nursery grounds will now be in a sufficiently matured stage to judge whether or not they are suitable for the purposes required in the ground allotted to be planted. As it is always important to be early in the market, intending purchasers should therefore endeavour to look over the various assortments in the nurseries, and secure a selected supply. Continue to fence, drain, and make ready pits for planting in soft, grassy places, which are not uncommon in muirland wastes. Plants which are inserted by the usual mode of notching, and consequently, being of small size, very commonly die off from the want of sufficient air, although the soil in these patches is generally of superior quality. The most effectual way to get over the difficulty is to have the ground pitted, and put in plants whose tops are sufficiently high to be clear of the summer growth of the surrounding herbage. This larger class of plants, in addition to the superior description of ground, is, however, very apt to get away too fast for the other plants of the plantation, and a cheaper plan is more commonly resorted to, viz., to pare off a sod about 15 inches wide, and insert the plant in the centre. Another method sometimes adopted is to place three or four sods, green side undermost, so as to form a little hillock for each plant, which is then put in by notching. These two latter plans give a better chance of all growing up on the same level in height—a great desideratum in coniferous trees, where Nature does all her own work in pruning. These little mounds are also well suited for wet patches which cannot be well drained, and are mostly dry in summer. When the trees can be got established in such places, the roots dry up the superabundant moisture and grow freely afterwards. Clean hunting and shooting roads in forest. See that open ditches do not get choked by gross weeds, and branches blown down by high winds. Look over culverts in case of obstruction from a similar cause. Seed of the Acer class of trees is now in a ripening stage, and should be looked after. *J. Webster.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPT. 16, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
Sept.	In.	In.	°	°	°	°	°	°			In.
10	29.49	−0.41	65.6	45.9	19.7	53.6	− 4.1	47.6	80	WSW	0.05
11	29.45	−0.45	64.5	50.0	14.5	55.9	− 1.7	55.5	99	WSW	0.21
12	29.55	−0.34	66.2	48.6	17.6	56.4	− 1.1	48.9	76	WSW : N.	0.00
13	30.05	+0.17	66.6	44.7	21.9	54.2	− 3.1	49.5	84	W. : N.E.	0.00
14	30.18	+0.30	68.8	45.7	23.1	54.7	− 2.5	49.9	84	S.E. : S.W.	0.00
15	29.96	+0.10	69.4	50.2	19.2	58.6	+ 1.5	53.2	83	S.W.	0.00
16	29.79	−0.07	69.6	51.9	17.7	59.3	+ 2.4	55.2	86	S.W.	0.00

Sept. 10.—The amount of cloud varied continually. Occasional showers of rain.
— 11.—Overcast. Frequent rain.
— 12.—Generally cloudy till evening, then cloudless. A fine day.
— 13.—Cloudless and very fine in morning, partially cloudy after noon. Lowest reading of thermometer on grass, 35½°
— 14.—Generally cloudy and hazy till evening; cloudless afterwards
— 15.—A very fine day; small amounts of light cloud were at times present till night.
— 16.—The amount of cloud was large, and the weather dull throughout the day.

—— In London and its suburbs the reading of the barometer, at the level of the sea, at the beginning of the week was 30.03 inches. It decreased to 29.98 inches by the evening of the 6th, increased to 30.04 inches by the morning of the 7th, decreased to 29.58 inches by noon on the 9th, increased to 29.76 inches by the morning of the 11th, decreased rapidly to 29.52 inches by 9 P.M. on the same day, and was 30 inches at the end of the week. The mean reading for the week was 29.79 inches, being 0.30 inch below the average of the corresponding week, as deduced from observations extending over eighteen years, and on the 9th, 10th, and 11th the mean daily readings were respectively 0.57 inch, 0.41 inch, and 0.45 inch in defect of their averages.

The highest temperatures of the air in the shade were all between 60° and 70°, the mean value for the week being 65¼°. The lowest temperatures of the air at night ranged from 46° on the 10th to 56° on the 8th, with a mean of 50¼°.

The mean daily temperatures of the air varied but little from their averages; the values with differences from the respective mean readings being as follows:—6th, 54°.8, − 3°.1; 7th, 58°.3, + 0°.5; 8th, 59°.9, + 2°.1; 9th, 55°.7, −2°; 10th, 53°.6, −4°.1; 11th, 55°.9, −1°.7; 12th, 56°.4, −1°.1.

On the 10th a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, read 132°; but at other times the readings did not exceed 120°, and on the 11th the highest temperature recorded by this thermometer was only 71°. The lowest reading at night of a thermometer placed on grass, with its bulb fully exposed to the sky, was 37° on the 10th, and on the other nights the readings did not fall below 40°.

On the 6th, 7th, and 11th the sky was generally overcast, and on the other days large amounts of cloud were prevalent.

The general direction of the wind was W.S.W. Its strength was brisk on the 9th, 10th and 11th, the greatest pressures on these days being respectively 9½ lb., 14½ lb., and 9 lb. on the square foot; but on the remaining days light winds were experienced.

Rain fell more or less on every day except the 12th; the total amount collected was 0.80 inch.

A thunderstorm occurred on the 9th, between 4 P.M. and 5 P.M.

In England the extreme high temperatures observed by day ranged from 76° at Sunderland to 61° at Liverpool, the general average over the country being 66¼°. The extreme low temperatures observed by night varied from 47° at Liverpool to 43° at Nottingham and Eccles, with a general average of 44½°. The mean range of temperature from all stations was 21½°, varying from 31° at Sunderland to 14° at Liverpool. The mean high day temperatures ranged between 67¼° at Sunderland and 60¼° at Liverpool and Newcastle-on-Tyne, with an average value of 62¾°. The mean low night temperatures varied from 51¼° at Liverpool to 46½° at Newcastle-on-Tyne, the general average being 49½°. The mean daily range of temperature was 13¼°; the greatest occurred at Sunderland, 18¼°, and the least at Liverpool, 8¾°. The mean temperature of the air for the week was 54¾°, the highest being at Blackheath and Sunderland, 56¼°, and the lowest at Newcastle-on-Tyne, 52°. The rainfall over the country during the week was remarkable. The following are the amounts measured at the several stations, with the number of days on which it fell:—

Stations.	Amount.	No. of Days.	Stations.	Amount.	No. of Days.
	In.				
Portsmouth ..	1.38	7	Liverpool ..	0.93	6
Blackheath ..	0.80	6	Manchester ..	1.43	5
Bristol ..	3.31	7	Eccles (Salford) ..	1.31	7
Wolverhampton ..	1.49	6	Bradford ..	0.86	5
Birmingham ..	1.13	7	Leeds ..	0.66	5
Leicester .	1.04	7	Hull ..	0.63	5
Norwich ..	0.98	4	Newcastle-on-Tyne ..	1.28	5
Nottingham ..	0.61	5	Sunderland ..	0.58	5
Sheffield ..	0.54	6			

At Bristol the amount recorded is very large compared with other stations; the following are the amounts which fell during the week:—Sunday, 0.30 inch; Monday, 0.28 inch; Tuesday and Wednesday (together), 1.08 inch; Thursday, 0.55 inch; Friday, 0.44 inch; and Saturday, 0.66 inch; making a total fall in the week of 3.31 inches.

The weather during the week was dull and cloudy, with frequent showers of rain.

In Scotland the highest temperatures ranged between 66° at Paisley and 61° at Perth, the general average being 63¾°. The lowest temperatures varied from 44° at Paisley to 38° at Perth, with a general average of 41°. The mean range of temperature in the week was 22¾°. The mean temperature for the week was 53°, the highest being at Leith, 53¾°, and the lowest at Aberdeen and Perth, 52°. The amounts of rain measured at the several stations during the week varied from 1 9/10 inch at Aberdeen to four-tenths of an inch at Dundee and Leith; the average fall over the country was about 1 inch.

At Dublin the highest temperature was 65¼°, the lowest 43°, the mean 54°, and the rainfall three-quarters of an inch.

JAMES GLAISHER.

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

4. SULPHUR FOR GARDEN WALKS.—I observed some time ago, when in Cornwall, that the garden walks were beautifully free from weeds, said to be so from using the rough sand from the copper mines, which contained sulphur. Would some sort of coarse sulphur be of the same service? What would be the commercial name, and where to obtain it? Any information would oblige. *An Old Subscriber.*

5. THISTLES AND COLTSFOOT.—Would you kindly ask your readers the best means of exterminating Thistles and Coltsfoot in a pasture where Deer and a few English and Brittany sheep are kept? *Camjee.*

6. FINGER-AND-TOES IN THE BRASSICA TRIBE.—Can any of your readers give me a cure for this pest? In the district where I reside, where the soil is of a peaty nature, this root disease is common. We also suffer from the Onion-grub, and a crop of Onions in this neighbourhood is the exception, not the rule. *Aldershot.*

7. VIBURNUM MACROCEPHALUM.—Will some of your correspondents be good enough to inform me on what stock this is either budded or grafted, or how increased? I have tried many ways without success. *G. W.*

8. LAWNS BECOMING BROWN.—May I ask if any of your correspondents will kindly give me their opinion why my lawn, which stands high and dry, with good slope, and on red sandstone, gets patched all over with brown patches? Apparently, from the elevated situation and the sandy subsoil, drainage cannot be required. *Verax.*

Answers to Correspondents.

EASTERMAN GIANT (Q. 1, p. 344): *J. A. C.* An article on this plant will be found at p. 355.

STRAWBERRY JAM (Q. 2, p. 344): *S. Y. A.* Boil the fruit and sugar together, in a quick boil, for fully one hour; leave the vessels in which it is put exposed to the air for some weeks without covering closely, merely protected with some light matter from wasps, dust, &c. *A. Grubb, Glenam.*

ARTIFICIAL MANURES: *Constant Reader.*—Apply in spring, after growth has commenced. It is too late to use them beneficially this season.

BOOKS: *T. C. Williams.* Get Baltet's *The Art of Grafting and Budding*, published by Mr. Robinson, 37, Southampton Street, W.C., and Rivers' *Miniature Fruit Garden* (Longmans).

CELERY MILDEW: *J. C. S.* This is the worst case we ever saw of the Celery mildew (Puccinia apii). It is very doubtful whether you will get any good Celery from the plants. In this case you had better burn them, for there is no known remedy for the black mildew. *M. J. B.*

CONSERVATORY: *C. O.* Trotman's (Isleworth, London) gas stove would probably suit you.

DRACÆNA COOPERI: *An Inquirer.* Cut the heads off, and strike them in heat. The stems may be cut into pieces like Vine cuttings, and struck in the same way in heat. The roots also will grow if cut into bits and set in cocoa-nut fibre.

FUNGUS: *G. S.* The name of your plant is Agaricus naucinus, and you are right in considering it near A. cepæstipes, as it belongs to the same sub-genus. The fact of your eating it "with impunity" is interesting, but it is known to be edible, having been tried at Hereford and elsewhere with satisfactory results.—*J. S. S.* There is little fear of mistaking Lycoperdon giganteum for any species, if attention be paid to its size and smooth skin (latter like white kid leather). If the flesh is perfectly white when broken (like crumb of bread), and it is cooked in a delicate and proper manner, it is second to no other fungus.

HEATING A SMALL GREENHOUSE: *H. C. B.* There are stoves that can be heated either by oil or gas, which would answer your purpose very well. Consult our advertising columns.

HERBACEOUS PLANTS: *T. W.* Strictly speaking, Agapanthus and Vallotas are herbaceous, as distinguished from trees or shrubs; but they are not the plants usually so called by gardeners. Unless, therefore, bulbs or tender plants are excluded by the wording of the schedule, we should hold them admissible.

MALFORMED PEAR: *G. B.* In your fruit the top of the flower-stalk and the base of the calyx are fleshy, while the true fruit (the core) is not formed. Such cases are not uncommon.

MELONS: *Nemo.* We have carefully examined your Melon plants. We do not find that the roots are diseased, but in four that you have sent, the stem, where it is given off from the roots, is highly diseased, and were the disease less, as it probably was some weeks since, it would be quite enough to account for the condition of your plants. In one case we find a strong deposit of lime at the base, which effervesced strongly with sulphuric acid. We should imagine from this circumstance that your water is impregnated with lime. If so, we should recommend your using

rain-water. This might account for the disease. *M. J. B.*—*J. B.* This seems to be an earlier stage of the same disease as the last. There are no less than three diseased patches in the inside of the base of the stem. Up to a certain point vegetation would go on, but ultimately the bad effects must become visible either in the foliage or fruit. It is impossible to say what the cause may be. This could be ascertained on the spot only where the plants were grown. Seed from unhealthy plants should never be used. *M. J. B.*

MR. HUNTER'S GRAPES: *E. Wilson.* We do not know whether a photograph can be obtained of the large bunch of Grapes shown by Mr. Hunter at Belfast (we could not get one), but we understand that an illustration of it will appear in the next number of *The Gardener*.

NAMES OF FRUITS: *J. H. G. Pears:* 1, Beurré d'Amanlis; 2, Passe Colmar; 3, Fondante d'Automne; 4, Beurré Clairgeau; 5, 6, not certain of at present; 7, Beurré Hardy.

NAMES OF PLANTS: *J. P. McM.* Carex vulpina.—*James Miller.* Geijera salicifolia.—*C. D.* Streptocarpus Rexii.—*W. S. McD.* 1, Liatris spicata; 2, Ribes (specimen insufficient); 3, Solidago (specimen insufficient); 4, Phygelius capensis; 5, Aster (specimen insufficient); 6, Viburnum opulus; 7, Monarda didyma; please send better specimens another time.—*J. W.* Bryonopsis erythrocarpus.—*H. Terry, Didlington.* A fine variety of Abutilon venosum.—*J. McRae.* Polygonum orientale, the Garden Persicary.—*W. T. P.* An Asplenium, too imperfect to determine.

PETUNIA: *E. G. Henderson & Son.* The Petunia is very striking, the segments being veined in the central portion, and more strongly coloured at the edge with plum-purple. It appears to be quite a novelty; we have seen nothing like it.—*C. H. S.* Curiously marked, but very coarse and rough.

ROSES FOR FORCING: *A. B. Teas:* Alba rosea, Devoniensis, Louise de Savoie, Madame de St. Joseph, Madame Falcot, Madame Jules Margottin, Monsieur Furtado, Niphetos, Safrano, Souvenir d'Elise Vardon, Souvenir de Paul Néron, Madame Margottin, Céline Forestier (*Noisette*), Souvenir de Malmaison (*Bourbon*). *Hybrid perpetuals:* Fisher Holmes, General Jacqueminot, Madame Victor Verdier, Beauty of Waltham, Sénateur Vaisse, Duke of Edinburgh, Marie Baumann, Prince Camille de Rohan, Madlle. Marie Rady, Dupuy Jamain.

SPOTS ON LEAVES: *P. P., Sen.* The spots on your leaves are Erineum vitis, formerly considered a fungus, but now regarded as diseased hairs. Kirchner considers that they are produced by a very small mite, Phyllereus vitis. We cannot impress too much on persons who send specimens not to pack them in wet moss, but in thin paper, taking care that they are so closely packed as not to shift about, but not so closely as to injure the specimens. *M. J. B.*

VERBENAS: *B. H. V.* There are many named varieties of the same colour, and with larger flowers.

VINES: *W. D. F.* Your Vines are suffering through a sort of extravasation of sap on the under surface of the leaves, having the appearance of fungoid growth. It is caused through keeping the atmosphere of the house too close and moist. Ventilate more freely, and this affection will disappear.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisments should be addressed to the Publisher.*

CATALOGUES RECEIVED.—E. G. Henderson & Son (Wellington Road, St. John's Wood, London, N.W.), Catalogue of Bulbs, Flower Roots, Roses, and Fruit Trees.—William Bull (King's Road, Chelsea), List of Bulbs and Tuberous-rooted Plants.—Wood & Co. (Worcester), Descriptive Catalogue of Dutch Flower Roots.—John Scott (Yeovil), Catalogue of Flower Roots.—Peter S. Robertson & Co. (33, St. Andrew Square, Edinburgh), Catalogue of Dutch Flower Roots.

COMMUNICATIONS RECEIVED:—Inquisitive.—W. S., Perth.—Sir W. C. T. (thanks).—A. B. B.—C. H. S.—John P., Chepstow.—A. B.—A Subscriber, Benton Grange.—B. H. V.—M. S.—W. E.—H.—J. A.—S. J.—H. W. J. (if you send them, half-a-dozen at a time, we will name what we can for you).

Markets.

COVENT GARDEN, September 17.

There is no change to report here. The trade is still very quiet. *Thos. Taylor, Wholesale Apple Market.*

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, green, ca.	0 3–	0 6	Lettuces, per doz.	1 6–	..
Beans, Fr., per bush.	5 0–	..	Mint (green), p. bun.	0 6–	..
— Scarlet, do.	3 0–	5 0	Mushrooms, per pott.	1 0–	2 6
Beet, per doz.	1 0–	2 0	Onions, young, bun.	0 4–	0 6
Broccoli, p. bundle	0 9–	1 6	Parsley, per bunch	0 4–	0 6
Brus. Sprts., ½ sieve	3 6–	..	Parsnips, p. doz.	0 9–	1 0
Cabbages, per doz.	2 0–	3 0	Peas, per quart	1 0–	2 0
Carrots, new, p. bun.	0 4–	0 6	Radishes, per bunch.	0 2–	0 4
Cauliflowers, per doz.	2 0–	6 0	— black, Turnip, do.	–	0 6
Celery, per bundle	1 6–	2 0	Shallots, per lb.	0 3–	..
Cucumbers, each	0 6–	1 0	Salsify, per bundle	1 6–	..
Endive, per doz.	1 0–	2 0	Spinach, per bush.	2 0–	3 0
Herbs, per bunch	0 2–	0 4	Tomatos, per doz.	1 0–	3 0
Horse Radish, p. bun.	3 0–	5 0	Turnips, per bundle	0 3–	0 4
Leeks, per bunch	0 2–	0 4	Veg. Marrows, doz.	1 6–	2 0

New Potatos:—Round, 60*s.* to 100*s.* per ton; Kidneys, 90*s.* to 120*s.* per ton.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0–	1 6	Nectarines, per doz.	2 0–	6 0
Cherries, Morellos, per lb.	0 6–	2 0	Nuts, Cob, p. lb.	1 0–	1 6
Currants, p. ½-sieve	4 0–	..	Oranges, p. 100	16 0–	20 0
Figs, per doz.	1 0–	3 0	Peaches, p. doz.	2 0–	10 0
Filberts, per lb.	1 0–	1 6	Pears, p. doz.	2 0–	3 6
Grapes, English, p. lb.	2 0–	6 0	Pine-apples, p lb.	3 0–	6 0
— Muscats, do.	2 6–	6 0	Plums, ½-sieve	1 6–	2 0
Lemons, per 100	12 0–	20 0	Strawberries, p. lb.		..
Melons, each	2 0–	3 6	Walnuts, p. bush.	16 0–	..

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, per doz. bunches	3 0–	6 0	Pelargoniums, per 12 sprays	0 6–	1 0
Corn-flower, p. doz. bunches	2 0–	6 0	Pelargoniums, Zonal, per 12 sprays	0 3–	0 9
Eucharis, per doz.	4 0–	9 0	Pinks, mixed do.	2 0–	4 0
Escholtzia, p. 12 bun.	2 0–	6 0	Roses, indoor, p. doz.	1 0–	6 0
Gardenias, p. doz.	3 0–	9 0	— Outdoor, do.	0 4–	1 0
Gladiolus, doz. sprays	0 6–	1 6	Spiræa, per 12 sprays	1 0–	2 6
Heliotropes, per doz. sprays	–	0 6	Stephanotis, 12 sprays	3 0–	9 0
Mignonette, 12 bun.	2 0–	6 0	Tuberoses, p. doz.	1 0–	2 0
			Violets, p. doz. bun.	0 6–	1 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Balsams, p. doz.	3 0–	9 0	Heaths, in var., do.	12 0–	30 0
Begonias, do.	6 0–	12 0	Liliums, in var., each	1 0–	3 6
Bouvardias do.	9 0–	18 0	Mignonette, per doz.	4 0–	6 0
Calceolarias, shrubby	6 0–	18 0	Myrtles .. do.	3 0–	9 0
Coleus, p. doz.	3 0–	9 0	Pelargoniums do.	6 0–	18 0
Cyperus .. do.	6 0–	12 0	do., double .. do.	4 0–	9 0
Dracæna terminalis	12 0–	30 0	do, Scarlet .. do.	3 0–	9 0
,, viridis .. doz.	12 0–	24 0	Rhodanthe .. do.	6 0–	12 0
Fuchsia .. do.	4 0–	12 0	Solanums, per doz.	6 0–	18 0

SEEDS.

LONDON: *Sept. 17.*—Our markets during the past week have been well attended, with a fair amount of business passing. The demand for Trifolium still continues, and the stocks of fine seed being light, prices show no sign of yielding. Winter Tares are in active request and rather dearer, a good inquiry for them having sprung up in the eastern counties. Mustard and Rape seed are both without quotable variation. New Rye for sowing meets with a free sale at full prices. In Clover seeds there is very little now doing. The unfavourable reports of the new crops induce holders to cling to their stocks with great firmness; the level of present prices is considerably higher than that of last season. New French Italian meets with a moderate sale at recent quotations. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the market was quiet, and the value of Wheat, though not quotably lower, was hardly so firm as on Monday last. The supplies of new produce offering were moderate, and those of foreign rather large. Barley was inactive, and prices were not in all instances maintained. Malt was dull, and about the same in price. Oats were firm, and 6*d.* per quarter higher on the week, but not so freely dealt in. Maize remained without especial change. Beans and Peas were steady on former terms. Flour met with a very poor sale, and receded slightly in price occasionally.—Wednesday's market was a quiet one, and little or no change occurred in the value of Wheat, either English or foreign, the supplies offering being only moderate. Barley was dull and inclined to weaken, while malt was almost neglected. But there was some inquiry for Maize as well as Oats, and the quotations for both were well maintained. Beans and Peas were without alteration, as also was flour.—The averages for the week ending Sept. 12 are—Wheat, 47*s.* 2*d.*; Barley, 43*s.* 2*d.*; Oats, 28*s.* 6*d.* For the corresponding week last year—Wheat, 64*s.* 7*d.*; Barley, 43*s.* 8*d.*; Oats, 29*s.*

CATTLE.

At the Metropolitan Market on Monday, there was a much shorter supply of beasts than on that day se'nnight, and especially of choice qualities, consequently these were very dear; and, indeed, all kinds were advanced a little. The number of sheep was also much smaller, and trade more active. In some instances the top quotation was exceeded. Trade was dull for calves at reduced rates. Quotations:—Beasts, 4*s.* to 6*s.* 8*d.*; calves, 3*s.* 10*d.* to 5*s.* 2*d.*; sheep, 4*s.* 8*d.* to 5*s.* 10*d.*; lambs, 5*s.* 4*d.* to 6*s.* On Thursday trade was dull for beasts, and Monday's prices could not be maintained. For sheep the demand was smaller, and the average of prices lower. Trade continues heavy for calves; and for milch cows the demand is more active.

HAY.

From the Whitechapel report we learn that the market has been firm and rather active, while the supplies of fodder offering were fair. Prime Clover made 100*s.* to 127*s.*; inferior do., 75*s.* to 85*s.*; prime meadow hay, 90*s.* to 113*s.*; inferior do., 55*s.* to 75*s.*; and straw, 33*s.* to 42*s.* per load. Cumberland Market quotations:—Superior meadow hay, 118*s.* to 126*s.*; inferior do., 90*s.* to 105*s.*; superior Clover, 100*s.* to 110*s.*; and straw, 40*s.* to 43*s.* per load.

POTATOS.

Borough and Spitalfields markets report increased supplies of Potatos on sale, for which a steady trade has been experienced at former prices. Very few foreign Potatos are on offer:—Regents, 65*s.* to 90*s.*; shaws, 60*s.* to 80*s.*; kidneys, 90*s.* to 120*s.*; rocks, 60*s.* to 70*s.* per ton. Last week's imports into London consisted of four bags from Rotterdam, 1,445 from Antwerp, 500 from Brussels, 19 from St. Nazaire, 102 barrels and 92 sacks from Dunkirk, and 70 tons from Portrieux.

The Improved Imperishable Labels!!!

IMPORTANT NOTICE.

J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.

J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose. The Labels are made of a white metal with RAISED BLACK-FACED LETTERS.

All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

SPECIAL NOTICE.

F. K. BELL'S

IMPERISHABLE METAL LABELS

FOR

HORTICULTURE, WINE BINS, ARBORICULTURE AND MACHINERY.

THE ORIGINAL MANUFACTORY

Of these Labels (which have given such general satisfaction throughout the United Kingdom) has been removed ENTIRELY from Stratford-on-Avon to

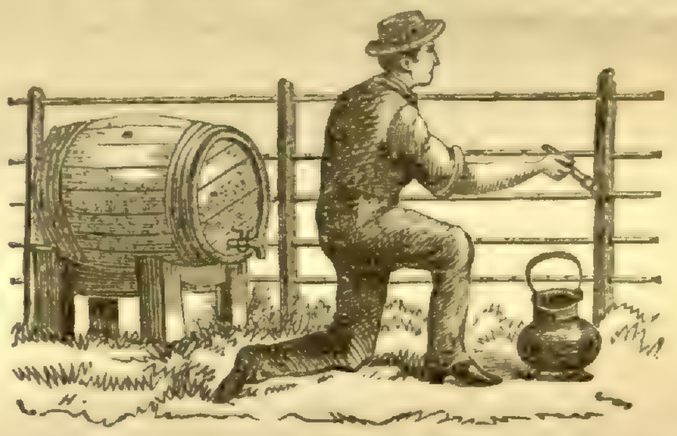
EASTBOURNE, SUSSEX,

Where all Orders should be addressed, and shall receive prompt attention. Catalogues and samples on application.

F. K. BELL,

LABEL FACTORY, EASTBOURNE.

Oil Paint no Longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all outdoor work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

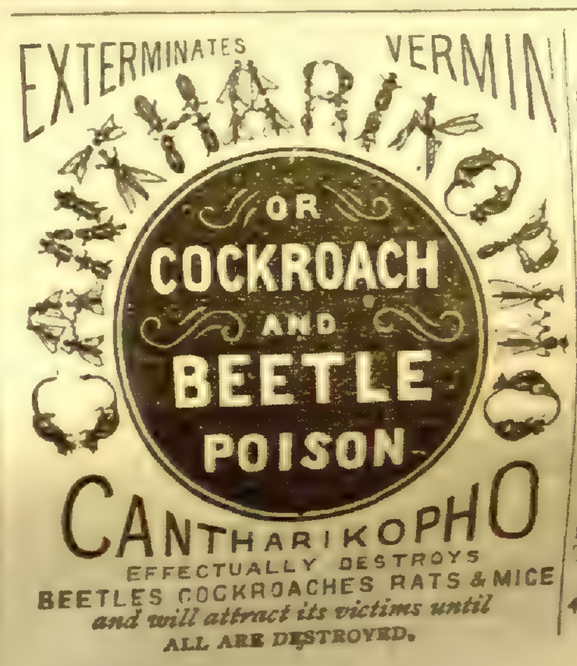
UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.



Is indispensable to Nurserymen, Gardeners, and Housekeepers, and invaluable to Shipowners, Storekeepers, and Warehousemen.

Sold everywhere, price 1*s.* and 1*s.* 6*d.*, and sent post free with directions, for 1*s.* 3*d.* and 1*s.* 10*d.*, by the Proprietors—

WILLIAM ROLLISSON & SONS, Tooting, London, S.W., and at 48, Little Britain.

For Park, Farm, and General Enclosures.

Is in use over many thousand miles,

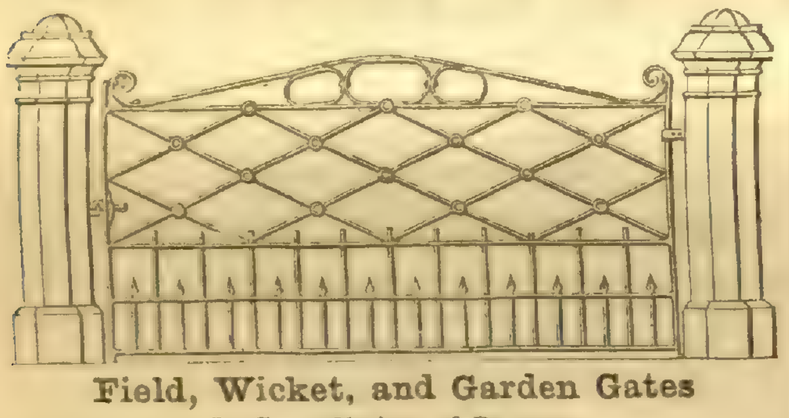
And has been awarded the Silver Medals and Highest Commendations of the leading Agricultural Societies, and forms the most efficient strained iron fence known.

ORNAMENTAL

IRON ENTRANCE GATES, &c.,

IN WROUGHT AND CAST IRON,

Designed for the Mansion, Villa, or Farm;



Field, Wicket, and Garden Gates

In Great Variety of Patterns.

ORNAMENTAL and FIELD HURDLES,

With Round or Flat Bars.

Continuous Bar Iron Fencing,

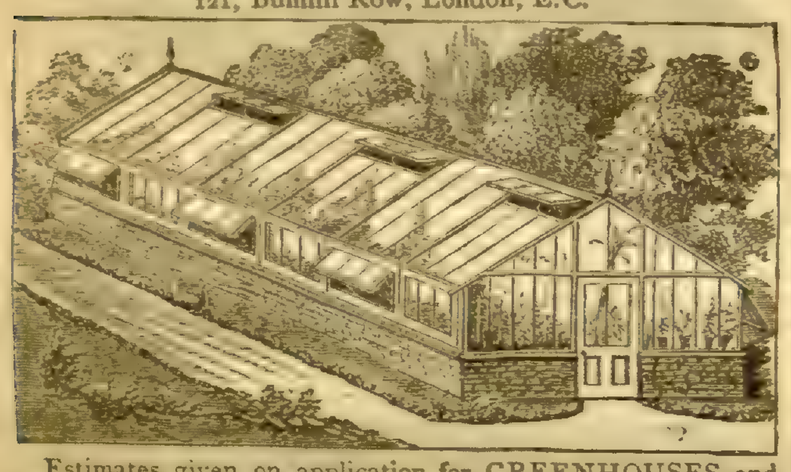
Fitted with F. M. & Co.'s Patent Self-locking Joints, which form a continuous rigid brace from end to end of the Fence, and the most perfect system for securing its efficiency.

F. M. & Co.'s New Illustrated CATALOGUE is now ready, and will be forwarded on application.

LONDON OFFICE—

1, DELAHAY ST., WESTMINSTER, S.W.

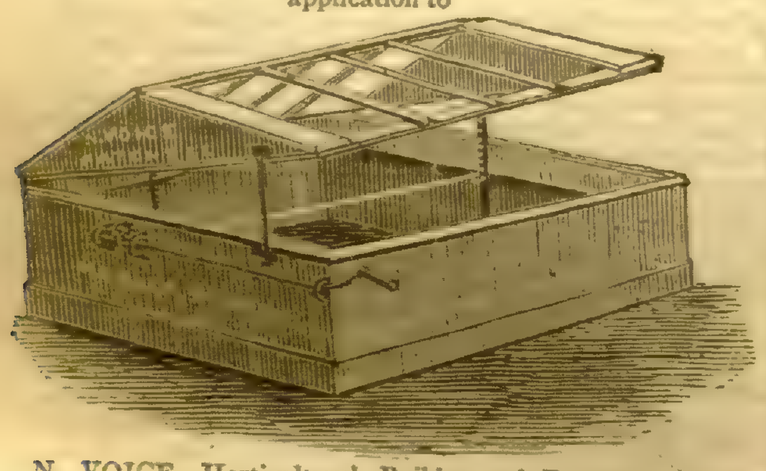
W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

Notice.

(By Appointment to the Royal Horticultural Society.)

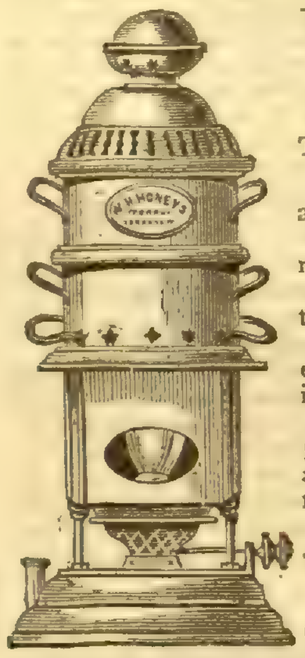
To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

ESTABLISHED 1856.

KEEP OUT THE FROST.



WILLIAM H. HONEY'S PORTABLE

VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

Prices, in block tin, 30*s.*; in copper, 50*s.* Copper, with glass, to give light and heat, 55*s.* Either will be sent on receipt of post-office order.

To be seen in operation at

WILLIAM H. HONEY,

263, REGENT STREET, W.

Catalogue free. No agents appointed.

Works on Botany, by Dr. Lindley.

THE VEGETABLE KINGDOM; or, THE STRUCTURE, CLASSIFICATION, AND USES OF PLANTS. Illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25*s.*, with upwards of 500 Illustrations.

EXTRACT FROM THE AUTHOR'S PREFACE.

'The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be brought by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects."

By the same Author.

INTRODUCTION to BOTANY. Fourth Edition, greatly enlarged; with six Plates, and numerous Wood Engravings. Two Volumes, 8vo, 24*s.*

*** It has been the Author's wish to bring every subject that he has introduced down, as nearly as possible, to the state in which it is found at the present day. In doing so, he has added so very considerable a quantity of new matter, especially in what relates to Vegetable Anatomy and Physiology, that the present Edition may be considered, in those respects, a new work.

DESCRIPTIVE BOTANY; or, THE ART OF DESCRIBING PLANTS CORRECTLY, in Scientific Language, for Self Instruction and the Use of Schools. Price 1*s.*

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE SYDNEY MAIL

AND

NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.

Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

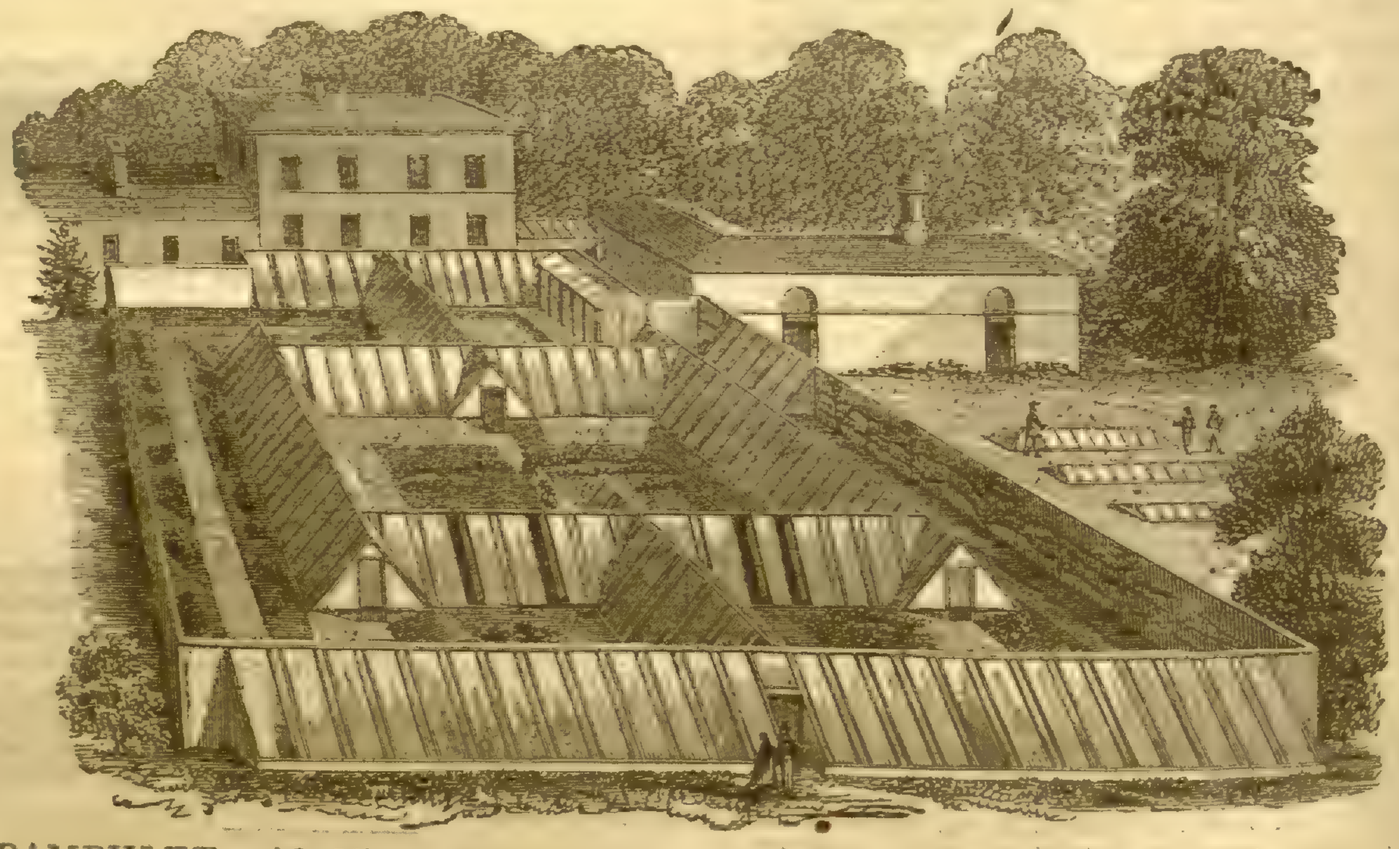
The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

PATENT HOTHOUSES FOR THE MILLION.

MANUFACTORIES in LONDON, GLOUCESTER, COVENTRY, ULVERSTON, ABERDEEN, and PAISLEY, *only.*



A PAMPHLET, with Views of other Glass Houses, and Testimonials, &c. Post Free, 3*d.*

Estimates given to Figured Plans or Rough Sketches, and for HEATING APPARATUS, fixed complete.

A HANDBOOK of VINE and FRUIT TREE CULTIVATION. Post Free, 13*d.* 4th edition.

HEREMAN & MORTON,

Horticultural Engineers,

14, TICHBORNE STREET, REGENT'S QUADRANT, LONDON, W.

THE AGRICULTURAL GAZETTE,
SATURDAY, SEPTEMBER 19, 1874,
Contains—

ORIGINAL ARTICLES on Live Stock Management—Parasitic Diseases of Stock—Poultry Shows—Sites and Soils for Timber—Voice's System of Ventilating (Illustrated)—The Honey Extractor—Notes from Grantham (Illustrated)—Farm Labourers' Cottages—Results of the Lock-out—The St. Leger—Irrigation in Sutherlandshire (Illustrated)—The Effects of Land Drainage—Harvest Reports—The Enclosure of Commons—Horse Fête at Colchester—A Brazilian Farm—The Capital for Intensified Modern Agriculture—Unpatented Tillage Implements—and a Portrait and Memoir is given of

MR. WILLIAM RIGDEN,
OF THE HOVE FARM, NEAR BRIGHTON.

HOME AND FOREIGN CORRESPONDENCE on the New Rating Act—The Sewage Committee of the British Association—Agricultural Notes from Denmark and Sweden.

FARM NOTES AND MEMORANDA from numerous Counties, &c.

REPORTS OF THE MEETINGS of the North Lonsdale, North Shropshire, Kingscote, and Huntingdonshire Societies are given;

ALSO—

The Veterinarian—The Poultry Yard—The Bee-keeper—The Garden of the Farm—Recent Fairs—Forestry—Notes of the Week—Ram Sales—Notices of Books—Markets, &c.

Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

Belgian.

BULLETIN d'ARBORICULTURE, de FLORICULTURE et de CULTURE MARAÎCHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid, 10*s.* per annum.

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

To be published on November 15, 1874,

ANNUAIRE de l'HORTICULTURE BELGE pour 1875 (Year-Book of Belgian Horticulture for 1875), by MM. F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. It will contain a complete List of the principal Nurserymen, Garden Engineers, Seedsmen, and Constructors of Horticultural Implements. Price for Great Britain, post paid, 1*s.* 6*d.*

Advertisements will be inserted at the following terms:—A whole page in 16mo, 13*s.* 6*d.*; half page, 8*s.*; quarter page, 5*s.*; and must be forwarded not later than October 15, to

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

THE COTTAGER'S CALENDAR of GARDEN OPERATIONS. By the late Sir JOSEPH PAXTON, M.P.

Reprinted from the *Gardeners' Chronicle*, with Additions.

Price 3*d.* each, or 5*s.* for 25 Copies for distribution amongst Cottage Tenantry.

Delivered anywhere in London on receipt of a Post Office Order, payable to WM. RICHARDS, at the King Street Office, Covent Garden.

Published at the Office of the *Gardeners' Chronicle*, 41 Wellington Street, Covent Garden, London, W.C.

THE ELEMENTS of BOTANY, STRUCTURAL AND PHYSIOLOGICAL. With a Glossary of Technical Terms and numerous Illustrations. 9*s.* cloth.

This completes the series of Elementary Botanical Works by Professor LINDLEY, of which *School Botany* and *The Vegetable Kingdom* form the other parts.

The first two Parts of *The Elements of Botany*, comprising Structural and Physiological Botany, and a Glossary of Technical Terms, are published in one 8vo volume, price 9*s.*

These three Parts form a complete Manual of Botany for Medical and other Students who have made themselves acquainted with the Author's *School Botany*.

N.B. The Glossary may be had separately, price 5*s.*

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

WANTED, a PARTNER, in the Nursery and Market Gardening Business.—F. P., Nurseryman, Newton-le-Willows, Lancashire.

WANTED, a good GARDENER and WIFE, to live in the house; active, industrious, and of good character. Good wages to competent, intelligent persons.—Full particulars to C. C., The Beacon, West End Lane, N.W.

WANTED, by a Gentleman, as GARDENER, a single Man, not under twenty-three, who has been in a Gentleman's Garden, and who understands thoroughly the Management of Flower and Kitchen Gardening and Greenhouse. One Man kept under the Gardener. No Vineries. State wages received.—Apply by letter only to Mr. G., Lord's Library, Gloucester Road, South Kensington, W.

WANTED, a good WORKING LANDSCAPE GARDENER, capable of Drawing his own Plans.—J. B., Hurst & Son, 6, Leadenhall Street, City, London, E.C.

WANTED, a good plain WORKING GARDENER, understanding Vines and Pits. A single Man, to board in the house; Church of England.—A. B. C., Wilmington Lodge, Hurstpierpoint, Sussex.

WANTED, as NURSERY FOREMAN, a thoroughly trustworthy and competent Man. Must be well acquainted with Plants, Fruit Trees, &c. A good Propagator indispensable.—Apply, stating wages and reference, to Messrs. PHIPPEN AND ROBINSON, Victoria Nursery, Reading.

To Fruit Growers.

WANTED, a WORKING FOREMAN, who understands thoroughly the Forcing of Vines and Fruit Trees in pots, under the orchard-house system; also the Cultivation of Outdoor Fruits and Vegetables generally.—E. W. HARLOCK, Ely, Cambridgeshire.

WANTED, a sober, industrious MAN, to Grow Greenhouse and Bedding Plants. Good Budder and Grafter of Fruit Trees and Roses.—Send references and wages required, to EDWARD THOMAS, Harold Nursery, Sittingbourne, Kent.

WANTED, a steady, respectable young MAN (under Glass), to Grow Soft-wooded Plants, Ferns, &c., for Market; one used to the trade preferred. Wages £1 per week.—Apply by letter, stating age and references, to J. WINGFIELD, Florist, Widmore Hill, Bromley, Kent.

WANTED, PELARGONIUM GROWERS.—Apply personally only at Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

WANTED, an UNDER SHOPMAN, not under 21; accustomed to Kitchen Garden, Flower and Agricultural Seeds. To board and lodge on the premises.—Apply by letter only, stating full particulars as to age, last situation, wages required, &c., to X. Y. Z., Mr. Mason, Stationer, 24, Broad Street, Bloomsbury, London, W.C.

WANTED, an INVOICE or CORRESPONDENCE CLERK; must be a good and quick penman, and of unexceptionable character.—Apply, stating age, references, terms, &c., to DANIELS BROTHERS, Seed Growers, Norwich.

WANTED, a CLERK, accustomed to the Seed and Nursery Business. Salary £80 per annum.—Apply by letter, stating age and experience, to BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

WANTED, an active, sober, young Man, from 20 to 22 years of age, as STOKER; one with some experience preferred. Spare time would be employed in the Houses. Wages 16*s.* per week, with lodgings and vegetables.—Address, with reference as to character, to G. H. GREEN, The Gardens, Enville Hall, Stourbridge, Staffordshire.

WANTED, a respectable unmarried person, or Widow without incumbrance, as LAUNDRESS, to live in a cottage outside the grounds. Particulars given on application to Mrs. LITTLE, Wychbold Hall, Droitwich.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD), where one or more are kept.—Age 41, married, no encumbrance; long experience. Practical, hard-working. Three years' good character.—M. A., 51, Netherwood Street, Kilburn, N.W.

GARDENER (HEAD).—Thoroughly understands the Management of a large Establishment.—JOSEPH C. SPYERS, Beckley Grove, Oxford.

GARDENER (HEAD).—Age 43, married; thoroughly understands Kitchen and Flower Gardening, Vines, &c. Could superintend Cows and Land if required. Good character from present employer.—R. L., Post Office, Chertsey, Surrey.

GARDENER (HEAD).—Has had the Management of one of the first Establishments in England for many years, and perfectly understands the profession in every department. The highest references and testimonials.—Messrs. F. & A. DICKSON, Eastgate Street, Chester.

GARDENER (HEAD).—Age 34, married; has a thorough practical knowledge of Gardening in all its branches. Good reference, and two years' good character from present employer.—JOHN WILSON, Oaklands, Fenstanton, near St. Ives, Hunts.

GARDENER (HEAD).—Age 38, married, Scotch; holds first-class certificates. Nineteen years practice in the three kingdoms. Good recommendations from Noblemen and Gentlemen for Superintending and General Management of their Estates.—STUART R., Bandon, Coventry, Warwickshire.

GARDENER (HEAD).—Age 33; has had considerable experience in the Cultivation of Pines, Vines, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants, Orchids, &c., Early and Late Forcing, Kitchen and Flower Gardening. Seventeen years' experience, having served in some of the best and most practical Establishments in England and Scotland. First-class references can be given.—A. M., Estate Office, Colwyn Bay, North Wales.

GARDENERS (HEAD and SECOND), where three or four are kept.—Father and Son, ages 50 and 24; understand their profession in all branches, also Land and Stock. Wife a first-class Laundress and Dairywoman. Highly recommended.—A. B., 9, Pallett Road, Sutton, Surrey.

GARDENER (HEAD, WORKING), to any Lady or Gentleman requiring the services of a thoroughly experienced Man. Can manage Land and Stock if required.—A.M., Hatchland Park Gardens, Guildford, Surrey.

GARDENER (HEAD, WORKING).—Age 29, married; well experienced in all branches. Over three years' good character. Disengaged in a fortnight.—E. W., 27, Over Street, Brighton.

GARDENER (SINGLE-HANDED, or where another is kept).—Age 30, single; twelve years' experience in all branches; would not object to a Cow or Poultry. First-rate character.—G. C., Post Office, Chertsey.

GARDENER.—Age 40; understands Pines, Vines, Early and Late Forcing, Stock and Land. Good references.—T. B., 2, Nunhead, Peckham Rye, S.E.

GARDENER.—A LADY, breaking up her household, highly recommends her Gardener as thoroughly efficient and satisfactory in every respect.—Miss CALVERLEY, Ashcott, Bridgewater, and Mr. COULDREY, Gardener, South Stoke, Bath.

GARDENER (SECOND)—Has had six years' experience, both Indoor and Outdoor, in large Establishments, also used to Nursery Work.—H. R., 12, Knowsley Road, Battersea Park, S.W.

FOREMAN, in a Nobleman's or Gentleman's Garden.—Age 24; has a good knowledge of the profession in all its branches. Character will bear the strictest investigation.—A. B., 15, Brook Lane, Chester.

FOREMAN, or under a Foreman in a large Establishment.—Age 24; has had nine years' experience in Flower and Kitchen Gardening, Early and Late Forcing. Can give good references.—R. RUSSELL, Hexton, Ampthill, Beds.

FOREMAN (or SECOND).—Age 26, single; thoroughly understands his duties. Two years in present place.—A. B., Wood & Ingram's Nursery, Huntingdon.

IMPROVER, under a Nobleman's or Gentleman's Gardener.—Age 18; respectable.—For particulars address Mr. EDWARD THORNE, Swan Tvow Inn, Kempsey, near Worcester.

PROPAGATOR (SECOND).—Age 21. Good character.—R. J., Post Office, Exeter.

To the Seed Trade.

ASSISTANT.—WILLIAM THOMAS can with confidence recommend a young Man in his employ, age 21, as above.—The Seed Warehouse, Exchange Street, Wolverhampton.

SHOPMAN (HEAD), or SHOPMAN and CLERK.—Eleven years' experience, eight in the Retail, and three in the London Wholesale Trade.—W. T. J., 70, Melbourne Street, Mansfield Road, Nottingham.

To the Seed Trade.

SHOPMAN (ASSISTANT).—Age 20. Six years' experience in the Retail Trade. First-class reference.—J. T., Messrs. Mitchell & Young, Seedsmen, Brechin, N.B.

SEED TRADE.—A young Man (Scotch), having finished his apprenticeship to the Seed Trade, desires a situation. Salary not so much an object as getting into a good House.—A. B. C., Balerno.

MANAGER, or TRAVELLER.—The engagement of Mr. GLENDINNING with the Lawson Seed and Nursery Company, Limited, having terminated, he will be happy to treat with any House requiring his services as above.—3, Summer's Place, Inverleith Row, Edinburgh.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA, BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*

MANUFACTURE OF COCOA.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*

Made simply with boiling water or milk.
Sold by Grocers, only in packets, labelled
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS,
48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, N.W.

Lea & Perrins' Sauce,

THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.

ASK FOR LEA AND PERRINS' SAUCE.
BEWARE OF IMITATIONS,
and see the names of LEA AND PERRINS on all Bottles and Labels.

Agents—CROSSE AND BLACKWELL, London; and sold by all Dealers in Sauces throughout the World.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

THE CORINIUM

Guinea Collection of Bulbs,

Suitable for Outdoor, also Conservatory and Greenhouse.

This is the cheapest and contains the best supply of bulbs ever offered, which cannot fail to please purchasers; the cost of the same, if each article were ordered separately, would be considerably more than 21s., but owing to the large number we are constantly supplying of the several sorts included in the Collection, we are able to offer the under-mentioned liberal quantity.

25 HYACINTHS, choice for borders.
6 Ditto, choice for pots or water.
12 NARCISSUS, for pots.
12 Ditto, for borders.
12 JONQUILS.
25 TULIPS, assorted.
25 RANUNCULUS.
200 CROCUS, assorted.
100 SNOWDROPS.
50 ANEMONES.
4 IXIAS.
6 SCILLAS.
6 TRITELEIA UNIFLORA.
50 ACONITES, winter.

Carriage paid to any railway station in England.

JNO. JEFFERIES AND SONS,
Seed Merchants and Nurserymen, Cirencester.

JAS. BACKHOUSE & SON

Have pleasure in announcing that they will be prepared to send out, on and after October 1, in well-established Plants, the magnificent

TACSONIA INSIGNIS,

of which a description was given, at length, in the *Gardeners' Chronicle* for 1873, p. 1112. It is a Greenhouse Evergreen Climber of great beauty, remarkably distinct from all others, both in leaf and flower. Leaves of thick leathery texture, large, entire, deep lustrous green above, covered beneath with rust-coloured down. Flowers brilliant crimson, six to eight inches across, in festoons on long pendent stalks. Introduced from Northern Bolivia by Yarburgh L. Greame, Esq.

Price 21s. Special Offer to the Trade on Application.

J. B. & Son's Supplemental List of Stove and Greenhouse Plants for 1874, including many Novelties of great excellence, Free by Post.

YORK NURSERIES.

DUTCH FLOWER ROOTS.

OSBORN & SONS

BEG TO ANNOUNCE THAT THEIR

ANNUAL CATALOGUE OF THE ABOVE

IS NOW PUBLISHED, AND MAY BE HAD POST FREE ON APPLICATION.

And they have also much pleasure in adding that their first Consignments of HYACINTHS, TULIPS, NARCISSUS, and other BULBS have arrived in admirable condition. A Select LIST of VEGETABLE and FLOWER SEEDS for Autumn Sowing is included in the Catalogue.

THE NURSERY, FULHAM, LONDON, S.W.

W. & J. BROWN, NURSERYMEN, STAMFORD,

HAVE GREAT PLEASURE IN INTRODUCING THE FOLLOWING

NEW APPLE—PEASGOOD'S NONESUCH.

This handsome Apple was presented before the Fruit Committee of the Royal Horticultural Society on September 18, 1872, and received a First-class Certificate; it was also exhibited at the Crystal Palace on September 8, 9 and 10 inst., and received a similar award. It was pronounced by the Judges to be the most handsome autumn Apple in cultivation.

The fruit is like a very large Nonesuch, and not unlike a well-grown and highly coloured Blenheim Pippin. It is a large handsome variety of the Blenheim Orange type, yellow, with red spots, and beautifully streaked with deep crimson on the sunny side. The eye is very large and open, set in a deep, round and even basin, and with short depauperated segments. Stalk short, deeply inserted. Flesh yellowish, tender, very juicy, with a sweet and sprightly flavour and pleasant aroma.

It is a valuable Culinary Apple, also fine for Dessert. In use September to November.

The dish exhibited at the Crystal Palace weighed from 10 to 12 oz. each Apple.

A COLOURED PLATE IS IN PREPARATION.

EARLY ORDERS ARE SOLICITED, AS THE STOCK IS VERY LIMITED.

Dwarfs, 7s. 6d. each; Dwarf-trained and Pyramids, 10s. 6d. each.

TRADE TERMS ON APPLICATION.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, September 19, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 39.—Vol. II. {New Series.} SATURDAY, SEPTEMBER 26, 1874. {Registered at the General Post Office as a Newspaper.} Price 5d. Post Free, 5½d.

CONTENTS.

Albuca fibrosa	386
Apricots, best varieties ..	394
Armadale Castle	399
Arundo conspicua ..	398
Ascog Hall, Bute ..	392
Ashantee Lily, the ..	398
Bamboo, the	391
Begonias, the new ..	401
Beetles as house pets ..	395
Books, notices of ..	395
Botanical gardens, Calcutta	394
British gardeners.—II. .	399
Carnivorous plants ..	399
Chestnut tree, the ..	402
Clematis montana ..	400
Cool Orchids	401
Dendrobium nobile ..	402
Dianthus Caryophyllus .	400
Drewett, James	399
Easterman giants ..	403
Edible fungi, determination of	403
Erythrina Parcellii (with cut)	392
Eucalyptus in Scotland .	400
Farm, the	394
Fingers-and-toes	401
Floricultural certificates .	401
Fountains (with cuts) ..	388
Forestry	394
Fruits of the West Indies	399
Garden operations ..	406
Gardens, on laying-out .	392
Greenhouse plants: their culture and management	391
Holly tree, a remarkable	400
Horticultural labour difficulty, the	400
Hypericum patulum ..	398
Invergordon Castle ...	390
James, Mr., of Patshull .	401
Kew, the old walls at ..	390
Natural history	395
Naturalists' Field Club .	397
Notes from a Lancashire garden	386
Pavias, the	401
Peaches and Nectarines .	392
Pears, mis-shapen (with cut)	398
Pelargonium Society, the	397
Picea Webbiana	401
Plants, new garden ..	386
Polygonum capitatum ..	398
Potato crop, the	394
Rhododendron, ovary of (with cut)	398
Rose controversy, the ..	403
Rose propagation ..	398
Rose showing and Rose shows	402
Rush-bearing	385
Sardines, English ..	398
Scottish Arboricultural Society	388
Sempervivum calcaratum	386
Sirex gigas (with cut) ..	395
Societies:—	
Fungus Exhibition at Aberbeen	404
Ipswich Horticultural	405
Strawberry for forcing, on the cultivation of the	432
Tabernæmontana, fl.-pl. .	403
Thistles and Coltsfoot ..	401
Transplanting and removing evergreens ..	387
Vegetable shows	400
Villa garden	405
Viola of the Romans, the	387
Volcanic soil	399
Weather, the	405

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is **$6.30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth*, 16*s*.
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

ROYAL POMONA PALACE and GARDENS, MANCHESTER.
A GRAND EXHIBITION of NATIVE and EXOTIC FRUITS, CHRYSANTHEMUMS, FLORAL BOUQUETS, CONIFEROUS PLANTS, &c., will be held on TUESDAY, WEDNESDAY, and THURSDAY, December 1, 2, and 3 next.
Schedules are now ready, and may be had from the various Seed Establishments in Manchester, or from JAMES REILL.

GIBSON TESTIMONIAL.
For full particulars, see *Gardeners' Chronicle*, p. 204.
Amount already promised, £411.
Subscriptions are received by
Mr. THOMAS MOORE, Treasurer, Botanic Gardens, Chelsea, S.W.; or,
Mr. HARRY J. VEITCH, Hon. Sec., Royal Exotic Nursery, King's Road, Chelsea, S.W.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

N. BOETTNER, Greussen, Germany, offers for Sale DRIED FLOWERS, &c., of every description, in fine quality. Price Lists on application.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to
CARTERS', The Royal Seedsmen, High Holborn, London.

SUNDEWS—DROSERA ROTUNDIFOLIA.—See *Gardeners' Chronicle*, page 260. One Plant 9*d*., or six strong in flower, or seed, 2*s*. 6*d*. Free by Post.
A. W., Highampton, Devon.

LAURUSTINUS.—An immense quantity of very healthy plants, 12 to 18 inches high, can be supplied at very moderate prices by
EWNIG AND CO., The Royal Norfolk Nurseries, Norwich.

GARDENIAS and AZALEAS for SALE: above 500 plants. Can be seen on the Nursery at Ashford.
Ashford Nursery, Ashford, Middlesex.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

Roses, Roses, Roses.

EWING AND CO.'S Illustrated, Priced, and Descriptive CATALOGUE will shortly be ready. All Rosarians should possess a copy, which will be forwarded, gratis and post free, to applicants.
The Royal Norfolk Nurseries, Norwich.

British Fern Catalogue.

ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

Spiræa japonica.—To the Trade Only.

H. B. SMITH is now booking orders for strong Flowering Clumps, at 25*s*. per 100, and £12 per 1000, for cash.
H. B. SMITH, Ealing Dean Nursery, Ealing, London, W.

Lily of the Valley.

ROBERT NEUMANN, The Nurseries, Erfurt, begs to offer large quantities of strong flowering roots, for forcing, of the above, at 45*s*. per 1000.
Also strong clumps of SPIRÆA (HOTEIA) JAPONICA.

FOR FORCING.—LILY of the VALLEY, 1000 roots, 30*s*.; 100 clumps, 46*s*. SPIRÆA JAPONICA, 100 strong clumps, 26*s*. Delivery against Bank Post Bill.
D. JACOBSON, Haarlem, Holland.

SWEET VIOLETS.—Extra strong blooming Plants of LEE'S VICTORIA REGINA at 6*s*., 9*s*., and 12*s*. per dozen; 1*s*. each post free. Also CZAR, KING, QUEEN, and other varieties. See Autumn Catalogue, free.
B. R. DAVIS, Seedsman, Florist, &c., Yeovil.

DAPHNE CNEORUM MAJUS (true). Probably the largest stock in the Trade. Plants well set for bloom. Price, by the dozen, 100, or 1000, on application.
WILLIAM COLLYER, Nurseryman, Horsell Birch, near Woking Station, Surrey.

J. LINDEN, 52, Rue du Chaume, Ghent, Belgium. The English CATALOGUE of Azaleas, Camellias, Rhododendrons, &c., is just published, and may be had gratis of
Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Eltham Nursery, Kent, S.E.

One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.

THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c.
Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

Novelties.

NEW SWEET-SCENTED RHODODENDRONS now offered for the first time, the most novel and beautiful ever raised. NEW INDIAN AZALEAS and a fine Collection of AZALEA MOLLIS. A Descriptive Priced List forwarded to any address on application to
ISAAC DAVIES, Nurseryman, Ormskirk.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1*s*. per bushel, or 6*d*. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works Farm Lane, Walham Green, S.W.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL IN RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

WANTED, at once, for Suffolk, 1000 good CUTTINGS of MRS. POLLOCK. State price, &c., by letter, to
C. P. PRITCHARD, Esq., 77, King William Street, E.C.

Dutch and other Flower Roots.

JAMES DICKSON AND SONS have received large and superior consignments, in excellent condition. Priced CATALOGUES post free.
108, Eastgate Street, Chester.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s*. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other Dutch Roots, in fine condition. Early orders are requested. CATALOGUES post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete ever published.
Hale Farm Nurseries, Tottenham, London, N.

Dutch Bulbs.

CHARLES TURNER'S large importations have arrived in excellent condition, and he is prepared to execute Orders on receipt. CATALOGUES on application.
The Royal Nurseries, Slough.

Hyacinths, Crocus, Tulips, &c., all extra picked ROOTS.

J. SCOTT'S CATALOGUE of the above is now ready, and may be had Gratis and Post Free on application. Bulbs extra fine and sound. Prices low. Address,
JOHN SCOTT, The Seed Stores, Yeovil.

FOR SALE.—4000 strong, 3 and 4-yr. old LINNÆUS RHUBARB ROOTS. £8 per 1000; £1 per 100.
T. W. BEACH, Ealing Gardens, Old Brentford, W.

HARDY WELSH WINTER VETCHES, and all other seeds for present sowing.
JAMES DICKSON AND SONS, 108, Eastgate Street, Chester.

To Gentlemen, Market Gardeners, and Others.

MITCHELL'S CHAMPION of ENGLAND BROCCOLI.—JOHN MITCHELL, retiring from the Business, has a small quantity of New Seed to dispose of. The Best LATE WHITE ever grown. Will be sold in ¼ lb., ½ lb., and 1 lb. packages, at One Guinea per pound. Sent to any part of the world on receipt of Post Office Orders made payable to
JOHN MITCHELL, Ponders' End, Middlesex.

Horticulture.

THOMAS RIVERS' Descriptive and Illustrated CATALOGUE of FRUITS is now ready. Also, CATALOGUE of SELECT ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

New Apple, Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now Booking Orders for this splendid Novelty, which obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, on November 12, 1873. Circulars with full particulars will be forwarded gratis and post-free to applicants. The price for strong maidens on and after November 1 next, is 7*s*. 6*d*. each, or three for 20*s*. The usual discount to the Trade.

FOR SALE, Seventy Fruiting and Succession PINES. Clean healthy stuff. Price on application to
The GARDENER, Eshald House, Woodlesford, near Leeds.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s*. to 60*s*. per dozen. Extra strong Fruiting Canes, 7*s*. 6*d*. to 10*s*. 6*d*. each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s*. each.
RICHARD SMITH, St. John's Nurseries, Worcester.

GRAPE VINES.—A fine stock of all the leading sorts; strong, well-ripened short-jointed Canes. Extra fruiting size, in 11-inch pots; smaller plants, in 6-inch and 9-inch pots. Prices from 3*s*. 6*d*. to 10*s*. 6*d*. each. Free from any kind of disease.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

Fine Strawberries.

CHARLES TURNER recommends the following, to fruit in the order named:—La Grosse Sucrée, President, Vicomtesse H. de Thury, Sir J. Paxton, Royalty, Sir C. Napier, Frogmore Late Pine, and Elton Pine. These are all good growers and have fine flavour. CATALOGUES on application. The Royal Nurseries, Slough.

To the Trade only.

A. M. C. JONGKINDT CONINCK'S WHOLESALE LIST, including a fine stock of Maiden Apples, Pears and Plums, Moss Roses, Dwarf, Half-standard and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants, is now ready, and will be sent, post free, on application.
Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

STRONG AUTUMN SOWN CABBAGE PLANTS can now be supplied of the undermentioned kinds (all true to name):—
EARLY BATTERSEA, ENFIELD MARKET, NONPAREIL } at 3*s.* 6*d.* per 1000.
ROBINSON'S DRUMHEAD, at 3*s.* per 1000.
W. VIRGO AND SON, Wonersh Nurseries, Guildford.

Specimen Coniferæ.

TO BE SOLD, cheap, a bargain, WELLINGTONIA GIGANTEA, 10 to 12 feet; PICEA NORDMANNIANA and NOBILIS, 2 to 5 feet; PINUSES, in variety, 12 to 15 feet; JUNIPERUS SINENSIS, 5 to 7 feet; all transplanted autumn, 1872. Free on rail at Idridgehay Station, Midland Railway. For price, &c., apply to Rev. THOMAS O'GRADY, Hynaston Vicarage, Ashbourne; or F. G. GODWIN, Seedsman, Sheffield.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford

New Rhododendrons.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to announce that they are now sending out the undermentioned Hardy RHODODENDRONS, price 21*s.* each. The usual Discount to the Trade.
MRS. RUSSELL STURGIS.
MRS. JOHN KELK.
HELEN WATERER.
JOHN WALTER.
JAMES MASON.
FREDERICK WATERER.

THE NEW PLANT and BULB COMPANY beg to announce that they have secured the whole Stock of the magnificent and hitherto scarce LILIUM DALMATICUM, collected at great trouble and expense by that indefatigable botanist, Mr. Max Leichtlin. They can offer fine flowering Bulbs at the following prices, 10*s.* 6*d.*, 15*s.*, and 21*s.* each. They have also just received, in splendid condition, a quantity of the beautiful new CYPRIPEDIUM JAPONICUM; price 21*s.* each. Also,
YUCCA ANGUSTIFOLIA, a very scarce, graceful, hardy plant; price 7*s.* 6*d.* and 10*s.* 6*d.* each.
NERINE JAPONICA, strong bulbs, 2*s.* 6*d.* each.
VRIESIA LEICHTLINIANA, a beautiful early flowering greenhouse bulb, 3*s.* 6*d.* and 5*s.* each; &c., &c.
Price to the Trade on Application.
Lion Walk, Colchester.

Plants for Sale.

TO BE DISPOSED OF, on most reasonable terms (in consequence of the extensive range of Planthouses, &c. being about to be removed from Cloon Rectory), a large assortment of SPECIMEN PLANTS, CAMELLIAS, AMARYLLIS, LILIUMS, &c., together with an endless Collection of SPRING and BEDDING PLANTS, consisting of all the newest and best varieties out.

To Nurserymen starting in Business, or to Gentlemen forming New Gardens and Collections, this offers a most eligible and unusual opportunity.

Apply to the Rev. FREDK. FITZPATRICK, Cloon Rectory, Mohill, Co. Leitrim.

Cloon is within six miles of Dromod Railway Station on the Midland Great Western Line, where all Plants will be delivered free of carriage.

Notice to Buyers of

HYACINTHS, TULIPS, CROCUS, SNOWDROPS, &c.—I can supply 100 very fine named HYACINTHS, single and double, in 100 sorts, for 40*s.*

Single or double HYACINTHS, very good sorts to name, 4*s.* per dozen Ditto, extra choice picked roots, 5*s.*, 6*s.*, and 8*s.* per dozen, distinct varieties.

HYACINTHS, in separate colours, 3*s.* per dozen. Ditto, mixed varieties, 2*s.* 6*d.* per dozen.

TULIPS, very fine early kinds, to name, 1*s.* per dozen, 5*s.* to 8*s.* per 100. Ditto, mixed varieties, 4*s.* 6*d.* per 100.

CROCUS, varieties to name, Blue, Purple, White, Striped, Yellow, &c., 2*s.* 6*d.* per 100.

P. NARCISSUS, 1*s.* 6*d.* to 2*s.* 6*d.* per dozen.

SNOWDROPS, 2*s.* 6*d.* per 100.

ANEMONES, 3*s.* 6*d.* per lb. Ditto, to name, 2*s.* per dozen.

RANUNCULUS, varieties to name, 2*s.* to 4*s.* per 100.

*** Orders of 40*s.* carriage paid. CATALOGUES of over 600 varieties of Bulbs, post free upon application.

GEORGE POULTON, Fountain Nursery, Angel Road, Edmonton, London, N.

Forest and Ornamental Trees, Evergreens, Plants for GAME COVERTS, &c.

FRANCIS & ARTHUR DICKSON & SONS, the "Upton" Nurseries, Chester, respectfully invite inspection of their almost unlimited stock of
FOREST TREES, PLANTS for GAME COVERTS,
ORNAMENTAL TREES, CONIFERS,
EVERGREEN and DECIDUOUS SHRUBS,
FRUIT TREES, VINES, ROSES,
STOVE and GREENHOUSE PLANTS, &c.

The special recommendations of their Plants are extreme hardiness, their Nurseries (over 150 acres) being situated in a very bleak and exposed position; and, by constant transplantation, the plants are well furnished, and have abundance of fibrous roots, so that removal to any part of the country may be effected with perfect safety.

Descriptive Priced CATALOGUES Post-free on application.

WINTER and SPRING FLOWERS.

CARTER'S COLLECTIONS OF BULBS

For the OPEN GROUND, adapted for ORDINARY GOOD GARDEN SOIL.

COLLECTION No. 14, *Price* 21*s.* (*Packing and Carriage Free*), *contains*:—

Hyacinths, 12, in three colours.
Narcissus, Double white, 12.
,, Poeticus, or Pheasant-eye, 12.
Double Daffodils, 25.
Tulips, extra fine mixed, double, 12.
,, ,, ,, single, 12.
,, finest mixed, late, 12.
,, Duc Van Thol, 12.
Polyanthus Narcissus, fine mixed, 6.
Campernel Jonquils, 6.
Star of Bethlehem, 12.
Triteleia uniflora, 6.
Dog's-tooth Violets, 6.
Crocus, blue, 25.
,, striped, 50.
,, large yellow, 50.
Crocus, white, 25.
Anemones, extra fine mixed, 24.
Iris, extra choice mixed English, 12.
,, extra fine mixed Spanish, 12.
Lilium candidum, 3.
,, tigrinum, 3.
Ranunculus, extra fine mixed, 24.
Snowdrops, 50. Winter Aconites, 24.

Other Collections, price 10*s.* 6*d.*, 42*s.*, 63*s.*, and 84*s.* 20*s.* value Carriage Free.

From the Rev. W. C. PLENDERLEATH, *Calne, Wilts.*

"I was unwise enough to get some Bulbs last autumn from another grower, and your 'Old Bulbs,' saved from forcing the year before, did better than those new ones, so I will not try the experiment again."

THE NEW AND BEAUTIFUL COLEUS, "DUCHESS OF EDINBURGH."

Awarded First-class Certificates: Royal Horticultural Society, June 17, 1874; Royal Botanic Society, June 20, 1874.

JAMES CARTER AND CO., having purchased the Entire Stock of this charming Plant, are prepared to supply Orders at once. As the demand must be great, Orders will be executed in strict rotation as received.

Extra Strong Plants, 7*s.* 6*d.*, post free 8*s.* Smaller Plants, 5*s.*, post free 5*s.* 6*d.*

CARTER'S, THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

HYACINTHS, TULIPS, AND OTHER BULBS.

WILLIAM PAUL

BEGS TO ANNOUNCE THAT HIS

NEW CATALOGUE OF HYACINTHS, TULIPS, AND OTHER BULBS,

CAMELLIAS, AZALEAS, &c.,

Is now ready, and will be forwarded post free on application.

The Bulbs and Plants are equally fine in quality and reasonable in price.

WILLIAM PAUL,
PAUL'S NURSERIES AND SEED WAREHOUSE, WALTHAM CROSS, HERTS.

NEW ROSE

DUCHESS of EDINBURGH (Crimson Tea).

MESSRS. VEITCH & SONS

Are now prepared to send out Plants of the above fine Rose, which they can confidently recommend as distinct, and amongst its many other qualities will prove most valuable for Winter Blooming.

The colour is a deep glowing crimson, very free flowering; and from its present appearance we have every reason to believe it will make as good a Bedding variety as the Crimson China.

The Flowers are large and full, fine form and substance.

It was exhibited at the Royal Horticultural Society's Show on May 13, when it received a First-class Certificate from the Floral Committee, and was greatly admired; we have also received several testimonials from eminent growers, among which are the following:—

From Rev. REYNOLDS HOLE, *Caunton Manor.*

"I have received the bloom of 'Duchess of Edinburgh,' and I admire the Rose—not only for its originality, novelty, and distinctness as the only Tea Rose of its colour—but because I think it will prove a welcome acquisition as a plant in the conservatory, and as a cut flower in the bouquet; it is evidently prolific as to quantity, and the bright glowing freshness of its cherry-coloured, well-shaped flowers make it charming and attractive as to quality also. I expect to see it universally grown."

From Rev. W. F. RADCLYFFE.

"I at once saw that the three blooms of the Rose sent in that name were A 1. It is a beauty of admirable colour and fine formation.

"Your note this morning states it to be your Tea Rose 'Duchess of Edinburgh.' It will sell well, it is a colour wanted in Teas."

It is figured in the *Floral Magazine* for September.

Good Plants, in pots, 10s. 6d. each.

CATALOGUE of ROSES now ready, and may be had free on application.

JAMES VEITCH AND SONS, ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT,

QUEEN VICTORIA STREET,

CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to

THOMAS THORNTON,
Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

Now ready, Gratis and Post-free,

Beautifully Illustrated, and containing complete Cultural Instructions.

SUTTONS' CHOICE COLLECTIONS
OF
SPRING FLOWERING BULBS.

For Spring Blooming in the Open Ground.

Collections containing from 140 to 1000 Bulbs, according to Size. Price 5*s.*, 10*s.* 6*d.*, 21*s.*, and 42*s.* each. Larger size Collections Carriage Free.

For Spring Blooming in Pots or Glasses.

Collections containing from 70 to 280 Bulbs, according to size. Price 10*s.* 6*d.*, 21*s.*, and 42*s.* each. Larger size Collections Carriage Free.

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

DR. DENNY'S GERANIUMS.

SECOND SET.

JOHN COPELIN

Begs to announce that the Price of the above is now reduced to 10*s.* 6*d.* per set.

TYSSEN STREET NURSERIES, WEST HACKNEY, LONDON, N.

NEW STRAWBERRIES.

"TRAVELLER."

First-class Certificate, Royal Horticultural Society.

Unquestionably the best Strawberry for flavour, firmness of flesh, and handsome appearance. The fruit is of good size, solid, highly glazed, and ripening well to the point. Stalk strong, foliage dark glossy green: the plant hardy and healthy, and producing sufficient but not an excess of runners.

Raised by Mr. Laxton from a cross between La Constante and Sir Charles Napier, and has deservedly received the name of "Traveller" on account of its great suitability for packing, which renders it undoubtedly the best Strawberry in cultivation for transmission.

The *Gardeners' Chronicle* says—"The flavour was considered so remarkably fine by the whole of the members of the Committee [R. H. S. Fruit, &c.] that it was deemed worthy of a First-class Certificate."

The *Journal of Horticulture* says—"It is conical and occasionally slightly cockscomb shaped. The skin is very dark red, and when quite ripe approaching dark mahogany. The seeds are large and prominent, the flesh very firm and solid, with a brisk and rich flavour similar to the Hautbois."

Strong Plants now ready, 25 *for* £1 1*s.*, £3 *per* 100.

"EXQUISITE."

This is another firm-fleshed, high flavoured, free-bearing seedling of Mr. Laxton's, and was selected by several eminent connoisseurs and pomologists from a batch of many hundred seedlings, and having been repeatedly tested against the British Queen and other richly-flavoured Strawberries, can be recommended as maintaining fully the rich vinous flavour of that variety, and although not so large, is of good size, ripens fully to the point, and is hardier and more fertile than the Queen.

Strong Plants now ready, 25 *for* 12*s.* 6*d.*, £2 *per* 100.

TRADE TERMS ON APPLICATION.

Orders will be executed in strict rotation by

W. & J. BROWN, NURSERYMEN, STAMFORD.

JAS. BACKHOUSE & SON

Have pleasure in announcing that they will be prepared to send out, on and after October 1, in well-established Plants, the magnificent

TACSONIA INSIGNIS,

of which a description was given, at length, in the *Gardeners' Chronicle* for 1873, p. 1112. It is a Greenhouse Evergreen Climber of great beauty, remarkably distinct from all others, both in leaf and flower. Leaves of thick leathery texture, large, entire, deep lustrous green above, covered beneath with rust-coloured down. Flowers brilliant crimson, six to eight inches across, in festoons on long pendent stalks. Introduced from Northern Bolivia by Yarburgh L. Greame, Esq.

Price 21s. Special Offer to the Trade on Application.

J. B. & Son's Supplemental List of Stove and Greenhouse Plants for 1874, *including many Novelties of great excellence, Free by Post.*

YORK NURSERIES.

First-class Certificate, Royal Horticultural Society

NOW is the PROPER TIME to SOW

The following, to obtain strong Plants for next Summer.

J. PRITCHARD begs to offer THREE NEW LOBELIAS, FAITH, HOPE, and CHARITY, as decided acquisitions.

Faith.—Flowers large, porcelain blue, with pure white eye; very effective and beautiful.

Hope.—Dark sky-blue and white, the two colours being evenly divided over the surface, marbled.

Charity.—Rich purplish-lilac, white eye, desirable.

Messrs. Carter describe them as improvements on existing varieties in brilliancy of colour, dwarf habit, &c. Further particulars see *Gardeners' Chronicle*, July, 1873. The Trade supplied. Price on application. The three varieties sent on receipt of eighteen Stamps, post free.

Lady Grove and Caldecott Nurseries, Abingdon.

SPHAGNUM (MOSS),

Gathered in good condition, and dry. In large or small quantities.

A few thousands of

DOUBLE SNOWDROPS.

Sample and Price to Trade on application to

F. G. GODWIN, Seedsman, Sheffield.

PANCRATIUM NOTATUM

AND

CRINUM PRATENSE CANALICULATUM,

Vide Illustrations, Descriptions, and Prices in

MR. WILLIAM BULL'S
BULB CATALOGUE,

Just issued.

ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

LILIUM AURATUM.

SOUND BULBS, grown from Seed and Scales in this Nursery, will be supplied at from 12*s.* to 84*s.* per dozen, £5 to £30 per 100. These bulbs had this year from three to forty flowers on a stem.

SMALLER BULBS, the majority of which would flower next year, 9*s.* per dozen, or 63*s.* per 100.

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

NEW PLANT CATALOGUE 1874,

Gratis and Post Free.

B. S. WILLIAMS'

NEW PLANT AND GENERAL

CATALOGUE OF NURSERY STOCK

Is now ready, and will be forwarded to all applicants.

It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE, SIR GARNET WOLSELEY (CRANSTON'S).—First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.

First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

N.B. Orders are now being booked for Plants, to be sent out in the Spring of 1875, price 7*s.* 6*d.* each.

NEW HYBRID PERPETUAL ROSE, CRIMSON BEDDER (CRANSTON'S).—As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants, 3*s.* 6*d.* each; 30*s.* per dozen.

CLIMBING PERPETUAL ROSE, CLIMBING JULES MARGOTTIN (CRANSTON'S).—A sport from Jules Margottin: flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose. Strong Plants, 3*s.* 6*d.* each.

Address—

CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company are now prepared to undertake Contracts for the Erection of Heating Apparatus on the COWAN COMPENSATING SYSTEM, and of all other kinds.

The Company keep in Stock a Large and Select Collection of the most Improved Kinds of Boilers, Fittings, Pipes, and all other necessary Materials for such Apparatus, inspection of which is invited.

The Company can confidently recommend their System for Heating all kinds of Buildings by Hot Water, all Contracts which have been carried out having proved successful, without exception.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

For proofs of the foregoing Statements vide the Company's Illustrated Pamphlet, post free on application.

CERTIFICATE OF APPROVAL OF COWAN'S COMPENSATING SYSTEM OF HEATING.

We, the undersigned practical Horticulturists of Dublin, its vicinity, and the adjoining counties, having inspected an apparatus on Mr. Cowan's new compensating system, lately erected by the Dromore Heating Company in the gardens of John T. Gray, Esq., Temple Hill, desire to record our entire approval of its thorough efficiency and great economy for heating all kinds of Horticultural or other Buildings by means of hot water. From careful calculations made at the time of our inspection we feel convinced the entire extent of piping, between 3000 and 4000 feet in length, on different levels, was heated in the most efficient manner, nearly free of cost. There was a total absence of any untidiness or disagreeable smell. From the mass of glowing limestone then in the kiln we could quite understand how competent the apparatus would be to heat, in the most efficient manner, even a much greater extent of piping. As practical horticulturists we feel certain that this system will in time commend itself to the public.

D. PRESSLY, Knockmaroon, *Chairman.*

DAVID MOORE, Glasnevin.
THOMAS MOORE, Editor, *Gardeners' Record.*
JOHN CAMPBELL, Churchill Nurseries.
MICHAEL GUILFOYLE, Merrion.
P. GRAY, Albert Model Farm.
D. INGLIS, Powerscourt Gardens.
THOMAS P. TURNER, Killruddery.
GEORGE WILLIAMS, Exhibition.
SAMUEL LAIDLY, Montrose.
JAS. DOUGLAS, Charleville Gardens, Bray.
JAMES DICKSON, Richmond Nursery.
W. H. FLACK, Willow Park.
WM. WATSON, Sec. D. H. C.
JAMES NOBLE, Phœnix Park.
EDWARD MCDERMOTT, Yapton Gardens, [Monkstown.
WM. BRACKEN, Roebuck Castle.
JOHN KEARNS.
G. MACOUBRIE, Roebuck Hill.
JAMES LISTER, Dunardugh.
WM. TOOLE, Richview, Roebuck.

THE COWAN COMPENSATING HEATING COMPANY, LIMITED,

4, LOTHBURY, BANK, LONDON, E.C.

LONDON, 1873.

GOLD MEDAL, 1872.

VIENNA, 1873.

FLETCHER, LOWNDES & CO.,

13A, GREAT GEORGE STREET, WESTMINSTER,

PATENTEES AND MANUFACTURERS OF WOOD AND IRON CONSERVATORIES, VINERIES, &c.

Messrs. F., L. & Co. beg to draw particular attention to their CURVILINEAR PRIZE HOUSES, constructed with their PATENT TUBULAR RIB, unrivalled for UTILITY, STRENGTH, LIGHTNESS, and ELEGANCE. No Bent Glass used. Also of the

VAPORISING AND VENTILATING HEATING APPARATUS,

By which perfect PURITY of ATMOSPHERE is secured, and a GREAT SAVING of FUEL effected.

☞ *Full particulars on application.*

NEW PLANTS.
The Three best New Plants of the season are :—
CROTON MAJESTICUM,
DIPLADENIA BREARLEYANA,
CROTON SPIRALE.
Price, 2 and 3 Guineas each.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Nursery Stock.
JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, Chester.

DICK RADCLYFFE AND CO.'S
ILLUSTRATED
AUTUMN CATALOGUE
OF
HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.,
is now ready, and can be had gratis and post free on application.
129, High Holborn, London, W.C.
Seed Grounds—Erfurt, Prussia.

New Plant Catalogue, 1874-75.
A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has much pleasure in announcing that he has just published his New CATALOGUE of PLANTS, containing all the leading Novelties and General Nursery Stock. May be had on application of his Agents,
Messrs. R. SILBERRAD, 5, Harp Lane, Tower Street, London.

Dutch Flower Roots.
B. S. WILLIAMS begs to announce that his ANNUAL CATALOGUE of DUTCH FLOWER ROOTS, containing a Descriptive List of Choice Hyacinths, Tulips, Narcissus, Crocus, &c., also a Select List of Fruit Trees, Roses, Vines, &c., is now ready, post free to all applicants.
Victoria and Paradise Nurseries, Upper Holloway, N.

Pelargoniums for Early Blooming.
JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6*s.*, 9*s.*, and 12*s.* per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40*s.* cash. Baskets and Packing included.
Crown Nursery, Reading.
N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1*s.* per packet, post-free.

The Finest Hardy Plant of the Year.
HELIANTHUS CALIFORNICUS INSIGNIS (OTTO).—See description of this gorgeous plant in report of South Kensington, Crystal Palace, &c., &c. In Packets, post free, 12 Seeds, 2*s.* 6*d.*; 6 Seeds, 1*s.* 6*d.*
Mr. TANTON, F.R.H.S., New Plant and Seed Merchant, Borough End, London Bridge, S.E.

THIRTY TONS of ITALIAN RYE-GRASS SEED.—Best Irish-saved Seed, equal to the best Foreign, at £15 per ton, delivered free in Liverpool or Glasgow.
Also a few tons of LATE AMERICAN ROSE POTATOS, at £10 per ton. Terms cash. For samples, &c., apply to
MICHAEL GRANT, Elm Grove Nursery, Newry.

NEW ROSES for 1874, GLADIOLI, &c.—The following varieties of Roses, all of the first order, are from the Nurseries of the Horticultural Establishment of EUGÈNE VERDIER, FILS AINÉ, and selection can be made from a stock of nearly 25,000 plants :—

H.P. Bernard Verlot
" Frederick Wood
" Henry Ward Beecher
" La Souveraine
" Mdlle. Ilona de Adarjon
May Turner
" Monsieur E. Y. Teas
H.P. Princesse Antoinette Strozzio
" Souvenir de Charles Sumner
" Souvenir de Duche
H. (not P.) Mdme. Rivière (gratis).

All other French varieties are also to be obtained.
CATALOGUES, with names, descriptions, prices, and mode of forwarding, will be sent, together with a Special CATALOGUE of GLADIOLI (which are sold by the hundred or thousand of each variety), post free, to all who may apply to
EUGÈNE VERDIER, FILS AINÉ, Horticulturist, 72, Rue Dunois, Gare d'Ivry, Paris.

September and October are the Best Months
for SOWING our
INTERNATIONAL PRIZE CYCLAMEN PERSICUM SEED, saved from the finest exhibition collections extant. We offer New Seed of our unrivalled strains of this so justly popular flower, and call special attention to our sweet-scented white variety.

Per pkt.—	s.	d.
CYCLAMEN PERSICUM album odoratum (white sweet-scented)	3	6
" " atrorubrum grandiflorum (dark red)	3	6
" " fl. roseo (rose-coloured)	2	6
" " carmineum (carmine)	2	6
" " maculatum (crimson spotted)	2	6
" " purpureum (dark purple)	3	6
" " variegatum (white edged, striped or spotted)	2	6
" " coccineum (bright crimson)	3	6
The above eight varieties, one packet of each	21	•
" " mixed	2	6

Special quotations to the Trade.
F. SANDER AND CO., New and Rare Seed Importers and Growers, Royal Herts Seed Establishment, St. Albans.

A New Grape.
VENN'S SEEDLING BLACK MUSCAT combines all the good qualities of a Grape; it is an abundant bearer, sets its fruit well in large clusters and handsome berries, with a delicate bloom, the flesh firm, juicy, and of delicious flavour: thrives well in hot or cold house. It has now been proved four years, and maintains its character. It has obtained First Prize for New Grapes at Bristol, 1870; First-class Certificate at Bristol, Taunton, and Wootton-under-Edge, 1871; Bath, 1872; Bristol and Clifton, Royal Horticultural Society (Bath), Trowbridge, and Weston-super-Mare, 1873; and of the Royal Horticultural Society's Fruit Committee, Kensington, 1874; also First Prize at Midland Counties Great Show at Birmingham, 1874. Good planting Canes are now on Sale, price Two Guineas each, and will be delivered to order on receipt of Cheque or Post Office Order on Bristol payable to
THOS. Y. VENN, Sneyd Park, near Bristol.

SATURDAY, SEPTEMBER 26, 1874.

RUSH-BEARING.

THE long endurance of an established custom is a phenomenon which would be remarkable were it not so common, and so generally recognised as to be hardly noticeable. It is not, perhaps, to be wondered at that many of the external forms and signs of a faith which for more than 300 years has ceased to be that of England should still remain among us. The Roman Catholic religion, by its "outward and visible signs," always appealed to the feelings and imagination of the people. It was not so much an aristocratic as a popular creed, and it is scarcely surprising that, after a pre-eminence of 700 years, many of its external evidences should still remain, and be practised by people who in many cases have no notion whence their customs have been derived. Thus a Cheshire dairymaid, if her butter will not "come," makes the sign of the Cross over the churn. "Ill-luck" is avoided by crossing the thumbs; indeed, the old belief in the efficacy of the "holy sign" is retained in many places and in many ways; and this clinging to the old faith is in itself by no means wonderful. There is naturally a conservative tendency in man—an unconscious reverence for antiquity—which only very "advanced thinkers" can altogether conquer; and this is shown in the fact that the Catholic Church, when establishing her power, aimed rather at modifying and Christianising existing customs than at destroying them altogether—a proceeding which has been censured by some, but which manifested considerable knowledge of human nature. To this is owing the circumstance that so many of the Church festivals correspond with heathen feasts of earlier date, and that so many of our popular customs may be traced back until we lose them in the shadows of the past.

But these remarks may seem to some to trench rather upon the ground of theological discussion than to refer to Rushes and Rush-bearing, and yet it is the latter subject that gave rise to them. Rush-bearing is one of those customs traceable to a remote date, which still remain among us (see p. 366), and that, not in a remote country district, but in one at least of the great commercial centres of the North. In the quaint introduction to the *Book of Common Prayer* there is a special chapter "of ceremonies, why some be abolished and some retained;" but it would be very difficult to give any reason for the abandonment of certain customs and the retention of others. We cannot even say of the customs what is said of the ceremonies, namely, that they are "so set forth, that every man may understand what they do mean, and to what use they do serve," for their meaning in many instances is obscure, and their use is altogether unknown. Still, having "reverence to them for their antiquity," an inquiry into the origin of some of these old customs is often of interest—hence these remarks on Rush-bearing.

Like many other old customs, it is especially in the North of England that Rush-bearing holds its ground, not only in remote villages and country towns, but, as the extract printed at p. 366 shows, even in Manchester itself. It has lately been asserted that mediævalism and modern civilisation were never brought into such close proximity as on the occasion of a pilgrimage by railway, but it may be doubted whether the appearance of the Rush-cart with its attendants in the streets of Manchester is not an equally striking instance of this. But it is not only on this occasion that Manchester retains the custom of bygone years; the almost total cessation of work during the greater part of "Whit week," as the week following Whit Sunday is called, is very striking to a Londoner, and, like the Rush-bearing, no doubt takes its origin from ecclesiastical custom. It is pretty clear, from the frequent connection of Rush-bearing with the "wakes"—a term which was formerly applied to the feast of the saint to whom a church was dedicated—that it originated in the practice of bringing Rushes to the church for the purpose of strewing on the floors on that occasion. This use of Rushes in houses and churches has been referred to at p. 328, but the great antiquity of the custom is, perhaps, not so generally known. References to it occur as early as the time of William the Conqueror, if not before, for the tenure of certain lands was held on the condition, among others, of supplying straw or Rushes in summer for his chamber. William of Malmesbury tells us that shortly after he was born, being laid on the floor, the little William firmly grasped the Rushes with both his hands, which caused his nurse to predict that he would be a king. This shows that the custom was general in Normandy, and it may have been introduced thence to our shores. Straw and Rushes appear to have been used indiscriminately; Fitzstephen says that St. Thomas à Becket, when Chancellor of England, caused his dining-room floor to be strewn with clean straw or hay every morning in winter, and with green branches or Rushes in summer; while we are told that his royal master, when in one of his ungovernable fits of rage, would cast himself upon the ground, and tear with his teeth the straw or Rushes with which it was covered. Incidental allusions to the custom occur in the history of most reigns. In 1493 it appears, in the churchwardens' accounts of "St. Mary-at-Hill, in the City of London," that the sum of 3*d.* was "paid for two berden Rysshes for the strewyng the newe pewes" and a similar entry occurs in 1504. When the Princess Elizabeth was christened at Greenwich "all the walles betwene the King's Place and the Fryars were hanged with arras, and all the way strewed with Rushes." (Harl. MSS., 1107.) At St. Margaret's, Westminster, in 1544, 1*s.* 5*d.* was "paid for Rushes against the Dedication Day, which is always the first Sunday of October;" and the church of St. Lawrence at Reading was strewn with Rushes and flowers when Queen Elizabeth visited the town in 1602. In the account of the "progresses" of James I. there is an entry in *Assheton's Journal* which states:—"About four o'clock there was a Rush-bearing and pipeing affore the King in the Middle Court" at Houghton, where he was then staying; and the same journal has an entry under "July 25, S. James' Day," of the preceding year:—"At Whalley ther [was] a Rush-bearing, but much less solemnity than formerlie," which looks as if the custom was beginning to fall into disuse. Even down to a very late period the official situation of "Rush-strewer" remained on the list of the Royal household.

Mr. Grindon has already given (p. 328) a selection of the passages in Shakspeare in which the strewing of Rushes in houses is mentioned; similar ones might be cited from almost every poet of the Shakspearian period, but this is unnecessary. Having referred to his paper, I may just say *en passant* that I have been trying to find some reference in our older Herbals which would indicate that the Sweet Flag was, as he suggests, "preferred to any one of the various species of *Juncus*" for strewing purposes, but I have been almost unsuccessful. Newton, in his *Herball to the Bible* (1587), says that "manie in the countrie doe use in sommer time to strewe their parlors or churches, as well for coolness as for pleasant smell," with "sedge and Rushes"; but if Acorus is intended

at all here, I think it is under the name sedge; while the extract from Bulleyn, at p. 370, seems to me distinctly opposed to the idea that Acorus was employed. In the seventh edition of Withering's *Arrangement of British Plants* (1830) it is said that "the sweet-scented Flag is used for strewing the churches on high festivals in some Catholic countries, nor is the custom altogether obsolete in England"; but this notice is too recent and too vague to be of much importance. There seems no doubt, however, that Acorus—to finish this digression—was employed at Norwich, although I have not succeeded in finding an old reference to its use. Miss Pratt says:—"From time immemorial it has been used for strewing the floors of the cathedral of Norwich, and been thrown on some of the adjoining streets on the day of choosing the mayor of that city, and also on other festival days, while common Rushes and sedges sometimes mingle with it on these occasions. When trodden on its fragrance becomes stronger, and the old cathedral seems filled with incense." This mixture of common Rushes renders it probable that these were originally the predominant feature, and that the local abundance of the Sweet Flag led to its employment as well. It would seem that the custom is now extinct; the Rev. G. Miles Cowper, in vol. ix. of the *Sussex Archæological Collections*, says that, up to the passing of the Municipal Reform Act, the town clerk of Norwich was accustomed to pay to the sub-sacristan of the cathedral an annual guinea for strewing the floor of the cathedral with Rushes on the mayor's day, from the western door to the entrance into the choir.

A Norwich correspondent of *Hone's Year Book*, writing in 1831, shows that the Acorus was not then employed. He says:—"It is still the custom to strew Norwich Cathedral on the mayor's day, or guild day, out of compliment to the corporation, who on that day attend the cathedral service. I must here observe that it is the sweet-scented Flag, Acorus Calamus, that should be used on these occasions, whose roots when bruised give out a very powerful and fragrant odour, somewhat resembling that of Myrtle. This plant, from the great demand the root has attained in our breweries (under the name of quassia), has not been obtainable for many years, and the yellow Water Iris (Iris Pseud-Acorus) has been substituted. The Flags were formerly strewed from the great west door to the entrance of the mayor's seat; but are now laid no further than the entrance of the choir. Twelve shillings per annum are now allowed by the dean and chapter for this purpose."

This is one of the most recent instances of Rush-strewing in churches; but the custom survived for a long time in many other places. Thus the church at Haybridge, near Maldon, Essex, was strewn with Rushes on Whit Sunday, 1856; and the pews were decorated with small budding twigs stuck into holes prepared for them. Hone tells us that as recently as 1825 the hall of the Brethren of the Trinity House at Deptford was strewn on Trinity Monday, the day of their annual meeting for the election of officers, with green Rushes, and the Trinity House at Hull was also strewn. Hampson, writing about 1849, says that the floor of a small chapel at Donnington, in Lincolnshire, was annually strewn on St. Bartholomew's Day at no very distant date by a number of maidens clad in their best attire. The same author cites from a manuscript *History of a Moste Horrible Murder comytted at Fevershame*," in Kent, in the reign of Edward VI., a remarkable case of circumstantial evidence in which Rushes played a prominent part. "The assassins having strangled and stabbed Master Arden, 'toke a clowt and wyped where it was blowdy, and strewyd agayne ye Rushes that were shuffled with strugglinge.' The Rushes were among the means which led to the detection and conviction of the murderers; the mayor of Faversham and some of the townsmen discovered the body in a field, and 'than they lookynge about hym, found some Rushes of ye parlour stickynge in his slippars,' whence they concluded that he had been slain in a house, and not where the body was discovered." According to a monastic manuscript cited by Ducange, the almoner was bound to find Rushes for the choir and cloisters on the greater festivals.

It is, however, principally in Lancashire and Cheshire that the custom of Rush-bearing still lingers. In most places the observance is very similar in general features; and the following account of the Rochdale Rush-bearing, in 1825, from *Hone's Year Book*, will give a sufficiently accurate notion of what took place elsewhere on these occasions:—

"The Rushes are laid transversely on the Rush-cart, and are cut by sharp knives to the form desired, in which no little art is required. The bolts, as they are termed, are formed of the largest Rushes tied up in bundles of about two inches in diameter. These bolts are, as the work of making proceeds, affixed to rods fixed in the four corners of the cart, and carved to the form required. When the cart is finished, the load of Rushes is decorated with Carnations and other flowers, in different devices, and surmounted by branches of Oak, and a person rides upon the top. The carts are sometimes drawn by horses gaily caparisoned, but more frequently by young men, to the number of twenty or thirty couple, profusely adorned with ribands and tinsel, &c. They are generally preceded by men with horse-bells about them, grotesquely jumping from side to side, and jingling the bells. After these is a band of music, and sometimes a set of morris dancers (but without the ancient appendage of bells), followed by young women bearing garlands; then comes the banner, made of silk of various colours, joined by narrow riband fretted, the whole profusely covered with Roses, stars, &c., of tinsel (which in this part is called horse-gold), and which, being viewed when the sun shines upon it, dazzles the eye. The banners are generally from four to five yards broad, and six to eight yards long, having on either side in the centre a painting of Britannia, the King's arms, or some other device. The whole procession is flanked by men with long cart whips, which they keep continually cracking to make a clear path. On the front of some carts is a white cloth, to which is attached a number of silver spoons, tankards, cups, and watches, tastefully displayed. Great rivalry exists between the young men of the neighbouring villages which shall produce the best formed cart and banner, and it not unfrequently happens that, when two of them meet in the street a scuffle takes place, and many bloody noses are the result. Six or seven Rush-carts are frequently in the town on the third Monday in August, which is the day for strewing them. A collection is made by each party from the gentry and other inhabitants, which enables them to sacrifice very freely at the shrine of Sir John Barleycorn. The displays are very gay, and afford much gratification to strangers who never before witnessed a Rush-bearing. The practice is general in the months of July, August, and September. Those held round this place are at Ashworth, Littlebro', Minbrow, Shaw, Oldham, Royton, Middelton, Heywood, and Whitworth, the customs at each place being much alike. The person who has the forming of a Rush-cart is called a 'featherer,' and it was one of these men who unfortunately lost his life at the riots in this town on Easter Monday in April, 1794 or 1795. He resided at Marland, and for a number of years afterwards, in commemoration of his death, each of the young men who drew the Rush-cart from Marland wore a black scarf; but it is now discontinued."

The custom has been observed within the last twenty years, and may probably still be retained in many other towns and villages of Lancashire and Cheshire; as also in different parts of Derbyshire, in certain districts of Yorkshire and in Cumberland and Westmoreland, especially at Grasmere and Ambleside. In the latter place garlands of flowers have taken the place of Rushes. These are carried to the church by girls on the eve of the last Sunday of July, and are removed after the evening service of that day, in the sermon of which some allusion is usually made to the event. The use of Rushes on religious occasions is still retained in some parts of France, as at Caen, in Normandy, where the streets are strewn with them for the procession of the Fête-Dieu, or Corpus Christi.

I had intended to include in this paper some notes on the Folk-lore and popular uses of Rushes; but it has already spread to so great a length that these must be reserved for another occasion. *B. M.*

New Garden Plants.

ALBUCA FIBROSA, *Baker*.*

My notes on this new species of Albuca are taken from a living plant which flowered in the Kew collection in August, and was communicated to it by Mr. Bennett. We have it in the herbarium, from Mr. MacOwan, from stony ground near Somerset East, and he notes it as having a remarkably firm bulb, and as being the earliest Albuca to flower of the Eastern provinces. The colouring, size, and structure of the flower is precisely that of Albuca minor, of which a good figure will be found in the *Refugium*, tab. 239. Our present plant differs from A. minor by its terete leaves, short pedicel, and smaller bulb, crowned, as in A. setosa, with a dense circle of persistent bristles. It also comes near A. flaccida, and I incline now to think that the plant figured under the latter name in the *Refugium*, tab. 384, is distinct specifically from the original flaccida of Jacquin, as figured in his *Icones*, tab. 444. If so, our *Refugium* plant might be named after its discoverer, Albuca Cooperi. and we shall then have four species—minor, flaccida, Cooperi, and fibrosa, very nearly alike in flower and inflorescence, but distinguished by bulb and leaf characters.

The following is a description of A. fibrosa from living examples:—Bulb small, firm, ovoid, crowned with a dense ring of erect persistent bristles 1½—2 inches long; leaves two, cotemporary with the flowers, terete, a foot or more long, ⅛ inch thick at the base, bright green, flaccid, narrowed to the point, deeply channelled down the face; scape slender, flexuose, terete, glaucous, 1 foot long; raceme laxly 3—4 flowered, with cernuous pedicels 1½—4 lines long; bracts lanceolate, 3—4 lines long; perianth 9—10 lines long, outer divisions oblong, bright yellow in the two outer thirds, green in the centre, inner divisions boat-shaped, persistently valvate, with an inflexed tip twice as broad as deep, filaments flattened, ½ inch long, the three outer entirely without anthers; style prismatico-obconic, rather longer than the oblong ovary. *J. G. B.*

SEMPERVIVUM CALCARATUM, *Hort.**

I am indebted to Mr. Croucher for a very fine specimen of this Houseleek in full flower, and, as it is widely spread in gardens, and has never been described, and appears to be an appreciably distinct form, it seems best to place its characters on record. It resembles closely the original S. tectorum, as widely spread through the kingdom on roofs, in the shape and vestiture of its leaves, and shows the same tendency to change its stamens into carpels; but both the rosettes and individual leaves are much larger, a moderately glaucous not a bright green, with a less distinct red-brown mark at the tip, and the panicle is more luxuriant, and the flowers are a deader colour. How the name originated and where the plant was procured from, I do not know, but very likely some of your readers will be able to tell us.

Rosettes 5—6 inches broad, sending out both laxly leafy shoots and copious stalked infant rosettes. Leaves about 100 to a rosette, obovate-cultrate, reaching 2½—3 inches long by 12—13 lines broad three-quarters of the way up, glabrous and moderately glaucous, especially when young on the face, narrowed to a cuneate base ½ inch broad, furnished with a distinct cusp and a red-brown line at the tip, bordered down the edge with a regular fringe of minute deflexed hairs ⅓ line long, those of the apex just like the others. Stem densely pilose, 6—9 inches long before the panicle begins, covered with ascending imbricated large lanceolate acute leaves turned red at the flowering time. Panicle 6—9 inches long and broad, with close spreading secund scorpioid branches, the lower ones forked low down. Flowers nearly sessile. Bracts lanceolate minute. Sepals, petals, and carpels, each 12. Calyx ¼ inch deep, finely glanduloso-pilose, the sepals joined in the lowest quarter. Petals twice the sepals, dull red-white with a green keel on the face and back, ciliato-pilose, patulous when expanded. Carpels 4 lines long, including the style, which is nearly as long as the finely pilose ovary. Hypogynous scales, minute, round, entire. *J. G. Baker.*

NOTES FROM A LANCASHIRE GARDEN.

Sept. 4.—"The rain it raineth every day." It finds its way through the old timbers of my first vinery, and the Grapes have to be cut out by dozens. It drenches the Pelargoniums and Verbenas, till their blossoms are half washed away. It soaks the petals of the great Lilies, and turns them into a sickly brown. The slugs, I suppose, like it, for they crawl out from the thick Box hedges and do all the harm they can. Weeds, too, of every kind flourish luxuriantly, and we find it no easy work to keep ahead of them. The author of *My Summer in a Garden*—the most humorous little book about gardening ever written—never had such trouble with "pusley" (what is "pusley?" [—Purslane. EDS.]) as I have with Groundsel. I have enough to feed all the canary birds

* Bulbo parvo ovoideo fibris strictis setosis copiosis coronato; foliis 2 synanthiis teretibus pedalibus glabris facie profunde canaliculatis; scapo tereti pedali, apice laxe racemoso, floribus paucis; pedicellis brevibus cernuis; bracteis lanceolatis; perianthio flavo, segmentis exterioribus tertio centrali viridibus: filamentis exterioribus sterilibus; stylo prismatico-obconico, ovario superante.

* Rosulis 5—6 poll. latis copiose proliferis; foliis circiter 100 obovato-cultratis distincte mucronatis, apice rubro-brunneis facie glabris glauco-viridibus margine ciliis copiosis deflexis ⅓ lin. longis instructis, apicalibus consimilibus; foliis maximis exterioribus 2½—3 poll. longis, 12—13 lin. latis, caule florifero sesquipedali dense piloso, dimidio inferiori foliis multis magnis imbricatis lanceolatis acutis instructo, dimidio superiori copiose paniculato; ramis patulis scorpioideis sæpe profunde dichotomis, floribus subsessilibus secundis 12-meris; petalis patulis sordide albido-rubellis medio viridulis; sepalis pilosis basi coalitis duplo superantibus; squamulis hypogynis minutis rotundis integris.

in the parish. Then, besides the more ordinary and vulgar weeds, I have two varieties of Willow-herb, which have seeded themselves all over the borders, and are for ever appearing where I had fondly imagined they had been utterly uprooted. A yellow Oxalis, too, has turned into a nuisance, and spreads where it was never wanted. Meanwhile the summer fruits are over. The few Nectarines we had have been gathered, and most of the Figs. The Apple-room begins to fill with Keswick Codlins for cooking purposes, and Franklin's Golden Pippin for dessert. As yet none of our Pears are ripe. The Mulberry tree in the orchard drops its fruit before it is mature, but it is rather too much shaded with the orchard trees, and, were it otherwise, there has been but little sun to get to it. We use the Mulberries, however, for tarts and for Mulberry ice, which I can thoroughly recommend. The Tomatos are reddening in numbers along the garden walls. We grow two sorts, Keye's Prolific and the Orangefield Dwarf, and I hardly know which is best. Formerly the Tomato was known as the Pomum amoris, or Love Apple, and was apparently grown only as a garden ornament, and not for use. Cowley mentions it as his "Flora" with the Foxglove and the Canna. Gerarde says of it, "In Spaine and those hot regions they use to eate the Apples prepared and boiled with pepper, salt, and oil; but they yeelde very little nourishment to the bodie, and the same naught and corrupt." Nor does Batty Langley, writing in 1728, mention Tomatos, though he gives long lists of "raw sallets," which include Nasturtium blossoms, Tarragon, Borage flowers, and Sorrel.

The handsomest of our beds at present (except always the beds of Jackman's Clematis and scarlet Lobelia), is a permanent bed of Tritomas, which hold up their orange and crimson maces as thick as possible. These Tritomas would, however, show to most advantage if planted with the Arundo conspicua, the white plumes of which form the happiest contrast to their glowing spikes. The Pampas-grass would be better still, but I have not been able to make them blossom together. A patch of Tritomas on the corner of the lawn has been a failure, owing to the carelessness of a gardener, who cut them down with the grass in mowing.

One other bed, also a permanent one, I have still to mention. It is a mass of Anemone japonica alba with Statice latifolia round it. This Anemone, with its white blossoms surrounding a yellow centre and looking just like some very perfect white wild Rose, is a beautiful flower, and the grey branched sprays of the Statice harmonise wonderfully with it.

All along the vinery border has been a long row of Stocks, Asters, and Mignonette, and the scent has been delicious, especially towards evening, or after a warm shower of rain. In hot weather the garden is almost too hot, when the sun is full upon it, and I have always taken care to grow the night-scented Stock and other flowers of the kind, so that the garden, as evening comes on, may be as sweet as possible; but this year these annuals, with several others, have done no good. On the other hand the large tall Œnothera opens hundreds of yellow stars each night; and, better still, the beautiful Œnothera taraxacifolia on the herbaceous borders unfolds a number of its large white blossoms, which gleam out among the rich green foliage close upon the ground. Next year I think I will have an entire bed of this white Œnothera; it will be worth the space.

The Dahlias have been good with me this year, but I have done badly in Hollyhocks. The Tobacco plants which I generally grow, and which were last year so handsome, have also failed me; and so have the Ice-plants, the Egg-plants, and the Amaranthus salicifolius, nor do I see any sufficient reason for it.

The Tuberose, the flower which, even in the perfect garden of the "Sensitive Plant," was said to be—

"The sweetest flower for scent that grows,"

has been very sweet with us. But we dare not leave it in our garden; we bring the pots, with their tall green wands tipped with delicious tufts of bloom, into the centre hall, and the warm perfume rises up the staircase and floats along the open gallery above.

Sept. 19.—I have just gathered from the wall between the vineries the finest blossom I ever happen to have seen of what I maintain is the finest flower in the world—the Magnolia grandiflora—so large and round it is, of such a rich cream colour, and with such a rich strong scent! The Tuberose even seems a plebeian flower by the side of the Magnolia. Once only have I seen the Magnolia growing upon a lawn as a standard, and I never saw any flowering tree so grand, its dark green leaves lifting up the large white chalices as if to catch the freshest dews from heaven. But what must it be where this beautiful tree grows wild, as on the

"Hills with high Magnolia overgrown,"

where Gertrude of Wyoming was used to wander?

And as I gather this Magnolia, the feeling comes across me that now the year is over as regards the garden. We may have another month of flowers, but they are the flowers that linger on, not the flowers that open out new pleasures for us; the Michaelmas Daisy alone remains, before we reach the Chrysanthemums and the flowers of winter. We have now had all that summer and autumn had to give us, and it seems as though Nature had exhausted all her energies, and was ready for a long rest. The Fuchsias, that come up year by year, are still in great beauty. The Jasmine, with variegated leaves, that clings round an old brick pedestal in the middle of a Kalmia bed, still opens its white blossoms. The Escallonia, that grows up the house, will hang its red flowers in front of the library windows for a fortnight still to come. But the year is virtually at an end, and we talk only of the bulbs for the spring, or of the moving of shrubs in the early winter.

Yet I find two things of which I have yet to speak. The Asters have been good. I had planted them in among the standard Rose beds, and very gay they are. Many years have past since I found the wild Aster of America growing on the hill-side at Concord behind Hawthorne's house, and reminded him of Emerson's lines—

"Chide me not, laborious band,
For the idle flowers I brought;
Every Aster in my hand
Goes home loaded with a thought."

Then, by the side of the vinery, is growing a little row of Indian Corn. The plants stand each from 9 to 11 feet high, and each bears its flowering plume above, and its tasselled ears below. There are two varieties, one yellow and one red. I brought them on in heat, and planted them out when they were about a foot in height. And this year, as for three years past, they have ripened with me, and so I send our Editors a specimen, and with it a curiosity which I hope they will be able to explain; it is a piece of the flower, which has itself fructified! I am not botanist enough to understand how this has happened. *H.* [It is simply an admixture of the seed-bearing flowers with the pollen-forming flowers—a not very uncommon event, though ordinarily the male and female blossoms are borne in distinct spikes or panicles. Eds.]

TRANSPLANTING AND REMOVING EVERGREENS.

The season for planting the above may be termed a vexed one, for people certainly differ in opinion respecting the best and most proper time this operation should be performed; some advocate autumn planting, whilst others advocate spring. The removal of evergreen shrubs is a most important consideration in ornamental gardening, and should receive every attention. There cannot be any doubt, where labour is plentiful and a good supply of water at command, that small shrubs may be removed at almost any season with nearly equal success, but in the case of large plants success is not so certain. I am of opinion that there is certainly one time better than any other for performing every operation, especially of gardening, the time for the fixing of which is to be found in the immutable laws of vegetable economy; and the various scientific operations of the skilful horticulturist are guided by these axioms, and a knowledge of them is indispensable to the success of his performances. Two seasons of the year appear to be certainly not favourable to the removal of evergreens, viz., when the roots are in the greatest action, and again when the roots are comparatively in a torpid state; in the former instance the plants will suffer from the natural season of excitement which the more or less unavoidable mutilation of the roots will render them unfit to sustain, whereas in the latter case the fibrous roots will perish from the extended period during which the plants will be compelled to remain in a torpid state Well, a time between the two extremes (the month of April) would appear to be a suitable time, but this would certainly be a most unsuitable month, as at this season all vegetable life is waiting for the influence of a genial sun to discharge its accumulated provisions into leaves, flowers, and fruit. The branches must sympathise with the roots, which at the three periods cited ought not to be disquieted.

It will be perceived from the preceding observations that there is yet another season at which the proceedings of the skilful gardener may be rendered successful, and the guide for discovering this period is a very simple one. My attention was first drawn to it by the late Mr. Glendinning many years since. The time I propose, shall be alike free from extremes of either present or immediate prospective excitement, and yet shall not be the season of maximum transpiration. It is a well-known and understood fact, as well as a matter of common practice, that the successful propagation of a great number of evergreen shrubs is prosperously effected at the time when the young shoots have attained a firmness of texture, easily distinguished by the practical operator; for instance, the Laurel, which will have arrived at this condition about the end of August. These cuttings then contain abundance of the active circulating fluid, which, in its downward course, forms a callosity, which presently emits roots. It is at this season during the declining year which will be found the most desirable season to conduct the operation of transplanting evergreen shrubs. The young shoots at this season will have attained sufficient maturity to render their suffering from removal or from the aridity of the season very trifling, as the whole plant will contain enough of the active sap to propel fresh spongioles when located, so that, after copious watering, the general appearance of the plant will have sustained little change. I therefore come to the conclusion that early in September is the most suitable time. *Edward Bennett, Hatfield Park, Herts.*

THE VIOLA OF THE ROMANS.

As I rather think I am the correspondent to whom Mr. Grindon (in his singularly interesting paper) refers, as having remarked on the fact of a diversity of opinion respecting the "Viola" of the Romans, I should be glad of a few words to explain exactly how the case stands.

It was Mr. Ruskin who first in his *Queen of the Air* wrote, "I suspect that the flower whose name we translate 'Violet' was in truth an Iris" (he is speaking of the Greek *ion*, but the Viola is no doubt whatever the *ion* was.)

In Lord Stanhope's *Miscellanies*, 2d series, which was published in 1872, a paper, which had been previously read before the Society of Antiquaries, treats of the "Viola of the Ancients."

Lord Stanhope identifies it with the Iris, and on the following grounds:—1. Because when riding through Sicily in the winter of 1825, he saw many Irises and no Violets, and heard that the country people called the Iris Viola.

2. Because Pliny speaks of Violæ luteæ, whereas there are no Violets of that colour.

3. Because Pliny also describes the Violet as growing in sunny and barren places ("apricis et macris locis"), whereas really Violets always grow in the shade.

4. Because he speaks of the Violet as springing from a fleshy root-stock ("ab radice carnoso"), whereas the Violet root is fibrous.

5. Because Ovid couples the Violet with the Poppy and the Lily as flowers which, when broken off, hang their heads to the ground.

I chanced, when Lord Stanhope's *Miscellanies* appeared, to review it for a literary journal, and I went at some length into this question, which interested me a good deal.

I need not say much as to Lord Stanhope's not finding Violets in Sicily in winter, for the question is, whether he would not find them in Italy in spring. Nor does the fact of the Sicilian peasants speaking of the Iris as a Violet disturb me any more than when I hear a Scotch peasant speak of the "Hairbell" as a "Bluebell."

The real authority is Pliny, and Pliny settles the question completely. He says (I quote for convenience from Bohn's translated edition):—"Next after the Roses and the Lilies, the Violet is held in the highest esteem. Of this there are several varieties, the purple, the yellow, and the white, all of them reproduced from plants, like the Cabbage. The Purple Violet, which springs up spontaneously in sunny spots, with a thin meagre soil, has larger petals than the others, springing immediately from the root, which is of a fleshy substance. This Violet has a name, too, distinct from the other wild kinds, being called 'ion,' and from it the ianthine cloth takes its name."

He goes on to say that of cultivated kinds the yellow Violet is held in most esteem. He speaks then of the Tusculan and marine Violet as having broader petals than the others, but being less sweet, while the Calathian Violet is also without scent.

A little further on he describes the Iris itself, and says "the stem of this plant is a cubit in length and erect, the flower being of various colours like the rainbow, to which circumstance it is indebted for its name." It is, he adds, a plant of a caustic nature, and the root is used in perfumery and medicine, but the flower is *never employed for garlands.*

After this, perhaps, it is needless to add that of course Lord Stanhope is mistaken in supposing that there are no Yellow Violets (he may find any number half-way up the Rigi), or that Violets do not often grow in sunny and sterile places, or that the purple Violet has not a fleshy root-stock.

That the sweet Violet, which Pliny says was used for wreath-making, was generally cultivated is certain from Horace's

"Tum *violaria* et
Myrtus, et omnis copia narium
Spargent olivetis odorem."
Odes, ii. 15.

Then, again, the Sweet Violet was used for the flavouring of wine—the "vinum violatum."

There are other passages in which Pliny speaks of the sweetness of the Violet. He says it is sweetest at a distance, and that it has no scent except in the flower itself.

There can be no doubt then whatever (I conceive)

that the Greeks, when they spoke of the "ion," or the Romans of the "Viola," generally meant our Violet, and that the Violet-wreaths were made from this familiar flower.

Still the name was perhaps loosely used, and it is highly probable that the flower to which Ovid refers, in the passage which Lord Stanhope quotes, was the Snowflake or Leucoion (literally, "White Violet"). *H.*

I find Lord Stanhope's paper was first read as long back as 1830.

FOUNTAINS.

ONE of the most striking features of the International Exhibition held at Florence in the course of the past spring was the fountains. In this country, if at a flower show we contrive to have a central circular basin and a small jet, we think we have done enough, and it is a chance if we have not constructed one on such a small scale as to be quite disproportionate to its surroundings, or one which is as ugly as it is possible to make an essentially pretty thing, or still more often one which is absurdly out of place by reason of its position where a fountain is not wanted. One of the most effective of architectural fountains, if we may so call it, is that at the end of the Boulevard Saint Michel at Paris, where the water flows in a wide unbroken sheet over an incline of stonework, architectural steps, &c., and surmounted by a figure of the Archangel. The main object of a fountain is utility. No matter how ornamental or elaborate it may be, if it is useless by virtue of its position and surroundings it cannot be awarded the highest praise. Even in Italy many of the finest fountains, as works of art, are rendered ludicrous by the fact that the art is everywhere and the fountain comparatively nowhere: Horace's maxim, *Ars celare artem*, is as entirely disregarded as is the object for which the so-called fountain was constructed. There is a glaring instance of this in the trumpery fountain lately placed in Leicester Square, around and beneath the ill-designed pedestal that supports the statue of Shakspeare.

Owing to the possession of the beauty of appropriateness many of the simpler fountains in the old German and Swiss towns are preferable to the more ambitious structures in Italy.

In this country our notion of beauty or appropriateness in the matter of fountains is apt to show itself in the erection of a pump; while, if we call in art to the rescue, we produce such things as the dumb-waiters in Trafalgar Square, the puerile squirts in Leicester Square, or such things as the hideously ugly drinking fountains with which the metropolis has of late years been endowed. The simple jet which plashed its music in Fountain Court, Temple, was sometime since replaced by an abortion from the stonemason's yard; but we are glad to see that better taste has prevailed, and that the original jet has been restored.

At Canterbury, in the middle of the long avenue which traverses the pretty public garden beneath the old walls of the city, a similar mistake has been made of erecting a huge stucco monstrosity from the Euston Road, while in the basin surrounding it at the base Osmundas and other Ferns are thriving well. How far more effective and appropriate would have been a simple jet in this situation. The Ferns then would have been quite in place; as it is, one wonders which is most out of place—the fountain or the Ferns.

At Florence, as we have already remarked, quite one of the most beautiful features of the Exhibition consisted in the noble jet which shot up from a spacious marble basin nearly to the roof of the building. At one end of the building was a cascade falling over mimic rocks and tufa, and amid Conifers and other shrubs. The idea was pretty, but there was a deficiency of water—there generally is in such constructions.

Our illustrations (figs. 80 and 81) represent two of the fountains in the side aisles of the Florence Exhibition. It may readily be seen how much better the Triton fountain would have appeared had the two side figures been removed. They have nothing whatever to do with the fountain, and are altogether out of place.

FIG. 80.—TRITON FOUNTAIN IN THE FLORENCE EXHIBITION.

THE SCOTTISH ARBORICULTURAL SOCIETY.

WE take the following extracts from the address delivered by Dr. Cleghorn, F.R.S.E., at the twentieth annual meeting of the above Society, from the recently issued *Transactions*. Dr. Cleghorn began his address by thanking the Society for the honour they had done him, and by expressing his gratification at the presence of so many of the members. With much appropriateness the President alluded to the kindness of Professor Balfour, with whose permission the meeting was held in the lecture-hall of the Botanic Garden, rich, like its Museum, in objects of interest to professional and scientific foresters, and then proceeded with the subject-matter of his address as follows:—

As a large proportion of those present have recently joined our ranks, it may not be inappropriate to refer briefly to some points in the history of this Society, and to congratulate ourselves on its prosperity and progress since its commencement in 1854.

From the records I learn than the duties of Secretary were performed by Mr. J. Alexander (of Messrs. Dickson & Co.) from 1855 to 1858, the first volume of *Transactions* being edited by Dr. George Lawson, now Professor of Natural History and Chemistry in Dalhousie College, Halifax, Nova Scotia. In 1858 the secretariat devolved on Mr. Robert Stark, nurseryman, lately deceased, who continued to act until, in 1861, the duties were taken up by our present efficient secretary, Mr. John Sadler.

The first President, chosen in 1855-6-7, was Mr. James Brown, the well-known author of *The Forester*, who, with his two sons, has done much for the ad-

vancement of arboriculture. In 1857 the late Earl of Ducie was President, and contributed a valuable paper, entitled "Remarks on the Effects of Geological Position on certain Coniferæ." His successors were the Earl of Stair, 1858; Sir John Hall, of Dunglass, in 1859; the late Duke of Athole, 1860; John J. Chalmers, of Aldbar, 1861; Earl of Airlie, 1862; Right Hon. T. F. Kennedy, of Dunure, 1863; Robert Hutchinson, of Carlowrie, 1864, who remained in office till 1872, and who has laid us under great obligations by his continued exertions on behalf of the Society.

Financially, the Society has had a very fluctuating experience. For some years the income was extremely small. There is reason to hope that, with growing popularity and an increasing number of members, the income will now steadily rise, as the funds are still inadequate to meet many desirable objects connected with our Society, such as the wider circulation of our *Proceedings*, the formation of a library, and grants for scientific inquiry.

The examination of our printed *Transactions* proves that a considerable change is taking place in the subjects to which our attention is directed. During the first four years I find that out of twenty-five papers and reports the great majority were on purely practical subjects connected with the routine duty of a British forester, such as drainage, pruning, thinning, fencing, and the like; but a wider scope has lately been given to our efforts, and papers have been recorded on the influence of climate and soil, the growth of various introduced trees, improved instruments, Continental systems, Indian forestry, and collateral branches of science. The estimation in which our *Transactions* are held may be inferred from notices in journals, and from the following letter of Dr. Brandis, Inspector-General of Forests to the Government of India, a very high authority on forest science and administration, with whom I was long associated, and from whom I have often derived valuable information:—

"I write to express to you my obligations to the Scottish Arboricultural Society for sending me their *Transactions*, which contain numerous most interesting and instructive papers. I beg to suggest that copies of these volumes be sent to the leading forest schools and associations of foresters on the Continent. I fell assured they will be received with pleasure, and this may lead to a mutual interchange of publications. I shall be obliged by your conveying to the Council the expression of my cordial wishes for the prosperity of the Society."

I feel assured that it will be mutually beneficial to comply with the request to send our *Transactions* to the officials and associations named by Dr. Brandis, and to cultivate, as far as possible, a free interchange of experiences. This will tend to fulfil the object of the deputation which it was proposed last year should visit the Continent, and we may hope to receive in Scotland some of the eminent foresters of those countries, to whom we could show much that would be highly interesting and instructive.

Among the materials for an address on the progress and state of forestry in Britain I specially notice a small volume of *Reports on Forest Management in Germany, Austria, and Great Britain*, lately printed by order of H.M. Secretary of State for India (Duke of Argyll). [This volume was noticed in our columns, 1873, p. 1463.] The following passage relating to Scotch Fir forests in Germany I may quote by way of example:—

"In the plains of North-east Germany, Hanover, Brandenburg, Saxony, the extensive Scotch Fir forests, which are mainly regenerated by sowing and planting, should be visited. Insects have been the great difficulty in many of these tracts, and in some cases an attempt has on that account been made to revert to natural regeneration. In the eastern provinces of Prussia forest fires have been most destructive. The Scotch Fir forests of Franconia (Steigerwald, Hauptsmoor, near Bamberg) are principally maintained by self-sown seedlings. In these forests the sucessful employment of an underwood of Beech to improve the growth of the Scotch Fir should be noticed. In the forest tracts round Kloster Ebrach the results of this system are seen in the shape of magnificent stems, with dark red heartwood, which fetches a higher price than Oak. A different sort of management may be studied in the sandy alluvial plains of Hesse-Darmstadt. The forest crop (Scotch Fir and sometimes Oak) is made to alternate with cereal crops. This remarkable system should be studied in the grand ducal forest district of Viernheim, where it is in force on an area of 5000 acres. The forest crop is cleared and rooted up, and the ground is then planted in lines with Scotch Fir, on better soil, mixed with Oak (the Scotch Firs acting as nurses to the Oak), and Potatos are planted between the lines. The second year a crop of Rye, and then two more crops of Potatos and Rye, are taken. In this manner the young plants are sheltered during the first four years of their existence, and the ground is kept clear of grass. Under the peculiar circumstances of the locality, deep but moist sand, much exposed to late frosts in spring, this system answers admirably, the growth of the trees is better than where no crops are taken off the ground (in the vicinity), and in addition there is a surplus from the agricultural part of the operations. Forest officers from Burmah will be glad to see this system, which is analagous to what was introduced in 1864 in the Teak plantations near Toungoo."

On March 24, 1873, a paper was read by Mr. William Brown, at the Institution of Surveyors, London, on "Beech Woods and Larch Plantations," which was followed by an interesting discussion, recorded in the *Transactions* of that Society, vol. v., pt. ix. The remarks of the various speakers (Messrs. William Menzies, John Clutton, &c.) contain the testimony of practical men as to what they have seen and practised themselves, but very contradictory statements are recorded. For instance, Mr. Clutton, a high authority, averred that "his experience of late years in England and Scotland led him to believe that the Larch is a doomed tree;" while Mr. Brown and Mr. Sedgewick think that the planting of Larch in suitable soils should be encouraged, and that it will pay remarkably well. When persons of long experience, entitled to every consideration, enunciate

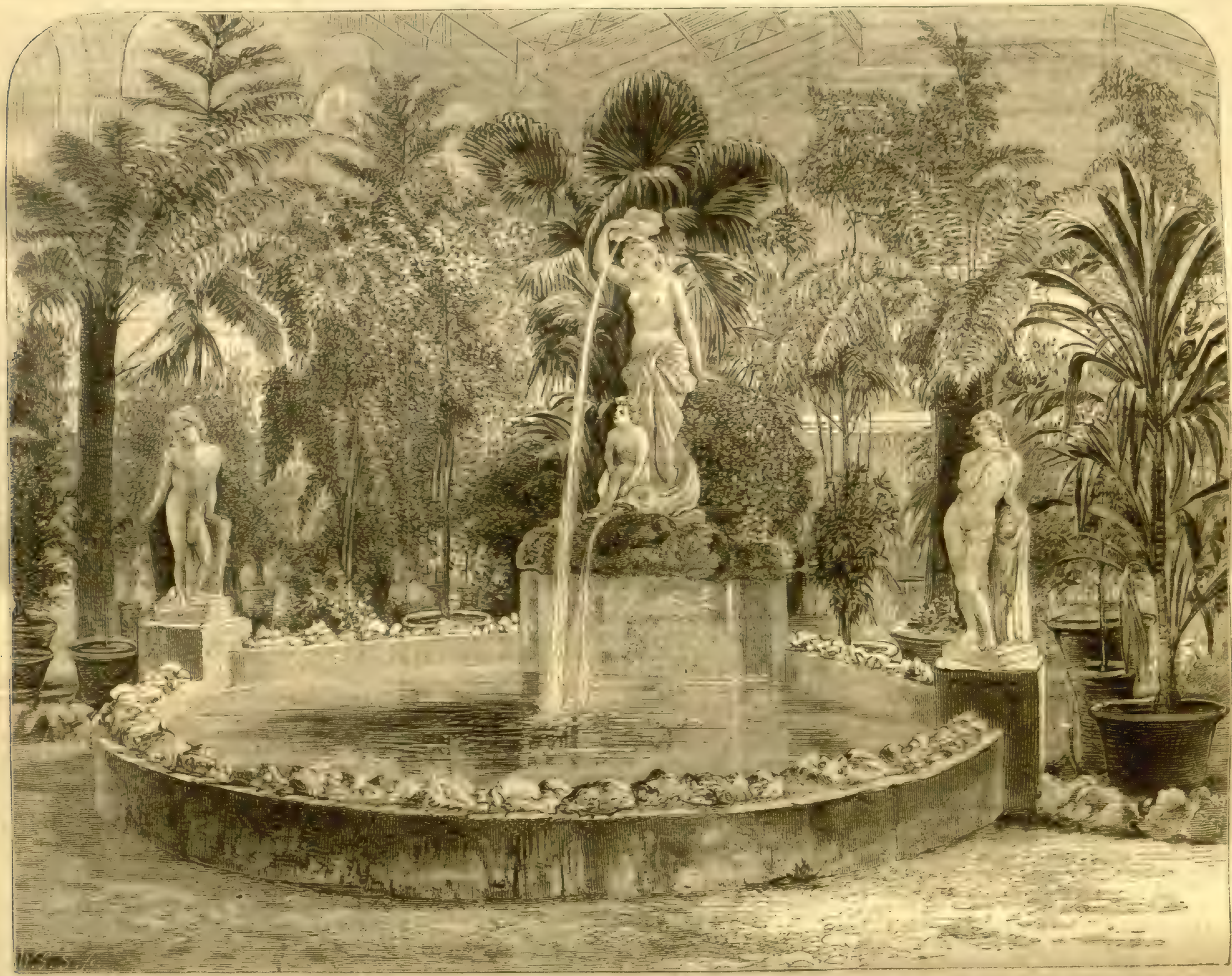


FIG. 81.—NYMPH FOUNTAIN IN THE FLORENCE EXHIBITION.

opinions so opposite, surely it should be our endeavour to test the matter, and to expiscate the truth, dealing with the question on scientific principles and in a scientific manner.

With regard to the influence of the denudation of trees on the rainfall of North Britain, which has been repeatedly alluded to at our meetings, I may mention that a brief preliminary report of the committee's proceedings was read at the British Association at Bradford in September. Two localities were selected after much correspondence, and in one (Carnwath) the recording of systematic observations has commenced. The subject is confessedly a most difficult one to investigate, and I would caution you against forming conclusions from the experience of one or two years, and not to expect much from the observations in one locality.

In regard to this inquiry, *Man and Nature*,* by the Hon. G. P. Marsh, United States Plenipotentiary at Florence, is a most interesting and valuable work, treating the subject broadly and generally, recording many remarkable facts in history and physical geography; but the author does not attack the subject instrumentally, or enter upon a rigid inquiry based upon numerical data. Indeed, our best meteorologists admit that we are not in a position at present to grapple with the problem directly by instrumental observation. For, from the capricious distribution of the rainfall at all times, many years must be allowed to elapse (at least twenty or thirty years) before the influence of forests on the rainfall can be unmistakably indicated from the data collected by gauges, supposing even that rain-gauges are planted over a district in positions suited for the proper investigation of this question.

The only satisfactory means of investigation that can be recommended as likely to lead to successful results is to consider it as part of the more general question, viz., the influence of forests on climate, particularly on the two great elements of climate, temperature and humidity. This branch of the question has not been investigated with so much success as has attended Mr. Marsh's inquiries into that part of the problem with which he deals. Indeed, the examination of the temperature and humidity can only be said to have commenced. In France Becquerel has given a good deal of attention to the question, and published the results of his investigation concerning it, but these are unfortunately unaccompanied by the requisite details, and the conditions under which the temperatures were observed are not stated with sufficient exactness. Signor Rivoli in Italy, Paul de la Cour in Denmark, and some others, have done a little in the investigation of the subject. But Mr. Buchan, Secretary to the Scottish Meteorological Society, informs me that the most systematic series of observations set on foot in the prosecution of this inquiry are those of Ebermeyer in connection with the forest school at Aschaffenburg, in Bavaria, of which the results are regularly published.

The ground already gained is valuable chiefly as being suggestive of what may be expected in future, and the most likely methods to be adopted in prosecuting the inquiry. So far as concerns results already obtained, however, extremely little is positively known.

The rapid rise in the price of coal, to which I alluded last year, has attracted the attention of the Legislature, and a Coal Commission Blue Book has appeared, while scientific opinions on the state and prospects of our mineral fuel supplies have during the past year been communicated from many quarters. In a country where the winter is long and severe, the supply of fuel at a moderate price is as essential to the common welfare as a sufficient supply of food. Indeed, every man who has any regard for the comfort of the poorer classes must be watching with interest all the schemes and discussions for saving fuel. And in what way, in may be asked, is this connected with the work of foresters? When we see samples of peat compressed by various processes exhibited at the Society of Arts, and notice that four companies with large capital have been formed in different parts of Great Britain for the purpose of manufacturing peat-moss into a useful fuel, it seems certain that the branches and fragments of our woods, which are now in many places unsaleable, may be disposed of to advantage. This would, of course, greatly stimulate the planting of rocky hills and waste places not now utilised, where trees might grow with very little attention. I have endeavoured to make calculations to prove the practicability of firewood sales in Scotland, but so much depends on soil, climate, growth, and proximity to a market, that it is not possible to give reliable figures. That the value of firewood will rise much may reasonably be doubted on account of the rapid and cheap means of communication, and because the dearness of fuel would operate as a check to productive industry. In country villages, where a supply of firewood is available, wood is still used for firing, and in large towns faggots are in great demand. But, from the analysis of manufactured peat by Clayton's process, it seems probable that this article will come into more general use than wood fuel. The estimated cost of this peat at the manufactory is about 8*s*. per ton. A recent analysis which has been made shows that it gives 8000 cubic feet of gas per ton.

Many insects are most injurious to forest trees, and comparatively little has been recorded concerning them. In this country it is known that our most useful trees have their particular enemies. Ash is assailed by Hylesinus fraxini, Elm by Scolytus destructor, Larch by Bostrichus laricis, Scotch Fir by Hylobius abietis and Hylurgus piniperda, Willow by Trochilium crabroniforme (the lunar hornet sphinx), and others. The Plane, Mapple, and Walnut suffer less severely. Much interesting and reliable information about insects is given in Selby's *British Forest Trees* and Loudon's *Arboretum Britannicum*.

In like manner, incalculable mischief is caused in India by the destructive agency of white ants and other insects. One insect (Bostrichus) reduces the Bamboo to an impalpable powder; another infests the seeds of Tamarinds (Calandra tamarindi), which crumble to dust; and the Coffee-bug (Coccus coffeæ) has been destructive to Coffee estates in Ceylon and Coorg. In some parts the carpenter-bee (Xylocopa) bores through posts, rails, and beams, occasioning serious injury to houses. In visiting wood depôts one cannot fail to observe the damage caused by timber-eating beetles, and it is important to trace out the history of these destroying agents and to apply a remedy. Any observations upon the natural history, economy, and proceedings of such insects as are injurious to trees (living or dead), and any detail of experiments made for the destruction of the insects, or for preservation from their attacks, might be of much practical utility. Figures of the insects in their different states, and specimens of the wood showing the effects produced, would enhance the value of such communications. The highest authorities known to me in this country regarding insects which attack forest trees are Mr. James Hardy, Penmanshiels, Berwickshire, and Mr. Albert Müller, London,* who have devoted themselves to this branch of entomology, and whose opinion might be valuable to those whose trees are suffering from the depredation of insects.

This leads me to dwell for a moment on the importance of quickening your power of observation. The forester, like the farmer, has to watch the seasons, the destructive effects of insects, and many incidental circumstances, including the rise and fall of the markets, which hasten or retard his felling operations, the profit or loss being materially affected by his shrewdness and judgment in availing himself of all advantages.

In selecting trees to be felled, the condition and qualities of each individual tree have to be examined as a farmer studies the peculiarities of his cattle. Some trees are of a more rapid growth than others; these should be left as long as this quality shows itself, and such as have increased but little should be selected as the first disposable.

I believe it is common to find men engaged in forestry more enthusiastically attached to their profession than in any other calling; they are always surrounded by Nature, which ever presents some new aspect to interest and delight those who study her. And here I would suggest that the long evenings of the coming winter would be well spent in acquiring some knowledge of the *scientia amabilis*, illustrations of which surround us here. By a knowledge of the structure and properties of the plants you see daily in the exercise of your calling, the pleasure enjoyed in your work would be vastly enhanced. The study of the structure of our common woods, with the help of an ordinary pocket lens, cannot fail to be both interesting and useful.

You must not lose the opportunity to-day of visiting the Museum of Economic Botany, where you will see some objects familiar to you, and many from distant countries fitted to attract your wonder and admiration. The Pinetum formed under the superintendence of Mr. M'Nab contains the finest collection of Coniferæ I have ever seen, and they are arranged so skilfully that a careful inspection cannot fail to prove instructive to such as have already some knowledge of the habits and requirements of this family.

In conclusion, I regret to say that the Society has to lament the loss during the year of several distinguished members. Amongst others, Professor Davidson, Veterinary College; Mr. Robert M. Stark, nurseryman, formerly our Secretary, the author of a popular *History of British Mosses*; Mr. M. Buist, factor at Tyninghame; and Dr. J. L. Stewart, an Indian botanist, who, while Conservator of Forests in the Punjab, submitted valuable reports on forest questions in that province. Two years ago Dr. Stewart offered a prize for an essay, to be sent to this Society, on the present state of the cultivation of Cedrus Deodara in Great Britain and Ireland, which, I regret say, has not yet been competed for. Although Dr. Stewart has passed away the prize is still offered, and, it is hoped, will soon be won.

* London, 1864; and Florence, 1870.

* Appointed Director of the Zoological Garden, Basle, Switzerland.

INVERGORDON CASTLE.

THE seat of R. B. Æ. McLeod, Esq., of Cadboll, is situated in Ross-shire, about a mile north of the thriving town of Invergordon, and is entered from the south by a fine drive of over a mile in length, in a straight line, and from the west by another of nearly the same length, with some fine curves in it. On each side of these approaches there are belts of fine trees, many of them of large size and handsome proportions. Some three years ago Mr. McLeod decided on erecting a new castle on the site of the old one. The erection is now nearly completed, and is a noble pile in the Elizabethan style of architecture, with a fine tower in the south-east corner, from which very extensive and varied views are to be had.

In front of the Castle there is a large space of kept ground, and on to the south again there is a fine avenue of Limes, of very large dimensions, 700 yards long, and 70 yards wide between the belts. Turning to the right, and on each side of the western approach, the great feature of the place is reached, viz., the grand collection of Rhododendrons, probably the finest in the North of Scotland, both as regards size and quality, and still Mr. McLeod goes on adding to his collection. One striking feature noticed in connection with these fine shrubs was, that the outskirts of the plantations were all fringed with them, wherever it could be conveniently done, in rows two or three deep. Most of the plants are not of any great size yet, but in time they must have a very fine effect, and add still further to the beauty of this delightful place. All the arrangements, both in the old and new plantations, are very creditable to Mr. Harvey, Mr. McLeod's head gardener. Some distance from the Castle there are a few remarkably fine specimens of Oaks, growing principally in pure sand with a very slight mixture of soft peat Dispersed through the park are some noble examples of Beech, Lime, and Oak.

A few hundred yards south-east of the Castle is situated the kitchen garden, of about 3 acres in extent, surrounded by a most substantial stone wall, In this I found a very neat greenhouse, filled principally with soft-wooded plants in fine flower, and two good sized vineries, with a very fair average crop in each of them; of Apples, Pears, and Plums a good average crop, and all sorts of small fruit very plentiful. The outside garden is sub-divided by hedges of the common Box; one which I measured was over 12 feet high and 9 feet through. On visiting the home farm I found all sorts of crops exuberant, Turnips being remarkably fine. I may mention that these grounds were laid out by the gardener to Queen Anne, allowed to be the same person who laid out the grounds at Hampton Court. *John Downie, West Coates.*

THE OLD WALLS AT KEW.

(*Continued from p.* 323.)

IN the first place I wish to rectify an error in my last article respecting the native country of Clematis montana, to which a correspondent has kindly directed my attention. At p. 323 the south of Europe is given as its home, whereas it comes from northern India, where it has a wide distribution, ascending to a great altitude in some localities.

Amongst deciduous climbers, where variety is the object, Aristolochia Sipho is deserving of a place, though we should not recommend it to be planted to the exclusion of other more attractive things where the space is limited. It is a native of North America, where it bears the names of Pipe Vine and Dutchman's Pipe, in allusion to the very peculiar shape of the flowers. The distribution of this particular species is not very wide, in fact very few of the upwards of 150 species comprising this genus, have an extensive range. Asa Gray gives it from Pennsylvania to Kentucky. The genus is, however, very widely dispersed, being represented in nearly all warm and tropical regions throughout the world, including Australia. One species, A. Clematitis, is naturalised in Britain in the vicinity of ruins. This is an erect-growing herbaceous species, with cordate leaves and clustered yellow flowers. It is, however, a native of Europe, as are several other species. A. Sipho is a shrubby climber with ample cordate leaves, and solitary dull purple and yellow streaked flowers borne in the axils of the leaves. The corolla, or perianth as it is usually termed when there is only one floral envelope, assumes most grotesque shapes in this genus, varying from 1 inch to 4 feet in circumference. The very large flowered species are found in tropical regions. Extraordinary medicinal properties are attributed to some species, and curiously enough the same virtues are ascribed to different species in the most distant parts of the world. Aristolochia is a long name, and like the English name, Birthwort, owes its application to the supposed efficacy of some species in cases of difficult childbirth. It comes from ἄριστος, best, and λοχεῖος, parturition. But it is as a cure for snake bites that they are most celebrated, though to what extent, if at all, they possess this

power, is still uncertain. There is, however, little doubt that some of the species furnish a valuable drug. The particular species under consideration does not enter into this category, but A. Serpentaria (the Snakeroot) from the same region, has a great reputation as a remedy in cases of snake bites, &c. In addition to the strange form of the flower, the position of the stamens, adhering to the style and almost concealed by the projecting lobes of the stigma, and the peculiar structure of the wood, in radiating plates, are points worth noting.

The next on my list is a Rose, but such a strange, unattractive, though exceedingly instructive Rose! I mean the green Rose or Rose Verte of the French. It may be as well to explain at once the unusual character of this variety, which may done in a few words. The floral organs, both enveloping and generative, are more or less completely transformed into, or better, developed as, green, veined, glandular leaves. The lesson this conveys on the morphology of plants may be briefly stated as follows. It has long been the accepted notion of botanists that all the organs borne upon the stem and branches of a plant are modifications of one and the same thing, all tending to the same end, but each possessing a distinct function. Hence the terms foliage leaves and floral leaves. It is well known, too, that under different conditions plants will either grow vigorously and produce little seed, or they will make little growth and flower and seed profusely. But the change of one organ into another is termed abnormal or monstrous, and sterility is often a consequence. It would lead me too far here to enter thoroughly into this subject, but I may mention that there are two kinds of abnormal development or metamorphosis, a backward and a forward. In the green Rose we have a backward or retrogressive development, in the reversion of the petals and stamens and carpels to foliage leaves. It is one of the most complete cases known, and is quite constant. In some cases the bracts, in others the sepals, petals, stamens or carpels, assume the form of ordinary leaves; but here, with an almost normal calyx (the lobes of which in almost all Roses have a leafy character), we have petals, stamens, and carpels more or less completely represented by ordinary leaves, fully bearing out the theory described above. I cannot forbear calling upon young gardeners especially to study this branch of botany. It is one of the most enticing, and at the same time one most easily pursued by the practical man, and one that may lead up to something of which we have very little idea at present. The nature and significance of the metamorphosis in the green Rose is more fully explained and illustrated by Arthur Gris, in the *Annales des Sciences Naturelles* for 1858. The origin of the green Rose is somewhat obscure, though in French and German works it is said to have come from a small English nursery. At all events, there is no doubt it went from here to the Continent. In the *Gardeners' Chronicle*, p. 664, 1856, I find a note by the Editors, who had received a specimen of it from "J. M.," and the question is put, "Did it originate with you?" I have not succeeded in finding a reply to that question. Notices of this peculiar variety appeared in various English and Continental journals, 1856—1858; and Van Houtte gave a coloured plate of it in the *Flore des Serres* in 1856. But my doubts as to its origin are based upon specimens of the very same thing in the Kew herbarium, both from St. Domingo and Demerara. Sir Richard Schomburgk sent it from the former place in 1857. The Demerara specimen was received from Governor Barkly, but there is no date with it. There is, however, a specimen taken from a plant in the gardens labelled "Hort. Kew, Governor Barkly, 1855." Of course it is not a native of either of those countries, as they have no indigenous Roses, and this is a variety of Rosa indica, or, as it is sometimes called, diversifolia. I may add that there are two forms—both varieties of the same species—of green Rose, one with lanceolate and the other with broadly ovate leaflets. The plant in the gardens is possibly the original, of that form at least. At the present time it is in flower.

We will pass on now to the neighbouring family, Leguminosæ, a family containing at the lowest estimate 6500 species, belonging to 400 genera. Plants of this family form a large percentage of the flora of all regions except the frigid and New Zealand, the home of Sophora (Edwardsia) tetraptera, the subject now under consideration. The very small number of Leguminosæ in the flora of New Zealand is one of its most noteworthy features, and I shall have something more to say on this subject when noticing the endemic genus Carmichælia. Meanwhile, I will confine myself to a short description of Sophora tetraptera, better known perhaps as Edwardsia tetraptera. Edwardsia was separated from Sophora on account of its longitudinally four-winged pod, the standard or upper petal being erect and shorter than the keel, and protruding stamens, but species intermediate in character have necessitated their union. S. tetraptera is an extremely variable plant, the extreme forms having all the appearance of distinct species. It has pinnate leaves, with numerous very small leaflets, and dense clusters of large, rich yellow flowers, forming a very ornamental plant for a wall. The variety in question is termed grandiflora, and it is larger in all its parts than microphylla, which we shall meet with farther on. It was introduced in 1772 and figured in the *Botanical Magazine*, plate 167. It requires protection in very severe weather, and a warm, well-drained soil is necessary.

The favourite genus Clematis again claims our attention, and this time it is the old C. florida var. Sieboldii that does the honours. It was the first of the Eastern species introduced, having been in our gardens ever since 1776; but the new hybrid varieties are fast displacing the original forms. This variety has white flowers with a purple-violet centre, and they are produced in great profusion. It is not so hardy as some others; and will probably soon disappear from cultivation.

A magnificent plant is Wistaria sinensis, and one that is familiar to almost everybody; but the less showy North American W. frutescens is rarely grown. It is a handsome plant, nevertheless, and would stand high in favour were its lovely Eastern relative unknown. As it is, it has some claims on our attention. It flowers later than W. sinensis, so both might be grown where there is space; and it is said to be hardier. The flowers are smaller, and have more of a reddish-lilac tinge. It is of more erect habit, and would never cover the enormous space its Chinese relative does. Gray gives its distribution from Virginia to Illinois, which does not seem to indicate great hardiness. It was introduced in 1724, nearly a century before W. sinensis. So many people will call these plants Wistèrias instead of Wistarias, just as they say Camèlia for Camellia. The genus was dedicated to Professor Wistar of Philadelphia.

The large family of Umbelliferæ, so called from the branches of the inflorescence being given off from one plane, like the wires of an umbrella, is almost exclusively composed of herbaceous plants. One of the exceptions is the handsome shrub named Bupleurum fruticosum, from the south of Europe. Like most of its class, the flowers are inconspicuous, but when in fruit it is by no means without beauty. It has coriaceous, obovate, glabrous leaves, glaucous beneath and on the midrib; and the yellow flowers are in terminal compound umbels. It is scarcely hardy inland, but for the sea coast in the west and south it would make a capital addition to the evergreen shrubs.

Diervilla trifida is a very hardy, though not very showy, dwarf shrub from North America. The Japanese and Chinese shrubs known in gardens under the name of Weigela belong to the same genus. Some of them will come under notice.

The familiar Pyracantha, Cratægus Pyracantha, is beyond question the most cheering of all evergreen shrubs for a wall in winter when covered with its rich clusters of scarlet berries. Fire Thorn is the meaning of its specific name, and very well it expresses the glowing colour of its fruit. But the ordinary South European form is far surpassed by the variety crenulata, from the mountains of India. This has larger, glossy leaves, and vermilion berries. It is quite hardy in Britain, as it grows at an altitude of between 5000 and 7000 feet on the Himalayan mountains. Let no one forget to ask for the variety crenulata when purchasing the Fire Thorn. It was introduced in 1818, and may be found in most nurseries.

(*To be continued.*)

THE BAMBOO.

A PAMPHLET has been published at Cairo by the Agricultural Department of Egypt, on the Indian Bamboo, which, it is said, is being acclimatised there with great success. The following notes are taken therefrom:—

The gigantic Bamboo, which is of colossal dimensions, growing to the height of 20 mètres, with a circumference of 40 to 50 centimètres at the base (say 65 feet high, and 15 to 18 feet in circumference), from the joints of which, especially those of the middle and upper parts, grow numerous branches with long leaves, is the most vigorous species of this arborescent plant. It was introduced some years ago into the gardens of the Khédive of Egypt, at Ghézireh, from whence it has been multiplied in two or three other gardens of Egypt. It was so much admired by the Emperor of Brazil, on his visit to the gardens of the Khédive last autumn, that he expressed his determination to import it into Brazil, and to cultivate it upon the Imperial estate as a shade for animals during the heat of summer. The gigantic Bamboo originates in India and China, and is highly appreciated wherever it is cultivated, being used for posts in pavilions and the houses of the inhabitants. The hollow joints are utilised for carrying liquids, for flower-vases, &c.; and in China, and especially India, for bottles and Tobacco-boxes, highly wrought and polished, and sold at great prices. The larger stalks are also used for bridges, water-pipes, and carts and other vehicles. In fine, the wood is employed in the arts, in a multitude of industries, and for implements of agriculture. This species of Bamboo vegetates with such rapidity that it can almost be said that one can see it grow. Its progress may be seen from day to day, and at Ghézireh it has been known to grow 9 inches in a single night. In China, criminals condemned to death are subjected to the atrocious punishment of impalement by means of the Bamboo. A humid soil is congenial to the gigantic Bamboo, although it suffers under a prolonged inundation. It is proposed in Egypt to cultivate it upon the borders of the canals in the vast domains of the Khedive. There is also in the gardens of Egypt another species of Bamboo, believed to be the Bambusa arundinacea of Willdenow. It presents the following characteristics:—The stalks are smaller and shorter than the gigantic Bamboo of India; it attains about 12 mètres (39 feet) in height; it forms larger tufts or clusters than the great Bamboo, and throws out a greater number of stalks, which are furnished with numerous slender and flexuous branches, bearing ordinarily tolerably large thorns, a little arched at the joints or articulations, and the leaves are smaller than those of the gigantic species, being rounded at the base, lance-shaped, tapering to a point, and a little downy. There is also another species of Bamboo which it is proposed to cultivate in Egypt. It attains the height of 5 or 6 mètres, produces enormous clusters of canes about the size of the finger, and makes excellent props for use in horticulture. A plant of two or three years' growth will furnish a hundred stalks, forming a cluster of vast size. This species is the Bambusa edulis, so called from the fact that its young shoots are edible, and in China regarded as very nourishing. There is still another species of Bamboo to which the attention of the cultivators in Egypt is called. It is the black Bamboo (Bambusa nigra). It is distinguished principally by its slender branches, which are of a fine black colour, and from which canes are manufactured extensively for exportation. Pens are made from the smaller stems, which are commonly used for writing in Egypt. *Society of Arts Journal.*

GREENHOUSE PLANTS.—XVI.

THEIR CULTURE AND MANAGEMENT.

LESCHENAULTIAS.—These fine plants are natives of New Holland; they comprise some half-dozen species and varieties. L. biloba major is justly esteemed as one of the finest plants in cultivation, the very cream of the hardwooded section. Its splendid light blue flowers have no equal amongst plants of this class; they are produced freely from the points of the shoots in spring and summer, lasting five or six weeks in beauty. A well flowered plant of this Leschenaultia is not only a fine and attractive subject in itself, but from its distinct habit of growth and colour it harmonises with any other plants, more especially with those bearing yellow flowers, such as the Allamandas, from which cause it has always been a favourite with exhibitors. There is no plant that has a more telling effect, or is a greater source of attraction on the exhibition stage, yet here, of late years, it has not been so often seen as in time past. There are several reasons that account for this: it does not attain so large a size as most of the subjects now grown for showing are required to do, consequently where a reasonable uniformity in size is looked for, it is found too small. It is also a short-lived plant, liable to get into bad condition, or go off, without any apparent cause. Nevertheless, it is a subject that deserves a better fate than to get into the list of neglected plants, where there is some danger of its going. It is one of the things whose cultivation every young plant grower should not rest satisfied until he has mastered. It requires somewhat different treatment than most other plants, and any attempt to grow it under the exact conditions that natives of the same country want, will end in failure. Three principal things to observe are:—In potting not a single root must be injured that can be avoided, not even by the removal of the crocks; in the winter it must not be allowed to remain long in a temperature lower than 45°; and it should never be stood in the open air. The first and last of these will cause the stunted condition it often gets into, and from which it rarely recovers, and a lower temperature than that named will speedily lead to the attack of mildew, to which it is very subject.

In selecting plants from the nursery be more particular than with most things, to get such as are young and free; this is especially essential, and of far more consequence than size, as if free it will make a foot of growth in a year. Reject any plants that are affected with brown scale, which are very fond of it, and which fatten and grow on it much better than on most things of a hardwooded nature. If young plants are procured in the autumn, than which there is no better season, they should be placed for the winter in a good house, if possible at one end, so that they may receive all the light that can be given them without subjecting

them to the effects of draughts through open lights. Keep the temperature at night up to 45°, not lower, and attend well to their requirements as regards water. At Christmas nip out all the points of the shoots; it is necessary not to defer this latter, for the plant is a continuous grower, and if the stopping is deferred until spring it is a loss of time. About the end of March remove into pots three or four inches larger, according to the quantity of roots. It is, unlike many hardwooded plants, a very free rooter; it will grow in good fibrous loam, and it is better to give it that than indifferent peat, but where good peat and full of fibre is obtainable, it is the best; use it in a more lumpy state, not break-it so fine as for most things. If the peat naturally contains but little sand, add one-sixth, which mix well. Instead of turning the plants out in the usual way, which would more or less injure the tender fleshy roots, the pots should be broken. Do not attempt to disturb a single root by removing the drainage, but transfer all together into the new pot. Make the new soil firm.

The plant is naturally an upright grower, and, as soon as potted, it should have all the strong shoots bent down into a horizontal position, bringing the more vigorous close to the rim of the pot. This will cause them to break back through their whole length. For two or three weeks they should be kept a little closer, sprinkling the stage under them; but keeping them well up to the glass. By the beginning of May they will have taken to the new soil, and be growing freely. Now, as the weather gets warmer, commence to syringe them overhead in the afternoons, and close in sun-heat. As this plant is a continuous grower, both in root and branch, all the year round, and has not to be turned out-of-doors in the summer, it is better not to give them a second shift so soon in the season as some things. By this means, also, the plants do not get so full of roots before the spring's shift as to be in the condition of being pot-bound, consequently it is better to defer the second potting until the end of July, again carefully breaking the pots with a hammer—for the more active the roots are the more liable are they to injury. Pot, crocks and all, as before. At this shift it will be necessary to shade from the sun for two or three weeks. Continue syringing the plants every afternoon, and keep the stage and floors damp until the end of August, after which cease the use of the syringe, and keep the house drier, giving more air. Treat through the autumn and winter as in the previous season, keeping the plants tied into shape. Do not now pinch out the points of the shoots until the end of February, as, if strong and stopped so early as in the preceding year, they would most likely set a second lot of flowers, which would seriously interfere with their growth. One potting will be sufficient this season—about the middle of April is the best; the additional root-room they receive must be in accordance with the progress the plants have made: if very strong they will want a 4 or 5 inch shift, as heretofore moving the whole mass, roots and crocks, giving a little shade in the middle of the day for a few weeks. Train and tie young shoots well out, so as to keep them in the desired shape, which should be round and bushy, for if allowed to assume the pointed, pyramidal form, the higher shoots will take the lead, and starve the branches near the base.

About midsummer stop all the points of the shoots, treat afterwards as before, keeping the plants drier overhead towards autumn, with more air. Give them all the light possible through the winter, but the temperature must not be lower than directed for the first winter. They will, if all goes well, set bloom freely about March, and must not have any cold current of air admitted upon them, or receive a check in any other way, for if subject to such the blooms will sometimes go blind. If the plants are intended for exhibition the shoots must be properly secured by tying, so that they will not chafe in carriage, or they will be disfigured. If used for decorative purposes they must not be crowded amongst other plants, for in a very few days they would be injured thereby. After flowering shorten the shoots back half way between the points and the place where they were stopped back to in the previous summer. Place them in a house that is kept a little close for a short time until they have broke. After they have made half an inch of growth repot, giving a 4-inch shift, moving them as before directed in every way, and subjecting them to autumn and winter treatment as in the previous year.

This Leschenaultia is not a long-lived subject, consequently those who grow it should each year procure a few young plants to supply the place of those that get worn out and refuse to grow freely. It is sometimes attacked by greenfly, which must be sought for, as they do not thrive well upon it, and consequently are small, and, being almost the colour of the leaves, are not easy of detection; notwithstanding, if allowed to remain unmolested even for a short time, they will seriously injure the leaves by the dirt they deposit upon them, and which on account of their soft nature are difficult to clean. If the insect gets into the points of the shoots after the flowers are set, it will in a very few days destroy them. When affected with this insect the plants must be fumigated. It is also much subject to mildew, which is almost imperceptible upon it, and not seen until the leaves begin to fall off through its effects. Sulphur is the best remedy, dusted all over, but the parasite is most generally produced by too low a temperature during the winter months, which should never be allowed to fall lower than already indicated.

L. formosa has scarlet flowers, which it opens freely almost all the year round. This is a desirable plant, and deserves more general cultivation than it now receives; it is a smaller grower, easier to manage, and longer-lived than L. biloba; it will in the winter bear keeping cooler, but does much better with a temperature similar to that advised for the blue variety. It is more procumbent in habit, and a much slower grower, and requires somewhat different treatment; it is a finer rooted plant, but is not so impatient of its roots being touched, consequently when potted it should have the crocks removed. The soil should be similar in every way to that already recommended for L. biloba, excepting that it will be benefited by a sprinkling of broken crocks added, about the size of horse beans. It is a free rooting subject, and requires more pot-room than its size would lead one to suppose. It does not need much tying to support it, and very little pinching of the shoots, as it is naturally a compact branching plant. To induce it to get on whilst young, the flowers should be kept picked out regularly as they are formed. So free of flowering is it that a newly struck cutting will bloom. In other respects its cultural requirements are the same as for L. biloba. It is subject to the attacks of aphides like the last named variety, for which it should be treated in a similar manner.

L. intermedia and L. Baxteri major, bearing orange flowers, are very free growers, similar in habit and in the general treatment they require; they are profuse bloomers, and equally deserving of cultivation, especially for purposes of general decoration. *T. Baines, Southgate.*

ON LAYING OUT GARDENS.

Now that the "London season" and its festivities to a great extent have passed away, with the great shows of the Royal Horticultural Society, the Regent's Park, and the Crystal Palace, with their wonderful display of superb plants and fruits and flowers of every kind, generally superb examples of first-class cultivation—add to this the great Midland Counties exhibition at Birmingham—the season may be said to be complete as far as regards great gatherings of horticultural productions and great gardeners and gardening is concerned, from an industrial or cultural point of view. The subject-matter to which I am about to draw more special attention seems to me, however, to be even of more importance than the cultivation of single or individual objects, because it embraces a very large and varied field of operations, and, if fully and properly carried out in every department, must needs result in everything being well done. Now, therefore, that the bustle and excitement of the summer has so far passed away in shows, attention may well be diverted to the higher and more lasting object of laying out gardens in a practical and refined manner.

In dealing with this subject certain rules should first of all be laid down as being of the highest importance in the working out of any design. A garden should be a "garden" in every sense of the word. It should be so arranged as to afford the utmost pleasure and comfort without toil or exertion of any kind; it should be made to be enjoyable at all times and all seasons without difficulty. Thus a series of steps should be avoided; no steep gradients and no precipices should be indulged in; and there should be no heavy terrace embankments. I take it that nothing should be done in a "garden" which could be supposed to endanger life or limb to the most infirm, even if they were to stumble in the dark. The arrangement should be such as to prevent the possibility of an accident or any break in the pleasure of enjoying every portion of the garden—otherwise, to my mind, it can be no garden.

How often do we see terraces, so-called, or embankments immediately in front of a residence, where, by the slightest thoughtlessness on the part of the pedestrian, more especially if a strange visitor, may walk out and be thrown over in one moment, and so get perhaps half killed. Surely this cannot be a proper garden arrangement. It may be all very well to call it a "terrace," but I should almost think it must have been intended for a battlement on which to face about cannon as a matter of defence against an approaching foe. No doubt, in former ages, this was the idea, but surely it is not necessary or even desirable that we should now adopt such a style, so that I think we may fairly take it for granted that the whole system should be varied to suit the gentler requirements of the present age. *W. B.*

(*To be continued.*)

PEACHES AND NECTARINES.

THE varieties found most suitable in different counties are quoted by our correspondents as follows:

BERWICK.—These do not ripen out-of-doors. The soil is a strong red clay, resting on a hard tenacious till, through which there is no natural drainage. Our average rainfall per annum is 33 inches, elevation 500 feet, on the base of the Lammermuirs. *Peter Loney, Marchmont, Dunse.*

BUCKS.—The Early Beatrice Peach here has proved to be a most valuable early variety, of good quality, but not large. Ripe fruits were gathered from a tree on an outside south wall on July 12. Early York and other kinds were considerably later. Royal George, Stirling Castle, Violette Hâtive, Noblesse, Early York, Late Admirable, Salway, Early Beatrice, Early York, Rivers' Early York, Belle Beauce, Barrington, Elruge, Violet, Hunt's Tawny, and Pitmaston Orange. *G. T. Miles, Wycombe Abbey.*

CARMARTHEN.—The Peach crop is a failure, owing to the frosts in March and to the wood not ripening last year. The sorts I find best are Red Magdalen, Violette Hâtive, Noblesse, Barrington, and some seasons Late Admirable has done well. *J. Ticehurst, Dynevor Castle, Llandilo.*

CHESHIRE.—Of Peaches, Early Beatrice comes first; Early Louise, Early Rivers', Early Alfred, Acton Scott, Rivers' Early York, Dagmar, Alexandra Noblesse, Grosse Mignonne, Noblesse, and Walburton Admirable, next. Of Nectarines, Elruge, Victoria, Violette Hâtive, Stanwick Elruge, and Pine-apple do best with us. *W. Whitaker, Crewe Hall.*

CORNWALL.—Peaches: Early York, Noblesse, Royal George, Bellegarde, and Late Admirable. Nectarines: Elruge, Pitmaston Orange, and Violette Hâtive. *H. Miles, Enys, Penrhyn.*

HERTS.—The different varieties of Peaches and Nectarines are well laden. Early Beatrice we gathered ripe on the open walls on July 20. *E. Bennett, Hatfield House.*

KENT.—Peaches: Royal George, Barrington, Noblesse, and Admirable. Nectarines: Elruge and Violette. *Thomas Woodford, Eastwell Park, Ashford.*

LEICESTER.—Peaches are always a sure crop at Gopsall, although no protection is used in spring to ward off frost. The kinds we find do best are Grosse Mignonne, Royal George, Late Admirable, Walburton Admirable, Early York, Barrington, and Noblesse. Nectarines: The following do well—Rivers' Victoria, Elruge, Pitmaston Orange, Violette Hâtive, Hunt's Tawny. *J. Brown, Gopsall Hall.*

LINCOLN.—Royal George, Early Louise, Princess Beatrice, Barrington, and Walburton Admirable Peaches do well here. *R. Gilbert, Burghley, Stamford.*

MID-LOTHIAN.—Peaches: Stirling Castle, Bellegarde, Royal George, Noblesse, Barrington, Walburton Admirable, on walls or inside houses. Nectarines: Elruge, Violette Hâtive, Hunt's Tawny, Victoria, late, on walls or inside houses. *M. Dunn, Dalkeith.*

NORFOLK.—Peaches: Royal George, Grosse Mignonne, Early Rivers', Stirling Castle, Bellegarde, and Late Admirable. Nectarines: Hunt's Tawny, Elruge, Violette Hâtive, and Hardwicke Seedling. *William Smythe, Elmham Hall.*

NORTHAMPTON.—Peaches: Barrington, Bellegarde, Noblesse, Walburton Admirable, and Royal George. Nectarines: Elruge and Violette Hâtive. *J. Worraker, Milton, Peterborough.*

SUFFOLK.—The Royal George and George the Fourth Peaches as a rule stand best here. The Elruge Nectarine seems the hardiest for out-of-doors. *D. T. Fish, Hardwicke.*

ERYTHRINA PARCELLII.

(FIG. 82.)

THIS is a handsomely variegated-leaved stove plant, introduced from the South Sea Isles by Mr. William Bull. "It has a stoutish woody stem, furnished with alternate leaves, the petioles of which are fully 6 inches long, and support three leaflets, the middle one of which has a footstalk of 1 to 2 inches in length, and the lateral ones a stalk of half an inch in length. The leaflets are upwards of 5 inches long, sub-rhomboidal, more or less acuminate, and narrowed in a somewhat angular manner towards the base. The variegation is yellow, sometimes forming a feather-like stripe along the costa and main veins, sometimes more suffused, and forming a band an inch wide, in which case the lateral veins take on more colour, and the coloured line becomes again branched; when at its fullest colouring, the centre of the leaf is mottled with yellow. There is a peculiar thickening of the petiole with glands just below each of the leaflets. The leaves are strikingly ornamental in character. The flowers are very attractive, of a bright cinnamon red colour."

ASCOG HALL, BUTE.

COAST residences in the West of Scotland are rather few and far between, and beautiful most of them are. Their proximity to the sea coast, and the mildness that generally prevails, render them particularly pleasing during both winter and summer; and the facilities for travelling are such as to place nearly every one of them within easy distance of Glasgow. The merchant princes of that busy city find, in their spare time, much enjoyment from their gardens. The taste in this way is, in fact, very greatly on the increase, and

consequently the modern villa, or lodge, or mansion, is adorned more or less elaborately with beautiful gardens and greenhouses of every description for the cultivation of flowers and the forcing of fruits.

The climate of the Arygleshire coast, which abounds with indentations of the most salubrious character, is eminently fitted for the growth of the beautiful Conifers and other shrubs from China and Japan and from the American continent, which have been so eagerly sought after within the last quarter of a century.

The island of Bute, as any one can see on turning to the map, is a little speck in the estuary of the Clyde; but it and its bigger companion, Arran, are two of the most charming islands for residences or for an agreeable holiday that the tourist could well select. Bute has been the home of the Stewarts, father and son, for well on to half a century; and Ascog Hall has reared one of the most munificent of our horticultural patrons in the person of Mr. A. B. Stewart, who has now by his industry and application succeeded to be the principal of the well-known firm of Stewart & Macdonald, of Buchanan Street, Glasgow. That gentleman, who owns Rawcliffe Lodge, Langside, with its fine garden and greenhouses and fernery, which we noticed on a former occasion, has acquired within the past half dozen years an extensive range of houses for general plant culture. So great indeed is his love for the beautiful that he promises to take a leading position in the West of Scotland for rare and valuable plants. His principal collection remains at Langside, but he has so many fine plants at his coast residence as to form an interesting collection for the inspection of any horticulturist; and then the fruit houses are of considerable area, being built upon the best modern principles for the growth of Vines, Peaches, and Pines.

These houses have been all erected within the last two years, and the respective fruit trees are in great vigour. The Vines are most promising in the two span-roof houses—the one for Hamburghs and their allies requiring minimum heat, the other for Muscats, which seem to rejoice in a good high temperature during the growing season. The Peach-houses, even in that mild climate, seem a matter of necessity, for the hostile east wind plays sad havoc with the blossom in the spring season. The walls have in consequence been covered with glass, and the trees indicate by their crops, and the plump, short-jointed character of the young wood, how desirable a thing it is to throw up a glass screen to secure a safe crop. There had been no preparation of borders; no mixing up of this sample or that sample to constitute a pet compost; no concreting of borders nor labour spent in attempting to bolster up a better physical condition—nothing but deep digging and planting and watering, and the end is perfectly satisfactory. This is another prominent instance, showing that soil and locality often effect, unaided—or if aided at all, only to an infinitesimal degree—what has often defied the best measures of skilled gardeners in other localities, which must be considered less prosperous. There is a capital indication of this in the Muscat-house of the Rev. Mr. Bushby, Dalkeith Parsonage, where year after year the visitor sees not only excellent, but super-excellent Grapes, large and finely developed bunches and berries, and finishing considerably above the average, without a spadeful of prepared soil or border other than the garden quarter fenced in out of the field. Ascog, so far as can be seen, may boast of a favoured soil, and, not the least important thing in the estimate, a favoured subsoil also, for the growth of our most desirable indoor fruits. Pines, too, have been taken in hand, and some good fruit of the Smooth Cayenne and Queen were ripening off at the time of our visit. The plants were generally in very good health, the ornamental-leaved plants particularly so, comprising some of the best of the dwarf-habited Palms, and both tall and dwarf-growing Ferns, not the least beautiful of which were one or two "good lots" of Gleichenia, while the best things in Crotons and Dracænas and the chief ornamental vegetation passed before the eye in the course of our "walk through." One thing was particularly striking as being in an excellent state of cultivation, and that was the Madagascar Lattice-leaf plant (Ouvirandra fenestralis); it was growing in a large bell-glass turned topsy-turvey, and had a jet of tepid water dripping on the surface: the leaves were large, clean, in their skeleton state, and quite delightful for the practical eye to peer into. Mr. Todd, to whom Mr. Stewart entrusts the entire superintendence of his two establishments, considers the success in this particular due mainly to his diligence in keeping under the colony of Confervæ which usually accompany this plant—for the constant disturbance of the water and its general commotion are not favourable to the spread of that pest. The plant of this curious example at Langside is a wonderful specimen, scarcely equalled throughout the country.

FIG. 82.—ERYTHRINA PARCELLII.

Turning, however, out of the houses, and passing the large span-roof conservatory full of interesting plants—passing by even the great glass case, which is a work of art in itself, adorned in its "mullions" with a collection of cones, which strike the eye and make the visitor pause to look in at the filmy Ferns which adorn its interior—we breathe the balmy air with delight as we look upon the emerald green of the lawn, dotted over with the choicest of shrubs and trees, and then cast an eye upon the undulating waves as they dash upon the sandy beach, and further still watch the golden sheen of sunlight glancing upon the broad waters, until the sky-line hems in the vision with the broken surface of the Ayrshire hills on the one hand, and the peaky tops of Goatfell and the Argyleshire rugged mountain-ridges on the other—quite an earthly paradise of beauty, eliciting from all our party unbounded admiration. Alternations of heat and cold, sunshine and shadow, are not more marked in our insular climate than are alternations of annual temperature over not greatly wide distances. It is only some three hours' ride per rail and steamer from the middle ward of Lanarkshire to the island of Bute, and yet the cold is such in the larger county as to damage, and sometimes kill outright, the hardiest of Fuchsias, while in Bute these grow and live to the size of large Lilac bushes, bearing tens of thousands of their coral-like drops—quite a sight to those unaccustomed to see such things. In Mr. Stewart's garden the Fuchsias and Sweet Bays are remarkable for size and vigour. A pair of the well-known Fuchsia globosa towers above some large Portugal Laurels by their side, and it would take a man from four to six spans of both arms to go round them; these go on growing and flowering from year to year, the most graceful and the most beautiful of shrubs—in Scotland, too, where a few people expect to see only Heather and Furze and Blæberry.

Most notable, however, is the example of Passiflora cœrulea, growing out quite unprotected against one of the walls of Ascog Lodge, hanging in the most admirable profusion with its dangling branches, and literally clad with its highly interesting flowers. In all the writer's experience he never remembers to have seen this plant stand out unprotected before; and it would be interesting news to have a note from any one to know whether this is common or not, even in favoured southern climates. [Quite hardy on walls near London. It is much to be wished that some expert grafter or budder would try some buds of other Passion-flowers, or, better still, of Tacsonias, on this as a stock. EDS.] Judged by comparison, the plant out-of-doors was much more ornamental than the one profusely adorning the conservatory rafters; in truth, where it can be had it is undoubtedly one of the best climbers for outdoor decoration. The plant we refer to was no youngster, it was quite 20 feet high: it would cover 12 feet of space breadthways, and its branches reached to the higher flights of the building. All these seaside homes are quite the places for Japanese Conifers and shrubs. The variegated plants particularly do wonderfully well in such localities; all such choice bits recently introduced were looking up to fill marked positions in the ground. The Umbrella Pine (Sciadopitys verticillata) was growing quite like a weed in point of vigour—no common occurrence, yet its growths for the year were nearly a foot long, and it promises, from such examples as this, to take a prominent place as a lawn tree.

I cannot dwell upon the various other beauties, where all were doing so well. The Roses and the Rhododendrons particularly impressed me, but to go into these would be to reproduce a choice catalogue. The "bedding-stuff" was good, although some blots were apparent, particularly the lines of Beet, which turned out not very good—Mangels so far as leaf colour was concerned. The grounds are still in an unfinished state, several alterations being necessary when the new approaches are laid out. Mr. Stewart appears to be a most indulgent master, beloved by all his *employés* on the estate, as well as by the staff of seamen who man his beautiful yacht, having a kind word for each as he passes along. May we be allowed to add he dispenses hospitality to the stranger with no niggard hand, and nothing seems to delight him better than to take a spare hour to talk over gardening with all who can talk with him. His library is full to overflowing, and the principal works on gardening literature are not preserved for keeping's sake, but thumbed frequently. *A.*

APRICOTS.

THE varieties found most suitable in different counties are quoted by our correspondents as follows:

BERWICK.—The Moorpark is the most suitable variety, and in most seasons ripens well. *Peter Loney, Marchmont, Dunse.*

BUCKS.—Moorpark surpasses all other varieties here. *G. T. Miles, Wycombe Abbey.*

CARMARTHEN.—It is a general complaint in this neighbourhood that Apricots are hardly worth growing. *J. Ticehurst, Dynevor Castle, Llandilo.*

HERTS.—Moorpark, Early Orange. *E. Bennett, Hatfield House.*

KENT.—Moorpark and Hemskirk are the best here. *Thomas Woodford, Eastwell Park, Ashford.*

LEICESTER.—The sorts I find do best here are Moorpark, Shipley's, Peach, Orange, and Breda—the only kinds grown—and in ordinary seasons generally secure a good crop. We never use any protection in spring. *J. Brown, Gopsall Hall.*

NORFOLK.—Breda, Kaisha, Moorpark, Early Moorpark, and Hemskirk. *William Smythe, The Gardens, Elmham Hall.*

NORTHAMPTON.—Moorpark, Shipley's (one of the best), Kaisha, and Breda. *J. Worraker, Milton, Peterborough.*

—— The Moorpark variety is the one most grown about here. *John Smith, Althorp Gardens.*

SUFFOLK.—The Kaisha seldom fails, and the quality is far superior to any other. This year it is bearing three to one of any other variety. *D. T. Fish, Hardwicke.*

THE FARM.

THE POTATO CROP.—As this important crop is now in progress of lifting, a few notes upon it may not be uninteresting.

Having carefully noted the growth of different kinds at different periods, we may state that in no single instance this year have we met with disease in the early or young Potato crops; and such sorts as Ashleaf and Walnutleaf Kidneys—both favourites for "new Potatos"—have been unusually good in quality, although, owing to the drought of spring and early summer, the crop was not large.

The second early sorts, as the Alma, Milky-white, and Silverskin, are a better crop, all having grown unusually large tubers; and where the haulm was green when the latter rains set in, supertuberation commenced; but we are happy to say that the final lifting exposes much less mischief from this cause than was at one time anticipated. Of this group it may be said that, though they are not absolutely free from disease, yet in as far as appearances go on lifting, we do not notice an average of affected tubers to the extent of one in five hundred. It is, however, right to say that some of our friends have experienced a far more considerable loss after lifting—a fact which will greatly influence our management of this crop. As regards late Potatos, we notice that such sorts as the Bountiful, Paterson's Victoria, Silverskin, Lady Abbess, &c., especially when planted late, are all more or less diseased; and we have heard of a sort, called in Dorset Long Burton Kidney, which is estimated to have 20 per cent. diseased at lifting.

Our general conclusion, then, is, that early sorts of Potatos, however delicate, and though suffering somewhat from a frost in June, are free from disease; the second earlies, again, show but slight tendency to disease; while the later sorts are always more or less diseased. The Paterson's Victoria, so good here in 1871, was much diseased in 1872, nearly free from disease in 1873, and now, in 1874, is very much diseased.

Now, with regard to our own crop of this year, we planted seed absolutely free from disease, and yet we have a diseased crop; while in 1873 we planted diseased tubers indiscriminately, and yet the progeny was better than usual.

Still we must confess that in all our experiments, with whatever sort—whether early or late, whether good or diseased tubers have been planted—the earlier our planting has been done the better the result; and we conclude that it is a mistake to plant any sort of Potato late, and to make the excuses, therefore, that some people do. The more forward our work for this crop is the better; and just because some late sorts take longer to perfect themselves than some of the early ones, we deem it important to get them planted as early as may be. We cannot conclude our notice of this crop without a few words of advice as to its management.

Potatos this year will want careful management. The large grower will perhaps do well to sell his crop to the dealer, and avoid all future trouble. If, however, they are to be kept, it is not advisable to put them hurriedly into the usual bury or clamp, as before doing so they will want to be once or twice looked over; indeed, we always adopt the plan of first separating them into large and small, and when the former are dry we lay them on a bed of straw, covering them from the weather; before frost sets in they are picked over and separated into those for eating and those for seed; the former are then sold, or, if we have not room to house them, put into a clamp and well thatched—the latter being housed as thickly as possible, and occasionally turned over, exposing them occasionally to both light and air. The small, or damaged, or diseased tubers, are well roasted and boiled from time to time for the pigs; and as pork is now at a good price, a few pigs may at once be brought forward on a mixture of Potatos and barley-meal.

In boiling Potatos for pigs they should be strained, as the water from them is injurious to a less or greater degree, as it contains the poisonous alkaloid called *solanine*, which, it should be noted, is more abundant when the tubers begin to chimp or bud out.

Though we say put by Potatos for planting, we by no means advise an oft repetition of our own seed. A frequent change of sort and seed is of the greatest importance, and the good farmer or good gardener will exercise judgment in selling, and buying fresh, or in making exchanges with some trustworthy friend.

Foreign Correspondence.

BOTANICAL GARDENS: CALCUTTA.—The prospects of the gardens continue, we regret to see, to be indefinitely compromised by the destruction of the large trees therein in the cyclones of 1864 and 1867. In addition to the disadvantage of an originally poor soil, there is now a want of shade in the garden, while the growth of the new plantations upon Dr. Anderson's plan was seriously hindered in the last season by the almost unprecedented failure of the rains. It is essential to restore the shade that is so necessary in a tropical garden, both for the growth of the plants and for the comfort of visitors; and efforts are being made in this direction. Attention is meanwhile being given to the culture of herbaceous plants in the conservatories, and to the collection of Orchids and other flowering plants; and Dr. King's suggestion that something should be done in the way of landscape-gardening by the outlay of a little money for this purpose on the estate, is one which the local government has approved.

Turning to its economic aspects, we may congratulate the Superintendent on the success which promises to attend the effort to acclimatise Ipecacuanha in these provinces. Four years ago there were but twelve cuttings of the plant at the Cinchona gardens, and of these seven were destroyed by an accident. From the report now before us, we learn that under the mode of propagation by root and leaf cuttings, so successfully worked by Mr. Jaffrey, there are now not fewer than 63,000 living plants in all.

We note the expression of Dr. King's opinion that no difficulty whatever is likely to be experienced in planting Mahogany on a large scale in the districts of Lower Bengal. The statistics given of the size and fine quality of the timber planted in the early days of our rule in these gardens, and the surrounding neighbourhood, are very striking, and Dr. King has been asked for definite proposals as to the systematic introduction of seeds from the West Indies.

As to the promotion of the growth of rubber in Bengal, we observe the introduction by Dr. King, personally, on his return from Europe, of several plants of the Hevea braziliensis, or Para Rubber tree. The very curious account which he has given of the parasitical nature of the indigenous Ficus elastica, invests the introduction of other rubber-yielding trees with much importance. He has been asked also to consider the propriety of attempting, if it has not already been attempted, to introduce the Gutta-percha tree of Guiana (Sapota Mullerii, Mimusops Balota, Gaert.), and to report on the possible acclimatisation of this valuable tree in the littoral tracts of these provinces.

With the organisation of a scientific department of forestry in Bengal, the opening of an Economic Museum, the establishment of a central Government depôt for the selection and interchange of seed in the provinces, and the formation of a small department to superintend the experimental farms being founded, we may hope to see an end to desultory and isolated efforts at advancement, and in place thereof, systematic sustained effort for developing the powers of the rich tropical soil of Bengal. *Agricultural Gazette of India.*

ANTIBES.—Were a native Australian to be suddenly set down in the garden of M. Thuret at Antibes, he would scarcely know that he had been transported to the Northern hemisphere. The general appearance of the vegetation, of the trees and shrubs especially, is quite that of many parts of the Australian continent as described by travellers and illustrated by plates and photographs. Almost the only deciduous tree in the garden is Sterculia platanifolia. The following notes, made during a very hurried visit, when one was well nigh bewildered by the profusion and variety of novel forms, and could only note a very few among the treasures of the garden, will at any rate substantiate the above remark. First and foremost, by way of example, it may be mentioned that at the time of our visit at the end of May one of the most striking objects was a tree or rather a huge bush of Banksia marcescens as high as the first-floor window of the house to which it is adjacent; this tree was in full flower, and its large dense clusters of yellow flowers and distinct looking foliage were particularly remarkable. Among other Proteads in the same garden were Hakea nitida and H. florida. Acacias are numerously represented, the best, from an ornamental point of view, being Acacia retinoides, which has much the appearance of a Weeping Willow. A. glaucoptera is likewise a very fine species.

The Eucalypti help to keep up the Australian look. Here is the finest E. globulus we saw anywhere along the Mediterranean shore. The rapid growth of these trees in this region has already received illustration in our columns. (See 1874, vol. ii., p. 69.) The tree in M. Thuret's garden has been planted for fourteen years, and suffers from the effects of the violent winds which occasionally occur on the coast. E. viminalis is found to be the hardiest species in this situation. An indication of the climate may also be gleaned from the circumstance that some plants of Tillandsia dianthifolia simply suspended from the branches of an Aralia not only live but flower annually.

Of ornamental shrubs Cassia Schultesii is decidedly one of the most beautiful, its rich masses of yellow flowers rendering it a most attractive subject. Over the front of the house Bougainvillea spectabilis was in magnificent bloom, covering the wall up to the upper windows of the house with a sheet of rich magenta-coloured flowers.

Among Conifers, Cupressus macrocarpa grows splendidly. Araucaria Bidwillii, which with us needs the shelter of a conservatory, thrives in the open air. This is the species which, as it may be remembered, fruited in the temperate house at Kew last year (see *Gardeners' Chronicle*, 1873, p. 361, fig. 73). Here, too, may be found *en pleine terre* fruiting plants of a West Australian Cypress, scarcely known in England—we allude to Actinostrobus pyramidalis, the cones of which are small, but elegantly striped with whitish bands. Araucaria Cooki, a native of New Caledonia, is quite at home in M. Thuret's garden.

The succulents are simply magnificent, indeed it is difficult to imagine anything more gorgeous than the banks of Agaves, Aloes, Mesembryanthemums, Opuntias, Stapelias, and such-like plants. Agave Scolymus was in bloom by the hall door at the time of our visit. Dasylirions, Beschornerias, and Yuccas were scarcely less remarkable than the succulents proper. One plant of Yucca filifera was fully 12 feet across.

M. Thuret and his friend and *aide-de-camp*, M. Bornet, are not only ardent horticulturists, but as physiologists and botanists they also take the highest rank. The brilliant researches of M. Thuret on the fertilisation of Algæ constitute a very important addition to our knowledge of these obscure points. M. Bornet is not less widely known as an acute observer; his latest researches on the gonidia of Lichens, which have led him to espouse the views of Schwendener, though still contested, have called forth the warm appreciation of his *confrères*, even of those who dispute his conclusions. The theory supported by M. Bornet is that lichens are not to be considered as independent organisms, but as Algæ entangled amid the threads of a parasitic fungus. Of his diligence as a practical experimenter some idea may be gained when we state that a large plot of M. Thuret's garden, probably not less than a quarter of an acre in extent, is entirely devoted to hybrid Cistuses raised by M. Bornet, and whose history and lineage is accurately recorded with scientific exactitude. In general M. Bornet's conclusions support those of Gaertner.

The value, alike to decorative gardening and to scientific botany, of a garden conducted on such principles is not easily over-estimated, and we trust that M. Thuret and his *fidus Achates* may long continue to pursue their valuable researches, and earn new titles to the respect and gratitude of their fellows.

Forestry.

IN an interesting article in the *Transactions of the Scottish Arboricultural Society* Mr. Gilchrist gives the following as his conclusion as to the best mode of disposing of home-grown timber:—

1. It is most profitable to dispose of wood when it is of a size and in a state to command the best price.

2. Whatever mode of sale is adopted, the wood should be sold in such quantities and at such periods as will insure good competition.

3. Where an annual income is derived from wood the periods of sale should be yearly or half-yearly, that purchasers may make arrangements accordingly.

4. It is more profitable to dispose of wood by a clean cut than by thinning or selecting mature trees; but the amenity of the property having to be considered, often militates against this mode of procedure.

5. When timber is to be manufactured on the ground it can be most profitably disposed of in large lots, provided they are not spread over too wide an area.

6. Detached lots should be tendered for separately.

7. When practicable the wood should be sold standing, and, except in the case of thinnings, the work of cutting, &c., in connection therewith done by the purchaser.

8. As much of the work as possible should be done by contract.

9. Good roads are a great advantage, and add considerably to the value of wood.

10. Water-power, where available, should be taken advantage of, and handed over to or shared with the purchaser, especially if the wood is to be floated or manufactured before removal.

11. Sale by tender, public or private, is the mode most applicable under various circumstances for profitably disposing of home-grown timber.

12. Sale by public auction in small lots is the most profitable mode of disposing of mixed timber suitable for country purposes, or within easy reach of manufacturing centres.

13. At sales by public auction the lots should be arranged and classed to suit the purchasers.

14. Sale by private bargain, save in exceptional and special circumstances, such as those indicated, is not adapted for the profitable disposal of home-grown timber.

15. Timber can seldom be profitably manufactured for sale by the producer, except where great natural facilities exist.

16. The mode of payment should be such as to encourage the capitalist, and give reasonable accommodation to the purchaser, and, if possible, prevent speculation.

17. The conditions of the sale should be distinct and simple, containing no vague expressions which can be misunderstood by either party; and, however small the sale, or by whatever mode it may be effected, the whole business should be done in a legal and formal manner.

Natural History.

SIREX GIGAS.—During the summer and autumn a large yellow hymenopterous insect is occasionally noticeable floating by in the air, with a rapid powerful flight, the creature so much resembling the hornet in its general appearance as to be rurally described, where little known, as a "something like a hornet flying with its sting out," this likeness being pointed to also in the German name noted by Kollar of "Die grosse Holzwespe," the great wood-wasp. This insect is the Sirex gigas (fig. 83), which though of such comparative rarity in this country as not to possess a commonly received English name, yet sometimes appears in considerable numbers, and is injurious to the Fir by the extensive borings of its larvæ. In the perfect stage it is very variable in size, being usually upwards of an inch, or an inch and a quarter in length, the shape cylindrical, the abdomen luteous, with first and last segments black, and extremity pointed in the males. In the females the abdomen is yellow, variously marked with brownish spots, and armed with an exserted ferruginous ovipositor proceeding from beneath the sixth segment. The head semi-globose, black, spotted with yellow, the thorax black, rather wider than the head, the wings hyaline, with a yellowish tint, and the legs with the tibiæ and tarsi yellow in the female, the hinder pair more dusky or fuscous in the male; the mandibles thick; the antennæ yellowish, sometimes longer than the thorax.

The hexapod larva is soft, with the caudal extremity rounded and plicate, and furnished with a prolongation or short spine. This larva is stated by Kollar in the *Transactions* of the Imperial Agricultural Society, Vienna, 1837, to attain its full growth in the seventh week after the laying of the egg, commonly working its way 6 inches deep into the wood, in which it undergoes the pupal change. In the pupal state it remains sometimes for many years, instances being recorded of its appearance from building timber and floor planking, and in one case mentioned by a friend to the writer, the perfect insect caused no small surprise to a party of tourists in Switzerland, by making its appearance from the wood of a pianoforte. Their attention was attracted in some way to the interior of the instrument, and there, in a corner, appeared a little head and pair of horns, followed up presently by the entire sirex emerging from the solid timber of the piano.

Amongst some young Fir-woods in the neighbourhood of Chepstow a few specimens of the Sirex gigas have usually appeared in each successive summer for some years past, and on one occasion somewhat numerously in a farm timber-yard on the edge of one of these plantations. Their central point was a large Fir log, from which, judging by the perfectly fresh piercings, they had just emerged, although, from their presence not having been mentioned to me at once, I was not in time to see any in the act of exit. Many had been destroyed by the workmen, but I secured about a dozen specimens of various sizes; and after the one day on which they appeared I did not notice another specimen in the same locality.

Their appearance was immediately followed by that of a considerable number of large ichneumonideous flies, which hovered for days about the same Fir log, apparently little disturbed in their occupation of oviposition by the presence of observers. The selection of the spot for laying the eggs seemed to be very carefully made, the insect apparently exploring before fixing on the place, and the operation of boring with the ovipositor into the solid wood requiring a good deal of exertion. The position was, as noted in other cases, with the extremity raised, so that the ovipositor was thrown forward at an acute angle to the body, and then driven into the wood so firmly that in several instances it was fixed beyond the power of withdrawal, and left sticking in the solid timber.

FIG. 83.—SIREX GIGAS.

In this case the size of the timber, and also building requirements, precluded keeping it as a specimen; but where feasible a piece of Sirex-infested wood is interesting for house study. A few yards of a small Scotch Fir laid in a spare room supplied a succession of Sirex juvencus during two successive summers, and a good number besides in their incomplete stages on splitting up the log; and thus, with little or no trouble, a constant supply of the insect may be secured at hand, and the gradual development noted at pleasure by occasionally sawing off a length of the log, and splitting it longitudinally in fragments, so as to expose the internal galleries with their tenants. *O., Spring Grove, W.*

BEETLES AS HOUSE PETS.—Miss Hope's notice of Dytiscus, &c., as pets, at p. 267, which is full of matter interesting especially to young beginners with such pets, made me think of the following incident which happened to a grave and reverend friend of mine some years since at Malton, in Yorkshire. Miss Hope says she has never happened to catch Dytisci flying in the daytime. Now my friend was arranging some plants in a Cucumber frame, had laid the lights on one side, and was very busy on his knees, when he heard a sharp bump near him. Supposing it was some wag throwing pebbles over the wall he took no notice till more bumps occurred, when, raising his head from his work in indignation, he found the bumps arose from Dytisci coming down violently upon the frames of glass, evidently mistaking them for water, and meaning to take a header, instead of which I fear they met with a headache. As this was in summer, in the full sun, it seems probable that water-beetles do fly a good deal from water to water, passing high up in the air. I would add to Miss Hope's list of water pets the Hydroüs piceus, which is a most amusing and interesting one, and makes a nest in the water. *W. D. F.*

Notices of Books.

The Heatherside Manual. 28, Queen Victoria Street, E.C.

If this were a trade list and nothing more, we should not feel at liberty to do more than mention its publication. But it is, we learn, intended to form a complete dictionary of both the English and the botanical names of all the hardy ligneous plants that are most worthy of cultivation. The list is, indeed, a full one, the selection judicious, and the cultural remarks trustworthy. Of the correctness of the nomenclature we have no means of judging. We may, however, point out that what is generally known as Sir Charles Wager's Maple is Acer dasycarpum, and not A. platanoides lutescens, whatever that may be; and we demur to the statement that the London Plane is the typical Platanus orientalis, though it may be a variety of that species. It is an obvious slip to assert that Lyonia arborea is the only species of the numerous family of Heaths that attain the dimensions of a tree, when Arbutus Unedo and A. procera have at least as good claims to be considered trees as the Lyonia. We add the following remarks as to the planting of specimen trees on lawns:—

"Do not unduly cut up your grassy expanses by dotting too many single specimens, or, worse still, too many flower-beds or small clumps over its surface. What single specimens you do plant should be of the very finest or rarest species. If Conifers, they should feather to the ground; if deciduous trees, they should be of such species as that when the branches are allowed to ramify 5 to 6 feet high on the trunk; they should dip to the ground, as in the Tulip tree, Catalpa, Horse Chestnut, and many other trees. Amongst them may also be interspersed a few pendulous trees, which, when not too numerous, add a peculiar grace to the scene. A tall tree, with a straight, unbranched trunk that rears its head aloft, and forms a head 50 or 100 feet above our reach, is indeed a noble object, but would be quite out of place in the centre of a lawn."

—— Dr. Schomburgk's *Report of the Progress and Condition of the Adelaide Botanic Garden for the Year* 1873 is of a very satisfactory character. The collection of tropical plants is stated to be the most extensive in the southern hemisphere; so large, in fact, that a new house for their reception has become a necessity. A considerable portion of the report is occupied with remarks on the grasses and fodder plants which are likely to be useful to the farmer in Australia. These details have already been published in our columns. Dr. Schomburgk mentions a plan for preserving labels, which it may be of interest to cite in this place:—The labels are of sheet iron, and before painting them I employ a mordaunt of one part of chloride of copper, one of nitrate of copper, and one of sal ammoniac dissolved in sixty-four parts of water. To this solution is added one part of commercial hydrochloric acid. The iron or zinc labels are brushed over with this liquid, which gives them a darkish colour. In the course of twelve to twenty-four hours they become dry, and to their now dirty grey surface a coat or two of any oil-colour will firmly adhere. The labels are painted black, and when dry the names of the plants are written with white oil-colour, and immediately sanded with fine white sand. The sand will dry with the white colour, and become compact.

—— Professor Tyndall has issued the full text of his *Address before the British Association at Belfast* (Longmans), written, as he tells us, in the Alps before the meeting, and from which, for brevity sake, some passages were elided in the reading. Professor Tyndall has thought it worth his while to reply to sundry criticisms levelled at his address. He, perhaps, is the best judge of whether this was necessary or not; certain it is that most of them were written by persons who had not taken the trouble to read the address as a whole. While expressing a feeling of regret at the treatment which an honest outspoken lover of truth has met, we cannot help thinking that it is the result of a certain aggressiveness of manner, which is to be regretted, and we fear that his utterances may injuriously affect the progress of science—that is, the study of God's works—in schools, and thus tend to neutralise the good that has been done by himself, Huxley, and others towards popularising science and insisting on the importance of the study of the works of the Almighty as seen in Nature.

—— Amongst recently published books we may mention *The Forest Flora of North-west and Central India*: a Handbook of the Indigenous Trees and Shrubs of those Countries, commenced by the late J. Lindsay Stewart, M.D., Conservator of Forests, Punjab; continued and completed by Dietrich Brandis, Ph.D., Inspector-General of Forests to the Government of India. We shall take an early opportunity of more fully noticing this important work.

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. JAMES FRASER, HORTICULTURAL and AGRICULTURAL VALUER and AUCTIONEER, Mayland's Farm, Romford, Essex; late of the firm of J. &. J. Fraser, Lea Bridge Road, E.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

SIMPSON'S RED SPIDER and THRIPS, &c., ANTIDOTE.—*Bonâ fide.* See former advertisements. Prepared by JOHN KILNER, Wortley, Sheffield.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

MARENDAZ AND FISHER, RUSSIA MAT MERCHANTS, 9, James Street, Covent Garden, W.C.
Large Stock of ARCHANGEL MATS, heavy and close-woven ST. PETERSBURG MATS, just arrived.

Seed and Nursery Trade.

TO LET, a good paying BUSINESS, of many years' standing. Incoming small. All the Stock-in-Trade to be taken-to at Valuation. Possession may be had immediately.
Apply to Messrs. PROTHEROE AND MORRIS, Horticultural Auctioneers, &c., Gracechurch Street, London, E.C.

SEED BUSINESS, Well Established, for DISPOSAL. Situated in the South of England. Present Owner retiring. For full particulars, &c., apply to X. Y., Messrs. Hurst and Son, 6, Leadenhall Street, London, E.C.

To Nurserymen, Florists, and Persons seeking a LUCRATIVE BUSINESS.

TO BE SOLD (in consequence of the death of the Proprietor), the FREEHOLD of an OLD-ESTABLISHED NURSERY, in a high state of Cultivation, well stocked with Fruit and Forest Trees and Shrubs; Cottages, Glasshouses, Sheds, Stabling, and every convenience for the Nursery Business, in full working order. The Stock to be taken at a valuation. To an energetic man with capital this is an opportunity that seldom occurs.
For particulars and cards to view, address H. LITTLER, 55, Bow Chambers, Cross Street, Manchester.

SALES BY AUCTION.

Spring Flowering Bulbs for present Planting, just received direct from well-known Farms in Holland, consisting of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, GLADIOLI, LILIUM, &c., in lots to suit large and small growers.

MR. J. C. STEVENS begs to announce that he will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY during September, at half-past 12 o'Clock precisely each day.
Catalogues will be forwarded to any address on receipt of a stamped directed envelope.

Highly Important Sale of Orchids and Palms.
The property of Mr. LINDEN, of Ghent.

MR. J. C. STEVENS has received instructions from Mr. J. Linden, of Ghent, to SELL by AUCTION, at his Great Rooms, 38, King's Street, Covent Garden, W.C., on THURSDAY, October 1, at half-past 12 o'Clock precisely, extraordinary fine Established and Imported ORCHIDS, including fine masses of Cattleya Eldorado splendens, C. Wallisi, Zygopetalum Gautieri, Colax jugosus, Galeandra Devoniana, Catasetum, Lælia caulescens, Miltonia Morelleana, &c., just imported, in the finest possible condition; and some Established Plants of Masdevallia Lindeni, polysticta, melanopoda, &c.; Odontoglossum Halli, miniatum, &c.; Oncidium zebrinum, Cattleya gigas, &c.; also splendid PALMS, amongst which are some Cocos Weddelliana, Geonoma gracilis, Verschaffeltia splendida, Martinezia disticha, Dæmonorops melanochætes, &c.
On view the morning of Sale, and Catalogues had.

Stoke Newington, N.
CLEARANCE SALE of GLASS ERECTIONS and POT PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Kirtland to SELL by AUCTION, without reserve (the Nursery having been sold for building purposes), on the Premises, The Albion Nursery, Albion Road, Stoke Newington, Middlesex, N., on MONDAY, September 28, at 11 for 12 o'Clock precisely, the whole of the GLASS ERECTIONS, a large quantity of HOT-WATER PIPING, BOILERS, and BRICKWORK; also the PLANTS in POTS, consisting of choice Greenhouse Plants, including some very large specimen Double White and other Camellias, several fine Azalea indica, fine Ericas of sorts, Solanums, Primulas, Pelargoniums, and numerous other plants.

Lee, S.E.
IMPORTANT SALE of thriving NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. W. North to SELL by AUCTION, without reserve, on the Premises, the Manor Lane Nurseries, Lee, Kent, on THURSDAY, October 1, at 11 for 12 o'Clock precisely, about 400 lots of beautifully-grown EVERGREEN and CONIFERÆ SHRUBS, in fine assortment, including 1000 Aucubas, 6 to 18 inches; 1500 strong Ivies, in pots; 500 strong Deutzia gracilis, well adapted for forcing, and numerous others; Hardy CLIMBERS, 1000 Dwarf and Standard ROSES, fine Pyramid and Dwarf-trained FRUIT TREES, &c.
May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

Woodford, Essex.
By ORDER of the EXECUTORS of the late HERMANN ROSE, Esq., deceased.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Langbourne Lodge, Whitehall Road, Woodford, Essex, on TUESDAY, September 29, at half-past 1 o'Clock precisely, an assortment of thriving young NURSERY STOCK, in excellent condion for transplanting; also some LIVE and DEAD FARMING STOCK.
View day prior and morning of Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.

Erith, Kent.
SALE of GENERAL NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. W. North, to SELL by AUCTION, without reserve, on the Premises, the Erith Nursery, situate in the rear of No. 1, North End Villa, Erith, Kent, on MONDAY, October 5, at 12 for 1 o'Clock, the whole of the NURSERY STOCK, consisting of a nice assortment of Evergreen, Coniferæ, and Deciduous Shrubs, Forest and Ornamental Trees.
Now on view and Catalogues had.

Bagshot.
By ORDER of the MORTGAGEE.
GREAT UNRESERVED SALE of well-grown NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by the Mortgagee, with the concurrence of the Executor and surviving Partner of George Baker, deceased, to SELL by AUCTION, without reserve, on the Premises, the American Nursery, Windlesham, near Bagshot, Surrey, on MONDAY, October 5, and five following days, many Acres of well-grown NURSERY STOCK, including a large number of fine specimen Coniferæ, 7 to 10 feet; also several thousands of smaller stuff, including 8000 fine bushy Portugal Laurels, 2 to 5 feet; 5000 Cupressus Lawsoniana, 2 to 5 feet; 1000 C. Lawsoniana stricta, 1000 Picea nobilis, 1 to 5 feet; 1000 seedling Aucuba japonica, 1 to 2 feet; 9000 Green Hollies, 1 to 2½ feet; specimen fancy Hollies, 1000 Thujopsis dolobrata, 1000 Retinospora plumosa aurea, &c.; also 10,000 choice named Rhododendrons, mostly set with flower-buds; several specimen and standard Rhododendrons, 10,000 Pontica and hybrid kinds, 5000 Kalmia latifolia (well set), 3000 Ghent and other Azaleas, promising a profusion of bloom; 3000 hardy Heaths, 1000 Roses in pots, 5000 standard and dwarf Roses, 80,000 Forest Trees, consisting of clean grown Larch, Spruce, Scotch and Austrian Pines, Spanish Chestnuts, Birch, Beech, &c.
May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, City, E.C.

Near Wandsworth, S.
CLEARANGE SALE of GLASS ERECTIONS, SHOP, NURSERY STOCK, and UTENSILS-IN-TRADE.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. W. Harper, to SELL by AUCTION, without reserve, on the Premises, St. John's Hill Nursery, New Wandsworth, five minutes' walk from Clapham Junction Station, on MONDAY and TUESDAY, October 12 and 13, at 11 for 12 o'Clock, the whole of the GREENHOUSES and FITTINGS thereto, well-constructed SHOP, easily removable, and the whole of the NURSERY STOCK, consisting of a capital assortment of Shrubs, well adapted for the London suburbs.
Full particulars will appear next week.

Preliminary Notice of

FORTHCOMING SALES, by PROTHEROE AND MORRIS.

OCTOBER 14 to 17.—MARESFIELD, near Uckfield, Sussex. By order of Messrs. Wood & Son. Great quantity of well-grown Nursery Stock, including many fine specimens.

OCTOBER 17.—THE NURSERY, Chigwell, Essex. By order of Mr. J. Protheroe. An Assortment of General Nursery Stock.

OCTOBER 19, 20.—HALE FARM NURSERIES, Tottenham, Middlesex. By order of Mr. Thomas Ware. Quantity of thriving Nursery Stock, Fruit Trees, and Roses.

OCTOBER 19 to 27.—The SUNNINGDALE NURSERIES, Bagshot, Surrey. By order of Mr. Charles Noble. Great quantities of remarkably well-grown Nursery Stock, the lease of a portion of the land having expired.

OCTOBER 26 to 28.—EXOTIC NURSERY, Tooting, S.W. By order of Mr. R. Parker. Large assortment of young and thriving Nursery Stock; also specimen Coniferæ.

OCTOBER 29 and 30.—LOUGHBOROUGH PARK NURSERY, Brixton. By order of Messrs. Ponsford and Son. A quantity of General Nursery Stock.

NOVEMBER 2 to 10.—THE NURSERIES, Wandsworth Common, S.W. By order of Messrs. R. Neale & Son. An immense quantity of General Nursery Stock.

NOVEMBER 2 to 4.—GROOMBRIDGE NURSERIES, Tunbridge Wells. By order of Mr. Hollamby. A beautiful assortment of General Nursery Stock.

NOVEMBER 11.—EAST DOWN NURSERY, Lewisham, S.E. By order of Mr. B. Maller. A quantity of well-selected Nursery Stock.

NOVEMBER 16.—WHITCHURCH RECTORY, Edgware. By order of the Rev. J. B. Norman. A choice assortment of Coniferæ, Evergreens, Fruit Trees, and Roses.

NOVEMBER 16, 17, and 18.—THE NURSERIES, Loughton. By order of Mr. W. Paul. Many thousands of Coniferæ and Evergreen Shrubs, Fruit and Ornamental Trees, Roses, &c., in fine condition.

Catalogues of the above Sales may be had (when ready) on application to Messrs. PROTHEROE AND MORRIS, Auctioneers, Estate Agents and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Important Sale of Stove and Greenhouse Plants.

MESSRS. LYTHALL AND CLARKE will SELL by AUCTION, without reserve, on WEDNESDAY, September 30, at the Midland Counties Repository, Birmingham, at 12 o'Clock, a magnificent Collection of STOVE and GREENHOUSE PLANTS, including Palms, Tree and other Ferns, Camellias, Azaleas, Curculigo recurvata, Marantas, Alocasias, Crotons, Adiantum Farleyense, and a fine collection of other new and rare plants, offering a splendid opportunity for furnishing conservatories, &c., for the coming winter and spring.
Catalogues on application to the Auctioneers, the Midland Counties Repository, Birmingham.

Great Clearance Sale of Trees and Shrubs.

MR. J. T. KERRISON has received instructions from Mr. B. Whitham to SELL by AUCTION, at the Nurseries, Reddish, near Stockport, on WEDNESDAY, September 30, and three following days, on account of expiration of the lease of a portion of the grounds, without the slightest reserve, about 10 Acres of general NURSERY STOCK, comprising Ash (common and Mountain), Arecas, Acacias, Beech, Chestnuts, Elms, Firs (Scotch and Austrian), Laburnums, Limes, Maples, Oak (scarlet), Poplars (in variety), Privet, Sycamore, &c.; also Arbor-vitæs, Berberis (in sorts), Box (in variety), common Hollies, Cupressus, Portugal Laurels, Retinosporas, Rhododendrons (named), and Ponticums (fine bushy plants), Thorns (scarlet and pink), Yews (English), &c. Also a Large Collection of Choice FRUIT TREES.
Sale to commence each day at 12 o'Clock promptly
Catalogues and further information may be obtained from the Auctioneer, 290, Stamford Street, Ashton-under-Lyne; or from Mr. WHITHAM, The Nurseries, Reddish, near Stockport.

Extensive Sale of upwards of 2,200,000 Trees and SHRUBS.

MR. JAS. S. MARSHALL will SELL by AUCTION, at John Stewart & Sons' Camp and Fort Nurseries, Broughty Ferry, near Dundee, on TUESDAY and WEDNESDAY, October 13 and 14, commencing at 10 o'Clock each day, a large assortment of FOREST and ORNAMENTAL DECIDUOUS and EVERGREEN TREES and SHRUBS, Coniferæ, Rhododendrons, Roses, Fruit Trees and Bushes, &c., Alpine and Herbaceous Plants, Hardy Ferns, Greenhouse Plants, &c. In small and large lots to suit buyers.
Catalogues now ready. Inspection of the stock invited.
JAS. S. MARSHALL, Auctioneer, Dundee.

The Planting Season.
IMPORTANT SALE of CHOICE ORNAMENTAL TREES and SHRUBS.

MR. R. H. VERTEGANS begs to announce that, previous to making additional alterations in the Grounds, he has decided to offer for SALE by PUBLIC AUCTION, early in OCTOBER, a portion of the very extensive and select STOCK of choice CONIFERÆ, ORNAMENTAL and EVERGREEN TREES and SHRUBS, cultivated in the Promenade Gardens, Malvern.
Catalogues will shortly be ready, and will be forwarded on application.

Oatlands Park Nursery, Weybridge, Surrey.
IMPORTANT NOTICE to LANDSCAPE GARDENERS, GENTLEMEN, the TRADE, and OTHERS engaged in PLANTING.

MR. W. ABRAHAM has received instructions from Mr. Jesse Chapman (proprietor of the above) to SELL by AUCTION, on TUESDAY, October 13, and three following days, at 12 o'Clock each day punctually, a large portion of his NURSERY STOCK, including some very handsome specimens of Cedrus Deodara, Thujopsis borealis, Picea lasiocarpa, P. nobilis, P. Strobus, P. excelsa, Wellingtonia gigantea, Cedar of Lebanon, Thuja Wareana, Cupressus Lawsoniana, C. kewensis, C. Goveniana, Abies Douglasii; also Silver Birch, Scarlet Oak, Mountain Ash, Sycamore, all in the best possible condition and size to move successfully, with many thousands of Thuja Lobbii, T. americana, T. sinensis, Weymouth Pine, Hemlock Spruce, Picea nobilis, P. Nordmanniana, Cedrus Deodara, Abies Douglasii, Spruce Fir, handsome stock, 3 to 5 feet; Scotch Fir, 3 to 4 feet; Larch, Pinus Laricio, P. austriaca, all good stuff, 2 to 4 feet; with large quantities of common Laurel, Portugal Laurel, Aucuba japonica, Green, Gold, and Silver Holly (good), Tree Box, Retinosporas, Rhododendrons, Privet, standard and pyramidal Pears, choice standard and dwarf perpetual Roses, and many others, enumerated in Catalogues, to be obtained on the Premises, or post-free of the Auctioneer and Valuer, Goldworth Nurseries, Woking, Surrey.
N.B.—This Stock is particularly worthy the attention of Gentlemen and Public Companies planting for immediate effect.

Rose Catalogue.

WM. PAUL, Paul's Nurseries, Waltham Cross, Herts, has just published the New Edition of his ROSE CATALOGUE, which he will be happy to forward, free by post, on receipt of Postage Stamp.

NEW RHODODENDRONS.

JAMES MARSHALL BROOKS, rich scarlet, with a bronze spot, very fine and distinct.
LADY ANNETTE DE TRAFFORD, cream colour, with a distinct chocolate blotch.
MRS. FREDERICK HANKEY, salmon, richly spotted, a very pleasing kind.
MRS. SHUTTLEWORTH, scarlet, lighter centre, much spotted, a very beautiful and distinct variety.
VAUBAN, mauve, with a rich yellow blotch, very fine truss and habit,
The above-named new, beautiful, and distinct Hardy Rhododendrons will be supplied, nice plants, for 5 guineas the set.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

Surplus Stock of

RHODODENDRON MULTIFLORUM and PRÆCOX, all sizes, a perfect mass of flower-buds, for winter blooming: DAPHINE INDICA RUBRA, small bushes; ANDROMEDA FLORIBUNDA, compact bushes; SKIMMIA JAPONICA, all sizes; CLEMATIS JACKMANNI and LANUGINOSA, strong; CUPRESSUS LAWSONIANA, 4 to 8 feet; and the pretty berry-bearing PERNETTYA SPECIOSA. Prices, &c., on application to
ISAAC DAVIES, Nurseryman, Ormskirk.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6d. each), on tinted paper, may be had on application to the Publisher, viz. :—

Dr. HOOKER, C.B., Pres. R.S.
W. WILSON SAUNDERS, F.R.S.
Rev. M. J. BERKELEY, F.L.S.
M. DECAISNE.
G. F. WILSON, F.R.S.
Dr. MOORE, of Glasnevin.
Professor REICHENBACH.
Rev. S. R. HOLE, M.A.
E. J. LOWE, F.R.S.
JAMES MCNAB.
ROBERT HOGG, LL.D.
Dr. REGEL.
JAMES BATEMAN, F.R.S.
BERTHOLD SEEMANN, Ph.D.
ARCHIBALD F. BARRON.
Hon. MARSHALL P. WILDER.
JOHN GIBSON.
Professor ASA GRAY.
I. ANDERSON-HENRY.
Professor KARL KOCH.
Baron VON MUELLER.
JOHN SMITH (Kew).
Professor WESTWOOD.
Dr. THWAITES.
Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W.C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. for 12 months, including postage to—

AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10s. 4d. for 12 months, including postage to—

AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14s. 8d. for 12 months, including postage to—

RUSSIA, ITALY, DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, SEPTEMBER 26, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Sept. 28	Sale of Dutch Bulbs, at Stevens' Rooms. Sale of Glass Buildings and Pot Plants, at the Albion Nursery, Loughton.
WEDNESDAY,	Sept. 30	Sale of Dutch Bulbs, in large and small lots, at Stevens' Rooms. Clearance Sale of Trees and Shrubs at Reddish, near Stockport. Clearance Sale at Meadowbank.
THURSDAY,	Oct. 1	Sale of Orchids from Ghent, at Stevens' Rooms.
SATURDAY,	Oct. 3	Sale of Dutch Bulbs, at Stevens' Rooms.

NOW that the PELARGONIUM SOCIETY may be said to be fairly launched, we are desirous to direct attention to certain points which in our opinion are of such importance that they should not be passed over. Special societies of this kind, if not managed on a wide and liberal basis, are apt to degenerate into mere coteries for the exaltation of particular objects, desirable enough in themselves but all too narrow in their aims to effect any real permanent good, beyond that of the few enthusiasts or interested persons concerned in them.

We take it for granted that, so far as the merely decorative part of the business is concerned, success is assured. Such is the interest felt in this particular flower, such is its popularity not only among professed horticulturists, but also with the general public, that a liberal prize list is pretty sure to bring out some remarkable specimens so far as cultivation is concerned.

It is pretty sure to be of service by bringing good and improved varieties to the fore—varieties which, for robustness of habit, perfection and continuity of bloom, intensity and purity of colour, and what not, will be an advance on their predecessors. The Society is also likely to do good by making public the good qualities of the plant for general decorative purposes. Few plants, owing to their easy culture, are better suited for the amateur, for the decoration of his garden, his conservatory, or even his window. Much good may also be effected by establishing a rational classification, a proper selection of varieties, and especially a weeding-out of inferior sorts or of kinds which are too nearly like others in existence to deserve separate names or further perpetuation. All these points are likely to be well attended to. By effecting these objects the Society will in a measure justify its existence; but this is by no means all that such a Society should strive to accomplish. We even go so far as to say that these are minor objects. Not that these objects themselves are unimportant, far from it; but they may be attained nearly, if not quite as well without the agency of such a society as with it. The spirit of competition and commercial rivalry will of themselves bring about these results to a large extent, and the Society's chief work, from this point of view, will resemble that of an impartial and disinterested assessor.

There are, however, other matters which mere trade interest, and even the keen spirit of the amateur, will of themselves not bring about. The great defect of all such hobbies, whether shown in the culture of Roses or of Potatos, of Pelargoniums or of Kidney Beans, is their tendency to run in narrow grooves, and not to get out of them. Take Carnations or Dahlias, for instance. New varieties constantly crop up, but are they, as a rule, improvements on their predecessors? Here and there one may be, but, on the whole, the system is merely one of ringing the changes on the same bells. It is so to a very large extent already with the Zonal Pelargoniums, still more so with the "show" varieties. Bearing these facts in mind, we think the new society has a great responsibility before it, and its existence will be short or permanent, according to the view it takes of those responsibilities, and the way in which it sets out to meet them. If it confine itself simply to what every raiser does for himself or to what every one interested in the plants commercially does already for himself, the Society will assuredly dwindle, or at least become a mere commercial speculation upheld by trade interests alone. We do not think any of the promoters wish this, because, as we have already pointed out, these objects can be attained as well by individual effort.

We hold then that in addition to the ordinary routine of offering prizes for new and improved varieties, or for the successful culture of old ones, an attempt should be made to infuse a genuine spirit of progress, which will benefit, not only Pelargonium culture, but horticulture generally. We think every encouragement should be given to growers to re-introduce some among the very numerous old Cape species which have gone out of cultivation, and to promote the introduction of the large number still quite unknown in this country. Many of these are not only of interest in themselves, and for themselves, but they would be useful for hybridisers; they would probably yield entirely new races for cultivation, and break up that irksome monotony which is so great an eyesore in modern gardening. A houseful of Zonal Pelargoniums is very beautiful and very attractive, but when one sees it day after day, especially if one sees the same varieties over and over again in different collections, no one can say but the sight becomes *tant soit peu* irksome.

This continual dwelling on one theme is a sign of poverty of invention, of narrowness of taste, and is nothing but an insult to the profuse variety of Nature.

It is altogether a mistake to suppose that there is any necessary antagonism, as our correspondent, Dr. DENNY, singularly enough, states, between the botanist and the hybridist. The truth is exactly the opposite. There may be some, indeed, to whom the results of hybridisation offer some inconvenience; but what is that against the aggregate benefit which science is sure to gain from the hybridiser, if only he carry on his work with proper scientific method? If there is any feeling still left of the kind mentioned by Dr. DENNY, it is merely one of regret that hybridisers, as a rule, having such splendid opportunities of advancing science, and at the same time of riding their own hobbies in the most profitable manner, yet conduct their operations in so slip-shod a way. Such experiments should not be carried out hap-hazard, but according to a definite, well-considered scheme. Each cross should be effected for a definite purpose, and every means should be studied to gain that end.

Careful records should be kept, and kept in such a manner as to be available for comparison with the researches of others. Oh! but, some will say, this is making a toil of pleasure—it is introducing science where recreation simply is wanted. Be it so. Our view is that the recreation so obtained would be all the more thorough. The perfection of recreation is obtained when taken with an object. Has any one observed the constitutional which an Oxford "fellow" takes on the Iffley road without any other object than that of a walk? Well, it is not a lively prospect. Do we not all know how vapid and uninteresting a walk simply for the walk's sake is. Make the walk a means to an end, and the dreariest country road becomes delightful. So with the cultivation of plants. Have an object in view, and do your best to carry it out. In the case of hybridisation, set before yourself what you want to accomplish, and work to that end. If your object is a scientific one, to endeavour to find out by cross-examination some of the secrets of Nature, depend upon it you will get much more genuine recreation than by any mere *dilletante* fiddle-faddle harping upon one string. The Pelargonium Society should, if we may venture to suggest to it, undertake observations of the kind we have mentioned, or at least give encouragement to others to do so. Already a beginning has been made in this direction in the discussion on the nature and origin of "sports" in the Pelargonium, which attracted much attention in our columns a few years since, and specially in the important paper of Dr. DENNY'S on the influence of the pollen, or the seed-parent respectively, on the seedling. Experiments and observations such as these are of value at the time for themselves, while the ultimate benefit they may be to physiology and to practical cultivation cannot be estimated now. All we know is that one fact definitely ascertained is sure somehow to fructify to the advancement of knowledge and the happiness of mankind. It is a duty which we all in our degree owe to our Maker and to our fellow men, to discover, to investigate, to turn to good account such facts as we have been alluding to, and a society does good only when it enables men collectively to do any given work better than they could do it individually.

—— THE last field meeting of the year of the WOOLHOPE NATURALISTS' FIELD CLUB will be held at Hereford on Thursday, October 1, for a foray among the fungi. An exhibition will be held as usual, and members and others are particularly requested to send as many specimens as they can find to the Green Dragon Hotel on Wednesday, September 30, in order that they may be properly named and arranged in cases for study. There will be a meeting on Wednesday from 8 to 10 o'clock for this purpose, to which members studying mycology are specially invited. Weather permitting, the foray will be made at Stoke Edith, by the kind permission of Lady EMILY FOLEY. Members and visitors will leave the Barrs Court Station with the 9.55 A.M. train, to arrive at Stoke Edith by 10.21, to visit the flower gardens, park, and woods;

and return by the 3.1 P.M. train, to reach Hereford at 3.23 P.M. Railway tickets, 1st and 2d class, will be allowed at single fares for the double journey. On reaching the Green Dragon a meeting will be held forthwith for the transaction of the ordinary business of the Club, and especially for the election of officers for the ensuing year. The dinner will take place at 4.30 P.M., at the Green Dragon Hotel, when some edible fungi will be served, cooked from the Club recipes. After dinner the following papers will be read:—"On the Occasional Appearance of Rare Fungi," by EDWIN LEES, &c., Esq., F.L.S., President of the Malvern Field Club; "Some Remarks on the Sphæria Family," by CHAS. B. PLOWRIGHT, Esq.; and "On the Structure of Three Species of Fungi new to Britain," by Mr. WM. PHILLIPS. Gentlemen intending to be present are particularly desired to let the Assistant Secretary, Mr. ARTHUR THOMPSON, Saint Nicholas Street, Hereford, know before Monday, the 28th inst., in order that all proper provision may be made.

—— A schedule of prizes has just been issued for an EXHIBITION OF CHRYSANTHEMUMS, PALMS, TREE FERNS, CONIFERS, BOUQUETS, HARDY AND EXOTIC FRUITS, &c., to be held in THE POMONA PALACE, MANCHESTER, on December 1, 2, and 3. There are in all sixty classes, and amongst the 1st prizes offered we may mention £15 for the best collection of foliage and flowering plants, arranged for effect; £10 for twelve hardy Conifers; £10 for ten miscellaneous plants; £7 for ten variegated Japanese plants; £5 for eight large-flowered Chrysanthemums, distinct; the same for eight Pompons; £10 for twenty Chrysanthemums; £4 for twenty-four cut blooms of large-flowered Chrysanthemums; £5 for six Yuccas; £3 in each case for a pair of Palms, Tree Ferns, standard and pyramidal Bays, Golden Yews, and Dracænas; £10 for ten dishes of fruit, £5 for six dishes; £12 for ten bunches of Grapes, £5 for four bunches; £6 for six Pine-apples; and £10 in each case for the largest and best collection of Apples and Pears, with silver medals for the most meritorious fruit and plant in the exhibition. The entries close on November 27, and should be addressed to Mr. JAMES REILL.

—— One of the most beautiful herbaceous plants, but one very rarely seen, is CLEOME HEPTAPHYLLA (Nat. Ord. Capparidaceæ). Its magenta-coloured flowers were very striking a week since in the herbaceous ground at Kew.

—— The MUSCAT GRAPES at the Berkhamsted Nursery are, if possible, finer in bunch if not in berry this year than last, when the illustration given at p. 313, vol. i., 1874, was taken. The Vines, though they have now been heavily cropped for a continuous series of years, show no symptoms of exhaustion, and, like the spring that feeds their roots, appear as if they might go on "for ever." The large vinery at the same place has also again brought an enormous crop to maturity. In this house the Vines are planted along the front, taken up the rafter, and carried down the other half of the span; but taking a general view of the crop, there is no apparent difference on the ascending and descending portions of the Vine rods.

—— POLYGONUM CAPITATUM, a North Indian species, of creeping habit, is growing freely on the rockwork at Kew. It is not quite hardy, but is worth planting out in summer, and is useful for baskets in the greenhouse. The leaves are shortly petiolate, ovate or elliptical, and marked with a dark A-shaped band. The Flowers are borne in little round heads. Cuttings root freely. Androsace lanuginosa is also a pretty trailer, and though sometimes difficult to grow, is doing well. It is quite distinct in habit from the other cultivated species. The leaves are silky and comparatively large. The flowers much resemble those of Primula farinosa, and have been produced all the summer. It appears to do best if planted so that the stems rest on stone. Increase is effected from cuttings. It is a native of the Himalaya.

—— Every autumn we receive from our correspondents specimens of mis-shapen PEARS, which, from their singular appearance, always attract attention. One such we illustrate (fig. 84), from a previous volume, but which accurately represents a specimen sent us recently by Mr. Melville, of Dunrobin. As we seldom or ever see the flowers which precede these curious formations, the interpretation of them is open to question. One thing is certain, and that is, that the true fruit, which in the case of a Pear or Apple is the "core," is not formed in these cases. The edible portion of an Apple or Pear is not fruit in a strict botanic sense. It is the swollen extremity of the flower-stalk in which the carpels are embedded. In the Pear before us we have a dilated flower-stalk (so-called fruit) of the usual character, and surmounted by the five sepals of the calyx. Above and beyond this the flower-stalk or branch is prolonged into a fleshy mass, bearing fleshy sepal-like scales on the outer surface arranged in spiral order. At the very top are some traces of petal-like scales and abortive carpels. It is a question which has been much controverted whether the fruit of Apples and Pears consists entirely of swollen flower-stalk, or of that and

FIG. 84.—MONSTROUS PEAR.

the succulent base of the sepals. As the exact limit between the two is an arbitrary one, we have never deemed the matter one of great consequence, but the fruit before us favours the view that the bases of the sepals as well as the upper part of the flower-stalk both contribute to form the fruit.

—— The style which surmounts the ovary is usually undoubtedly merely the prolongation of the

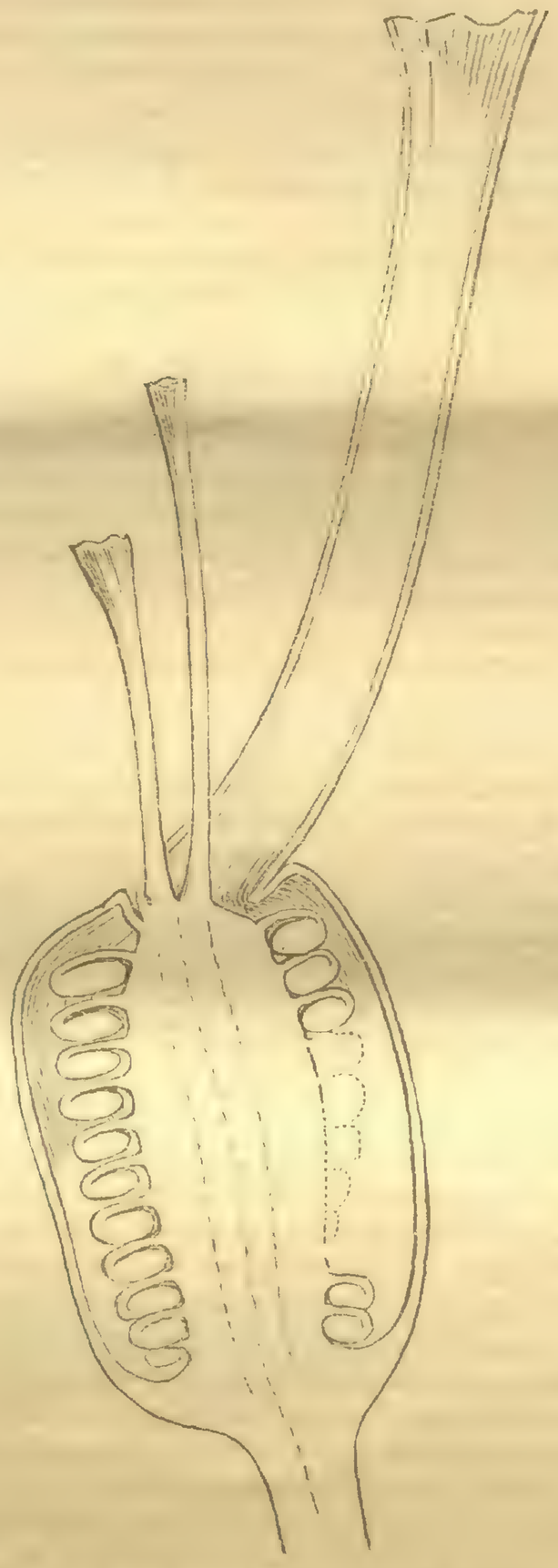


FIG. 85.—MONSTROUS RHODODENDRON, ENLARGED.

point of the carpellary leaf. LINDLEY and others have advanced the notion that it may in certain cases be the prolongation of the placenta, or even of the axis, but these views have not found acceptance. They receive, nevertheless, some support from the case before us (fig. 85), which represents the ovary of a RHODODENDRON cut vertically. Nothing on the outside excited suspicion of any unusual structure, but on cutting the ovary down lengthwise the style was found to be tubular, the tube enclosing two other styles which were apparently directly continuous with the axis. The probable explanation of this peculiarity is that the supernumerary styles are the traces of an otherwise abortive row of carpels placed within or above the ordinary ones. In any case, it seemed desirable to place the case on record.

—— HYPERICUM PATULUM is flowering freely in the herbaceous ground at Kew. It is a rare species, and one of the best for borders. It was figured in the *Botanical Magazine* for 1868, where we learn that it was introduced to Kew from Japan by Mr. OLDHAM, collector for the Royal Gardens. The stems are arching and reddish in colour. The flowers are large and bright yellow.

—— A very laudable attempt to develope the resources of Cornish fisheries has lately been initiated by Messrs. FOX & FRYER, who are preparing SARDINES as caught on the Cornish coast in the same manner as in France. To Mr. FRYER, of the Fishery Department of the Home Office, we are indebted for samples, which are equal to the average quality received from France, but which do not rival in delicacy the finer kinds. Sardines, it appears, are nothing more nor less than small pilchards. We only wish that the fresh fish were to be obtained in the London market. Some fish called Sardines are served along the Mediterranean, as at Genoa, and which to our thinking surpass the finest smelt. If these be really pilchards, surely our Cornish friends could easily overcome the difficulties of land-carriage (which are stated to be great, owing to the delicacy of the fish), and add a new delicacy to the London market. Meantime, the introduction of the preserved fish is a distinct acquisition.

—— The latest novelty in ROSE PROPAGATION comes from Chichester. Here Mr. MCRONALD, the nurseryman, has been trying some experiments upon various stocks, and we are forced to admit that he has obtained an unusual amount of success with no other than the old "Monthly Rose." Quarters budded on Briars, Manettis, Boursaults, and the "old Monthly," respectively (each of which were budded in June last), exhibit a marked difference in favour of the latter. Indeed, the shoots we saw upon these averaged a foot more in length in the month of August than any of the others, many of which had not started; and Teas, such as Climbing Devoniensis, Maréchal Niel, &c., were growing away amazingly, many having four or five large buds bursting into colour in strange contrast with the blooms of the foster-stocks, themselves in full bloom. From what we saw, we fully expect to hear more in favour of what may not inaptly be called Mr. MCRONALD'S "last hit."

—— In the succulent-house at Kew there is a fine specimen of ARUNDO CONSPICUA, one of the finest of ornamental grasses, native of New Zealand. Though suitable for planting in the open ground, it is also desirable in pots for the conservatory, as the graceful plumes last for months in the best condition. It would be a striking subject for exhibition. Seeds produce plants in quantity. For its culture rich loam is preferable. When growing, a shallow pan of water in which to stand the pot is of great benefit, especially when the flower-stems are rising.

—— A glazed porch or vestibule has lately been added to the ORCHID HOUSE at Kew, which will be of great service in obviating the ill-effects of draughts caused by the constant opening and shutting of doors in a house so much visited. A similar device might well be adopted in the Palm-stove.

—— At the annual exhibition of the Kilmarnock and County of Ayr Horticultural Society held on the 14th inst. the judges went to Newfield House, Dundonald, to inspect a new Bronze Zonal PELARGONIUM, named ROBERT BURNS, raised there by the gardener, Mr. GRAY. The ground colour is bright yellow, with a broad zone, foliage large, habit spreading, and the plant grows no higher than 6 inches. The judges saw it growing in a mass, and unanimously awarded it a First-class Certificate. A First-class Certificate was also awarded to an early flowering WHITE PHLOX, raised by Mr. WILLIAM WILSON, Mauchline.

—— The ASHANTEE LILY, to which reference was made at p. 366, is probably a Crinum. Mr. D. A. SALAMON has the following note regarding it in last week's *Field*:—

"In April last Mr. GEORGE HENTY, the well-known special correspondent of the *Standard* in Ashantee, brought home a large basket of plants from that country. At the time I unpacked them they had been forty days out of the ground; some were dead, but the greater number stood the journey, and are now alive in my hot-house. Some bulbs, probably the same as Mr. BOYLE'S 'Sutah Lilies,' were amongst the number, one of which bloomed six weeks after being potted up. It was sent

to Professor OLIVER, of the Herbarium at Kew, who declared it to be a well-known plant, but a very shy bloomer in this country—Crinum giganteum. Although we have five or six bulbs of the same species, no other has shown a sign of blooming, so the blossom must evidently have set in Ashantee before being dug up. Should this be identical with BOYLE'S Lily, he will have to exhibit it very soon after it blossoms, as it only lasts in bloom about six hours. I have bloomed a plant of an Orchid, Angræcum distichum, likewise brought over by Mr. HENTY, but have rejected it as being not worth growing. Some seeds from the same country have been sown, and are now large healthy plants, which, although subjected to every treatment we can conceive, at present show no signs of bloom. [Give them time.] From their foliage I should imagine they were species of Kennedya (but this is peculiar to Australia), Ipomœa and Acacia. Mr. HENTY mentioned to me a yellow Ipomœa, from which he had collected seed. If the plant we have raised be indeed of that colour, it will be a novelty. Some orchidaceous plants, which at present have shown no signs of flower, and some Ferns of the genus Platycerium and Neottopteris, complete the category."

—— A correspondent writes to us in praise of the VOLCANIC SOIL near Naples as an antidote to the Potato Disease, the Oidium of the Vine, &c. The "earth of the Solfoterra of Pozzuoli," like other similar soils, is very fertile, and it is possible that the sulphur (and perhaps the arsenic) which it contains is detrimental to fungus-growth; as similar molds are known to be beneficial in Cornwall in the case of the Potato Disease. Those who are commercially interested in the matter also state that it is valuable in the case of the Phylloxera. We have no personal experience, but the statements are at least very plausible, and should decidedly be put to the test as opportunity offers. Mr. E. ST. JOHN FAIRMAN, of 73, Mark Lane, London, E.C., is the agent in this country.

—— The *Graphic* is an admirably illustrated paper, but its botany is by no means up to the mark. The red-berried Deadly Nightshade tree, which has been fatal to so many children in Paris, and to which we have already alluded (p. 304), showed this pretty plainly; and the following note upon CARNIVOROUS PLANTS which accompanies an admirably executed and well arranged plate by Mr. W. G. SMITH, in last week's number, is further evidence of the fact:—

"These are the singular specimens of vegetable life alluded to by Dr. HOOKER in his very interesting speech at the Belfast meeting of the British Association. He and Mr. DARWIN had examined them very closely, and found that when a fly was caught it was dissolved in the digestive fluid exactly like ordinary gastric juice, and the same happened with a piece of beef, but when a mineral substance was placed on the leaf there was no contraction. The fine hair on the leaf closed gently upon a piece of wet chalk, but soon opened again, and rejected it. The experiments also proved that the contraction of the leaf was precisely similar to the contraction of a muscle, so that, as Dr. HOOKER explained, it is not only proved that the digestion of the plant is like that of animals, but that it has a nervous system, and in fact forms one more link in the continuity of Nature. As our readers will see by reference to the engraving, these plants are furnished with various kinds of traps or snares for the unwary insects upon which they live. The Sarracenia, the Nepenthes, and the Cephalotus have lids which shut down upon their victims. The Darlingtonia curls its leaf around them [!!], the Pinguicula shuts itself up and curls its leaves [!!!], the Dionæa also shuts itself upon its prey, and the Drosera has an arrangement of fine lines ending with little knobs, which it throws over its prey, and thus secures it [!!!!]."

Dr. HOOKER will doubtless feel complimented by the evident attention which the writer [not Mr. SMITH] of this wonderful paragraph has paid to his "very interesting speech" upon "our brother organisms."

—— The collection of ORCHIDS formed with so much care by the late Bishop SUMNER at FARNHAM CASTLE was brought to the hammer at STEVENS' Rooms on September 17 and 18, and realised about £640. The highest priced plant was "perhaps the finest specimen in the country" of Dendrochilum filiforme, which commanded £25 4*s*. The very fine specimen of Angræcum eburneum superbum, figured in our columns at p. 217, 1873, realised £24 3*s*.; Dendrochilum glumaceum, a plant which had ninety-six spikes of bloom last season, £14 3*s*. 6*d*.; Lælia anceps Dawsoni, £17; Dendrobium Kingianum, £11; Odontoglossum luteo-purpureum, £8 10*s*.; Angræcum sesquipedale, £5 10*s*.; Odontoglossum Pescatorei, £5; O. coronarium, £5 5*s*.; O. Halli, £5 5*s*.; Maxillaria venusta, £5 5*s*.; Oncidium zebrinum, £5 5*s*.; Cattleya Trianæ Laurenciana, £5 10*s*.; Brassia macrostachya, £4; Oncidium sesile, £3 15*s*.; Saccolabium compressum, £3 10*s*.; Phalænopsis grandiflora, £3 15*s*.; Vanda gigantea, £5; Cattleya Veitchii, £3 15*s*.; Odontoglossum Alexandræ, £3 15*s*.; Cypripedium Lowii, £4. The following works on Orchids belonging to the late Bishop were sold at the same time:—BATEMAN'S *Monograph of Odontoglossum*, £6; LINDLEY'S *Sertum Orchidaceum*, £8 8*s*.; LINDEN'S *Pescatorea: Iconographie des Orchidées*, £8 10*s*.; and twenty numbers of WARNER'S *Select Orchids*, £7.

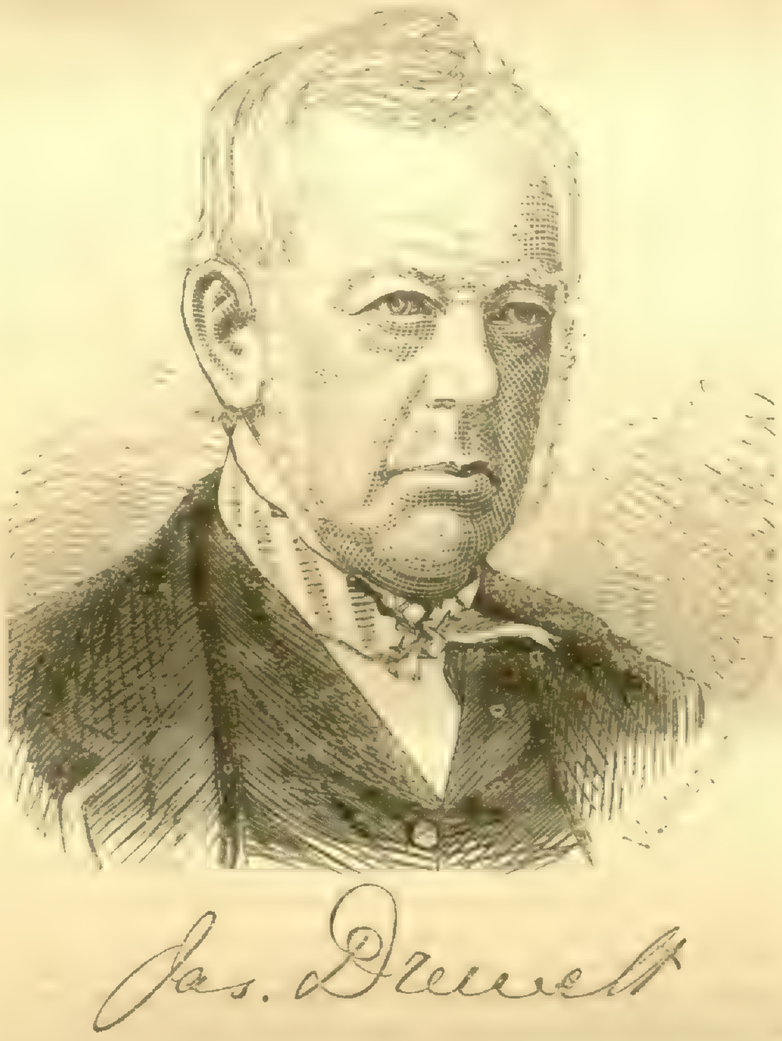
BRITISH GARDENERS.—II.

JAMES DREWETT.

THE name of Mr. Drewett is well known in the world of horticulture, being very prominently associated with the production of some of the handsomest Muscat Grapes which have perhaps ever graced an exhibition table. We now present his portrait to our readers, as that of one of the veterans amongst British gardeners.

Mr. James Drewett was born in the year 1803 in in the neighbourhood of Bristol, and entered on his horticultural career in the gardens at Himley Hall, Staffordshire, the seat of the Earl of Dudley and Ward. In 1825 he came to London, and was employed over a period of seven years in the Royal Forcing Gardens at Kensington and Cumberland Lodge, and in the Royal Botanic Gardens, Kew.

Mr. Drewett has held three head situations; the first as manager of the estate, gardens, woods, &c., for the late D. Baillee, Esq.; the second as gardener to Sir W. Heathcote, Bart., at Hursley Park, near Winchester, Hants; the third with the late Thomas Cubitt, Esq., at the Denbies, near Dorking, Surrey. This latter situation he entered in 1850, and has held to the present time. During this period very extensive ground-work operations have been carried out under his direction, and much planting has been done; while a new kitchen garden and fruit orchard have been formed. Mr. Drewett designed the range of forcing-houses at this place, and planted the Vines,



which are assisted by heated chambers under the outside borders. It is these Vines which produced the fine samples of Frontignan, Canon Hall Muscat, and Muscat of Alexandria Grapes, which were so much admired at the metropolitan exhibitions in 1857 and in succeeding years, and which were, moreover, so successful in obtaining first prizes.

We learn that Mr. Drewett will shortly retire from the management of these gardens, of which he has been the director for nearly twenty-four years, and that he will be succeeded by his foreman, Mr. Beesley.

ARMADALE CASTLE,

THE residence of Lord Macdonald (the chief of the clan) is situated in the island of Skye. The Castle occupies a fine position on the south-eastern shore of the island; it therefore escapes the heavy winds that are experienced occasionally along the western shore of the island, consequently all sorts of trees and shrubs thrive well. Lately there has been planted out most judiciously a number of the finer sorts of Conifers. Picea amabilis, Lowii, nobilis, and Nordmanniana are making extraordinary growth for their size. The kitchen garden here is over 3 acres in extent, and walled in on three sides, with about two-thirds of an acre on the upper or western side laid out as a flower garden, and bedding-out is practised on rather an extensive scale. The standard Fuchsias are something extraordinary; one plant of gracilis that I measured was 9 feet high and 15 feet through; and another of Riccartoni was 9 feet high and 10 feet through, both plants loaded with bloom. There are fair good crops here of Plums and Cherries, Apples and Pears below the average, and all sorts of small fruit very plentiful. There are also very heavy crops of vegetables. The tidy manner in which everything about the place is kept reflects great credit on Mr. Beaton, his lordship's gardener. About seven miles distant to the north is Dinsdale, the seat of Lawrence D. Mackinnon, Esq. This is comparatively a new place, but for situation few can compare with it, standing as it does on the eastern slope of the shore of the Sound of Sleat. The views from the house are both extensive and varied; in front there is the bay and island of Isle Ornsay, and away across the Sound a fine view is had of the whole extent of Loch Hourn, and the picturesque mountainous region of Knoydart. The kitchen garden is over an acre in extent, and lies on a gentle slope towards the south, to the south-east of the mansion. At this place there is a very fine collection of herbaceous plants. The early-flowering Phloxes do remarkably well, as also Roses, &c. *John Dennie, West Coates.*

FRUITS OF THE WEST INDIES.

(*Continued from p. 367.*)

THE largest and most valuable of the West India Islands belonging to Great Britain, and one of the brightest jewels in the British crown, is Jamaica. On the southern side, when approached at Kingston, Morant Bay, the *coup-d'œil* embraces a splendid panorama of lofty mountains embosomed in clouds, vast savannahs and plains of emerald green, hills and vales, bays and creeks. Skirting along the shore abrupt precipices and inaccessible cliffs reflect themselves in the waters, with hills receding in sterile outlines towards the interior; between these ranges and the foot of the central and loftiest chain are extensive tracts cultivated with the Sugar-cane, their luxuriant beauty and verdure being set off by a boundless amphitheatre of sombre forest. The vast line of the forest melts into the distant blue mountains, and these again are lost in the clouds. Upon the northern side, where the aspect is entirely different, the surface rises gradually from the sea shore by undulating hills, separated by a spacious valley, watered by numerous rivulets and clothed with Pimento groves. In shape an oval, about 150 miles in length and 41 miles in breadth, the island is sheltered from the winds of the Atlantic by Cuba and Hispaniola.

From its geographical position so near the equator, the climate in the low ground is necessarily very hot, with little variation throughout the year, the days and nights being for the same reason of nearly equal duration. The air is exceedingly humid, and subject to dense fogs and those rapid alternations of temperature peculiar to all mountain regions. The medium temperature of the year near Kingston ranges between 70° and 80°, but little differences of elevation have here a great effect over the temperature and the salubrity of the climate. At about 4200 feet above the level of the sea the temperature usually ranges between 55° and 65°, in winter it falls even as low as 44°; there the vegetation of the tropics disappears, and is supplemented by that of the temperate regions. Showers are common in the interior almost throughout the whole year, but they do not fall with the same violence as in the plains, and the quantity of rain appears to be less.

The excessive heat at times, and for many months the recurrence daily of thunder and lightning, make it not altogether an agreeable spot for Europeans. The turf-clad hills on the northern side of the island are chiefly composed of a chalky marl, elsewhere the soil is frequently of a deep chocolate or warm yellow colour; the latter, called the Jamaica brick mould, retains a good deal of moisture, and is the best adapted for the Sugar-cane. But though the soil be in some parts deep and fertile Jamaica is not generally productive, and requires both skilful labour and manure to make it yield heavy crops. Indigo, Cotton, and Cocoa, were formerly important staples, but these have mostly given way to other articles; Maize, Guinea corn, and Rice are the principal grains cultivated, the latter, however, is not raised in great quantities. Maize yields two, and sometimes three crops a year, of from 15 to 40 bushels the acre.

The Sugar-cane with its products; the Pimento, Ginger, Fustic and Logwood, and Arrowroot, are the chief articles of export, and, with the exception of Arrowroot, these have all increased in quantities. During the last few years of the eighteenth century sugar was produced at an average rate of upwards of 90,000 hogsheads a year. The abolition of the slave trade in 1807 affected the production, but about 120,000 hogsheads may be taken as the ordinary yield for the next fifteen years. In 1855 the crop did not reach 30,000 hogsheads; in 1809 the value of the exports was upwards of £3,000,000 sterling, in 1854 less than £1,000,000, and in 1871 it was £1,196,000. The history of the island since emancipation has not been encouraging to the friends of liberty. The negro, on whom the cultivation of the land principally depends, has gradually given up labour, and appears to be retrograding in the social scale. He can in a short time earn sufficient to enable him to purchase a patch of freehold, upon which he squats. The land, owing to its fertility, yields him, with a little trouble, all he

requires to maintain him in tolerable comfort, and he works for hire only when it is necessary for him to do so.

It is evident that the only way by which Jamaica can hope again to attain to its former prosperity is by the introduction of a large supply of immigrants, and such are to be found amongst the natives of India and China. The old race of planters in their prosperous days did but little good. Neither public works, quays, bridges, works of irrigation, churches, or buildings of any sort remain; their money was either spent foolishly or else taken to England. When slavery was abolished, all the former methods of working estates had to be discontinued; and when labour became dearer, and sugar more expensive to produce, they had to compete with other places where sugar was still grown by slave labour. Although enormous tracts of land were thrown out of cultivation as an immediate consequence, there is no doubt that the area of cultivation is again increasing to a material extent. The results of the agricultural census in 1870 may be taken as an approximate to the truth. The number of acres then reported under Sugar-cane was 47,700; under Coffee, 18,600; Ginger, 106; Arrow-root, 49; Cocoa, 20; Pimento, 6900; ground provisions and garden vegetables, 39,300; Guinea-grass, 119,450. The attention of sugar planters of late years has been given rather to improvement of culture than increase of acreage under cultivation. The loss by the small and unprofitable sugar estates thrown out of culture has been more than counterbalanced by the increase of profitable culture. The coffee cultivation of small settlers is certainly increasing. The Pimento plants itself in a land left to Nature, and when it comes to some years of age, on the mere clearing of the ground of bush, the best of all the natural grasses in the islands springs up around the trees.

The fruits which flourish spontaneously can scarcely be equalled in the best parts of the old world, whether we compare them for beauty, richness, or variety. Among these are the Ananassa or Pine-apple, Cherimoyer, Tamarind, Papaw, Guava, Sweet-sop, Star-apple, Cocoa-nut, Grenadilla, Avocado Pear, Mammee, Banana, Bread-fruit, Mango. The Oranges, which are excellent, grow in great abundance; the Lemon, the Lime and Shaddock, the Vine, Melon, Fig and Pomegranate were in all probability introduced by the Spaniards. The Peach, the Strawberry, and the Rose-apple, have been introduced by English settlers, but except on the tops of the hills they attain no great perfection.

In 1789 Admiral Rodney captured a French ship from the isle of Bourbon, which was carrying a valuable cargo of Oriental plants, and these he generously presented to the island. They have since been propagated, and the Cinnamon may be said to be naturalised. The Mango is one of the finest of the East Indian fruits, and has become as plentiful in Jamaica as the Orange. It is abundantly eaten by the natives as a fruit, but in Europe it is scarcely known except in the form of preserves and jellies. Like the Walnut it is a large spreading tree, with shining green leaves, 7 or 8 inches long, having a sweet resinous smell. The flowers are white, growing in bunches at the extremity of the branches; the fruit has some resemblance to a short thick Cucumber, and in the average of the varieties, of which there are many, about the size of a goose's egg. At first the fruit is of a fine green colour, and in some of the varieties it continues so, while others become partly or wholly orange. When ripe the Mango emits a smell, which, though faint, is pleasant, and the flavour of it is then as delicious as can be imagined. Externally there is a thin skin, and upon removing that, a pulp, which has some appearance of consistency, but which melts in the mouth with a cooling sweetness that can hardly be imagined by those who have not tasted that choicest of Nature's delicacies. In the heart of the pulp there is a pretty large stone, resembling that of a Peach, to which the pulp adheres firmly. Another similar fruit, to be eaten in the heat of the day, is the Star-apple. The inside is like cream and custard, and very sweet and refreshing, and the pulp mixed in a tumbler with the pulp of an orange, and a little broken ice, is delicious.

It is somewhat remarkable that the most valuable fruits are found growing upon the most ornamental of trees. The Tamarind furnishes one of those examples of the prodigal bounty of Nature in the tropical regions, where the cool shade to be obtained under its thickly spreading leaves is nearly as much prized as its fruit. In the West Indies the pods are gathered in June, July, and August, when fully ripe; and the fruit being freed from the shelly fragments is placed in layers in a cask, and boiling syrup poured over it till the cask is filled; thus the syrup pervades every part quite down to the bottom; when cool the cask is headed or closed in, and is then fit for sale. The Tamarind has a sharp, penetrating, and agreeable acid taste, softened by a sweetish one. The pulp is peculiarly grateful in fevers and inflammatory affections. The Bread-fruit was first discovered in the South Sea Islands. Dr. Solander, who accompanied Captain Cook in his voyages, speaks of it as "the most useful vegetable in the world"; and a vessel in consequence was sent to Otaheite, under one of Captain Cook's officers, to procure a supply for the West Indies. This expedition has occasioned one of the most interesting narratives of the adventures at sea that has been recorded, and every English-speaking person is well acquainted with the account of the mutiny of the *Bounty* and the escape of Captain Bligh, who was turned adrift with his companions in mid-ocean. This intrepid officer, although foiled in this attempt, afterwards succeeded with another vessel in transferring a great number of these trees to the island of Jamaica. For eight months of the year the Bread-fruit continues productive, and such is its abundance that two or three trees will suffice for a man's yearly supply. When the fruit is roasted till the outside is charred, the pulp has a consistency not very unlike that of wheaten bread, and the taste is intermediate between that of bread and roasted Chestnuts. By Europeans it is much esteemed, but with the negros it is not so highly relished as the Plantain or Banana.

With products that only need the minimum of human labour to bring them to perfection the incentives for exertion that exist in a colder climate are wholly wanting to the population. The island, however, continues to improve under the administration of Sir J. P. Grant. There has been a tendency to give increasing attention to the minor articles, whereby new and important industries have been established. In one of his reports the Governor mentions the springing up of a new trade with North America in fruits and Yams, the value of which to the port of Antonio alone had been such that a considerable revenue had been derived to the colony where none had previously existed. The trade was still increasing month by month, with a tendency to spread all along the north side of the island, and this has led to a very large cultivation, not by the small settlers only, but by others likewise, of the Martinique Banana. The market for tropical fruits, which hitherto had been neglected, is found to be unlimited in the northerly parts of the United States. "It is my conviction," says the Governor, "that in Oranges, Limes, Pine-apples, and Bananas, all producible here of a quality not to be surpassed in any part of the world; and in Cocoa-nuts and other fruits, all producible in any quantities, Jamaica might become in a very short time capable of supporting an export commerce of immense value." *E. T. B.*

(*To be continued.*)

Home Correspondence.

Dianthus Caryophyllus.—When I was lately visiting the old Castle of Falaise in Normandy (the birthplace of William the Conquerot), I was much struck with the great abundance and luxuriant growth of Dianthus Caryophyllus all over the Castle. This plant is not common in Normandy, being found chiefly on the old castles, while in England it is chiefly confined (as a native) to Rochester Castle. Rochester was for the most part built by Bishop Gundulph, the friend and companion of William, and it is easy to fancy that Gundulph may have brought the seeds or plants from his old home in Normandy to ornament his new home in Kent. The occurrence of the plant on the two castles, so closely connected historically, is at any rate a curious coincidence, and seemed worth a note. *H. N. Ellacombe, Bitton Vicarage.* [The plant is a wall plant throughout the north and centre of France. It is only in the south that it occurs on rocks, &c. Eds.]

The Eucalyptus on the West Coast of Scotland.—I was at Colintraive, on the Kyles of Bute, this week, and saw there two Australian trees—one, Eucalyptus globulus, the other, Geijera salicifolia. They are growing in the open air, pretty high up on the hill-side, without the least protection, and fully exposed to the strong south and south-west gales, which come with great force in the winter. They are about 12 or 13 feet high, about 15 inches in circumference at the ground, and well furnished with branches. They were grown from seeds sent home from Australia. I had often heard of these trees, and was very much interested in seeing them growing with so much vigour and looking so well, for the shoots of this year were about 10 to 12 inches long, and very healthy. *James Miller, Hillside House, Rothesay.*

Vegetable Shows: a Suggestion.—I notice in your columns Dr. Denny pleading hard and ably for his pets the Pelargoniums; and I cannot help thinking how seldom it is that we see in print any remarks upon the showing of the useful products of the garden. I am not sure but that, by a little management, we could arrange a table in one of those arcades at South Kensington with Peas and Cauliflowers only, that would not be unworthy of the age we live in. Let me remind your readers that few Ferns can compete with first-class Parsley, and what Palm have we that can match the lovely Fennel in general appearance? Such being the case why should these things not be grown in pots for exhibition purposes? Nobody rejoices more than myself that vegetables have undergone a great improvement of late, and, therefore, while growers of other garden produce are keeping the ball rolling, why should we Cabbage growers be silent. Cannot or will not the Council of the Royal Horticultural Society help us in our efforts to get up an exhibition of vegetables? If it will not, I will make an appeal to our army of nurserymen and seedsmen, which, I have no doubt, would be successful. *R. Gilbert, Burghley.* [An exhibition of this character might be made not only useful, but most beautiful and artistic, only managers and exhibitors must not be too conservative in their arrangements. Eds.]

A Remarkable Holly Tree.—I am not aware of ever having heard of a Holly tree of such magnitude of girth as one I especially noticed a few days ago growing on the grounds occupied by the Messrs. Stafford & Ravenscliff, near this place. I carefully measured with these two gentlemen the girth immediately below the branching head; the circumference was 11 feet odd inches, consequently approaching 4 feet in diameter. It may be observed, however, as a fact somewhat remarkable that the top and branches bear no proportion in height and appearance to the bole, though the branches themselves, at their union with the trunk, if standing alone as separate trees, would be considered of gigantic proportions. Probably the lapse of ages may account for the great disparity observable, and the consequent decline and decay of the upper part, which seems now well-nigh denuded of its foliage; and, judging from its present appearance, if left alone for some twenty years more, would be found probably a mere skeleton of its original grandeur. This venerable patriarch of a bygone age seems, however, to be making its last instinctive effort to perpetuate its race, by throwing out all around its base young saplings, one of which possibly, if cared for and left alone, might some 400 years hence find itself, like its parent, in the decline of life. I wish some of your numerous correspondents better versed in arboriculture than myself, whom business or pleasure might bring into our picturesque locality, would give us their opinion about it, and say whether it is usual anywhere in our island to find this most venerated of all our indigenous evergreens attaining such proportions. *A. Godwin, The Rosarium, Ashbourn.*

Clematis montana.—In reply to "H. K.'s" inquiry respecting the native country of this hardy climber, I hasten to say that it is India and not South Europe, as inadvertently stated in my notes on this plant at p. 323. It is widely distributed in India, from the Indus to the Bramaputra, ascending to an altitude of 12,000 in some places. My thanks are due to your correspondent for pointing out this error, and I cannot forbear adding that it is a commendable practice to put such questions where any doubt exists as to the accuracy of matter sometimes too hastily written. I may supplement my previous notes with the fact that this plant was in full flower in April this year. *The Writer of the Notes on the Old Walls at Kew.*

The Horticultural Labour Difficulty.—I had hoped, after reading your leading article (p. 269) on the above, and invitation for the views of your correspondents, to have seen some of our leading men take up the subject and give us their opinions, but was disappointed on reading the following numbers to find no one had ventured a reply. There can be no doubt that gardens generally are supplied with very indifferent labourers, the wages being too poor to get men that will remain any length of time, and so get well acquainted with the work; the case frequently being that as soon as they get a little used to the gardens they leave, and the gardener is obliged to recruit from the "leavings of the farm," or such-like, generally ending in getting one that for some time is of little use in the gardens. Coming to professional young gardeners or journeymen, who have probably served a three years' apprenticeship with a £15 premium, I consider that of the two they are worse paid than labourers, after taking into consideration the extra time they work (nights, Sundays, &c.), and that they are expected to keep a somewhat respectable appearance. Why a journeyman gardener's pay should be scarcely half that given in any other trade (carpenters, &c.) I have long wished to know, and should be very pleased to see the subject discussed by our leading horticultural writers interested in the matter. *A Young Gardener, Tring.*

The Pelargonium Society.—The criticisms upon the Pelargonium Society's schedule and my letter of the 12th inst. by your correspondent, Mr. Chitty, in your journal of the 19th, demand a few words of explanation from me. Mr. Chitty says that it is impossible for intending exhibitors to understand what is meant by the appellation "decorative" as applied to class 2 of the Society's schedule, quoting the notice given in the *Gardeners' Chronicle* of September 5, p. 301. The class Mr. Chitty refers to is intended for

the varieties known as "Hybrid Nosegays," and I should state that the term "decorative" was employed at my suggestion, to prevent the possibility of an exhibit being disqualified by its containing a variety that the judges might be unable to determine to which class it really belonged. Such a difficulty did occur when I officiated as one of the judges three years since, when neither the judges nor the Floral Committee, to whom we appealed, could satisfactorily decide the point; and the advance made yearly in the form and quality of the Nosegay type renders it more and more difficult to do so. Mr. Chitty will excuse my reminding him how much easier it is to find fault, than it is to find a remedy; as he has succeeded so well in the former, I should like him to try his hand at the latter, and give us an appropriate name that shall include all the Nosegay and semi-Nosegay varieties, clearly distinguishing them from the Zonals. I would not quarrel with him about its scientific derivation, for I am aware that it is a weakness on the part of botanists to consider that there is nothing scientific about plants cross-bred up to such a state of perfection that it is almost impossible to recognise in them any trace of their original parentage, and that they will not admit that any plant is worthy of their notice save in its primitive form. [We entirely repudiate the statement as it stands. EDS.] This primitive form they dignify by calling it a species, and giving it a scientific name; but I fear this theory of distinct species, which they have never yet been able to define, is fast giving place to the doctrine of evolution. Mr. Chitty also suggests some practical and useful work to the notice of the Pelargonium Society. He is quite right in pointing out the necessity for a clearer understanding with regard to the size of pot intended by a given number of inches; it requires to be defined how and where the measurement should be made. It ought also to be distinctly understood what sized plant a given sized pot is intended to contain; and again, if "specimen" or "semi-specimen," the size of plant those terms are meant to imply. It should also be determined how small a plant and how few trusses in bloom renders a plant admissible for exhibition, or for adjudication for a certificate; in fact, I consider it would be a most appropriate undertaking for a special committee of the Society to draw up and establish a code of rules both for the guidance of exhibitors and for judges upon all points on which they are liable to be called upon to adjudicate. Mr. Bennett's idea of Pelargoniums being shown in the same way as Dahlias, of thirty-six cut trusses to a stand, is, in my opinion, a good one, and would produce a most effective display; but the Society's funds do not admit of any addition to the prizes offered for this year. Perhaps amongst the numerous amateur and professional growers of the Pelargonium a few may be found with sufficient *esprit du corps* to assist us in this respect, and so test the value of Mr. Bennett's suggestion. I trust that by another year the Pelargonium Society may be in a position to increase very considerably its prize list, so as to include the doubles and variegated, if not other sections of the Pelargonium genus, in their schedule; and to this end I would again solicit all who are desirous of joining the Society to do so at once. I also ask the favour of those who have not paid in their subscriptions to forward them in time for me to render a definite account of our financial position at the next meeting of the Society's members, to take place at South Kensington at 1 P.M. on November 11. *John Denny, Treasurer.*

Fingers-and-Toes in the Brassica Tribe.—The best cure for this pest is a good liming to the soil, and should "Aldershot" be able to procure the "magnesian lime" made from the dolomite rocks, it is the strongest, although not so good for the land as the pure lime. Peat soil is much improved by a good liming, as it corrects the sourness made by the superabundant moisture in such soils. The best cure for the Onion grub is to dig a good dressing of soot in the soil in the autumn or spring before sowing the seed. A top-dressing of soot or wood-ashes must likewise be given to the plants before the Onion fly lays its eggs on them, as a preventive. *William Tillery.*

Covering for Outside Vine Borders.—"A Gardener down West" asks the opinion of Grape growers, whether it is safe to practise the non-covering system of the outside borders. The following is the system carried out here, as I very much prefer the outside Vine borders to be covered during the autumn and winter months, when Grapes are in demand by the beginning of April, it being our usual custom to have a house ready for use by that time. The covering, used for the borders are wooden shutters made of floor-boards, and when jointed they are pretty well waterproof. The borders are well watered early in September and covered down with fresh litter from the stables 9 inches thick; the shutters are then put on, and no more attention is given to the borders until the Grapes are ripe the following spring. I very much prefer the use of shutters to fermenting material, as they are less trouble and tidier, and, with me, the results are more satisfactory. I should not like to chance my early crop of Grapes without having the roots protected, and should we be again visited by some severe weather, I think the covering would be of great benefit. I well remember the winter of 1860-1861: our early Vines were in bloom at Christmas, the borders being protected in the way I have described we succeeded in securing a crop of early Grapes the April following; and the same Vines continued for many years afterwards to produce good crops of fruit, and seemingly to enjoy the protection afforded them during the period of forcing. *Jos. Jefferson, Worksop.*

—— In reply to "A Gardener down West," I beg to say the shutters were removed from the borders, which were left exposed to the snow and rain, but they were covered with stable manure to protect the roots from the frost; the result was a better crop than any before. Last year was the first time for the early vineries, but the others were left uncovered for the two previous seasons, and the result this year was from 60 lb. to 70 lb. per rod, both bunches and berries being large, on Vines nearly twenty years old: which goes a little to confirm the opinion that old Vines as well as young ones will carry large bunches and berries when properly nourished. *William Paul, Edinburgh.*

Thistles and Coltsfoot.—In reference to the best means of exterminating Thistles and Coltsfoot, the only means I have found successful is refuse salt, applied at the rate of 1 ton per acre. This will be thought a heavy dressing, but my case was a severe one. The land was so monopolised by Coltsfoot and Thistles that not a blade of grass or grain of Wheat would grow; in fact, had not room to grow. The owner of the land gave it me for five years at a very low rental, in order to clear it of these weeds. The salt was sown in February, and ploughed down. The land was left a few weeks, and ploughed again, and in July had a dressing of dung, which was ploughed in. The land was then cropped with Cabbage (Mangel Wurzel would have done as well), and, with a few exceptions, was a very fine crop. I have seen neither Coltsfoot nor Thistle on that land since, and it is now nearly twenty years ago. My landlord has kindly quadrupled my rent in consequence of the increased fertility of that field. *James Levesque, Jersey.*

—— The best way to prevent Thistles and Coltsfoot from making headway in pastures is to keep grubbing out the roots, or cutting the plants over as soon as they appear above ground, when they will gradually get weaker, and die out; that is, if no seed is allowed to ripen and blow about. *William Tillery.*

The Pavias.—About Blenheim are to be seen many fine specimens of those rarely planted trees, the Pavias. Being in reality miniature Horse Chestnuts, and perfectly hardy, they are admirably adapted for small pleasure grounds, and villa gardens in town suburbs, and should be used in place of those coarser growing trees that are so apt to grow out of all proportion to their surroundings. There are several with different coloured flowers, which may be procured in any first-class nursery. *H. Knight.*

Picea Webbiana.—I wish your correspondent "H. R." had mentioned the size of the Picea Webbiana at Penjerrick. We have one here 25 feet high, and 2 feet 2 inches girth, with nine cones on it. This is, I think, the third year it has borne cones. We have also a good specimen of Abies Albertiana, about 50 feet high and 3 feet 7 inches girth. Also Taxodium sempervirens, about 35 feet high, the leader having been spoiled a few years ago. The spread of branches is 25 feet, and the girth of the stem, measured, like the rest, 2 feet from the ground, is 6 feet 10 inches, and would no doubt be more if the squirrels were not so very fond of the bark. I should like to know how these dimensions compare with those of the same trees at other places. We are about 700 feet above the sea. *Llanrwst.*

Floricultural Certificates.—At the last meeting of the Royal Horticultural Society at South Kensington, Mr. Fraser gave notice he should propose at the next meeting, October 7, that something should be done to give First-class Certificates more weight than has hitherto been the case, more especially with plants, &c., that gain a First-class Certificate by a unanimous vote and are of superior merit. There cannot be a doubt some new method is needed, and as the subject is of great importance to the horticultural world I trust the committee will assemble in full force at the next meeting to discuss so really important a subject. *E. Bennett, Hatfield, Herts.*

The New Begonias.—Those hardy bulbous Begonias of Messrs. Veitch's are evidently great acquisitions for outdoor summer flowering. On some rockwork in and about their extensive glass-houses they were to be seen in great numbers, confirming at a glance their suitability for such work. The bright, vivid colours of some of them were very striking and most effective at a distance. Many of the seedlings not yet sen tout were still further improvements, and surpassed in brilliancy some of the older kinds. I have no doubt Messrs. Veitch's clever young hybridiser will before long be delighted in seeing from among his future batches of seedlings a pure white, which for late flowering (for which they are all so admirably adapted) will prove invaluable. *Henry Knight, Floors.*

Mr. James, of Patshull.—We are about to lose from the horticultural world our respected friend, Mr. James, upwards of twenty-six years gardener to the late and present Earls of Dartmouth, Patshull, near Wolverhampton. Few men in the profession were more respected than Mr. James, who was a very excellent neighbour and friend, and quite an ornament to his profession—a man of perseverance, who laboured hard at his business, and brought the gardens at Patshull to their present efficient state. As a fruit grower and kitchen gardener few men could excel Mr. James. I am pleased to record that he retires on a fortune left him by a friend, sufficiently ample to keep him from further toil the remainder of his days, which I trust may be many. He is leaving the neighbourhood accompanied by the highest esteem and best wishes of his large circle of friends. *E. Bennett, Hatfield, Herts.*

Large Pelargonium Leaves.—I do not know whether it may interest your readers to know that I have to-day cut leaves from a plant of the "double pink Pelargonium" measuring 28 inches in circumference. Several had attained this size (six or seven), and one was 28½ inches. I may be quite mistaken, but it seems to me that this size must be very unusual. The leaves look more like those of a Water Lily than anything else. *C. A. Gaskoin.*

Cool Orchids.—A correspondent, "E. H.," asks for the names of a few Orchids which will stand a low temperature in winter; to which, in reply, I have to state that the Orchids now introduced from Peru and New Grenada, and the chain of the Cordilleras along the tropical zone, are so numerous that it would take a goodly list to enumerate them. Possibly the most complete one, although by no means complete, from our present knowledge, is that given in the Bateman prize list printed in the *New Practical Gardener*, which passed through my hands. All in the cool section of that list are tolerably hardy, and will live in a climate of Madeira mildness. Young growers of Orchids must understand, however, that they must not "prank" with low winter temperatures, as, if these plants are soft-grown and indifferently ripened, they will suffer with a degree of mildness which would be the proper figure for well-grown, finely established cool Orchids. The error in practice in bygone years, which I am glad to see very generally corrected, was the summer temperature maintained. And for all cool Orchids, almost without exception—and that includes the loveliest of them—such as the Princess of Wales Odontoglot (O. Alexandræ), the cloud-hugging Oncidium (O. nubigenum), the more lovely and most beautiful Oncidium Phalænopsis, the Odontoglossum nebulosum, the most gorgeous of Masdevallias—chief among which is undoubtedly Harryana and Veitchiana and Lindeni, and the fiery-coloured ignea, not the least desirable of the class—and the superb Oncidium macranthum, together with Odontoglossum Andersonianum, luteo-purpureum, triumphans, Pescatorei, cordatum, and maculatum; Epidendrum vitellinum, and E. vitellinum majus—all the gems of the great Orchid family can live, if otherwise properly grown, in a house where the temperature does not fall below 40° Fahr. It may fall from 4° to 6° lower if fire-heat be employed to keep out a very intense frost, but it is not safe as a rule, and in any hands, to allow so great a fall. From 40° to 48° as a summer, and from 45° to 53° as a maximum for low winter temperatures, night and day, is a safe figure. These plants do not as a rule require to be subjected to the usual *rôle* of having the day-heat 10° above the night-heat; indeed, to practise this even statedly would be productive of no good, but rather harm. Where the sun comes in to run up the temperature here is no harm, but if the fireman heaps coals upon the fire to carry out any such theory of artificially created high day temperature, he will find in time his plants going down the hill of life. The so-called cool Orchids, such as Odontoglossum grande, O. Insleayi, O. Schleiperianum, O. hastatum, Oncidium leucochilum, O. incurvum, Lycaste Skinneri, and many others, won't bear these low temperatures. Their proper range is from 5° to 8° above the figures quoted. They will do in cool summer quarters, but not quite so cool as suits their lovely congeners; the one lot will thrive to great perfection set out against the sunless side of a north wall protected by glazed sashes, the other will not. Almost all Orchid growers of importance have found this out and practise it continually; those who are blind to advice will suffer accordingly. Of course it must be understood that although greenhouse temperatures are hot enough for cool Orchids throughout the year they are seldom moist enough, and this may account for the want of success of not a few. Moisture, both in the atmosphere and about the plants, must prevail to secure

first-rate Orchid pseudobulbs and first-rate Orchid racemes or panicles, with their truly wonderful flowers—wonderful in form, in substance, and in purity and distinctness of colour. *James Anderson, Meadowbank Nursery, Uddingstone, N.B.*

Stung by Laportea gigas.—Going through the houses at Kew Gardens the other day with Mr. Smith, I happened to touch a leaf of the Laportea gigas, and immediately after felt a stinging sensation in the inner part of my third finger, as if a wasp had stung it. The pain was quite as severe, and continued so for several days. The pain, however, gradually declined, but even now, after a lapse of three weeks, I feel a slight sensation, and the place where stung is still visible on the top of the finger. Of the two I would prefer being stung two or three times by a wasp than once by the treacherous Laportea gigas. *Henry Knight, Floors.*

On the Cultivation of the Strawberry for Forcing.—Having been most successful during the past season in growing large quantities of Strawberries of more than average size and quality, I am led to offer you a few remarks on my mode of culture. I may mention that numbers of individual fruit gathered by me weighed over 2 oz., and single plants produced on an average from 8 oz. to 10 oz. of fruit. The mode of culture is as follows:—As soon as the runners have taken root in the open ground, take them up carefully and pot them into 4-inch pots in a compost consisting of three parts good turfy loam and one part of well rotted leaves or even dung. A slight sprinkling of silver sand will be found beneficial. See that the pots are loosely crocked, so that eventually the plants may root through the bottoms of them. Having potted the plants firmly, place the pots at once in a cold frame on a bottom of cinder ash; shade them for a few days from the direct rays of the sun, and for a few weeks let them on no account suffer from want of water. At the end of this period the plants will have rooted firmly in the soil, then remove the lights altogether and water sparingly. A little liquid manure may be given them occasionally, which, however, must be discontinued at the beginning of October. Thence forward, up till the time for forcing, sufficient clear water may be given to prevent the plants from actually flagging. Keep them through the winter in a cold frame, or stack them one upon another in any place where severe frost will not touch them. When forcing is to commence remove the pots to a shelf fixed as near to the glass as possible, and in which have been placed strips of green turf, about three-quarters of an inch thick, the width of the shelf. The plants will soon take root into the turf, and derive immense benefit therefrom. During the forcing period the temperature of the house may vary, as it is not always necessary to force very quickly. Water of the same temperature as the house must be given but sparingly until the plants have set their fruit, when the quantity may be increased. An occasional watering with liquid manure (say, three times a week) will be beneficial. Do not syringe them while in bloom or during the period of ripening. The best kinds for forcing are:—1, Black Prince; 2, Duc de Malakoff, Prince of Wales, and Keens' Seedling; 3, President, Sir Charles Napier, Sir Joseph Paxton, and British Queen. I have no hesitation in saying that success is sure to follow the adoption of this simple mode of culture. *John Rose, Igtham, Sevenoaks.*

Dendrobium nobile.—"E. H." asks whether this plant will stand a temperature of 55° in winter? I have very frequently wintered this plant in an ordinary greenhouse not adapted for cool Orchids, and the method I practised was this. When the plant had been grown to a good large size, I ripened the growths in a strong Indian temperature, with as much sun as September and October would give. At the end of the latter month I gradually withheld water, and reduced the temperature, as is always done, or ought to be done at all events, in all well-regulated establishments, and then towards the end of November I had the plant set upon the stage of the greenhouse. There it used to live without water for a month at a time. Of course, if much fire-heat were necessitated by unusually low out-of-door temperature, then the water had to be applied more frequently; but it was not uncommon that during the months of December and January the specimen Dendrobium nobile in the greenhouse had not one drop of water from a water-pot. This induced the setting of buds, and the crop of flowers from plants managed in this way is something worth looking at. When I was accustomed to take a place in the competitions at Glasgow, I have invariably shown a good specimen plant in the last week of May, and in one or two cases in the second week of June; and although the plant was to a certain extent punished by lopping off the flowers after the day of competition, and introducing the plant gradually into a moist, high temperature, the young growths were scarcely inferior to those of former years. Those who grow for exhibition in this way will require a set of three plants, and by working them alternately they will be amply successful. In the same way they may be cultivated for cut-flower purposes, and give off their beauteous flowers in abundance from Christmas onwards; indeed, there is not a more beautiful or a more useful Dendrobe in cultivation, and that is saying much when there are hundreds and hundreds of species to draw comparison with. *James Anderson, Meadowbank Nurseries, Uddingstone, N.B.*

The Chestnut Tree.—I have noticed in some of the periodicals that the rafters of the roof of Westminster Abbey, which were supposed to be of Oak, are now proved to be of Chestnut, and have been there 800 years. Do you know what Chestnut it is? I presume the Spanish. If such is the case, it must prove to be one of our best timber trees to plant, as it is one of the most ornamental trees we have. *E. N. M.* [A very old story this. The wood is probably that of the sessile-fruited Oak, and not Chestnut at all. EDS.]

Carnivorous Plants.—The article by Mr. Andrew Murray in the last number of the *Gardeners' Chronicle* presents very clearly and fairly the objections that present themselves to the doctrine of the carnivorous habits of plants. To some of these it must be left to Mr. Darwin or Dr. Hooker to reply; on one or two others I shall be glad to be allowed to make a few remarks. Mr. Murray contrasts the phenomena in Pinguicula with those in Dionæa; I think more may be gained by comparing them with those in Drosera, when the resemblance will be found very striking, which is the more remarkable, seeing that the glands in Pinguicula are, I believe, entirely epidermal, while at least the larger number of those of Drosera are subepidermal, belonging to the tissue of the leaf itself. I am not aware of any statement with regard to the morphology of the hairs on the upper surface of the leaf of Dionæa. Mr. Murray remarks that in Pinguicula the slight irritability "does not appear to be capable of being exerted injuriously on the insect," in consequence of the long period which elapses before it begins to operate. But precisely the same is the case with the very strong irritability of the glands of Drosera. I find from a note of observations made in North Wales this summer, that on placing a piece of cotton-wool soaked with blood on a leaf of Drosera, it was from three to four hours before any of the superficial glands had begun to stretch over it, and nearly three days before the greater number of the marginal glands had come into contact with the cotton-wool; and last summer I found very nearly the same phenomena presented in the case of a living insect. The movement of the glands is certainly not excited by the struggles of the insects. Mr. Murray speaks of heavy rain completely washing the insects out of the leaves of Drosera and Pinguicula. This is not in accordance with my observation in the case of Drosera during an exceptionally wet season in Westmoreland last year. I should be inclined to demur to both the clauses of the following sentence in his article:—"Of course there are no flies for the Pinguicula to feed on in the winter, and yet it grows then as well as in summer." That the animal substances should be digested by the leaves without the existence of any organs of digestion would be, as Mr. Murray justly remarks, very extraordinary. But the non-existence of such organs must not be taken for granted. I am not in a position to affirm their existence. But I have detected, both in Drosera and Pinguicula, cells of a very peculiar nature, or containing protoplasm in a very unusual form, in the leaves of these two plants, which I have observed nowhere else except in Callitriche, and which I am not aware have been hitherto described. Dr. Hooker tells me that he is acquainted with structures of a similar kind only in Darlingtonia. That there is any connection between these cells and the process of digestion apparently carried on by these plants, I am not, as I said, able to state; but they well merit further investigation, which I hope to be able to give them. The question, what becomes of the dead bodies of the myriads of flies and midges that we see disporting in the air, has often occurred to me; but I am by no means disposed to come hastily to the conclusion arrived at by Mr. Murray that "no one will propose to endow Sphagnum and Polytrichum with digestive powers." I should be the more inclined to believe that the phenomena so remarkably displayed by Dionæa, Drosera, Nepenthes, and Sarracenia, are but a well-developed phase of a power widely dispensed through the vegetable kingdom, of which we are now gaining only the first glimpse. *Alfred W. Bennett.*

—— Allow me to make a qualification upon one of the positions I took in my remarks on carnivorous plants last week. I said that I considered every structure or property in any organised being to be primarily intended for the benefit of the being itself. This reads too broadly. Every structure, Yes; but every property in its wide sense, No! For example, it is for our benefit that we should perspire, and the structure by which perspiration is produced is therefore primarily for our benefit, and so is the property of perspiring; but the secretion or thing secreted is of no use to us. It is the property of pig to be appetising to us when roasted, but that property can in no sense be said to be advantageous to the pig itself. The medicinal properties of plants are in like manner, so far as we know, of no benefit to the plants themselves, but are so to other organic beings. It is, therefore, by no means inconsistent with the habitual course of Nature, but rather the reverse, that a plant like Pinguicula should produce a secretion which is not directly applied to its own benefit. I noticed the slip I had made immediately after I had posted my MS. to you, but trusted to correcting it when you should send me a proof; but I suppose you had been pressed for time, and omitted that ceremony, and thus the opportunity escaped me, and I have to trouble you now with this. *Andrew Murray.*

Rose Showing and Shows of Roses.—This question, like most others, has branched off into many side issues. These issues are so important to cultivators that they are all worthy of discussion. But it would be more logical, as well as more profitable, to keep to one thing at a time until that is settled. Therefore, without following your able correspondent into the merits of particular Roses, or the measure of skill that may fairly be put into show Roses—as if there could be any limit to this excepting the measure of the knowledge, ability, and love of the cultivator—the use or abuse of Rose shows as tests of average quality, or the effects of locality and soil on particular Roses—a disturbing influence more potent than moral or immoral means to puff out show Roses to unusual size, or paint them with abnormal beauty—I will return to the subject under discussion, How to display Roses to highest artistic advantage. I adhere to all I have said about the advantages of the present system for assessing, rewarding and displaying the merits of individual flowers, absolutely and comparatively in regard to others exhibited in the same numbers and under identical conditions. All this can hardly be changed for the better. To fringe Roses with club-mosses or Ferns, as has been suggested by several correspondents, is simply a libel on the inimitable beauty of Rose foliage, and on Nature for not mossing or "fernising" the Queen of Beauty instead of adorning it with leaves far more beautiful. It does not, however, follow that Rose shows cannot be improved: Mr. Earley suggests an improvement—the intermixture of colour under the present box system. Another great improvement would be the getting rid of the boxes. I never approved of letting Palm pots through dining-tables, but I can see no objection whatever to letting Rose tubes through deal at regular intervals, and thus get rid of the boxes. Doubtless a hue and cry will be raised by exhibitors, especially late ones, who arrive at the last moment and place their box on the table and there it is. Well no doubt they would have to arrive sooner, and set up their Roses on the table instead of in the boxes; still this change would not prove a very serious hardship, for I observe at very great shows more than half the exhibitors set up their flowers in the tent. Under the hole-in-the-table system all would have to do so. But the cut staging could be transferred bodily, and the work would not take many minutes. Of course the holes would be uniform, the tables of one slope, and each exhibitor so far be on a level. Again committees could arrange for Maréchal Niel, Gloire de Dijon, Devoniensis, Baronne de Rothschild, and other golden, light, white or brilliant coloured Roses to come in as buffers between the long lines of mixed colours. The colour of the tables might also be changed. Let the green baize be abolished—the long everlasting lengths of this give frequent visitors at shows baize on the brain and in the eye for weeks. If baize must be used, try blue. Perhaps cream and light straw colour, or even white, would be preferable. If any cry out against the glare of white, remember that each Rose is supposed to be shown on a cushion of its own leaves, and the glare is to be otherwise toned down by other means to be suggested presently. A space, for instance, along the front of the table—say a foot wide—might be measured off into lengths, to be furnished with garden Roses for effect in any way the exhibitor chooses, or for exhibiting dwarf baskets of Roses, so long as not to interfere with the view of the prize flowers. I advance this fringe with considerable diffidence, and proceed with much more confidence to deal with other parts of the table. One-half or two-thirds in the centre should be reserved for Roses in pots of all sizes and of all forms, as standards, pyramids, bushes, dwarfs, massing Roses, and of all the leading varieties. No one with taste could fail to arrange such magnificent material so as to please the eye. Afford perfect background for the glowing masses in front, and elevate the Rose tent to the highest rank of art and place of beauty in the show. Neither have we done with it yet. One great objection to the present Rose shows is the continuous lines of Roses—stiffness, formality, and I know not how many more deprecatory adjectives, have been shot off at these lines; still, up till now, neither the artillery of ridicule nor shafts of satire have succeeded in breaking them. Personally, I

rather like the straight lines of beauty; like the rounded corner of affection, they are to me all the more satisfying the longer they are; and if they have no end, all the better. But many affect to tire of beauty, especially if it is straight. I would meet such objectors in two ways—curve the lines, and break through monotonous lines of beauty with beauty of another type. The hole-in-the-table system of showing would enable the lines for 72's, 48's, 24's, dozens, &c., to be curved if preferred; and then the lines of Roses could be cut up in what has happily been called the stall system. The sides of the stalls could be formed of masses of garden Roses, Roses in pots, or dinner-table and drawing-room decorations in units, threes, sixs, dozens, or any number of vases, baskets, &c., of Roses. Still another link may seem needful to enable the show Roses on the table to meet and to melt, as it were, into the Roses in pots behind them. That link might be furnished by offering prizes for the most chaste vases or rustic or glass baskets, of specified heights and given diameters or sizes, furnished wholly or wreathed round with Roses. Of the others part might be reserved for what are termed garden Roses, and part left open for a race of decorative skill between results obtained with these and others, with the finest show flowers. Light arches might also be carried along the tables in front, to be wreathed with Roses, and a few across the paths, to be similarly embellished. Such a Rose-tent would be the most popular feature of any exhibition in the kingdom, if properly designed and furnished for affording every facility for the display and the judging of Roses in detail, and also for exhibiting rare merits for decorative purposes. This last is almost a virgin mine, and in working it to the profit of Rose-growers, and the gratification and instruction of the public, there is no need to decry a system that I expect has largely made our Roses what they are. Rather than disparage the past, and those who have done much to make it, in regard to Roses, so sweet, so pleasant, so glorious, let us use it as a spring-board, from which to reach into a better, higher and more artistic future. Towards this end I venture to offer these hints, with a cordial grasp of the hand to both the Pauls, and all other rosarians, and to whisper the advice to purge all Rose ink of gall, and never write of Roses with red; sky-blue would prove safer for most of us, as the Wars of the Roses is one of those things of the past that must never be allowed to come back. We have only to do with their loves, and the Roses, if we will but let them, will distil fragrance, gentleness and charity into our hearts—let us grow and exhibit them as we will. *D. T. Fish.*

The Rose Controversy.—There is one observation which occurs in Mr. W. Paul's note that in my opinion should be endorsed by every person who is interested in the culture of Roses. It is this: "I have never objected to the florist improving the form, &c., of the Rose, but to the neglect of the constitution of the plant." Without pausing to inquire by what means the Rose grower obtains those individual blooms so remarkable for size at our exhibitions, I would ask whether it would not benefit, and so prevent much disappointment to all who, like myself, are engaged in their cultivation in and near large towns, if persons so interested in their several localities would afford information as to the list of varieties that succeed best with them? It is very acceptable to recommend certain rules as to pruning, &c., and the suitability of certain soils: all these things are important; but then there are other requirements ere success is obtained, and one is a congenial atmosphere, for it often happens that, owing to the existence of local evils, it is unfavourable. What we then want is varieties that, while they afford us quantity and quality of bloom, shall inherit a constitution that will withstand those influences which more or less retard the development of the above qualities. I must say that past experience has taught me that the exhibition table is not a safe guide for selecting a list suitable for fulfilling the said purposes. With me in this locality some of the sorts that have been most attractive there have proved a failure here, lacking that vigour which is so needed where size and quality are desirable. Every effort has been unavailing in inducing them to develope a robust habit. Now, in nine cases out of ten, the vendor is charged with not supplying healthy or strong plants. Then what follows next season?—they are purchased of another grower, but the results are the same. Friends, then, who claim some pretensions as to their knowledge of Rose-growing, are consulted as to the causes of failure: their opinions are various. One says it is the soil—it is either too light or heavy; another will say it is bad pruning, or else it is—don't prune this or that variety; but the truth is, the real cause is too often overlooked, viz., the constitution of the plant, which led it to succumb to local influences. It is true we may sometimes impart to a particular variety a constitution stronger than is generally inherent in it, by availing ourselves of any tendency it may afford for the production of vigorous growth, and so carefully encourage the same, though the treatment may be somewhat opposed to the general rules of ordinary practice. However, without further comment, I think much good might be achieved if gardeners and others in various parts of the country would favour the public, through your pages, with a list of those sorts that succeed best in their own districts. The same would not only be a boon to private cultivators, but also to those who grow for sale, in aiding them in the compilation of their catalogues. *J. F. McElroy, Gr. to A. J. Lewis, Esq., Moray Lodge, Campden Hill, Kensington, W.*

Tabernæmontana flore-pleno.—Messrs. Veitch have a very dwarf form of Tabernæmontana flore-pleno. In comparison with the older strong-growing Tabernæmontana it is as dwarf as is the Gardenia radicans compared with G. florida. That it will prove a very valuable addition to our white sweet-scented flowers is not saying too much in its favour, for it has, moreover, in addition to its dwarfness, very small flowers, reminding one of the old Jasminum Sambac, but growing several together in clusters like the Stephanotis floribunda. It is to be hoped Messrs. Veitch will distribute it as soon as possible. *H. K.*

Easterman Giants (p. 344).—The meanings of this and some other names of Polygonum Bistorta are very obscure, but they are interesting subjects for speculation. I first heard this name when I lived in the neighbourhood of Whitehaven a good many years ago. Since then I have collected many thousands of archaic and provincial names of plants, and I find that, under several forms, it is in very common use in Cumberland, and not only so, but that it is connected with names used in other counties, and with old names, which at first sight appear to have different significations. The various forms in which this name appears in Cumberland, as furnished to me by several correspondents, are Easterman Giants, Easter Magiants, Easterma Jiands, and these abbreviated into Easter Giants and Eastern Giants, and the name Easter Ledges is also in use. When I first heard the name, it appeared to me that the accent was laid slightly on the syllable "man," and I wrote it down Easter Man Giants, but I have since heard it pronounced Easterma Giants. I was told at the time when I first heard the name that the plant was eaten in the spring, so I supposed that it had the prefix "Easter" because it was used at that season of the year, and the only derivation I could then think of for "Mangiants" was the French *manger*, to eat. With respect to its eatable qualities, I may say that I have tried it boiled like Spinach, and eaten with pepper, salt and butter. It is fairly palatable, but not equal to Spinach; it is, however, as your correspondent says, valued as an ingredient in herb puddings, and is, I believe, considered a wholesome spring food, like nettles and several other common plants. That it is valued as a dietetic in other places besides Cumberland is shown by the fact of its being called in Ayrshire Pencuir Kale. That the name is really Easter Mangiants and not Easterman Giants I have little doubt, and I believe "Easter" refers to the season, partly because other names of Polygonum Bistorta are Patient Dock in Cheshire at the present day, and Patience Dock in the North (Halliwell). Turner, who wrote his *Herbal* in 1551, gives "Pationes;" and Gerarde (1597) gives "Passions" as a Cheshire name; and all these may very probably refer to the Easter festival immediately after our Saviour's Passion. The name "Patience" or "Passions" is, or was, also given to Rumex Patientia, but the transferring of names from one plant to another is of very frequent occurrence amongst our country people. Prior, a good authority, derives these names very differently. He says they are the names of "a Dock so called (Rumex Patientia) apparently from the Italian name under which it was introduced from the South—Lapazio, a corruption of Lat. Lapathum, having been mistaken for la Passio, the Passion of Jesus Christ." Still the fact of Good Friday or Easter being so close together certainly points very strongly to a connection between the names Easter Mangiants and Passions. Turning back to some of its oldest English names we still find the idea of Easter as a season; at any rate the word Easter enters into the names. Turner gives "Astrologia," which may be a coined Latin word, or may be, and very likely is, a corruption of the Latin Aristolochia, a name transferred from another plant. Lyte (1578) and Gerarde give "Oysterloit;" Woodville (*Med. Bot.*) gives "Osteriacs" and "Ostericks," and Culpepper corrupts or abbreviates these into "Ostrich." Prior thinks that "Osterick" is a corruption of Aristolochia. "Ostre" is, however, the Anglo-Saxon for Easter, and "Ostre-leac" would mean "Easter-leek" or "Easter-plant," and might very easily be converted into "Osteriack," and perhaps into "Oysterloyt." The Cumberland name, "Easter Ledges" bears, it must be confessed, a close similarity to "Astrologia." Another derivation which has been suggested for Easter Mangiants is the Latin Bistorta major, an old name of the plant; and the question might be raised whether the "Eastern Magi" may not have had something to do with the name, and that there may have formerly been some legend connected with Polygonum Bistorta, which is now lost. One thing is clear, that the meaning of the name Easter Mangiants is somewhat obscure, and any further light which your correspondents can throw on the matter will be acceptable. The plant has several other English names, but none of them seem to have any connection whatever with the one which is the subject of these notes. *H.*

Kiln-drying Rye-grass Seeds in Ireland.—At a meeting of Belfast merchants engaged in the wholesale Rye-grass seed trade, held to consider a letter signed "Ventilation," which appeared in the *Gardeners' Chronicle* of the 19th inst., and which stated that kiln-drying and colouring Rye-grass seed is carried on to a considerable extent in the North of Ireland, it was resolved:—

"That the said letter is calculated seriously to injure the Rye-grass seed trade in Ireland, and so far as Belfast is concerned the charge is utterly without foundation, and we emphatically deny that any such practices are carried on here; and the writer, in justice to us, is bound to name the town or place in which he states this manipulation is practised. That we call upon the Editor of the *Gardeners' Chronicle* to give the same prominence to this statement which he has given to that of his anonymous correspondent."

Samuel M. Causland, J.P., Chairman, Belfast, Sept. 22.

The Determination of Edible Fungi, &c. (see p. 297).—My reply to Mr. Worthington Smith shall be short and courteous. The note in the *Bulletin of the Botanical Society of France*, was penned with a view to reply to an article in the *Journal d'Agriculture Pratique*, 1869, p. 147, setting forth (whether faithfully or not I do not know, not having seen the English original) the mycological doctrines of Mr. Smith, laureate of the Royal Society of Agriculture, and which appeared to me to contain some dangerous errors, which it was desirable to prevent circulating among the public. Is the author of this doctrine the same Mr. Worthington Smith who has arraigned me in your columns, or another person of the same name? I do not know whether this is so or not, especially as there are so many persons of the name of Smith in England. In any case, whoever may be the author of the doctrine in question, I maintain that it is sullied by many errors, and that in refuting them I have not been fighting against a "myth of my own creation." I regret that my reply to the article in the *Journal of Practical Agriculture* should have annoyed Mr. Smith so much, but I am not much surprised, for *Quid non mortalia pectora cogit* the *amour propre* of a wounded author! I will briefly examine some of Mr. Smith's allegations:—1. Mr. Smith says that Agaricus stypticus, which I class with the white-spored class, possesses coloured spores. Mr. Smith is undoubtedly straightforward in so saying, but I persist in my opinion, founded on personal observation, which I find confirmed by all the authors (except Fries) that I have been able to consult—Leveillé, Cordier, Kickx, and De Seynes. He adds that some species of Russula have yellow spores, while I attribute white spores to the whole genus. I said the genus Russula provided with white spores includes some very poisonous species. The majority of authors, including the most recent, especially M. De Seynes (*Flor. Mycol. du Gard*), place the genus Russula in the white-spored group (Leucosporées). I am well aware that forty years ago three or four species of Russula were stated to have spores of an ochrey colour, especially R. alutacea, an edible species (in spite of Mr. Smith); but observers differ in opinion as to this point, and many of them say, perhaps with truth, that this alleged colour of the spores in certain species of Russula is due to an optical illusion. I repeat, then, that the great majority of the species of Russula possess white spores, and that these white spores especially characterise the poisonous species of the genus.

2. Mr. Smith says I am wrong in considering Agaricus nebulosus of Batsch as poisonous, when it is well-known to be not only edible, but delicious: *à chacun son gout*—Mr. Smith's opinion on this matter does not alter mine. I maintain my assertion, which is moreover consistent with that of Dr. Paulet. Besides, I refer Mr. Smith to the opinion of one of his learned fellow-countrymen, Mr. Berkeley, a very competent judge in such a matter, and who says, although Agaricus nebularis is eaten in England, it is a species which may become injurious when it is old, and that young and fresh specimens must be selected. Wishing to try it, says Mr. Berkeley, "young, uninjured specimens were taken, but they occasioned some inconvenience to myself as well as to a friend who also partook of them." Agaricus nebularis is then a suspected, if not a dangerous, species.

3. Agaricus squamosus of Bulliardi has a detestable flavour and odour, according to Mr. Smith, and it is, he says, undoubtedly poisonous in England. I know well, he adds, that it is eaten by the Russian serfs, &c. I reply that this Agaric, which is found in

France at the foot of trees, especially of Apple trees, is perfectly edible, and in no wise dangerous, for I and several of my friends have frequently partaken of it without the slightest inconvenience. Its flesh is firm and white, its odour slight, and its flavour agreeable. In support of my opinion, I may quote Cordier in his most recent work. Chevalier, who has frequently collected this Agaric, attributes to it the flavour of the ordinary edible Mushroom. I am quite willing to believe, since Mr. Smith says so, that this fungus is poisonous in England, but it is certainly not so in France. Moreover, it is one of those which is modified by climate, for in Belgium even, according to Belgian authors, Agaricus squamosus has a strong scent, which it is not found to have in France, and its flavour is slightly acrid.

4. Mr. Smith reproaches me for classing Agaricus sinuatus among edible species, while it is, he says, regarded as poisonous in England. For the same reason as that just cited it may be dangerous in England, but it is not so in France; and I have drawn up my list of edible and poisonous fungi according to the qualities they are recognised to have in France, and according to the general belief and custom of the country. Agaricus sinuatus, known in the south-west under the name of Jaunet, grows on the ground in spring, and in moist woods in autumn. Cordier says it is very good eating, and that its pleasant smell resembles that of burnt sugar. Many botanists of the Gironde give the same testimony.

5. According to Mr. Smith, Agaricus Rhodopolius is the twin-brother of the last-mentioned, so far as bad qualities are concerned. Doubtless, it is not an edible fungus of the first-class, but there is more evidence in favour of its harmless quality than of the reverse. Paulet and Leveillé have seen it eaten by many people without ill results. Its flesh is white, its flavour sweet (*douce*), and its scent comparable to that of fresh flour.

These are not the only criticisms that the learned censor of my modest and inoffensive paper directs against me. He complains that I have not called Agaricus urens a Marasmius, Agaricus stypticus a Panus, that I have not referred Agaricus involutus and A. violaceus to Paxillus and Cortinarius—points on which he refers me to the *Epicrisis* of Fries. It was no part of my programme to enter into questions of synonymy, the less so as it has often been made a subject of reproach to botany that it is a science of words rather than of things. It is on that account that I contented myself, as other authors, such as Schœfer, Trattinick, Krombholz, Persoon, &c., have done, with the use of the common name Agaricus, under which these various species have been ranged by the first mycologists. It is perfectly allowable for me to accept or reject the nomenclature of Fries, which increases the number of words without adding anything useful to the science. Moreover, my note was not addressed to *savans* or experienced (*raffinés*) mycologists, but to the public, to those whom we call "le commun des martyrs," who have no wish for and no care for the learned nomenclature of modern botanists. It was enough for me to be understood by those whom I was addressing, and there was more chance of my being so by using names sanctioned by custom than by employing names with which the public is not familiarised.

Lastly, and if it is worth while answering here my learned opponent, I ought, according to him, to have written Agaricus amplus, Ag. umbrinus, Ag. virosus, and not Agaricus ampla, A. umbrina, A. virosa, &c., so as not to conform to the rule of our Latin grammar's *Deus sanctus*, &c. I do not pretend to be so learned a scholar as Mr. Smith, nevertheless I think I have duly observed this famous rule, for I wrote in the note which was printed, Amanita ampla, Amanita umbrina, &c. As to making of these Amanita a Clisocybe or a Tricholoma, that is a matter of opinion, as I have already explained. I hope Mr. Smith will see nothing to give any annoyance in this reply. I shall regret it if it is so. In any case I am only exercising my right in endeavouring to justify myself against the accusations he has levelled against me, perhaps without due reflection. *Casimir Roumeguère, Toulouse, Member of the Botanical Society of France, &c.*

Reports of Societies.

Fungus Exhibition at Aberdeen: *Sept.* 18.—The first fungus exhibition held in Scotland was opened in the Music Hall, Aberdeen, on Friday last. The idea of holding such a show was first suggested by the Rev. Mr. Ferguson, New Pitsligo, in the *Scottish Naturalist* for April. At a meeting afterwards held in Marischal College, Aberdeen, a committee was appointed to make arrangements for holding an exhibition at Aberdeen during the present month. The success which attended the labours of the committee far exceeded their most sanguine expectations, almost every county in Scotland contributing largely, raids being made for days previous on moors, forests, and every place likely to yield a specimen. England was not behind, the well-known Dr. Bull being amongst the contributors. Ireland also sent its quota of specimens, the contributor being Dr. M'Closkie, Belfast. As was to be expected, the counties of Perth, Forfar, and Aberdeen sent the largest amount of contributions, though several collections from more distant places were excellent both as to the number and rarity of the species they contained.

The most prominent exhibitors were: the Countess of Hopeton, Sir Thomas Moncrief, Dr. Bull, Hereford; Professor Dickie, Aberdeen; Professor Ogilvie, do.; Rev. J. Keith, Forres; Rev. A. Christie, Kildrummy; Rev. J. Davidson, Logie-Coldstone; S. Darling, Esq., of Lednapie; Rev. J. Vize, Farden, Welshpool; Mr. M'Andrew, New Galloway; Rev. J. Pagan, Bothwell; Mr. Webster, Gordon Castle; Miss M'Inroy, of Lude; Rev. T. Bell, Glasgow; Dr. Buchanan White, Editor of the *Scottish Naturalist*, Perth; Rev. J. Ferguson, New Pitsligo; Rev. Dr. Christie, Kilrenny, Fife; Dr. M'Closkie, Belfast; Mr. Martin, Elgin; Rev. William Herdman, New Rattray; Mr. Abram Sturrock, do.; Mr. Robb, Keith; Mrs. Gray, Edinburgh; Mr. Partor, Oldmeldrum; Rev. M. L. Anderson, Menmuir; Mrs. Ogston, Ardoe; Miss Rose Davidson, Inchmerlo; Rev. Dr. Esdaile, Bescobie; Rev. John Stephenson, Glamis; Mr. Wedderburn, Pearsie; Mr. Taylor, Portlethen; Mr. John Sim, Strachan; Mrs. Bathie, Montrose; Mr. Hadden, Denmare; Rev. Thomas Myles, Aberlemno; Rev. F. Kitchen, Aberdeen; Mr. Lawrie, Brechin; Mrs. Fraser, Balmakewen; Mr. Donaldson, Keithhall; Mr. Ogg, Fintray House; Mr. Ogilvie, Bridge-end, Aboyne; Miss Webster, Turriff; Mr. Alex. Thurburn, Keith; Dr. Geddes, Aberdeen; Mr. Arch. Aiken, Tullos House, Aberdeen; Mrs. Grant, Druminnor; Mr. John Davidson, Craibstone House, Aberdeen; Mr. Mitchell, Heathcot; Mr. F. Walker, Rothiebrisbane; Mr. Thomson, Pitmedden House; Mr. Stewart, Aberlemno; Mr. H. Anderson, Kincarth; Mr. John Proctor, Straloch; Mr. James Blake, Aberdeen; Mr. J. Shepherd, Banchory; Mr. F. Hutchison, Aberdeen; Mr. Daniel, Oldmeldrum; Mr. Farquharson, Houghton; Mr. George Leslie, Braemar; Rev. James Allan, Keith; Mr. John Yule, Aberdeen; Mr. Tyndal, Turriff; Mr. J. Lunan, Aberdeen; Mr. Greig, London; Mr. William Dumbreck, Kerriemuir; Mr. C. S. Leslie, Fetternear, Aberdeen; Mr. Geo. Murdoch, Rothiemay; Mr. Stephen Wilson, Kinmundy; Mr. E. Nunan, Scotston House, Aberdeen; Mr. W. Forrest, Kincorth, Nigg; Mr. Smith, ditto; Mr. C. Howie, Largo, &c. The number of specimens exhibited was estimated at 50,000. About a dozen collections, chiefly by gardeners, were sent in for competition, and the prizes were awarded as follows:—1st, Alex. Hadden, gr., Denmore House, Aberdeen; 2d, J. Webster, gr., Gordon Castle; 3d, Geo. Donaldson, gr., Keith Hall. Several of the other competing collections were of great merit, and approached very closely to those to which prizes were given.

The collections were arranged on tables running along the hall, and although, on account of the enormous labour unexpectedly thrown on the committee, the arrangement of the specimens was, to a certain extent, accidental, it had an exceedingly pleasant effect. Here and there were scattered over the tables specimens of the brilliant scarlet Fly Agaric; Russulas, white, rose coloured, green, purple and black; Caloceras and Chantarelles of an indescribably beautiful yellow; Lactarius, fawn-coloured, rufus, and grey-green sulphur-tinged; Polyporus and Pezizas, Agarics and Hygrophori of all conceivable colours. A large proportion of the specimens, as was to be expected, belonged to the larger species, such as Agarici, Boleti, and Polypori, but there were also a large number of specimens of microscopic fungi, and some very important additions to the British flora. Several species were represented which had not hitherto been recognised in Scotland, and a few which had not been previously known to science.

Of the rare species may be noticed some fine specimens of Sparassis crispa from the counties of Banff and Perth. Some very remarkable specimens of Polyporus betulinus were contributed from Blair Athol, and from several parts of Scotland was sent the showy Agaricus spectabilis. The specimens of Peziza aurantia, which is doubtless the finest coloured of all the fungi, were almost all found in the vicinity of Aberdeen, only one or two coming from the South. In a few collections Fistulina hepatica and Polyporus sulfureus were found. There were one or two specimens of the Giant Puff-ball, and Peziza aurantia turned up from three localities. There was a specimen of Helvella gigas from Heathcot, near Aberdeen—a species only once before known to have been found in Britain. Of the still rarer species, such as A. orellanus, A. giganteus, Radulum tomentosum, and a Protomyces not yet described, there were few specimens. There were also a few specimens which the fungologists present could not identify.

Some of the collections attracted great attention. Undoubtedly one of the best was exhibited by Sir Thomas Moncreif, Perth, and consisted of a very considerable number of fungi gathered on Moncreif Hill, Perthshire. The collection included a magnificent specimen of Polyporus giganteus, it being in fact the largest fungus in the hall, although a specimen of the same species, exhibited by Mr. M'Andrew, New Galloway, came close up to it. Mr. Stephen Wilson, New Machar, near Aberdeen, exhibited a very attractive collection, which included a large series of ergots on various species of grasses, and several minute fungi in various stages of development preserved in spirits. The Rev. Mr. Keith and Rev. Mr. Stephenson both exhibited collections of many rare and beautiful species, several of which were of very great rarity, and new to Britain, all carefully named and in excellent order. Mr. Anderson, of Menmuir, had also a very good collection, containing species not hitherto observed in the kingdom. In the Fetternear collection was a splendid specimen of the Giant Puff-ball. Mr. Taylor, Portlethen, showed two specimens of fossil fungus found on Oak and Birch in a peat bog 12 feet deep. Similar instances are well known to mycologists, and some are described in Berkeley's *Outlines*. Among the curiosities of the exhibition may be mentioned a man's hat made in East Hungary from Polyporus fomentarius, or a closely allied species.

In every respect the exhibition was an unqualified success. On the afternoon of the day of the show a meeting of botanists and fungologists was held, at which it was unanimously resolved to form a Scottish Cryptogamic Society, which, by an annual exhibition held in the larger cities by rotation, and by other means, would endeavour to promote a more general and deeper knowledge of cryptogamic plants. It is intended to hold next year's show at Perth.

Ipswich and East of England Horticultural *Sept.* 17.—With its autumn show, which took place on Thursday, this Horticultural Society completed its fiftieth year, and celebrated its jubilee—an event of importance in the history both of individuals and institutions. To an individual fifty years' experience gives authority and dignity, while a half a century's existence is a grand certificate of character to any institution, and stamps it as founded on a sound and firm basis, and both useful and successful in its operations. The Ipswich Flower Show, in comparison with the more exciting pleasures in vogue fifty years ago, must have seemed somewhat tame, and have required some skilful management to become well rooted in the public favour, while during so long a period an institution so dependent for success on such matters as fine weather has, doubtless, not always been at the zenith of prosperity. Taking, however, the rough and the smooth together, with skilful management at the hands of those who loved to see the beautiful products of Nature so grouped together, the flower show has come round year by year with increasing success, till in its ripe age, as we learn from the *Suffolk Chronicle*, the vigour of the Society is by no means exhausted, and its exhibitions comprise collections of flowers, fruit, and plants, which are not to be despised as specimens of the gardening skill of the locality.

The Lower Arboretum usually affords the site for the Society's exhibition, and though the grounds are not large it would be difficult to find a more suitable spot, its contiguity to the centre of the town being a great recommendation. The show on Thursday was held there, the productions being arranged in three tents, erected as usual on the open space in the centre of the Arboretum, while across the gravel path not far off was the tent of the energetic secretary, Mr. Long, who with the honorary secretary, Mr. W. B. Jeffries, was very active in the arrangement of the various details connected with the exhibition. The first of the three tents was the most attractive one, containing the fruit, luscious and tempting in appearance, and the cut flowers, brilliant and striking in colour. The next tent contained Ferns, Fuchsias, and other pot plants; while the third was devoted to vegetables and to the cottagers' productions. The three tents were arranged in a line so as to form a continuous promenade, and the order in which they stood was a good one, the subdued hue of the foliage and other plants in the second tent affording an agreeable relief to the brighter colours in the first.

The show was not so large as on some former occasions, but taken as a whole it may be fairly called a good one, the quality of some things being of a high order. Taking the centre table in the first marquee to start with, it was occupied principally with a tempting display of fruit. On entering, the visitor first saw the sets of eight dishes for dessert, the 1st prize set, exhibited by Mr. Blair, gr. to Sir G. B. Middleton, Shrubland Park, comprising some beautiful Muscat Grapes, fine Peaches, and a splendid Melon; and passing down one side there were in succession dishes of fruit, bouquets and floral decorations, and lastly, the black Grapes, of which there were nine stands sent, the 1st prize being taken by three splendid and heavy bunches of Black Hamburgh, shown by Mr. Sheppard, gr. to J. Berners, Esq., Woolverstone. The 2d prize was awarded to some Black Alicante

Grapes, with a fine bloom on them. The white Grapes were only a small show, but the 1st prize was taken by some beautiful Muscats, also from Woolverstone. The Pears were very nice, and it was remarkable how many dishes there were of one kind—Bon Chrétien. Melons were not numerous, and there was a remarkably small show of nuts. Along the centre of the table was a row of plants for the dinner-table, the size of the pots limited to 32's, and these were highly creditable. The side tables were occupied with cut flowers, and the Dahlias took nearly the whole of one side. Considering the weather which has been experienced, they formed a very creditable show. There were some first-rate blooms in the best twenty-four, which was a very level stand. An autumn show is, of course, not expected to bring together many Roses, and what few there were showed signs of the weather. The few stands of herbaceous cut flowers looked quite brilliant, and Asters were unusually good; the French beat the Germans in numbers, in the proportion of nine to four, and appear to be becoming the most popular variety with growers. Pelargoniums were not a very large class.

It was in the second tent that the show was behindhand, there being nothing like the muster of stove and greenhouse plants, Ferns, and so on, that we have seen in former years. It included, however, some nicely grown plants, and many well flowered. Messrs. Gilbert & Son's eight ornamental foliage plants, which took 1st honours, included a capital variety. There were not many Fuchsias, and only the 1st prize four were worth much. The variegated and double Pelargoniums in pots occupied one side of the tent, but were not remarkable. The prize for the best specimen plant was taken by a very beautiful and fine plant of Adiantum Farleyense.

In the third tent were the vegetables and cottagers' productions, and some of the exhibits were first-rate. Onions and Potatos were remarkably fine, and as for Parsnips, we are afraid to say the length from tip to tail of one lot, so large were they, and yet not coarse. The collections of vegetables included a variety of capital productions, the 1st prize lot, Mr. G. Rushmore's, gr. to Sir C. R. Rowley, Bart., having Artichokes, Mushrooms, and all other kinds of vegetables that could be wished for. An extra prize was awarded to Mr. D. Hayward, Ipswich, for Cucumbers. Amongst the cottagers' productions was some fine Celery, and the class as a whole was good.

Seeing that this was the jubilee year it was meet that there should be some recognition of so interesting an epoch in the Society's history; hence on Thursday evening there was a horticultural banquet at the Council Chamber, Town Hall, at which about 100 gentlemen were present. An interesting feature in the evening's proceedings was the presentation to Mr. Daniel Long, who has been thirty-eight years secretary to the Society, of a handsome testimonial, consisting of a silver cream jug, tankard, and fish carver.

The Villa Garden.

Do we sufficiently appreciate the beauty of hardy annuals for early summer blooming when they are sown in the autumn? It is very doubtful, indeed, if we do; and if we did, they would be much more grown in this way than they are. A Villa Garden at Reading was this summer the talk of the neighbourhood, not because the style of flower gardening was of a novel or distinctive character, but because of the striking beauty of some masses of autumn-sown annuals. They were so much in advance of what is generally seen of annuals, and there was something so fresh and inviting in the display, that no wonder the popular enthusiasm was aroused. Experienced gardeners were heard to say that they could not have conceived such a display could have been made at that season of the year.

It is not all who have the convenience for propagating early spring flowering plants, such as Daisies, Aubrietias, Arabis, &c.; to some the matter of expense has a deterring effect when it is proposed to apply what is known as spring gardening. Bare beds have a desolate appearance during winter, and if they can be filled at some time, even after Christmas, it is far better than seeing them lie bare all the season through till the time arrives for putting out the summer bedding plants.

Annuals, strong and striking as many of them undoubtedly are, and continuous in bloom also, are too often badly treated by ordinary cultivators, and they, as an invariable rule, miserably fail, and present too often puny and abortive examples of floral effects. Some seeds are sown on an exposed piece of ground, or at intervals along the border; the seed is always sown much too thick, or the plants are not sufficiently thinned when they make growth; the result is generally half-starved patches, that serve any other purpose but that of raising annuals in the estimation of the gardener, and yet, when Mr. Barron gives us a pleasant floral surprise at Chiswick in the form of a bed of mixed Salpiglossis, Campanula Loreyi, Acroclinium roseum, blue and white Nemophilas, &c., their beauty when grown in masses is at once made apparent, and a desire to copy such effects is at once aroused.

Let us then suppose that an attempt is to be made to give the beds in the flower garden, or at least some of them, a gay and effective appearance in early summer by means of the employment of some of the bright-hued hardy annuals, and which at the same time shall not delay too long the time for bedding out for the summer display. There is this much to be said in favour of the attempt, that we have come to employ more and more tender plants in working out the summer display, and also that of late years the most uncongenial and inclement part of the spring, instead of coming at the commencement of it, appears to have tacked itself on to the end of it, and as a rule we bed-out a fortnight or three weeks later than we used to do.

In selecting what annuals should be sown in autumn for the early summer display, two main points must be kept in mind—they must be hardy, and they must be of those that flower early. And first let us set down a list of the most likely kinds, beginning with the white Sweet Alyssum, and going on to the yellow Bartonea aurea, Campanula Loreyi, Collinsia bicolor and verna, Eschscholtzia crocea and alba, the blue and white varieties of Myosotis sylvatica, Nemophila insignis, alba and maculata, Oxyura chrysanthemoides, Limnanthes Douglasii, Silene pendula and alba, the lilac Venus' Looking-glass, red Virginian Stock, with Candytufts, Sweet Peas and Mignonette added. A small quantity of seed of each of these would go a considerable way, and yield a large quantity of plants.

A bed should be prepared on which to raise the annuals. Let it be 6 or 8 feet in length by 3 in width, and first lay a foundation of Pea haulm, Bean haulm, the decayed branches of Vegetable Marrow, leaves, weeds, and any other garden refuse available for the purpose. It should be trod firmly together, to make a solid foundation. On this place some leaves raked out from the shrubbery border; and then build up on the top of the leaves an edging or framework of the bed, in the form of a wall, using some short dung, pieces of turf from the top of a pasture, or slabs of timber or boards. There should be at least 6 inches of good, light, free soil, in which to sow the annuals. They should be sown as soon as the bed is ready, in lines 3 inches apart—sowing very thinly, and covering lightly. The Sweet Pea should be sown in large 60 and 48 pots, and be kept in colours, or mixed, according to the taste of the sower. So then two important stages of progress are reached, viz, the bed formed and the annuals sown. The next step is to organise some protection against excessive wet and frost and cold. This is a simple process, and a rough framework could be formed by driving into the ground at each corner of the bed, at intervals along the sides, and one at each end, stout stakes, that should be at an uniform level just above the bed. Some Ash, Hazel, Willow, or Poplar sticks, three-quarters of an inch in thickness, should be bent over the bed, and the ends fastened to the stakes, so as to form a low tunnel, and two or three placed lengthways along the roof, and all tied firmly together. This gives a roofing over the bed, and any covering material, such as mats, Frigi Domo, or any other suitable appliance, can be stretched across it at pleasure, and fastened down at the sides to keep it secure. Here the plants can be raised and kept secure through the winter.

Let it be stated parenthetically that such a bed as has just been described ought to be an annual institution in every Villa Garden, and should be made up at the end of each summer. In the spring, after the annuals are cleared out and placed in their respective beds, it will come in very useful for raising such tender annuals as Marigolds, Balsams, Phlox Drummondii, Dwarf Tropæolum, Petunias, and others; and when these are grown into sizes, and transferred to their flowering quarters, then it will do for ridge Cucumbers or Vegetable Marrows. As far as possible build up such a bed in a sheltered, warm spot; the warmer and cosier the position, the better for the spring-raised plants.

If the autumn-sown annuals are to do well, the beds must be prepared for their reception. When the summer bedding plants are cleared away, let them be dug over, and the soil beaten to pieces, and mix in with it the siftings from the potting bench, leaf soil, or any such light material, and a little well-decomposed manure. The great thing is to have the soil light, friable, free, and moderately rich. Let it be occasionally stirred during frosty weather, which will greatly assist in bringing the soil into proper working order.

It would greatly assist the development of the plants if, during some mild, open weather during December, the strongest of them could be transferred for a time to a cold frame, and pricked out in a good prepared soil. What is wanted is root development, and by transplanting in this way nice balls of roots are formed, and when the annuals are placed in the beds but slight checks are felt by them. Advantage should be taken of some fine open weather in the early part of February to fill the beds, but always keep a reserve of plants to supply any blanks caused by death, or being eaten away by slugs and other common garden foes. Plant moderately thickly; and then, when completed, stick a few short pieces of the boughs of the spruce Fir about the beds to afford a little shelter till the plants get established. The roots will soon lay hold on the soil and spread about it, and then when advancing spring, with its subtle growing influences, awakens the latent activity of plant life, a generous growth of compact bushy plants will result, and a head of bloom will follow that will amply repay the trouble of the cultivator. A bed of the beautiful blue Collinsia verna is one of the most estimable offerings the awakened spring, laden with rich floral treasures, can lay at one's feet.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPT. 23, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall
Sept.	In.	In.	°	°	°	°	°	°			In.
17	29.72	−0.13	59.4	48.5	10.9	52.1	− 4.6	49.2	90	N.: WSW	0.00
18	29.80	−0.04	65.6	43.6	22.0	54.0	− 2.5	48.8	83	WNW: WSW	0.00
19	29.85	+0.03	69.2	43.4	25.8	55.1	− 1.1	50.3	84	S.W.	0.00
20	29.72	−0.10	70.5	50.8	19.7	60.2	+ 4.2	53.5	79	S.: E.S.E.	0.04
21	29.48	−0.32	70.1	52.0	18.1	59.7	+ 3.9	56.3	89	E.S.E.: S.S.W.	0.02
22	29.75	−0.04	69.0	51.0	18.0	58.7	+ 3.2	51.2	76	S.S.W.	0.00
23	29.81	+0.03	62.4	47.9	14.5	55.4	+ 0.2	55.3	100	N.E.	0.15

Sept. 17.—Overcast generally.
— 18.—Generally cloudy till night; then cloudless.
— 19.—Foggy in early morning hours; fine and partially cloudy till evening, then cloudless. Lowest reading of thermometer on grass, 35°.
— 20.—Cloudy but fine till evening. A heavy shower of rain fell between 10 P.M. and 11½ P.M.
— 21.—Variable; showers of rain in afternoon: cloudless at night.
— 22.—Cloudless in early morning; partially cloudy during the day, again cloudless at night.
— 23.—Generally overcast, foggy in morning; heavy rain between 9 A.M. and noon, and the air saturated with moisture throughout the day.

—— In London and its vicinity the reading of the barometer, at the level of the sea, increased from 30 inches at the beginning of the week to 30.39 inches by the morning of the 14th; decreased to 29.89 inches by 9 A.M. on the 17th, increased to 30.08 inches by the morning of the 19th, and then decreased to 30.03 inches by the end of the week. The mean reading for the week was 30.09 inches, being three-tenths of an inch higher than that of the preceding week.

The highest temperatures of the air in the shade ranged from 59½° on the 17th to 69½° on the 15th and 16th, the mean value for the week being 67°. The lowest temperatures at night varied from 43½° on the 18th and 19th to 52° on the 16th, with a mean value for the period of 47°. The mean daily range of temperature was 20°, the greatest being 25¾° on the 19th, and the least 11° on the 17th.

The mean daily temperatures of the air with departures from their respective averages were as follows: —13th, 54°.2, − 3°.1; 14th, 54°.7, − 2°.5; 15th, 58°.6, + 1°.5; 16th, 59°.3, + 2°.4; 17th, 52°.1, − 4°.6; 18th, 54°, − 2°.5; 19th, 55°.1, − 1°.1.

The mean temperature of the air for the week was

55°.4, being 1°.4 lower than the average of the corresponding week, as deduced from fifty years' observations.

On the 14th and 15th the highest readings of a thermometer with backened bulb in vacuo, placed on grass in the sun's rays, were both 131°, and that on the 19th was 132°, but on the 17th the maximum temperature recorded by this instrument was only 90°. The mean low night reading of a thermometer on grass, with its bulb fully exposed to the sky, was 38½°, the lowest value being 35° on the 18th and 19th.

The prevailing direction of the wind was W.S.W., and its strength was gentle throughout.

The weather during the week was fine, but at times cloudy, the sky on the 17th being generally overcast.

No rain fell throughout the week.

In England the extreme high day temperatures ranged from 74° at Sunderland to 64° at Liverpool and Newcastle-on-Tyne, with an average value of 67°. The extreme low night temperatures varied from 44¾° at Bristol to 38° at Norwich, the general average being 41½°. The range of temperature in the week was 25½°, varying from 32° at Sunderland to 19¾° at Bristol. The mean high temperatures observed by day ranged between 69¾° at Sunderland and 60¼° at Newcastle-on-Tyne, the general average over the country being 62¾°. The mean low temperatures observed by night varied from 50¼° at Liverpool to 44° at Manchester, with a general average of 46¼°. The mean daily range of temperature was 16¼°. The mean temperature for the week was 53½°, the highest being at Sunderland, 57¼°, and the lowest at Newcastle-on-Tyne, 51¾°. Rain fell on one or two days in the week at most stations, the amounts collected varying from three-quarters of an inch at Birmingham and Nottingham to one-hundredth of an inch at Norwich; at Portsmouth and Blackheath no rain was measured: the average fall over the country was a quarter of an inch.

The weather during the week was fine, but generally cloudy.

In Scotland the highest temperatures ranged from 65½° at Aberdeen to 60° at Greenock; the lowest temperatures varied from 40½° at Leith to 33° at Perth, their respective averages being 63½° and 36¾°. The range of temperature in the week was 26¾°. The mean temperature for the week was 51½° (being 2° lower than that of England); the highest was at Leith, 52¼°, and the lowest at Perth, 50½°. The fall of rain in the week ranged from 2¾ inches at Greenock to half an inch at Glasgow, but at Leith only four-hundredths was measured; the average fall over the country was three-quarters of an inch nearly.

At Dublin the highest temperature was 67½°, the lowest 36¼°, the mean 55¼°, and rainfall 0.02 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns].

PLANT HOUSES.

PLANT STOVE.—*Nepenthes.*—Few plants are more deserving of general culture by any one possessing a stove than the different kinds of *Nepenthes*. The price that such sorts as *N. Rafflesiana* and *N. Hookerii* at one time were sold at, together with the supposed difficulty in their cultivation, deterred many from attempting to grow them. Now that they are comparatively cheap, and their requirements better understood, it should induce more to cultivate them than have hitherto attempted it. The way they used to be often treated, was to keep them at a long distance from the glass in a heavily shaded house; the result of this was that three-fourths of the leaves made, never formed any pitchers at all, and those that were produced were small and colourless; while if the plants were taken out for exhibition or other purposes, they were so injured from their tender, weak condition that they were a whole season before they recovered. They require good fibrous peat, with one-fifth crocks or charcoal broken to about the size of acorns, a little sand, and a sprinkling of chopped sphagnum; 6 or 7-inch pots will be quite large enough at the first for newly bought plants of ordinary size. I do not like baskets—they have a nicer appearance than pots, but the roots of the plants get to the outsides, and there can receive no sustenance. Spring is the proper time to pot them, but they should be obtained in the summer or autumn, when the weather is not so cold, and the season's growth matured, or they suffer severely in transit. Keep them hung up not too far from the roof of the stove, and only shade sufficiently to prevent scorching. *N. Rafflesiana, N. Hookerii, N. Sedeni, N. hybrida maculata, N. ampullacea picta, N. distillatoria*, and *N. Phyllamphora* are distinct, and worth a place in the most select collections of plants. *N. sanguinea* is one of the very finest, but is very scarce and dear. The temperature, moisture, and air that Cucumbers require will grow them well. There is one peculiarity in *Nepenthes*—when the plants get to a certain height they generally assume a different character, in the shape of their pitchers in some species, and in colour in others. For instance, *N. Rafflesiana* often, when it gets four or five feet high, produces pitchers altogether different in shape, much longer, and destitute of the wing-like appendages which they have when the plant is younger. *N. hybrida maculata*, as its name implies, is a spotted variety, and whilst the growths are short the pitchers are one half, or nearly so, covered with brown markings; but when it gets some 2 or 3 feet in height they come altogether green. The best way to treat plants that have got into these conditions is to cut them down to within a foot of the pots, leaving so much of the stems and leaves entire, but cutting all the upper eyes out of the portion of stem left, down to within some three or four of the lowest; when these have broken and made some progress, towards the spring the stumps can be removed. The tops cut off now will make cuttings, reducing them to two joints each, and leaving about half the leaf to the upper joint; insert them in sand and cover with a bell-glass, keeping them in the stove until the spring, when about one-fourth of them may be expected to have rooted. The soft portion at the top of the shoots is useless for cuttings.

All such things as tender *Dracænas* and *Palms* that have been used in cool conservatories for summer decoration must be removed to warmer quarters before the cold weather comes on, or they will lose their leaves. It frequently happens, by reason of some particular plant not conforming satisfactorily to the treatment it receives, that it gets condemned. This has been the case with *Lasiandra macrantha*. The first form of it that appeared was found of so straggling a habit that it was at once discarded, yet grown as a cool stove climber it is one of the most brilliant and profuse flowering plants, producing at the points of every shoot bunches of its glorious purple flowers, that keep on continuously opening for many weeks. So grown, no other Melastomad bears any comparison with it. The natural short-lived habit of the flowers, from the profusion it makes, is not noticed, but it can only be done in a cool stove. Amongst such things as *Ixoras, Dipladenias*, and *Allamandas*, if they were well grown, the *Lasiandras* would grow too weakly to flower. The first batch of *Poinsettia pulcherrima* should now be placed in the stove, where they can be accommodated with a nice temperature of 60° or 65° in the night. All the strongest plants should be so treated, and if well attended to with weak manure-water they will make a fine display. The weakest plants should be selected, and kept in a 10° lower temperature, giving no more water at the roots than is necessary to preserve their leaves. If over-watered in this comparatively low temperature, they will lose their roots, which will be fatal to their flowering. These plants so treated will not make such large flowers, but they will come in late after the others have done blooming, and be most useful, especially for bouquet making; a few of the bracts taken off and mounted are most effective, and grown in this way they will last cut double the length of time those will do that are brought on in more heat. The late flowering plants of *Achimenes, Tydæas*, and *Gloxinias* will now be getting over and shabby; put them in dry, warm places where there is sufficient light, and give a little water until the tops have died down. *Salvia gesneriflora.*—These useful autumn flowering plants will now require a little warmth to bring them on into flower freely, but they must not have too much, or the blooms will fall off, and the whole plants become so weakened as to be useless, either as decorative subjects, or for supplying cut flowers; keep them as near the glass as possible, and the atmosphere moderately dry; they are very free rooters, and exhaust the soil more thoroughly than most plants, to meet which, after they show flower, clear liquid manure-water should be given them every other time they are watered. *Sericographis Ghiesbreghtii* must now be placed where it will receive a nice growing temperature with all the light possible; so treated the plant will bloom freely and bear removal to a warm conservatory, where they will stand for several weeks. A portion of the stock of *Plumbago rosea* should be placed at the coolest end of the stove, where the plants will come into flower at a time when they will be very useful. The early flowered ones will, if well supplied with manure-water, push a second growth from all the upper joints and flower from each, but the blooms of this plant, to be of any use in a cut state, must not be grown too hot, and be kept as near the glass as they can be got. *Euphorbia jacquiniæflora*, even if not required to come into flower early during the winter, must not be allowed to remain too long in a cool house or its roots will perish. A temperature through the autumn months of 50° in the night will keep them right. In stoves of moderate size a few *Aquatic Plants* are most interesting; they are easily grown, and flower over a lengthened period. A tank, 12 feet by 12, will grow several well—such, for instance, as *Nymphæa cœrulea* and *N. Devoniana*. Good turfy loam, used in a rough state, 10 or 12 inches in depth at the bottom of the tank, will answer their requirements; they need little attention, and are a source of much interest. The flowers, apart from their beauty on the plants, are most useful for cutting for the base of March's stands or large low vases. *Roman Hyacinths* that were potted some weeks ago, as soon as they get rooted may be moved into heat, so as to get them on into flower. Place near the glass, so as to keep them as dwarf as possible, for if at all drawn they are almost worthless and unsightly. Amongst larger stove plants that have yet flowers to open, such as *Ixoras*, all necessary care should be taken so as to preserve them as long as possible, for the time is coming when flowers are not over-plentiful. Do not syringe overhead more than necessary to keep down insects, for much moisture on them at this late season, when the natural disposition of the plants for flowering is not so great, with a corresponding reduction in general vigour, causes the blooms to be injured and drop before they open. *Allamandas* that yet have a considerable amount of flower set may be made very useful, without in any way injuring their next year's flowering. Only just give sufficient water at the roots to keep them from flagging much, yet not so as to cause their unopened buds to drop; by this means the wood will ripen up sufficiently and the blooms open. They will by this treatment be much smaller than in the summer season, but they will also be much more durable when cut. *Bougainvilleas* and *Rondeletias* that have yet flowers upon them in an advanced state should be similarly dealt with.

Ferns will now have completed their growth, and, if treated as advised, will be strong and vigorous in the fronds, and in a condition to bear a moderate amount of fumigation if thrips exist, which they are almost certain to do in greater or less quantities. The plants will stand it better at this season than at any other, yet on no account apply it too strong, but give it them two or three times at an interval of six or eight days. They will now need considerably less moisture, both at the root and in the atmosphere, and a reduction of a few degrees in the temperature, with more air. *T. Baines, Southgate, N.*

FLOWER GARDEN, &c.

ORCHIDS.—As many plants have now completed their growth water must be given to them in very limited quantities. Care should also be taken not to water over the crowns of the plants, otherwise the young eyes already formed may be permanently injured. Plants growing on blocks will still require attention in the matter of syringing. Those still in a growing condition will require their roots well moistened every morning either by syringing or dipping, and those that have their growth completed will require damping every two or three days, but the grower must be guided entirely by the state of the atmosphere in which they are grown. As it is the natural characteristic of many Orchids to grow away now, these should be placed in the most favourable part of the house, and be encouraged to grow on without receiving any check. Now that the weather has become cooler the night temperature must be reduced 5°; a cool night temperature is far more beneficial than a high one. Moisture must be regulated according to the nature of the plants, those which are growing must have a moist atmosphere, but those that have done their growth and are approaching a state of rest will require a drier atmosphere and more air. Air should be admitted according to the state of the weather; if mild and calm plenty of air must be given. The glass and woodwork of the houses should have a thorough cleaning inside and out, the rafters and bars and every particle of wood inside should be washed with soft soap and hot water, at the same time they should be smoked three or four alternate nights to destroy thrips. The small green thrips is a terrible enemy to the young shoots, especially at this season. In my notes I have frequently shown the necessity of keeping the plants free from this pest. I saw some valuable Orchids a few days ago, many of the young shoots covered with them. They were secreted low down in the young growth, and had not been seen by the grower; but when those leaves attain maturity they will present a blistered black appearance. Many of the *Oncidiums* and *Odontoglossums* are growing freely. These will require carefully watching. The floors of the Cattleya-house should not be damped down after the middle of the day. The present is a good time to get in a good supply of peat; this should be kept under cover or in such a situation as not to get soddened with rain. Orchids root more freely in peat containing a large amount of good tough fibre; it allows the water to pass off more freely than does the peat used for greenhouse plants. *G. Baker, Clapham Common.*

FRUIT HOUSES.

PINES.—When the suckers which have been started this autumn are moderately well rooted, proceed with the potting without much delay, using well drained pots and the fibrous part of good virgin loam only, in a lumpy condition, suitable to the size of the pots employed. It is customary here to put the requisite number of the strongest of these plants into the fruiting pots at once, and to repot the others into pots about 8 inches in diameter, in which the plants are kept until the spring, and then are transferred to fruiting pots according to the variety. Upon the size of pots for fruiting purposes diverse opinions exist, but extremes in this case, as in most others, are best avoided. Under the present system of Pine cultivation immense pots are not necessary, still to a certain extent the requirements must be taken into consideration and the pots varied accordingly. Here the object is to obtain large handsome fruits, as such are most esteemed, and as a rule such fruits could not be produced in very small pots. We use ordinarily made pots, about the following diameter:—For Providence plants, which are the most robust in habit of all kinds, 14 inches; Smooth Cayenne, Charlotte Rothschild, and similar sorts, 12 inches; Queen, 10 to 11 inches; and Jamaicas do well in 9-inch ones. Where smaller plants are the aim an inch or two less in the diameters would be best. Continue to apply former directions for the present in every department. *G. T. Miles, Wycombe Abbey Gardens.*

PEACHES AND NECTARINES.—When the fruit is all gathered in the late houses, to get the wood thoroughly ripened must be the next object till the foliage drops. This can best be done by thinning out a few of the shoots where overcrowded, and selecting those which have borne fruit, cutting them out to a successional shoot at the base. Some varieties of late Peaches are later this year than usual in ripening, such as Walburton Admirable, Deese Tardive, and Mr. Rivers' seedlings—Lord Palmerston and Princess of Wales; and a little fire-heat will be required to ripen them thoroughly. The Salway with me is only half swelled as yet, and it will be late in October before it is ripe. When Peaches and Nectarines are wanted to be forced early in pots, now is a good time to attend to the repotting or top-dressing them. Should the trees, from having been forced for some years, be in want of renovation, they may be shaken out of their pots, and the roots disentangled as much as possible before repotting them in the same sized pots. This is best done by using an iron prong or fork, and reducing the hard ball, so as to get an inch or two of fresh turfy soil round the pot. The trees in the earliest forced houses will now be mostly divested of their foliage and the wood ripe, the artificial inside border waterings may therefore be nearly discontinued for a time. *William Tillery.*

VINES.—Mid-season houses from which the Grapes have been cleared, also Vines that have not hitherto borne fruit, should now be divested of laterals down to the principal buds, which are to be retained for next year's crop. If the laterals are removed without injury to the old leaves, plump, well-ripened buds may be relied upon. The outside borders may also be cleared of old mulching, and surfaced with 3 inches of new compost. A breadth of 2 feet may at the same time be added to the front of the border where the space allotted to the roots has not been filled up. Choose a dry day for the operation, and when all is finished mulch with 3 or 4 inches of green horse droppings. Let the borders have the benefit of October rains, and cover up with dry Fern or litter about the end of the month. Give every attention to young Vines that were planted this spring; keep the foliage clean, remove all laterals, and maintain a warm temperature until the canes are thoroughly ripe. Pot Vines intended for early forcing should now be thoroughly ripe, and fit for removal to a cool, dry, airy place for a season of rest. Where late Vine borders were liberally supplied with water through the hot weather, the fine rains of the past fortnight will have penetrated to the drainage, and if old glass lights are available, no time should be lost in getting them placed over the roots. Gradually reduce the temperature in houses in which Muscats and other late Grapes are ripe and well finished, otherwise they will shrivel; and look over all ripe fruit at least once a week for faulty berries. *W. Coleman, Eastnor.*

KITCHEN GARDEN.

The earliest crops of *Celery* should now have a final earthing up, well batting down the banks of soil so as to exclude rain as much as possible. Cardoons will also require attention in this matter, but as they are now growing freely, the final earthing-up may be deferred for a time. Prepare spare lights or covers for putting over *Endive, Lettuce*, &c., in the open ground, to be used in case of sudden frosts. Complete the planting of the latest crop in pits, if to spare for the purpose. *Parsley* in pits should be well thinned, but still kept open unless in frosty nights, when the lights should be put on and removed during the day. When no other shelter can be had, strong spring-sown plants may be carefully lifted and planted in deep boxes or large pots. These, placed in the orchard-house or vinery, from which the fruit has been cut, will furnish a moderate supply in severe weather. *Chervil* may be treated in a similar manner. With gardeners who have to keep up as long as possible a supply of vegetables of the more tender kinds, every aid or protection to such in the open air should be attended to in due time, as by preventing the evil effects of one or two cold nights at this season *French Beans* and others may be prolonged in bearing, possibly for some weeks longer. *W. C.*

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

9. TENANTS' FIXTURES.—On leaving the tenancy of a garden, can I take away the sliding lights from some brick Cucumber pits which I have erected? Also, can I remove a slated stage from the inside of a greenhouse, which house I have erected? *E. H. K.*

10. HYDROPHOBIA.—If the writer of the highly interesting article on hydrophobia would kindly say where the details of the utility of iodine in poisoned wounds are to be found he would greatly oblige an *American Student.*

Answers to Correspondents.

FINGERS-AND-TOES IN THE BRASSICA TRIBE (Q. 6, p. 376): *Aldershot.* See p. 401.

THISTLES AND COLTSFOOT (Q. 5. p. 376): *Camjee.* See p. 401.

COOL ORCHIDS: *E. H.* You will find answers, by Mr. Anderson, to both your questions, at pp. 401, 402.

CYDONIA JAPONICA: *J. N. C.* The fruits are uneatable in any way.

FUCHSIAS: *H. Cannell.* Some very fine and highly promising varieties. One or two of the dark flowers are extraordinary for size or expansion, and they are all remarkable for substance and richness of colour. Mr. Banks is evidently not retrograding.

GRANADILLA JAM: *B.* Cut the ripe fruit of Passiflora macrocarpa, or of P. quadrangularis, into slices, crush the pulp surrounding the seeds with a spoon, so as to extract the juice, remove the seeds, boil the slices till tender, and pass them through a sieve; mix the juice with the pulp, and add white sugar in the proportion of half-a-pound to a pound of pulp, or thereabouts, and boil down to a proper consistence.

GRAPES: *Amateur.* The two best Grapes for general use are White Muscat of Alexandria and Black Hamburgh. The Muscat requires more heat, to ripen the fruit well. If you cannot give this, try Buckland Sweetwater for a white sort, and Black Alicante for a late black.

MADRESFIELD COURT GRAPE: *J. M.* This Grape ripens well in a house without fire-heat at Chiswick, and should do so in your case.

MELONS: *A. B. B.* Your Melon leaves are swarming with thrips, red-spider, and aphis. The black specks are probably due to the first. The pale spots do not arise from insects, but from a deficiency of chlorophyll, due to a want of vigour in the plants. It is impossible to say, from a mere inspection of the leaves, to what this deficiency of vigour is attributable. *M. J. B.*

NAMES OF FRUITS: *W. K.* Your Pear was bruised beyond recognition.—*Henricus.* Probably Seckle, but too much damaged for proper identification.—*John Pullinger.* Your Peach when received was quite smashed and rotten.—*Inquisitive. Pears:* 1, Doyenné gris; 2, Winter Crassane, probably—specimen very miserable; 3, Old Calebasse; 5, Figue de Naples.—*John Morrison.* Neither of the fruits you have sent are known to us; most probably local varieties.—*A Subscriber, Binton Grange. Pears:* 1, Lewis; 3, Flemish Beauty; 5, Beurré d'Amanlis, very probably; 6, Beurré Sterckmans. *Apple:* 1, Probably Mank's Codlin. Would it not have been possible to have sent us better specimens? Many of the fruits sent to us this week to be named are worthless rubbish, presenting no characters whatever to distinguish them. Correspondents should send good, fair sample fruit, and we will do our utmost to name them.—*Wm. Sharpe, Pitfour.* The fruits you have sent us are an interesting lot, but they are somewhat too far north for us. The greater portion are purely Scotch, and quite unknown in the South; we cannot do much to assist you. We note a few, and will report on the remainder at a future time. *Apples:* 1, Irish Peach; 4, Alfriston; 5, not Wormsley Pippin; 10, not Golden Pippin; 11, Gravenstein; 14, Court-pendu Plat; 15, true Loan's Pearmain; 20, Hollandbury. The fruit of Blenheim Orange was very fine. The one named Cambusnethan is not the same as the sort grown here under that name; it is the same as our Strawberry. The Pear sent you as Williams' Bon Chrétien is, we believe, White Doyenné.—*X.* Your box was not taken in, in consequence of the carriage not being paid. We receive so many parcels that we are obliged to enforce this rule.

NAMES OF FUNGI: *Mrs. C.* The common Stinkhorn, Phallus impudicus.

NAMES OF PLANTS: *J. Gregory.* 1, Æcidium Epilobii; 2, Lecythea ruborum; 3, the Silk-button Gall of the Oak; very common.—*H. C.* Santolina incana.—*Fernery.* 1, Blechnum occidentale minor; 2 and 4, Onychium lucidum; 3, Selaginella Martensii; 5, Scolopendrum vulgare.—*W. C. T.* Campanula rapunculus.—*L. E. B.* 1, Chenopodium polyspermum; 2, Polygonum aviculare; 3, Rubus odoratus.—*J. Smith.* Ophiopogon spicatus.—*Henricus.* A variety of Catasetum viridiflavum, which Lindley described as C. serratum. It is from Panama, and seems to be a rare and little known plant.—*H. K.* Ceanothus azureus.—*A. D. B.* Chysanthemum frutescens.—*C. H.* Artemisia stellariana.—*W. D. F.* Leycesteria formosa.—*J. A. C.* Hemerocallis fulva.—*A. B.* 1, Sedum spurium; 2, S. oppositifolium; 3, Galium, sp. (specimen insufficient); 4, Sedum, sp. may be S. rupestre, but indeterminable without flowers; 5, Centranthus ruber; 6, Chelidonium majus; 7, Anaphalis margaritacea; 8, Agathæa amelloides; 9, Sempervium arboreum, var.? cannot be certain without flowers; 10, Lamium maculatum; 11, Corydalis ochroleuca. Please only send half a dozen specimens at a time in future. Our time is precious.

POTTERY TREE OF BRAZIL: *Enquirer.* This is a species of Licania, whose bark contains a large proportion of silex. The bark is burnt, powdered, and the ashes mixed with clay, to make earthen vases, &c.

SEEDS FOR TASMANIA: *Viator.* The best plan is to pack the seeds in brown paper bags, and hang them up to the roof of your cabin. Take the cones in the same way.

SILENE PENDULA, &c.: *M. N. E.* Perfectly hardy. Sow at once, to flower next spring.

TABLE BOUQUET: *John A. Brand.* There is nothing in the word "bouquet" to imply that it means a tied nosegay. Hand bouquets, ball bouquets, and wedding bouquets, must be tied; but table bouquets may be either tied or free, at the option of the exhibitor, when the schedule does not specify which is intended. In many schedules the intention is expressed by adding "tied," or "not tied."

TEA CULTURE IN INDIA: *H. L.* Apply to Dr. Forbes Watson, India Museum, S.W.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

CATALOGUES RECEIVED.—J. Linden (Ghent, Belgium), Special Catalogue of Azaleas, Camellias, and Rhododendrons.—S. Dixon & Co. (48A, Moorgate Street, London, E.C.), Catalogue of Dutch and other Flower Roots.—J. C. Wheeler & Sons (59, Mark Lane, London, E.C.), Descriptive List of Hyacinths, Narcissus, Tulips, Crocuses, &c.—James Cocker & Sons (Froghall Nurseries, Aberdeen), Descriptive Catalogue of Dutch Flower Roots.—Richard Dean (Ranelagh Road, London, W.), Catalogue of New and Choice Primroses, Polyanthus, Daisies, Bedding Pansies, Hardy Herbaceous Plants, Bulbs, &c.—James Bromwich & Co. (8, Victoria Buildings, Victoria Street, South Belgravia), Descriptive Autumn Catalogue of Dutch Bulbs, Fruit Trees, Plants, Seeds, &c.

ERRATUM.—At p. 329, col. *b*, for "Legerwick" read "Legerwood."

COMMUNICATIONS RECEIVED:—H. P.—J. R. J.—O. T.—H. K.—G. P.—J. G. & Son.—G. B.—Practical (please send your name and address).—J. A. S.—Kansas.—G. W.—H. J.—J. W. K.

Markets.

COVENT GARDEN, September 24.

Trade still keeps quiet. Rather a better supply of vegetables. Prices generally lower. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Nectarines, per doz.	2 0– 6 0
Cherries, Morellos, per lb.	0 6– 2 0	Nuts, Cob, p. lb.	1 0– 1 6
Currants, p. ½-sieve	4 0– ..	Oranges, p. 100	16 0–20 0
Figs, per doz.	1 0– 3 0	Peaches, p. doz.	2 0–10 0
Filberts, per lb.	1 0– 1 6	Pears, p. doz.	2 0– 3 6
Grapes, English, p. lb.	2 0– 6 0	Pine-apples, p lb.	3 0– 6 0
— Muscats, do.	2 6– 6 0	Plums, ½-sieve	1 6– 2 0
Lemons, per 100	12 0–20 0	Strawberries, p. lb.	..
Melons, each	2 0– 3 6	Walnuts, p. bush.	16 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Beans, Fr., per bush.	5 0– ..	Mint (green), p. bun.	0 6– ..
— Scarlet, do.	3 0– 5 0	Mushrooms, per pott.	1 0– 2 6
Beet, per doz.	1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle	0 9– 1 6	Parsley, per bunch	0 4– 0 6
Brus. Sprts., ½ sieve	3 6– ..	Parsnips, p. doz.	0 9– 1 0
Cabbages, per doz.	1 0– 2 0	Radishes, per bunch.	0 2– 0 4
Carrots, new, p. bun.	0 4– 0 6	— black, Turnip, do.	– 0 6
Cauliflowers, per doz.	2 0– 6 0	Shallots, per lb.	0 3– ..
Celery, per bundle	1 6– 2 0	Salsify, per bundle	1 6– ..
Cucumbers, each	0 6– 1 0	Spinach, per bush.	2 0– 3 0
Endive, per doz.	1 0– 2 0	Tomatos, per doz.	1 0– 3 0
Herbs, per bunch	0 2– 0 4	Turnips, per bundle	0 3– 0 4
Horse Radish, p. bun.	3 0– 5 0	Veg. Marrows, doz.	1 6– 2 0
Leeks, per bunch	0 3– 0 4		

New Potatos:—Round, 60s. to 90s. per ton; Kidneys, 90s. to 120s. per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Carnations, per doz. bunches	3 0– 6 0	Pelargoniums, per 12 sprays	0 6– 1 0
Corn-flower, p. doz. bunches	2 0– 6 0	Pelargoniums, Zonal, per 12 sprays ..	0 3– 0 9
Eucharis, per doz. ..	4 0– 9 0	Pinks, mixed do. ..	2 0– 4 0
Escholtzia, p. 12 bun.	2 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Gardenias, p. doz. ..	3 0– 9 0	— Outdoor, do...	0 4– 1 0
Gladiolus, doz. sprays	0 6– 1 6	Spiræa, per 12 sprays	1 0– 2 6
Heliotropes, per doz. sprays	– 0 6	Stephanotis, 12 sprays	3 0– 9 0
Mignonette, 12 bun.	2 0– 6 0	Tuberoses, p. doz. ..	1 0– 2 0
		Violets, p. doz. bun.	0 6– 1 0

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Balsams, p. doz. ..	3 0– 9 0	Heaths, in var., do.	12 0–30 0
Begonias, do. ..	6 0–12 0	Liliums, in var., each	1 0– 3 6
Bouvardias do. ..	9 0–18 0	Mignonette, per doz.	4 0– 6 0
Calceolarias, shrubby	6 0–18 0	Myrtles .. do.	3 0– 9 0
Coleus, p. doz... ..	3 0– 9 0	Pelargoniums do.	6 0–18 0
Cyperus .. do.	6 0–12 0	do., double .. do.	4 0– 9 0
Dracæna terminalis	12 0–30 0	do, Scarlet .. do.	3 0– 9 0
,, viridis .. doz.	12 0–24 0	Rhodanthe .. do.	6 0–12 0
Fuchsia .. do.	4 0–12 0	Solanums, per doz...	6 0–18 0

SEEDS.

LONDON: *Sept.* 23.—Less activity, as might be expected, is now shown on our markets. In Clover seeds very few transactions are taking place, the trade having apparently resolved, before making their purchases, to await fuller information concerning the new crops. A few samples of new American Red seed have just come to hand. New English Trefoils are held for long prices. For Trifolium the demand is, of course, daily decreasing. Winter Tares have been in greatly improved request, and the supply proving short an advance of 3*s.* to 4*s.* per quarter, has been readily obtained. But few Vetches appear to be now left in the hands of growers. English Linseed meets with more attention. In Mustard and Rape seed there is very little doing. Winter Barley and Rye sell at recent currencies. Canary seed is easier. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday the market was stagnant. The supplies of new English produce were larger, while those of foreign were liberal, and factors were inclined to accept in most instances the prices offered. Barley was dull and slightly cheaper, when pressed for sale. Malt was without material change in value. Oats were abundant, and invariably lower; but sound old corn was scarce, and therefore comparatively firm. Maize was very sparingly dealt in. Beans and Peas remained steady in price. Flour had a drooping tendency.—Dulness characterised the trade for Wheat on Wednesday, and the value of both English and foreign was barely supported. Barley was also difficult to move, and slightly easier in price occasionally. Malt was inactive, and little inquiry prevailed for either Oats or Maize, but the quotations for these were the same as on Monday. Beans and Peas were steady, but very slowly dealt in. Flour was dull, and cheaper to sell. The average prices for the week ending Sept. 19 were—Wheat, 46*s.* 8*d.*; Barley, 42*s.* 5*d.*; Oats, 27*s.* 2*d.* For the corresponding week in 1873—Wheat, 64*s.* 7*d.*; Barley, 45*s.* 1*d*; Oats, 27*s.* 5*d.*

CATTLE.

At the Metropolitan Market on Monday the trade in beasts was not brisk, owing to the state of the dead market. Choice qualities were scarce, and not much lower. Prices of sheep, on the average, were rather lower. The lamb season is now over. There were very few calves on offer, but trade rather improved. Quotations:—Beasts, 4*s.* to 6*s.* 4*d.*; calves, 4*s.* to 5*s.* 6*d.*; sheep, 4*s.* 8*d.* to 5*s.* 8*d.*—On Thursday the beast market was very dull, and Monday's quotations were barely sustained. English-fed sheep also met a very dragging sale, at prices against sellers, and foreign suffered a further decline. Calves sold badly.

HAY.

Whitechapel reports both Clover and hay in fai supply and active request, but there is more straw offering, and the trade for this class of fodder quiet at rom 33*s.* to 40*s.* per load. Prime Clover made from 100*s.* to 130*s.*; inferior do., 75*s.* to 85*s.*; prime meadow hay, 99*s.* to 114*s.*; inferior do., 55*s.* to 75*s.* per load. Cumberland Market quotations:—Superior meadow hay, 118*s.* to 126*s.*; inferior do., 90*s.* to 108*s.*; superior Clover, 120*s.* to 130*s.*; inferior do., 105*s.* to 112*s.*; and straw, 38*s.* to 42*s.* per load.

POTATOS.

From the Borough and Spitalfields reports we learn that the supplies of Potatos on offer have largely increased, and the trade is dull on lower terms. The quotations are now as under:—Regents, 60*s.* to 70*s.*; rocks, 55*s.* to 60*s.*; kidneys, 80*s.* to 90*s.* per ton.—The imports into London last week were confined to 5 bags from Hamburgh, 65 from Ternenzen, 204 from Antwerp, 16 from Ostend, and 1 case from Lisbon.

COALS.

The market on Monday was dull for house coals, at a reduction of 1*s.* per ton. Wednesday's market was steady at previous prices. Quotations:—Bebside West Hartley, 23*s.* 3*d.*; East Wylam, 23*s.*; Holywell Main, 23*s.*; Eden Main, 22*s.* 3*d.*; Walls End—Hetton, 24*s.* 6*d.*; Hetton Lyons, 22*s.* 3*d.*; Lambton, 24*s.*; Kelloe, 22*s.* 9*d.*, East Hartlepool, 24*s.* 3*d.*; South Kelloe, 23*s.* 3*d.*; Tees, 24*s.* 3*d.*

HENRY ORMSON,
HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s.*
For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

ROYAL SCHOOL of MINES,
DEPARTMENT of SCIENCE and ART.
During the Twenty-fourth Session, 1874-75, which will commence on October 1, the following COURSES of LECTURES and PRACTICAL DEMONSTRATIONS will be given:—
1. Chemistry. By E. Frankland, Ph.D., F.R.S.
2. Metallurgy. By John Percy, M.D., F.R.S.
3. Natural History. By T. H. Huxley, LL.D., F.R.S.
4. Mineralogy. } By Warington W. Smyth, M.A., F.R.S.,
5. Mining. } *Chairman.*
6. Geology. By A. C. Ramsay, LL.D., F.R.S.
7. Applied Mechanics. By T. M. Goodeve, M.A.
8. Physics. By Frederick Guthrie, Ph.D., F.R.S.
9. Mechanical Drawing. By Rev. J. H. Edgar, M.A.
The Fee for Students desirous of becoming Associates is £30 in one sum, on entrance, or two annual payments of £20, exclusive of the Laboratories.
Tickets to separate Courses of Lectures are issued at £3 and £4 each.
Officers in the Queen's Service, Her Majesty's Consuls, Acting Mining Agents and Managers may obtain Tickets at reduced prices.
Science Teachers are also admitted to the Lectures at reduced fees.
For a Prospectus and information apply to the Registrar, Royal School of Mines, Jermyn Street, London, S.W.
TRENHAM REEKS, Registrar.
NOTE.—By order of the Lords of the Committee of Council on Education, the instruction in Chemistry, Physics, Applied Mechanics, and Natural History will be given in the New Buildings, in the Exhibition Road, South Kensington.

Autumn Sowing.
ODAMS' MANURES,
Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.
Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

PEAT EARTH.—Fibrous Peat Earth for American and New Holland Plants, Ericas, and for Potting, delivered on Rail at Blackwater, South-Eastern Railway, and Farnborough, South-Western Railway, in truckloads of 4 tons and upwards, at 12*s.* 6*d.* per ton. Extra fibrous quality, for Orchids and Ferns, 25*s.* per ton. Sphagnum Moss for Orchids, 10*s.* per sack.
T. WALKER, 46, Cannon Street, London, E.C., where samples can be seen.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

Scott's Wasp Destroyer.
J. SCOTT, SEEDSMAN, Yeovil, offers his well-known preparation to Fruit Growers at 1*s.* 9*d.* and 2*s.* 9*d.* per bottle, post free, on receipt of stamps. No one who has fruit to preserve should be without it. It is also useful in the destruction of Flies, Cockroaches, and Crickets. See testimonials. None Genuine except the Corks bear "Scott, Seedsman, Yeovil." The Trade supplied. Prices on application.

MILDEW
May be entirely prevented as well as cured by
EWING'S INFALLIBLE COMPOSITION.
Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions for use.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing, Second sized Archangel, 100*s.*; Petersburgh, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

TO BE SOLD, cheap, 200 tons of SILVER SAND—not less than 2 tons in one lot. For samples and prices, address
C. W. T., 18, St. Thomas Street, Islington, London, N.

To Florists, Gardeners, &c.
FOR SALE, TOBACCO CLOTH and PAPER suitable for fumigating purposes. For prices and particulars apply to
Messrs. W. AND M. TAYLOR, 119, Francis Street, Dublin.

Indestructible Terra-Cotta Plant Markers.
MAW AND CO.'S PATENT.—Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Garden Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of
POOLEY AND CO., Horticultural Sundriesmen, 23, Bury Lane, Cannon Street, London, E.C.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of
CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

Stoves for Greenhouses! Portable! Terra Cotta!
ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Gardeners' Chronicle*, March 1, 1873:—"ROBERTS'S Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,
THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

Hyacinths in Pots.
POTS made expressly for HYACINTHS can be supplied by
J. MATTHEWS, The Royal Pottery, Weston-super-Mare.
Price List free.

Rhubarb and Seakale Forcing.
STRONG, well made POTS for the above can be supplied by
J. MATTHEWS, Royal Pottery, Weston-super-Mare.
Price List free.

GARDEN POTS, ORCHID POTS, ALPINE POTS, FERN PANS, SEED PANS, and all other GARDEN POTTERY of the best quality can be supplied by
J. MATTHEWS, Royal Pottery, Weston-super-Mare
Price List free.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plain sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Grosvenor Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAME," PLANT COVERS and PROPAGATING BOXES; also FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES for Conservatories, Halls, Corridors, Balconies, &c., 3*s.* per square yard upwards. Pattern Sheets, of plain or elaborate designs, with prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Reduced Prices.
THE CELEBRATED GRANITIC PAINT Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.
For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.
For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

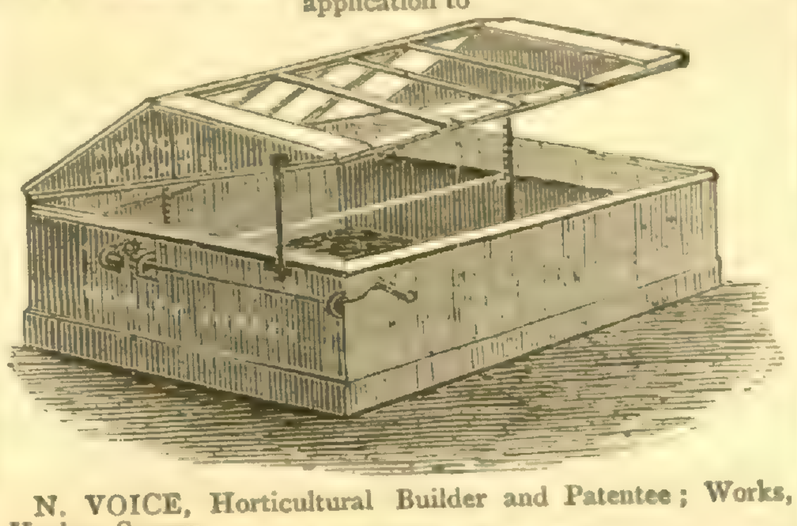
SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.
HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.
Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.
N.B.—AGENTS WANTED.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

J. G. SMEATON & CO.,
Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.
HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.
PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.
References to the Nobility, Gentry, and Trade in most of the Counties in England.

T. G. MESSENGER,
CONTRACTOR, MIDLAND HORTICULTURAL BUILDING AND HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH,

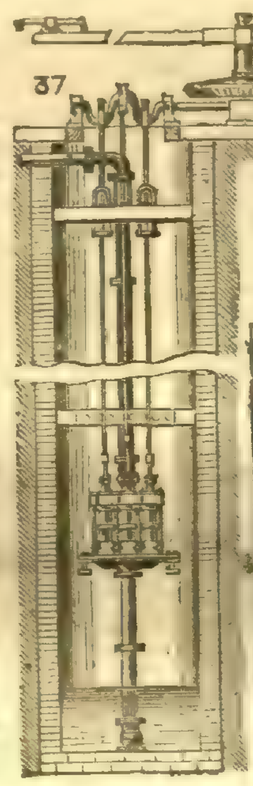
Begs to inform his numerous Patrons and the Public generally, that since his recent disastrous fire he has erected new, more extensive, and commodious works, fitted with the best steam-power machinery, for the construction of Horticultural Buildings in wood or iron, plain or ornamental, of any required dimensions. T. G. MESSENGER is now, therefore, in a position, from his great facilities and experience, to carry out with dispatch and in the best manner, at moderate cost, the orders with which he may be entrusted. Glasshouses erected on Messenger's Patent principles are, owing to mechanical arrangements, very strong, *most durable*, light, *elegant; perfect efficiency* for purpose intended is *guaranteed;* are economical in cost and maintenance. Hot-water engineering in all its branches. Messenger's Patent Hot-water Boilers, Flexible Jointed Hot-water Pipes and Valves, are now in use in many thousands of instances, with the greatest success. Particulars on application.

Plans and Estimates forwarded. Ladies and Gentlemen waited upon. The Plans of Architects and others carried out.

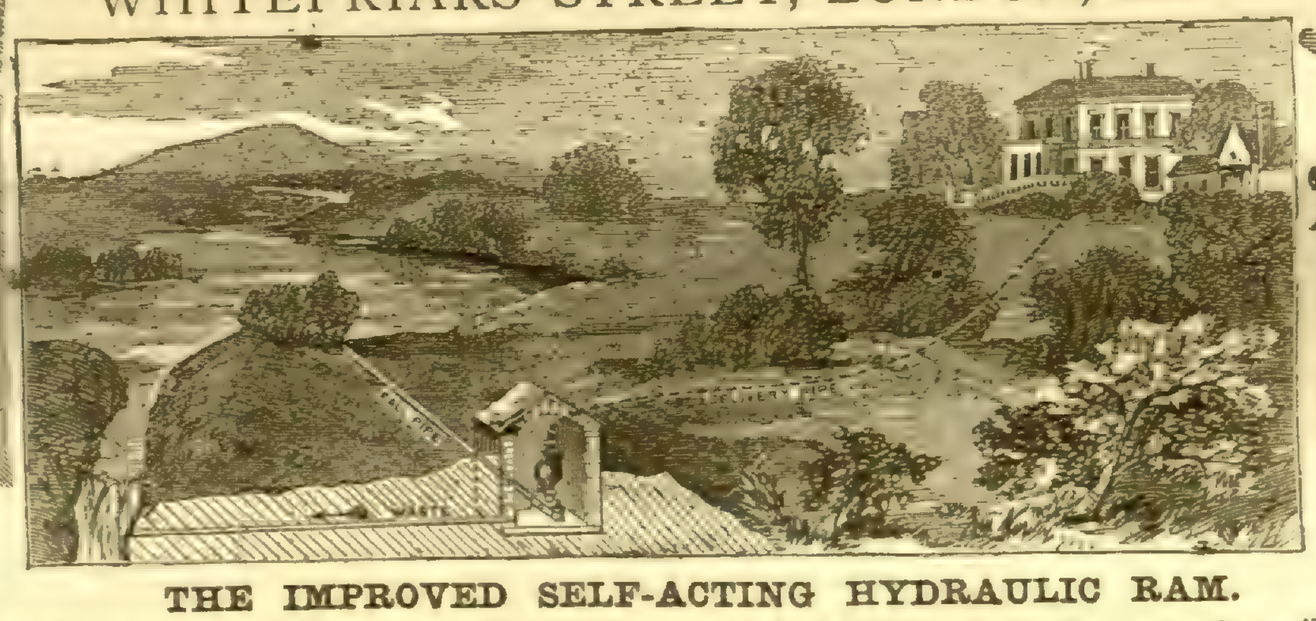
A richly Illustrated CATALOGUE forwarded Post Free on receipt of 33 Stamps.

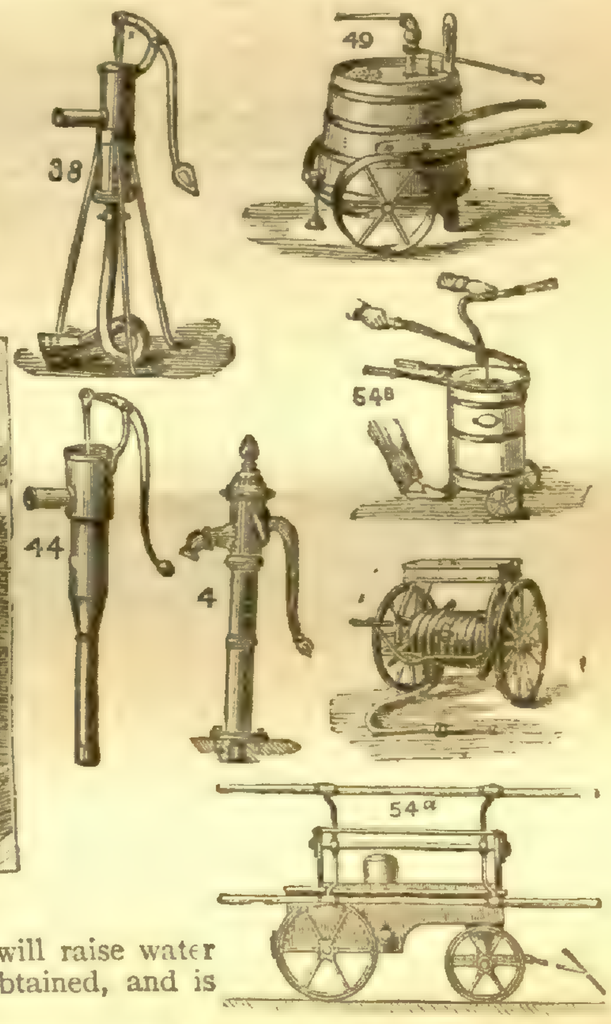
ESTABLISHED 1856.
KEEP OUT THE FROST.

WILLIAM H. HONEY'S PORTABLE
VAPORISING STOVES,
To Burn Kerosene or any mineral oil.
They will burn for twenty-four hours at a cost of one penny for three hours.
They require no attention beyond replenishing the oil.
Suitable for greenhouses, conservatories, halls, bed-rooms, &c.
They will not injure the most tender exotics, nor are they in any way injurious to the health.
Prices, in block tin, 30*s.*; in copper, 50*s.* Copper, with glass, to give light and heat, 55*s.* Either will be sent on receipt of Post-office Order.
To be seen in operation at
WILLIAM H. HONEY,
263, REGENT STREET, W.
Catalogue free. No agents appointed.



S. OWENS & CO.,
HYDRAULIC ENGINEERS,
WHITEFRIARS STREET, LONDON, E.C.





THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
No. 63. PORTABLE IRRIGATORS with Double or Treble Barrels for Horse or Steam Power.
No. 46*a*. IMPROVED DOUBLE ACTION PUMPS on BARROW for Watering [Gardens, &c.
No. 49*a*. GALVANISED SWING WATER CARRIERS, for Garden use.
No. 50 and 54*a*. FARM and MANSION FIRE ENGINES of every description.
No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.
No. 49. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.
No. 54*b*. THE CASSIOBURY FIRE EXTINGUISHER, as designed for the Right Hon. the Earl of Essex.
No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.
No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.
No. 39*b*. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution. FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.

AGRICULTURAL LOCOMOTIVES,

STEAM PLOUGHING MACHINERY.

ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES, STEAM ROAD ROLLERS.

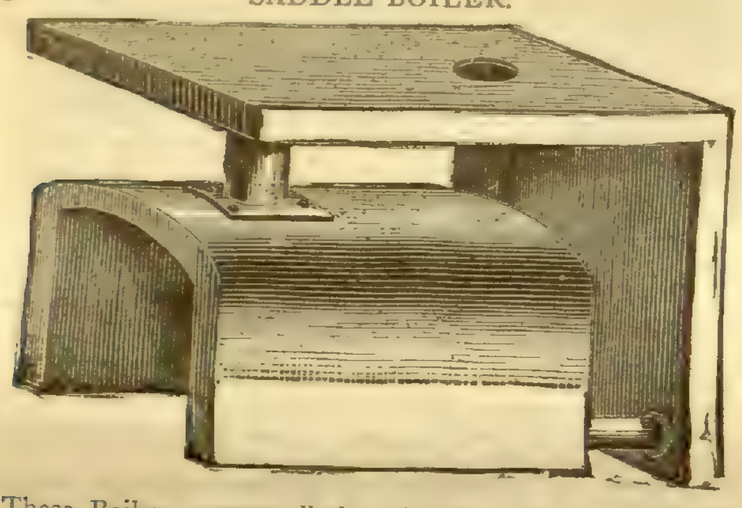
For Prices, Description, and Reports of Working, apply to the Manufacturers,

AVELING & PORTER,

ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption o *three and one-fifth pounds of coal* per horse-power per hour.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0
30 ,,	30 ,,	72 ,,	2,600	35	0	0
36 ,,	36 ,,	96 ,,	4,500	50	0	0
48 ,,	48 ,,	108 ,,	7,000	75	0	0
48 ,,	48 ,,	144 ,,	10,000	100	0	0

And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

SPECIAL NOTICE.

F. K. BELL'S

IMPERISHABLE METAL LABELS

FOR

HORTICULTURE, WINE BINS, ARBORICULTURE AND MACHINERY.

THE ORIGINAL MANUFACTORY

of these Labels (which have given such general satisfaction throughout the United Kingdom) has been removed ENTIRELY from Stratford-on-Avon to

EASTBOURNE, SUSSEX,

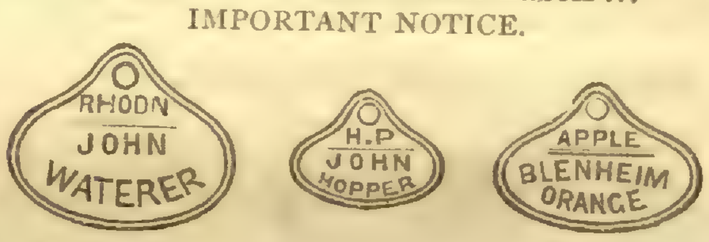
Where all Orders should be addressed, and shall receive prompt attention Catalogues and samples on application.

F. K. BELL,

LABEL FACTORY, EASTBOURNE.

The Improved Imperishable Labels!!!

IMPORTANT NOTICE.



J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.

J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose. The Labels are made of a white metal with RAISED BLACK-FACED LETTERS.

All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard .. .. 3*s.* 4½*d.*
3-inch Pipe, per yard .. .. 2*s.* 8½*d.*
2-inch Pipe, per yard .. .. 1*s.* 8*d.*

Connections at proportionate prices.

Illustrated Price List free on application to

T. G. MESSENGER, Hot-water Engineer, Loughborough.

THE SYDNEY MAIL AND NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.

Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London .. Mr. George Street, 30, Cornhill, E.C.
Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham. Mr. R. S. Kirk, 90, New Street.
Liverpool .. Lee & Nightingale, 15, North John Street.
Bristol .. James & Henry Grace, Royal Insurance Buildings.
Edinburgh .. Robertson & Scott, 13, Hanover Street.
Glasgow .. W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

Notice.

(*By Appointment to the Royal Horticultural Society*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

Every Saturday, price 4d., by Post, 4½d.

NOTES AND QUERIES:

A MEDIUM OF INTERCOMMUNICATION FOR LITERARY MEN, ARTISTS, ANTIQUARIES, GENEALOGISTS, &c.

Edited by Dr. DORAN, F.S.A.

"When found, make a note of."—CAPTAIN CUTTLE.

CONTAINING EVERY WEEK AMUSING ARTICLES ON SOME OF THE FOLLOWING SUBJECTS:—

ENGLISH, IRISH, and SCOTTISH HISTORY, Illustrated by original Communications and inedited Documents.
BIOGRAPHY, including unpublished Correspondence of eminent Men, and unrecorded Facts connected with them.
BIBLIOGRAPHY, more especially of English Authors, with Notices of rare and unknown Editions of their Works, and Notes on Authorship of Anonymous Books.
POPULAR ANTIQUITIES and FOLK LORE, preserving the fast-fading relics of the old Mythologies.
BALLADS and Old Poetry, with Historical and Philological Illustrations.
POPULAR and PROVERBIAL SAYINGS, their origin, meaning, and application.
PHILOLOGY, including Local Dialects, Archaisms, and Notes on our old Poets.
GENEALOGY and HERALDRY, including Histories of Old Families, Completion of Pedigrees, &c.
MISCELLANEOUS NOTES, QUERIES, and REPLIES, on points of Ecclesiastical History, Topography, Fine Arts, Natural History, Miscellaneous Antiquities, Numismatics, Photography, &c.

NOTICE.—The FOURTH SERIES is now complete, in Twelve Volumes. A New Series, the FIFTH, commenced with SATURDAY, January, 3, 1874. As many of the Numbers are scarce, subscribers desirous of completing their Sets should order at once the Numbers required.

GENERAL INDEX to the Second Series may be had, price 5*s.* 6*d.*
GENERAL INDEX to the Fourth Series, price 6*s.*, now ready.
COVERS for BINDING now ready, 1*s.* each; by post, 1*s.* 2*d.*
Vol. I., Fifth Series, JANUARY to JUNE, 1874, price 10*s.* 6*d.*, cloth.

Published by JOHN FRANCIS, at 20, WELLINGTON STREET, STRAND, W.C.,

And may be had by Order of all Booksellers and Newsmen.

THE AGRICULTURAL GAZETTE, SATURDAY, SEPTEMBER 26, 1874,

Contains—

ORIGINAL ARTICLES on Improvements in Steam Cultivation (Illustrated)—Steam Cultivation in Norfolk—Recent Field Experiments with Manures—Landholders in Scotland—Agricultural Labourers and the Harvest—Farm Labourers' Cottages—The Doncaster Sales and the Queen's Plates—The Nordan Hall Homestead (Illustrated)—Farming in Wales—Will Great Britain ever cease to be a Corn-growing Country?—Steam Ploughing—Fowl-farming—Hardy Border Plants—Parasitic Diseases of Stock, &c.

HOME AND FOREIGN CORRESPONDENCE—A Use of Charcoal—Tenant Right—Shropshire Sheep at Tamworth—Mr. Mechi on Land Drainage—Ear-marking—Rural Notes from Greater Britain, &c.

FARM NOTES AND MEMORANDA from various Counties in Great Britain.

REPORTS OF THE MEETINGS of Northamptonshire, Staffordshire, and Millom (Westmoreland) Agricultural Societies; and of various Ploughing Matches.

ALSO—

The Veterinarian—The Poultry Yard—The Garden of the Farm—The Household—The Weather—Reports of Markets, &c.

Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

THE FLORIST and POMOLOGIST for OCTOBER, price 1*s.*, contains beautifully coloured Plates of IRIS KÆMPFERI, E. G. HENDERSON, and the FROGMORE LATE BIGARREAU and JOC-O-SOT CHERRIES, with descriptions: and practical articles on the following subjects:—

Nectarine Prince of Wales. By W. Earley
The Golden Champion Grape. By M. Temple.
Azara microphylla (Illustrated). By T. M.
Haussmannia jucunda. By M.
Lisianthus Russellianus. By J. Barnes.
Hot-water Treatment for Cacti. By F. A. B.
Vines and Vine Culture, Chap. V. (Illustrated). By A. F. Barron.
Tasting Fruit at Shows. By M. Temple.
Choice Hothouse Climbers. By T. M.
The Œnothera. By M. Saul.
Bedding Violas. By W. Earley.
Franciscea eximia. By H. Chilman.
Utilisation of Orange Peel. By A. Forsyth.
Rustic Summer-house (Illustrated). By T. M.
Wiring *versus* Nailing. By J. Webster.
Garden Gossip.
Garden-work for October.

The FLORIST and POMOLOGIST contains Two finely-coloured Plates, and is published on the 1st of every month at 171, Fleet Street, London, E.C.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

To be published on November 15, 1874,

ANNUAIRE de l'HORTICULTURE BELGE pour 1875 (Year-Book of Belgian Horticulture for 1875), by MM. F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. It will contain a complete List of the principal Nurserymen, Garden Engineers, Seedsmen, and Constructors of Horticultural Implements. Price for Great Britain, post paid, 1*s.* 6*d.*

Advertisements will be inserted at the following terms:—A whole page in 16mo, 13*s.* 6*d.*; half page, 8*s.*; quarter page, 5*s.*; and must be forwarded not later than October 15, to

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

THE COTTAGER'S CALENDAR of GARDEN OPERATIONS. By the late Sir JOSEPH PAXTON, M.P.

Reprinted from the *Gardeners' Chronicle*, with Additions.

Price 3*d.* each, or 5*s.* for 25 Copies for distribution amongst Cottage Tenantry.

Delivered anywhere in London on receipt of a Post Office Order, payable to WM. RICHARDS, at the King Street Office, Covent Garden.

Published at the Office of the *Gardeners' Chronicle*, 41 Wellington Street, Covent Garden, London, W.C.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

WANTED, a GARDENER (SINGLE-HANDED). Must be a thorough master of the profession in all its branches. Nobody but a Churchman, with unexceptionable good character from last situation, need apply. Wages £1 per week, and good cottage. No perquisites allowed out of the garden.—Apply, stating age and capabilities, J. H. DOE, Eaton Brag Vicarage, Dunstable.

WANTED IMMEDIATELY, a middle-aged married Man, without family, as GARDENER, who understands the Management of Flower, Fruit, and Kitchen Gardens. Must milk a cow and attend to a small pony. A cottage and garden provided as part of wages. References as to character and ability indispensable.—E. C., Post Office, Holbeach.

WANTED, a Man and Wife, without incumbrance—the Man as GARDENER and to Supervise Stock, the Wife to take Charge of and Rear Poultry and make herself useful, if required, in assisting her husband.—Apply, in first instance, stating wages and full particulars of previous experience and capability, to F. G., Post Office, Birmingham.

WANTED, as PLANT GROWER, PROPAGATOR, &c., in a small Nursery, an industrious and trustworthy Man. A married Man, without family, preferred. Wages 20*s.* per week, rent free, with garden.—Apply, with reference or testimonials, age, experience, &c., to W. B. S., 89, Lower Union Street, Torquay.

Berks County Asylum, Walingford.

WANTED, as GARDEN ATTENDANT, an active young Man, who is well acquainted with Plain Garden-work. Wages to commence at £25 a year, with board, lodging, and washing.—Letters of application, containing a statement of age and previous occupation, to Dr. GELLAND, Medical Superintendent.

WANTED, an experienced NURSERY SALESMAN, in a large Provincial Nursery—a Man with good address and a general knowledge of Stock, especially in the Outdoor Department.—ALPHA, Messrs. Hurst & Son, 6, Leadenhall Street, E.C.

WANTED, a CLERK, accustomed to the Seed and Nursery Business. Salary £80 per annum.—Apply by letter, stating age and experience, to BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

WANTED, an INVOICE CLERK.—Must write a good plain hand, and be thoroughly conversant with his duties. High salary for integrity and ability.—Only those that have held appointment in Wholesale Houses may apply to F. SANDER AND CO., Seed Growers, St. Albans.

WANTED, a WAREHOUSEMAN, in a Wholesale London Seed Warehouse. A steady, respectable Working Man, and used to the Trade.—Apply by letter, X., Nutting & Sons, 60, Barbican, E.C.

WANTED, a LAD (about 14 years old), to assist in the Seed Shop, and make himself generally useful.—Apply, in own handwriting, to B. E., *Gardeners' Chronicle* Office, W.C.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

To Noblemen and Gentlemen.

GARDENER (HEAD).—In consequence of the death of the Right Rev. Bishop Sumner, the Advertiser is at liberty to engage with any Nobleman or Gentleman requiring the services of an efficient Gardener. Age 46. Twenty-two years Head Gardener at Farnham Castle.—J. W. LAURENCE, Farnham Castle, Farnham, Surrey.

GARDENER (HEAD).—Thoroughly understands Vines, Stove and Greenhouse Plants, and has a general knowledge of Stock. Six and a-half years' good character.—T. N., 6, Love Lane, Mitcham, Surrey.

GARDENER (HEAD).—Age 28, single; thoroughly understands the profession in all its branches. Good references. No Single-handed place accepted.—J. WIGHTON, The Hall Gardens, Cossey, near Norwich.

GARDENER (HEAD).—Age 38, married, no family; thoroughly understands the profession in all its branches; also Land and Stock. Five years' good character from last place.—A. B., 4, Brewer Street, Pimlico, London, S.W.

GARDENER (HEAD).—Age 30, single; has a good practical knowledge of Early and Late Forcing, Kitchen and Flower Gardening. Fifteen years' experience in good places. Good references.—A. M., Ponsbourne Park Gardens, Hertford.

GARDENER (HEAD).—Has had the Management of one of the first Establishments in England for many years, and perfectly understands the profession in every department. The highest references and testimonials.—Messrs. F. & A. DICKSON, Eastgate Street, Chester.

GARDENER (HEAD), to any Lady or Gentleman requiring a thoroughly practical Man.—Age 30; has had good experience in large Establishments. Character will bear the strictest investigation.—J. H., 2, Devonshire Terrace, Ellacombe, Torquay.

GARDENER (HEAD), or to take the Management of a Gentleman's Estate.—Married, no family; has had good experience. Wife well understands Dairy and Poultry. Ten years' good character, with references as to ability. Disengaged at Michaelmas.—K. Y., Post Office, Ipswich.

GARDENER (HEAD, or SINGLE-HANDED).—Age 35, married; thoroughly competent in all branches.—T. H., 5, Commercial Place, Herne Hill, S.E.

To Noblemen and Gentlemen.

GARDENER (HEAD), or GARDENER and BAILIFF.—Thoroughly understands the profession in all its branches. Has lived sixteen years in last situation, which he left in consequence of the death of his employer. Good character.—R. COOPER, Bishton Hall, Wolseley Bridge, Stafford.

GARDENER (HEAD, WORKING), where three or four are kept.—Age 26, married; has a good practical knowledge of Pines, Vines, Peaches, &c., Flower and Kitchen Gardening, and a good Plant-grower (having lived five years under Mr. J. Ward, Leyton, Essex). Good character.—HORTUS, Post Office, Trowbridge, Wilts.

GARDENER.—Middle-aged, married. Wife has been used to Cooking and Dairy. Willing to make themselves useful. Wages moderate. Good characters. WM. AVERY, care of Miss Webb, Cheapside, Sunninghill, Staines.

GARDENER, or FOREMAN.—Age 26, single. Ten years' first-rate experience.—H. H., Post Office, Lacock, Chippenham, Wilts.

GARDENER (UNDER).—Age 21. Can be highly recommended.—T. H., Post Office, Brereton, Rugeley, Staffordshire.

GARDENER (UNDER).—Age 23; accustomed to Pines, Vines, Peaches, and Melons, also Flower and Kitchen Gardening. Out of bothy preferred. Good character.—UNDER GARDENER, The Gardens, Cranbury Park, Winchester, Hants.

GARDENER (UNDER), in a Nobleman's or Gentleman's Establishment, where he may gain more experience in House-work. Four years' good reference.—T. T., 3, Trafalgar Place, Old Windsor.

GARDENER (UNDER, or SINGLE-HANDED).—Age 24, single. Two years' good character from last employers.—A. B., Bagshot Reading Rooms and Library, Bagshot, Surrey.

GARDENER (SECOND), or under a good Foreman in a large Establishment. Age 25. Good experience in Flower and Kitchen Gardening, &c. Two years' good character from present situation. C. M., 4, Nunhead Terrace, Nunhead Grove, Peckham, S.E.

GARDENER (SINGLE-HANDED), or GARDENER and GROOM.—Age 26, married, one child. Three years' good character.—A. B. C., 4, Nunhead Terrace, Nunhead Grove, Peckham, S.E.

PLANTING, &c.—R. JONES, 96, Palmerston Road, Kilburn Rise, N.W., offers his services to Gentlemen about to make new Gardens from Plans. He is experienced in Ground Work, Planting, and the Requirements of a new Place and Alteration of others.

PROPAGATOR, in a Nursery, of Soft-wooded Plants for Market, or otherwise.—Good character.—A. B., Mr. Green, Bookseller, North Finchley.

FOREMAN (in the Houses) in a Gentleman's Garden.—Eight years' experience. Good character and recommendations from last and previous employers.—W. J. S., Acton Rise, Acton, Middlesex, W.

SHOPMAN.—A young Man. Nine years' experience in the Retail Seed and Nursery Trade.—J. M. S., Post Office, Dumfries, N.B.

SHOPMAN (SECOND).—Age 24. Six years' experience. London preferred. Good reference.—W. ROBINSON, Messrs. Thomas Gibbs & Co., Seedsmen, 47, Half-Moon Street, Piccadilly, W.

SHOPMAN, or CLERK.—Age 24; nine years' experience in Nursery and Seed Trade. In or near London preferred. Good reference.—M. A. C., 18, Grove Place, Enfield Highway, N.

CLERK.—Age 20.—G. B., 41, Francis Street, Chelsea, S.W.

To the Seed Trade.

TRAVELLER, &c.—A Man, of long experience in all branches of the Seed Business is open to an engagement with a first-class House as Traveller or otherwise. Has an intimate knowledge of the Provincial Trade, and at present holds a responsible position in a house of note.—A. Z., Mr. Murray, 16, College Street, Islington, N.

LAND-STEWARD or BAILIFF.—Age 37, married, Scotch; has a thorough practical knowledge of Farming, the Management of Stock, and general Estate Management; is a good Accountant and Correspondent. Wife thoroughly competent to take the Management of a Gentleman's Dairy. Highest references as to character and abilities. Disengaged by November 1.—A. W., Post Office, Brecon, South Wales.

GOVERNESS.—A young Lady, with some years' experience and unexceptionable references. Competent to undertake the Teaching of English, French, German, Music, &c.—K., *Gardeners' Chronicle* Office, W.C.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA, BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*

MANUFACTURE OF COCOA.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*

Made simply with boiling water or milk.

Sold by Grocers, only in packets, labelled
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS,
48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, N.W.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

IMPORTANT NOTICE.

A Valuable Scientific Discovery.

As the result of a lengthened series of practical tests Messrs Weeks & Co have much pleasure in stating that they have succeeded in perfecting one of the most valuable inventions ever introduced for economizing fuel, and effecting perfect combustion in the Furnaces of Tubular Boilers. So astonishing are its effects that not only has 20 per cent of fuel been registered as a minimum saving, but a point exceeding 30 per cent has been attained, to which must be added a corresponding economy in labour.

This invention consists of a patent horizontal Water-Diaphragm with vertical plates adjusted so as to prevent the escape of unconsumed gases, which being conducted through and through the furnace greatly intensify the heat, cause perfect combustion, and serve as a partial smoke-consumer.

This effective invention in conjunction with their previously Patented Duplex System of two Boilers in one, at once renders these Boilers the most powerful the most economical, and safest ever invented, while for durability Messrs Weeks & Co give a 10 years guarantee with every Duplex Boiler fired by them.

For particulars of same and BOOK OF DESIGNS (13th Edition), apply to

J. WEEKS & CO.,

HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS,

KING'S ROAD, CHELSEA, LONDON, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, September 26, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 40.—Vol. II. { New Series. } SATURDAY, OCTOBER 3, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Apple, Nelson Codlin	431	Mesembryanthemum truncatellum	430
Appoline Rose for autumn blooming	435	Mushrooms and Toadstools	422
Artificial colouring of natural flowers	430	Notes on Indian forest produce	424
Autumn tints of foliage	430	Obituary	437
Awards of the R.H.S.	429	Onion, the Banbury	433
Azalea viscosa a fly-catcher	432	Parsley, the curled	431
Books, notices of	426	Peterborough House, Fulham	421
Botany, on teaching	430	Pelargoniums, pink nosegay	435
Canna, varieties of	430	Pine-apple, the variegated	430
Clematis Aureliana	430	Plants, new garden, recently published portraits of	419
Coccocypselum repens	431	Potatos, Red-skinned Flourball, &c.	434, 435
Cryptogams, occurrence of aluminium in certain	422	Rhododendron Sesterianum	431
Cydonia japonica	435	Royal Horticultural Society's Provincial Exhibitions	434
Eranthemums	430	Roses and Rose shows,	433, 434
Erythrina Parcellii	434	Rushlights and Rushes	417
Farm, the	436	Shrubby Ivies	430
Forestry	424	Stove, Roberts' Patent Terra-cotta	430
Fourcroya Commelyni	430	Trichomanes, the genus	423
Fungi, determination of	434	Tuberose, the	434
Fungi in Peach-borders	435	Tulp	420
Garden operations	437	Vegetable disease	429
Grevillea robusta	430	Veitchia canterburyana	430
Hippophaë rhamnoides fœmina	431	Villa garden	436
Holly, the common, and its varieties (with cuts)	432	Weather, the	437
Hornets	427	West Indian fruits	421
Insecticide, a new	431	Wodenethe, Fishkill, on the Hudson	424
Jute plant, the	431		
Kew, the old walls at	418		
Liquorice culture at Pontefract	420		
Mandevilla suaveolens, hardy	434		
Mentone, Dr. Bennett's garden at (with cut)	424		

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is **$6.30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth*, 16*s*.
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.—NOTICE.—FRUIT and FLORAL COMMITEES' MEETINGS and FUNGUS SHOW, on WEDNESDAY NEXT, October 7, at 11 o'Clock. GENERAL MEETING at 3 o'Clock. Admission 1*s*.

ROYAL POMONA PALACE and GARDENS, MANCHESTER.
A GRAND EXHIBITION of NATIVE and EXOTIC FRUITS, CHRYSANTHEMUMS, FLORAL BOUQUETS, CONIFEROUS PLANTS, &c., will be held on TUESDAY, WEDNESDAY, and THURSDAY, December 1, 2, and 3 next.
Schedules are now ready, and may be had from the various Seed Establishments in Manchester, or from the Proprietor, Mr. JAMES REILLY, Pomona Gardens, Manchester.

Great International Fruit and Flower Show at EDINBURGH, in 1875.

THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY propose to hold a GREAT INTERNATIONAL FRUIT and FLOWER SHOW in Edinburgh, on SEPTEMBER 15 and 16, 1875, when £700 will be given in prizes.
Schedules will be issued at an early date, and can be had on application to the Secretary,
WM. YOUNG, 33 South Bridge, Edinburgh.

LAURUSTINUS.—An immense quantity of very healthy plants, 12 to 18 inches high, can be supplied at very moderate prices by
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Roses, Roses, Roses.

EWING AND CO.'S Illustrated, Priced, and Descriptive CATALOGUE will shortly be ready. All Rosarians should possess a copy, which will be forwarded, gratis and post free, to applicants.
The Royal Norfolk Nurseries, Norwich.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

Horticulture.

THOMAS RIVERS' Descriptive and Illustrated CATALOGUE of FRUITS is now ready. Also, CATALOGUE of SELECT ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Hyacinths, Crocus, Tulips, &c., all extra picked ROOTS.

J. SCOTT'S CATALOGUE of the above is now ready, and may be had Gratis and Post Free on application. Bulbs extra fine and sound. Prices low. Address,
JOHN SCOTT, The Seed Stores, Yeovil.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete ever published.
Hale Farm Nurseries, Tottenham, London, N.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s*. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Dutch and other Flower Roots.

JAMES DICKSON AND SONS have received large and superior consignments, in excellent condition. Priced CATALOGUES post free.
108, Eastgate Street, Chester.

PINE-APPLE PLANTS.—A Gentleman wishes to dispose of about three dozen strong growing Pine-apple Plants, in 12-inch pots, to fruit next year. Applications to be made to
The GARDENER, Blackmore Park, Upton-on-Severn.

Grape Vines.

EDWARD MORSE has many Hundreds of strong Fruiting Vines in pots, at 5*s*., 7*s*. 6*d*., and 10*s*. 6*d*. each. Special Prices quoted for large quantities.
Original Nurseries, Epsom, Surrey.

Notice.

HORTICULTURAL SOCIETY'S STOCK GRAPES, first year.
Very fine well ripened Canes of all the best sorts, 3*s*. 6*d*. each; extra fine, in 11-inch pots, 5*s*. each; and PULVERISED BONE.
Mr. RANSLEY TANTON, F.R.H.S., The Nurseries, Epsom.

GRAPE VINES.—A fine stock of all the leading sorts; strong, well-ripened short-jointed Canes. Extra fruiting size, in 11-inch-pots; smaller plants, in 6-inch and 9-inch pots. Prices from 3*s*. 6*d*. to 10*s*. 6*d*. each. Free from any kind of disease.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s*. to 60*s*. per dozen. Extra strong Fruiting Canes, 7*s*. 6*d*. to 10*s*. 6*d*. each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s*. each.
RICHARD SMITH, St. John's Nurseries, Worcester.

ORCHARD HOUSE TREES.—About Eighty fine large Trees, growing in pots, to be disposed of. Many of them are 8 feet high, and well fitted from the bottom. They are in a fine healthy state, producing large crops of splendid Fruit, consisting of all the best sorts of PEARS and PLUMS. For price, &c., apply to
ROBT. DEBRON, The Nursery, West End, Ely.

New Apple, Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now Booking Orders for this splendid Novelty, which obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, on November 12, 1873. Circulars with full particulars will be forwarded gratis and post-free to applicants. The price for strong maidens on and after November 1 next, is 7*s*. 6*d*. each, or three for 20*s*. The usual discount to the Trade.

To Gentlemen, Market Gardeners, and Others.

MITCHELL'S CHAMPION of ENGLAND BROCCOLI.—JOHN MITCHELL, retiring from the Business, has a small quantity of New Seed to dispose of. The Best LATE WHITE ever grown. Will be sold in ¼ lb., ½ lb., and 1 lb. packages, at One Guinea per pound. Sent to any part of the world on receipt of Post Office Orders made payable to
JOHN MITCHELL, Ponders' End, Middlesex.

HARDY WELSH WINTER VETCHES, and all other seeds for present sowing.
JAMES DICKSON AND SONS, 108, Eastgate Street, Chester.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL IN RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

WANTED, 150 LOMBARDY POPLARS, a quantity of EVERGREEN and DECIDUOUS SHRUBS, suitable for clay soil; and a large plant of TACSONIA VAN VOLXEMI. Apply, stating size and price to
H. PERRIAM, Nurseryman, Butt Lane, Boston, Lincolnshire.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

WHOLESALE CATALOGUE of TREES, SHRUBS, CLIMBERS, &c., free on application.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Novelties.

NEW SWEET-SCENTED RHODODENDRONS now offered for the first time, the most novel and beautiful ever raised. NEW INDIAN AZALEAS and a fine Collection of AZALEA MOLLIS. A Descriptive Priced List forwarded to any address on application to
ISAAC DAVIES, Nurseryman, Ormskirk.

Eltham Nursery, Kent, S.E.

One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.

THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c. Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

Carnations, Picotees, Pinks, Cloves, and Winter-BLOOMING CARNATIONS.

CHARLES TURNER'S stock of the above is now ready for delivery. The stock is most healthy, and being cheaper at this season, with less expense in carriage, C. TURNER recommends intending purchasers to have them at once. The Royal Nurseries, Slough.

To the Trade.

C. WHITEHOUSE, Brereton Nursery, Rugeley, has a few dozens of THUJA GIGANTEA to offer, true, from seed. Splendid Plants, 3½ to 4 feet, all transplanted in the autumn of 1873, 15*s*. per dozen for cash; six plants sent as sample, securely packed, on receipt of 8*s*. 6*d*.

CALANTHE VESTITA RUBRA. Flowering Plants 30*s*. per dozen. Apply to
S. WOOLLEY, Cheshunt, Herts.

DAPHNE CNEORUM MAJUS (true). Probably the largest stock in the Trade. Plants well set for bloom. Price, by the dozen, 100, or 1000, on application.
WILLIAM COLLYER, Nurseryman, Horsell Birch, near Woking Station, Surrey.

SWEET VIOLETS.—Extra strong blooming Plants of LEE'S VICTORIA REGINA at 6*s*., 9*s*., and 12*s*. per dozen; 1*s*. each post free. Also CZAR, KING, QUEEN, and other varieties. See Autumn Catalogue, free.
B. R. DAVIS, Seedsman, Florist, &c., Yeovil.

FOR FORCING.—LILY of the VALLEY, 1000 roots, 30*s*.; 100 clumps, 46*s*. SPIRÆA JAPONICA, 100 strong clumps, 26*s*. Delivery against Bank Post Bill.
D. JACOBSON, Haarlem, Holland.

Lily of the Valley.

ROBERT NEUMANN, The Nurseries, Erfurt, begs to offer large quantities of strong flowering roots, for forcing, of the above, at 45*s*. per 1000.
Also strong clumps of SPIRÆA (HOPEIA) JAPONICA.

PALMS.—Seaforthia elegans, 2 to 3 feet; Latania borbonica, a few handsome plants, 3 by 3 feet; Areca rubra, 4 feet; also Adiantum farleyense and A. concinnum latum, in 4 and 6-inch pots, all clean and well-grown.
GEORGE EDWARDS, Balham Nursery, London, S.W.

British Fern Catalogue.

ROBERT SIM will send post free for six postage stamps, Part I. (British Ferns and their varieties, 36 pages, including prices of Hardy Exotic Ferns) of his Priced Descriptive CATALOGUE of BRITISH and EXOTIC FERNS, No. 7.
Foot's Cray Nursery, Sidcup Hill, Kent.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1*s*. per bushel, or 6*d*. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works Farm Lane, Walham Green, S.W.

Now ready, Gratis and Post-free,

Beautifully Illustrated, and containing complete Cultural Instructions.

SUTTONS' CHOICE COLLECTIONS
OF
SPRING FLOWERING BULBS.

For Spring Blooming in the Open Ground.
Collections containing from 140 to 1000 Bulbs, according to Size. Price 5s., 10s. 6d., 21s., and 42s. each. Larger size Collections Carriage Free.

For Spring Blooming in Pots or Glasses.
Collections containing from 70 to 280 Bulbs, according to size. Price 10s. 6d., 21s., and 42s. each. Larger size Collections Carriage Free.

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

To Gardeners.
Gardeners are most respectfully Invited to Visit
THE PINE-APPLE NURSERY,
MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.
JOHN BESTER, Manager.

PANCRATIUM NOTATUM
AND
CRINUM PRATENSE CANALICULATUM,
Vide Illustrations, Descriptions, and Prices in
MR. WILLIAM BULL'S
BULB CATALOGUE,
Just issued.

ESTABLISHMENT for NEW and RARE PLANTS,
KING'S ROAD, CHELSEA, LONDON, S.W.

NEW PLANT CATALOGUE 1874,
Gratis and Post Free.

B. S. WILLIAMS'
NEW PLANT AND GENERAL
CATALOGUE OF NURSERY STOCK
Is now ready, and will be forwarded to all applicants.
It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

THE CORINIUM
Guinea Collection of Bulbs,
Suitable for Outdoor, also Conservatory and Greenhouse.

This is the cheapest and contains the best supply of bulbs ever offered, which cannot fail to please purchasers; the cost of the same, if each article were ordered separately, would be considerably more than 21s., but owing to the large number we are constantly supplying of the several sorts included in the Collection, we are able to offer the under-mentioned liberal quantity.

25 HYACINTHS, choice for borders.
6 Ditto, choice for pots or water.
12 NARCISSUS, for pots.
12 Ditto, for borders.
12 JONQUILS.
25 TULIPS, assorted.
25 RANUNCULUS.
200 CROCUS, assorted.
100 SNOWDROPS.
50 ANEMONES.
4 IXIAS.
6 SCILLAS.
6 TRITELEIA ODORATA.
50 ACONITES, winter.

Carriage paid to any railway station in England.

JNO. JEFFERIES AND SONS,
Seed Merchants and Nurserymen, Cirencester.

NEW ROSE

DUCHESS of EDINBURGH (Crimson Tea).

MESSRS. VEITCH & SONS

Are now prepared to send out Plants of the above fine Rose, which they can confidently recommend as distinct, and amongst its many other qualities will prove most valuable for Winter Blooming.

The colour is a deep glowing crimson, very free flowering; and from its present appearance we have every reason to believe it will make as good a Bedding variety as the Crimson China.

The Flowers are large and full, fine form and substance.

It was exhibited at the Royal Horticultural Society's Show on May 13, when it received a First-class Certificate from the Floral Committee, and was greatly admired; we have also received several testimonials from eminent growers, among which are the following:—

From Rev. Reynolds Hole, *Caunton Manor.*
"I have received the bloom of 'Duchess of Edinburgh,' and I admire the Rose—not only for its originality, novelty, and distinctness as the only Tea Rose of its colour—but because I think it will prove a welcome acquisition as a plant in the conservatory, and as a cut flower in the bouquet; it is evidently prolific as to quantity, and the bright glowing freshness of its cherry-coloured, well-shaped flowers make it charming and attractive as to quality also. I expect to see it universally grown."

From Rev. W. F. Radclyffe.
"I at once saw that the three blooms of the Rose sent in that name were A 1. It is a beauty of admirable colour and fine formation.

"Your note this morning states it to be your Tea Rose 'Duchess of Edinburgh.' It will sell well, it is a colour wanted in Teas."

It is figured in the *Floral Magazine* for September.

Good Plants, in pots, 10s. 6d. each.

CATALOGUE of ROSES now ready, and may be had free on application.

JAMES VEITCH AND SONS, ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, S.W.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,
SIR GARNET WOLSELEY (Cranston's).
First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.
First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, price 7s. 6d. each.

NEW HYBRID PERPETUAL ROSE,
CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3s. 6d. each; 30s. per dozen.

CLIMBING PERPETUAL ROSE,
CLIMBING JULES MARGOTTIN (Cranston's).

A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3s. 6d. each.

Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

LONDON. *Now Ready, Gratis and Post Free,* VIENNA.

DICK RADCLYFFE & CO.'S

ILLUSTRATED
AUTUMN CATALOGUE
OF

HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.
FRUIT TREES, & HORTICULTURAL ELEGANCIES.

COLLECTIONS OF DUTCH BULBS, 10s. 6d. to 63s. each.

For DETAILED LIST see D. R. & CO.'s ILLUSTRATED CATALOGUE.

DICK RADCLYFFE AND CO., 129, HIGH HOLBORN, LONDON, W.C.

TO BE DISPOSED OF, about 100 choice, healthy FRUITING, and thirty SUCCESSION PINES (QUEENS). Any reasonable offer will be taken. Apply to Mr. WOOKEY, Heybridge Garden, near Maldon, Essex.

NEW PLANTS.
The Three best New Plants of the season are :—
CROTON MAJESTICUM,
DIPLADENIA BREARLEYANA,
CROTON SPIRALE.
Price, 2 and 3 Guineas each.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

THIRTY TONS of ITALIAN RYE-GRASS SEED.—Best Irish-saved Seed, equal to the best Foreign, at £15 per ton, delivered free in Liverpool or Glasgow.
Also a few tons of LATE AMERICAN ROSE POTATOS, at £10 per ton. Terms cash. For samples, &c., apply to
MICHAEL GRANT, Elm Grove Nursery, Newry.

THE DUKE of BUCCLEUCH VINE.—Strong well ripened planting Vines of the Duke of Buccleuch, 21s. This is the only Grape which has been extensively grown for market before being sent out—1200 lb. having been cut this summer.
WM. THOMSON, Tweed Vineyard, Clovenfords, by Galashiels, N.B.

LAURELS.
COMMON LAUREL, 2 to 3 feet, 16s. per 100, £7 per 1000; 3 to 4 feet, 25s. per 100, £10 per 1000.
COLCHIC LAUREL, 3 to 4 feet, 30s. per 100; 4 to 5 feet, 42s. per 100.
PORTUGAL LAUREL, 1½ to 2 feet, 34s. per 100.
Good, bushy, well-grown plants.
RICHARD SMITH, Nurseryman, Worcester.

Pelargoniums for Early Blooming.
JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6s., 9s., and 12s. per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40s. cash. Baskets and Packing included.
Crown Nursery, Reading.
N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1s. per packet, post-free.

Rose Catalogue.
WM. PAUL, Paul's Nurseries, Waltham Cross, Herts, has just published the New Edition of his ROSE CATALOGUE, which he will be happy to forward, free by post, on receipt of Postage Stamp.

Dutch Flower Roots.
B. S. WILLIAMS begs to announce that his ANNUAL CATALOGUE of DUTCH FLOWER ROOTS, containing a Descriptive List of Choice Hyacinths, Tulips, Narcissus, Crocus, &c., also a Select List of Fruit Trees, Roses, Vines, &c., is now ready, post free to all applicants.
Victoria and Paradise Nurseries, Upper Holloway, N.

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester, have this season an unlimited stock of FOREST TREES, FRUIT TREES, ROSES, SHRUBS, and all other kinds of Nursery Stock, in the best condition for moving, and they respectfully invite intending Planters to pay their Nurseries a visit. To prevent mistake, visitors should ask for the "Upton" Nurseries, which are situate about a mile and a half from Chester Railway Station. Priced CATALOGUES Post Free on application.
The "Upton" Nurseries, Chester.

New Plant Catalogue, 1874-75.
A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has much pleasure in announcing that he has just published his New CATALOGUE of PLANTS, containing all the leading Novelties and General Nursery Stock. May be had on application of his Agents,
Messrs. R. SILBERRAD, 5, Harp Lane, Tower Street, London.

To the Trade Only.
A. M. C. JONGKINDT CONINCK'S WHOLESALE LIST, including a fine stock of Maiden Apples, Pears and Plums, Moss Roses, Dwarf, Half-standard and Standard Roses, Dielytra spectabilis, Hoteia japonica, Convallaria majalis, and other Hardy Perennials, Bulbs, and Tuberous-rooted Plants, is now ready, and will be sent, post free, on application.
Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

WINTER and SPRING FLOWERS.

CARTER'S COLLECTIONS OF BULBS

For the OPEN GROUND, adapted for ORDINARY GOOD GARDEN SOIL.

COLLECTION No. 14, *Price* 21*s.* (*Packing and Carriage Free*), *contains* :—

Hyacinths, 12, in three colours.
Narcissus, Double white, 12.
,, Poeticus, or Pheasant-eye, 12.
Double Daffodils, 25.
Tulips, extra fine mixed, double, 12.
,, ,, ,, single, 12.
,, finest mixed, late, 12.
,, Duc Van Thol, 12.
Polyanthus Narcissus, fine mixed, 6.
Campernel Jonquils, 6.
Star of Bethlehem, 12.
Triteleia uniflora, 6.
Dog's-tooth Violets, 6.
Crocus, blue, 25.
,, striped, 50.
,, large yellow, 50.
Crocus, white, 25.
Anemones, extra fine mixed, 24.
Iris, extra choice mixed English, 12.
,, extra fine mixed Spanish, 12.
Lilium candidum, 3.
,, tigrinum, 3.
Ranunculus, extra fine mixed, 24.
Snowdrops, 50. Winter Aconites, 24.

Other Collections, price 10*s.* 6*d.*, 42*s.*, 63*s.*, and 84*s.* 20*s.* value Carriage Free.

From the Rev. W. C. PLENDERLEATH, *Calne, Wilts.*

"I was unwise enough to get some Bulbs last autumn from another grower, and your 'Old Bulbs,' saved from forcing the year before, did better than those new ones, so I will not try the experiment again."

CARTER'S, THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

ANNUAL CATALOGUE of DUTCH BULBS.

MESSRS. JAMES VEITCH & SONS

Have to request the favour that in the event of any of their Customers or Friends not having received the above, they will kindly inform them, when a copy shall at once be sent.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

DUTCH BULBS.

JOHN & CHARLES LEE

HAVE RECEIVED THEIR ANNUAL SUPPLY OF

HYACINTHS AND OTHER DUTCH ROOTS,

IN FINE CONDITION. EARLY ORDERS ARE REQUESTED.

CATALOGUES Post Free on application.

ROYAL VINEYARD NURSERY and SEED ESTABLISHMENT, HAMMERSMITH, LONDON, W.

To Market Gardeners and Others.
FOR SALE, a first-rate lot of CABBAGE PLANTS. Very select stock.
Elms Farm, Barnes, Surrey, S.W.

THOMAS WALKER can supply the following for cash :—A true ENFIELD MARKET CABBAGE, plants, extra fine, 3s. per 1000. BROAD-LEAVED SAGE, roots for planting, 8s. per 100. THYME, roots for planting, 8s. per 100.
Market Gardener, Biggleswade.

Australian Seeds and Plants.
SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.
SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 6 to 7 feet, 60s. per 100.
SIBERIAN ARBOR-VITÆ, 5 to 6 feet, 100s. per 100.
CHINESE JUNIPER, 5 to 6 feet, 150s. per 100.
COLCHIC LAUREL, 6 to 7 feet, 100s. per 100.
ENGLISH YEW, 3 to 3½ feet, 120s. per 100.
THUJA LOBBII, 4 to 5 feet, 90s. per 100.
RICHARD SMITH, Nurseryman, Worcester.

Strawberries to Fruit in 1875.
CHARLES TURNER can supply established plants, in small pots, that will fruit next season, of the following fine kinds :—

British Queen,	Dr. Hogg,
Frogmore Late Pine,	Keens' Seedling,
Lucas,	President,
Royalty,	Sir Charles Napier,
Sir Joseph Paxton,	Vicomtesse Hericart de Thury.

Also good plants from the ground of the above and thirty other varieties. CATALOGUES on application.
The Royal Nurseries, Slough.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application :—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

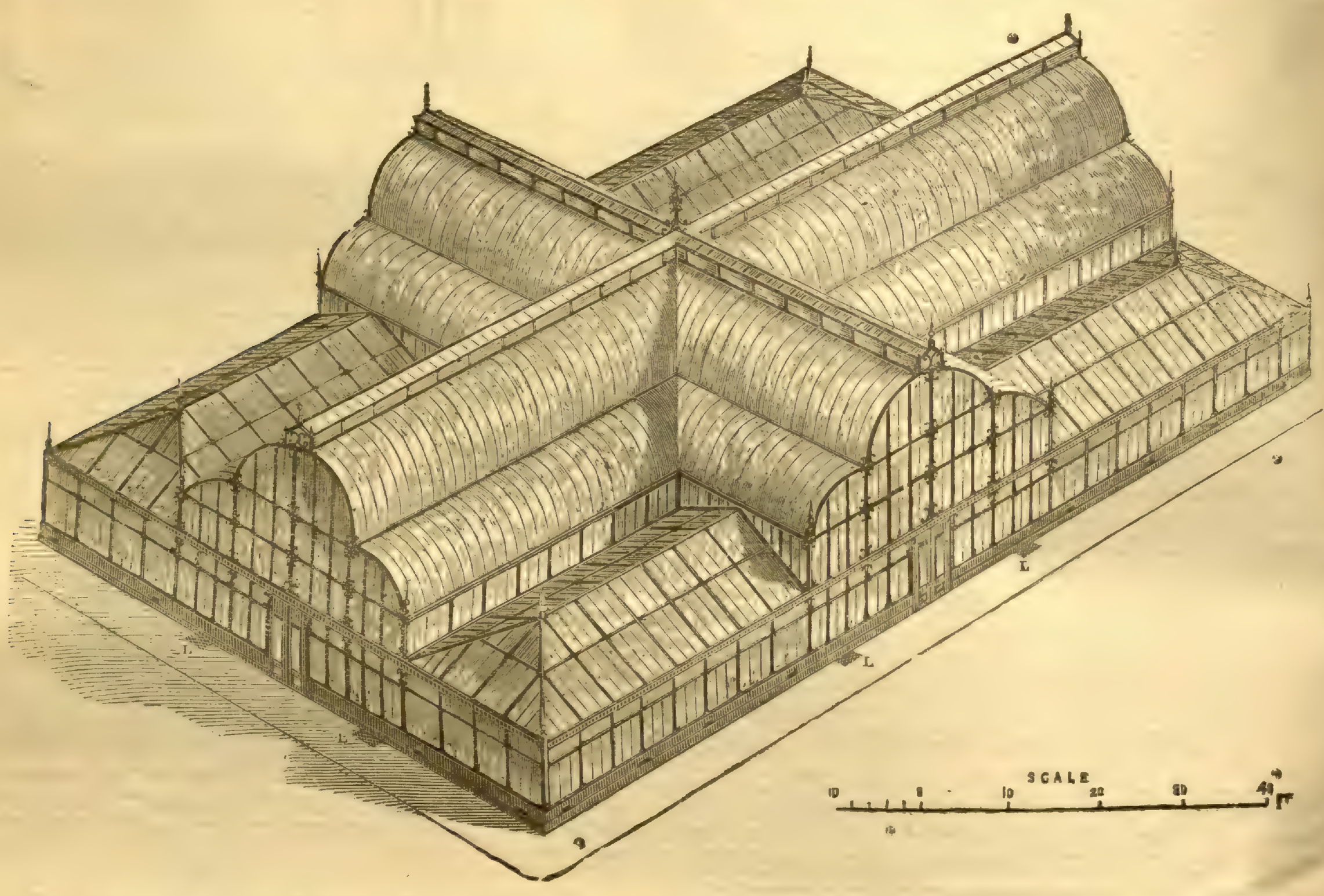
Victoria, Australia.
IMPORTATION of GRAPE-VINES or GRAPE-VINE CUTTINGS PROHIBITED.—It is Hereby Notified for General Information, that the Governor of the Colony, with the advice of the Executive Council, and in accordance with the provisions of the Act 37 Victoria, No. 457, has Prohibited the Importation into Victoria of Grape-Vines and Grape-Vine Cuttings.
ARCHIBALD MICHIE, Agent-General for Victoria.
8, Victoria Chambers, Westminster, October 1, 1874.

Hollies.
ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

FOR AVENUES and ORNAMENTAL PLANTING.
ABIES DOUGLASII, 10 to 12 feet, £3 per dozen.
CEDAR, Mount Atlas, 10 to 12 feet, £8 8s. per dozen.
CHINESE JUNIPER, 5 to 6 feet, 30s. per dozen, £10 per 100; 6 to 7 feet, 30s. per dozen, £12 10s. per 100; 7 to 8 feet, 42s. per dozen, £15 per 100.
PICEA NORDMANNIANA, 3 to 4 feet, 42s. per dozen, £12 10s. per 100; 4 to 5 feet, 60s. per dozen, £20 per 100.
PICEA PINSAPO, 6 to 7 feet, £6 6s. per dozen; 7 to 8 feet, £8 8s. per dozen.
THUJA LOBBII, 12 to 15 feet, £4 4s. per dozen.
WELLINGTONIA GIGANTEA, 5 to 6 feet, £5 per dozen.
All well grown and recently transplanted. For full descriptions see LIST of the EVERGREEN FIR TRIBE.
RICHARD SMITH, Nurseryman, Worcester.

VINES, VINES, VINES—EPIPHYLLUMS, PERESKIA STOCKS.
VINES.—Fruiting and Planting Canes, strong, well ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Buckland Sweetwater, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2s. 6d. to 5s. each; a few extra strong canes, 6s. 6d.
EPIPHYLLUMS.—Good Standards, with nice heads, in twelve best sorts, 9s. and 12s. per dozen.
PERESKIA STOCKS, out of pots, 15s. per 100.
CINERARIA HYBRIDA, fl.-pl., 6s. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

A New Grape—Venn's Seedling Black Muscat.
WILLIAM DODDS has the pleasure to inform his friends and the public that he has made arrangements with Mr. Venn to send out his splendid new Grape, BLACK MUSCAT. The fact of its having taken a First-class Certificate at the London Royal Horticultural Society, the First Prize at the Birmingham Exhibition this year, and many other Certificates at different Exhibitions held during the past four years, is a sufficient proof of its qualities as a first-class Grape. Good PLANTING CANES are now on sale, price 2 guineas each, delivered to order on receipt of cheque or Post-office Order on Horfield, Bristol, payable to WILLIAM DODDS, Gladstone Villa, Bishopstown, near Bristol.
There being a very small stock of Plants, early orders are requested.



HENRY ORMSON, sensitive of the very liberal patronage bestowed on him for many years past, begs most respectfully to inform the Nobility, Gentry, and his patrons generally that he is determined to spare no pains to merit a continuance of their esteemed favours.

H. O., aware of the vast improvements that have been made in the Science of Horticulture, and the growing desire of all classes to engage in its most interesting and agreeable pursuits, has made it his constant study to keep pace with the constantly increasing requirements of the lovers of Horticulture, and by perfecting a most complete set of Steam Power Machinery peculiarly adapted to the purposes of his trade, by employing competent Draughtsmen, an efficient Office Staff, and the most skilful workmen in the various branches of his business, combined with strict personal supervision of every department, and the greatest care that none but the very best materials are employed, may with confidence assert that for Elegance, Durability, Economy, and Adaptation to the various requirements of Horticulturists, his buildings cannot be surpassed. And it has been and will continue to be his anxious study to produce them at the lowest possible cost consistent with the employment of the very best materials and workmanship.

The HEATING DEPARTMENT always engages his special personal attention, and he feels justified in saying that, through his improvements in the construction of Boilers, he is prepared to heat the most extensive Horticultural Establishments, Mansions, Churches, &c., &c., on the safest and most economical principles.

In all cases where the style of the Mansion, or other peculiarities of the situation render an inspection of the site necessary, Gentlemen are waited on by a competent person and arrangemants planned, Drawings prepared, and Estimates furnished for Conservatories or sets of Houses on a large or small scale to suit the requirements of any family, and with the utmost regard to economy.

Surveys made and Plans prepared for the general arrangement and laying out of Structural Gardens, on the broad principle that adapts itself to the capability or requirements of the place, which thorough practical experience in every department of Horticulture can alone effect.

H. O. is also in the habit of furnishing Estimates, and building from Drawings prepared by Architects, and is kindly permitted to refer to many of the most eminent in the Profession. He has also much pleasure in stating that he can refer to many of the Seats of the Nobility and Gentry in all parts of the Kingdom, where he has been employed to build some of the finest and best arranged Glass Structures known at the present time.

Drawings and Estimates sent by Post to any part of the Country on application.

HENRY ORMSON,

HORTICULTURAL BUILDER TO HER MAJESTY, AND HOT-WATER APPARATUS MANUFACTURER TO THE COMMISSIONERS OF HER MAJESTY'S ROYAL PALACES AND PUBLIC BUILDINGS, AND TO THE ROYAL HORTICULTURAL SOCIETY,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

Vines Grown from the Celebrated Lambton Castle EYES.

S. BIDE is now prepared to book Orders for fine short-jointed, clean-grown VINES in Pots, from the above well-known stock, at the following moderate prices, viz.:—Single Plants, 5s. each; Six for 21s., Twelve for 36s.

Mr. Hunter has grown this year Bunches of the Black Hamburgh weighing 21 lb. 12 oz., being the heaviest on record. The Vines S. B. now offers are from eyes off the same plant.

S. BIDE, Alma Nursery, Farnham, Surrey.

To the Trade and Others.

FIRST-CLASS CERTIFICATE, ROYAL HORTICULTURAL SOCIETY.

NOW is the PROPER TIME to SOW, to obtain Strong Plants for Next Summer.

J. PRITCHARD still offers THREE NEW LOBELIAS, Faith, Hope, and Charity, as decided acquisitions. For Descriptions see Advertisement of Sept. 26.

The three packets sent on receipt of eighteen Stamps, post free. The Trade supplied by the dozen or 100 collection.

Lady Grove and Caldecott Nurseries, Abingdon.

Richmond Nurseries, Richmond, Surrey.

(ESTABLISHED 1802.)

To the TRADE and large CONTRACTORS.

G. AND W. STEELL have to offer this season, extra to their usual large stock of ROSE, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN SHRUBS, &c., a large quantity of fine, clean-grown and straight in the stock, QUEEN and other varieties of variegated HOLLIES, from 2 to 5 feet in the stem; Green pyramid do., from 2 to 7 feet; also an immense quantity of Hybrid and Ponticum RHODODENDRONS, uncommonly well set with bloom-buds, which they are prepared to supply at extremely low figures. Where large quantities are required special prices will be given.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong Plants of which are now ready for sending out. List of Varieties and Prices on application.

Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains 6 pair of choice Show Carnations, 6 pair of choice Show Picotees, 12 pair of Show Pinks, and 12 choice mixed Carnations and Picotees for borders. Carriage and package free on receipt of Post-office Order. Half the above quantities 11s.

Address, ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

NEW RHODODENDRONS.

JAMES MARSHALL BROOKS, rich scarlet, with a bronze spot, very fine and distinct.
LADY ANNETTE DE TRAFFORD, cream colour, with a distinct chocolate blotch.
MRS. FREDERICK HANKEY, salmon, richly spotted, a very pleasing kind.
MRS. SHUTTLEWORTH, scarlet, lighter centre, much spotted, a very beautiful and distinct variety.
VAUBAN, mauve, with a rich yellow blotch, very fine truss and habit.

The above-named new, beautiful, and distinct Hardy Rhododendrons will be supplied, nice plants, for 5 guineas the set.

ANTHONY WATERER, Knap Hill Nursery, Woking Surrey.

THE NEW PLANT and BULB COMPANY beg to announce that they have secured the whole Stock of the magnificent and hitherto scarce LILIUM DALMATICUM, collected at great trouble and expense by that indefatigable botanist, Mr. Max Leichtlin. They can offer fine flowering Bulbs at the following prices, 10s. 6d., 15s., and 21s. each. They have also just received, in splendid condition, a quantity of the beautiful new CYPRIPEDIUM JAPONICUM; price 21s. each. Also,

YUCCA ANGUSTIFOLIA, a very scarce, graceful, hardy plant; price 7s. 6d. and 10s. 6d. each.
NERINE JAPONICA, strong bulbs, 2s. 6d. each.
FREESIA LEICHTLINIANA, a beautiful early flowering greenhouse bulb, 3s. 6d. and 5s. each; &c., &c.

Price to the Trade on Application.

Lion Walk, Colchester.

Dutch Flower Roots.

ISAAC BRUNNING AND CO. beg to announce that their ANNUAL CALALOGUE of the above, containing Descriptive Lists of Choice HYACINTHS, TULIPS, NARCISSUS, CROCUS, &c., is now ready, post free to all applicants.

I. B. & Co.'s ONE GUINEA COLLECTION of DUTCH FLOWERING BULBS for Indoor and Outdoor Cultivation, contains the following:—9 choice named Hyacinths, for pots or glasses; 18 fine mixed ditto, for bedding: 200 Crocus in four distinct colours; 50 Snowdrops, double and single; 36 choice Tulips, double and single; 24 fine mixed Anemones; 24 choice Ranunculus; 6 choice Polyanthus Narcissus; 12 Narcissus, various, for borders; 12 Iris; 3 Lilium lancifolium; 6 Dog's-tooth Violets; 12 Gladiolus Brenchleyensis, for which our Nurseries are noted,—securely packed and forwarded, carriage free, to any address on receipt of Cheque or Post-office Order. Double the above quantities, 40s.; half ditto, 11s. For the successful cultivation of Hyacinths and other Bulbs early planting is especially recommended; I. B. & Co. therefore respectfully solicit early orders.

ISAAC BRUNNING AND CO., Seed Merchants, Nurserymen, and Importers of Dutch Flowering Roots, 1, Market Place, Great Yarmouth.

Notice to Buyers of

HYACINTHS, TULIPS, CROCUS, SNOWDROPS, &c.—I can supply 100 very fine named HYACINTHS, single and double, in 100 sorts, for 40s.

Single or double HYACINTHS, very good sorts to name, 4s. per dozen Ditto, extra choice picked roots, 5s., 6s., and 8s. per dozen, distinct varieties.

HYACINTHS, in separate colours, 3s. per dozen. Ditto, mixed varieties, 2s. 6d. per dozen.

TULIPS, very fine early kinds, to name, 1s. per dozen, 5s. to 8s. per 100. Ditto, mixed varieties, 4s. 6d. per 100.

CROCUS, varieties to name, Blue, Purple, White, Striped, Yellow, &c., 2s. 6d. per 100.

P. NARCISSUS, 1s. 6d. to 2s. 6d. per dozen.

SNOWDROPS, 2s. 6d. per 100.

ANEMONES, 3s. 6d. per lb. Ditto, to name, 2s. per dozen.

RANUNCULUS, varieties to name, 2s. to 4s. per 100.

*** Orders of 40s. carriage paid. CATALOGUES of over 600 varieties of Bulbs, post free upon application.

GEORGE POULTON, Fountain Nursery, Angel Road, Edmonton, London, N.

SATURDAY, OCTOBER 3, 1874.

RUSHLIGHTS AND RUSHES.

THE rushlight of our early days will soon become altogether a thing of the past. The "patent nightlights" of modern times have wellnigh supplanted it; and one of the many advantages common to the juveniles of the present day is certainly the absence of the rushlight, or rather of the rushlight shade. It was not, indeed, the rushlight itself that was so objectionable, but the tall cylinder, perforated with holes as big as a farthing, in which it was *de rigueur* that the said rushlight should be burnt. It is certain that many of the readers of this paper must remember the rushlight-shade, and how alarmingly bright the round patches of light in the shadow of the "shade" looked to their infant eyes; at least they always did to mine. Are rushlight-shades made now, I wonder? If not, it is to be hoped that some one will reserve one of these articles for an ethnological museum of the future, in which it well deserves a place.

As to the rushlights themselves, a very interesting account of them will be found at p. 740 of the *Gardeners' Chronicle* for 1871, to which, indeed, there is little to be added. In the West of Ireland they are still much used, their method of manufacture being of the simplest. The Rush is peeled, drawn through melted tallow, and laid aside for use. They were placed in what were termed "rush-sticks," a homely equivalent of a candlestick, sometimes made of iron, at others of wood. A correspondent of *Notes and Queries*, about five years since, says that rushlights, or rush-wicks, as they were also called,

"Are not yet obsolete, but are still used in cottages and small farmhouses in the southern parts of Surrey, and, no doubt, also in the neighbouring counties. The iron holder is somewhat like a pair of ladies' curling-tongs, with a lump of lead on one of the handle-ends, as a weight to press the blades together when the rush is fixed between them. I have seen several sorts, in one of which this holder is fixed to a long stick and stand, and is placed, when lighted, by the cottager's side as he studies his country paper in the evening in the chimney corner of his kitchen or keeping-room. In others, it is fixed to rudely turned beechwood candlesticks, and used upon the supper-table. When burning down close to the holder, the expression used for lengthening the rush is 'mending the candle,' and I was told by a farmer that he considered one of the peculiar advantages of the rush-stick to be, that on going to bed you could put the rush at a certain length, get into bed by its light, and then leave it to go out of itself. It is used most during the summer months, when the cottager's bedtime and the last rays of evening light more nearly coincide, and the time is very short for which artificial light is needed."

It appears that the word rush was formerly sometimes used as a synonym of wick. Thus Baret, writing in 1580, speaks of "the rush weeke, or match, that maintaineth the light in the lampe." Mr. Borrer says that in 1855 rushlights were almost obsolete in Sussex, although still to be found in a few farmhouses; the soft Rush (Juncus effusus) was the only one used for this purpose, and was prepared in two ways for burning. This species, as well as the hard Rush (J. glaucus), and the hollow Rush (J. conglomeratus) were employed in Sussex in the manufacture of mats, and the last-named, with J. effusus, in that of chair-bottoms. The French employ Rushes in making the little mats upon which their cream-cheeses are served; and these latter are on this account called *jonchées*, from *jonc*, the French name for a Rush. This is of course merely an adaptation of the Latin name Juncus; and our favourite Jonquil (Narcissus Jonquilla) is so called from its Rush-like stem and leaves. The old English word junket is said by some to originate with the Italian *giuncata* (curd or cream-cheese), so called because carried on junks or Rushes (*giunco*).

The extreme commonness of the Rush has passed into a proverb; and "not worth a Rush" is ordinarily applied to things of little worth. The expression is an old one, probably originating in the times when floors were strewn with Rushes; and being thus trodden under foot by every one, they naturally became emblematic of that which was worthless. The phrase is an old one; thus Lyly, a writer of the Elizabethan period, says:—"Strangers have greene rushes, when daily guests are not worth a rush." The sense in this passage is, however, somewhat different from that in which the same phrase is used at the present day, and refers rather to the old custom of providing fresh Rushes only for distinguished guests, the inferior ones having to dispense with this attention, and thus "not worth a Rush." Halliwell considers that the expression "I cownt hym noghte at a cresse," which he cites from a Lincoln MS., refers to a Rush; but here probably any common plant is equally intended. This, by the way, is doubtless the origin of the common expression of not "caring a curse" for anything: kers being an old spelling of cress.

St. Patrick, whose success in freeing our sister isle from snakes is well known, appears to have inflicted upon the unoffending Rushes a curse which was originally intended for higher beings. A legend tells us that an Irish chief, having committed an act of great injustice, was brought under the notice of the saint, who commenced to hurl his anathemas against him. Indeed, he had already proceeded as far as the words "I curse," when the friends of the culprit advanced, and St. Patrick, yielding to their prayers, substituted "the tops of the Rushes and the red stones of the Dinan"—a river near Kilkenny—for the name of the chief. Of course the Rushes withered immediately, and have remained so ever since—at least such is the tradition, which may, however, be doubted by sceptics.

Rushes have also their traditional efficacy in certain diseases. Thus a Devonshire cure for thrush tells us to take three Rushes from a running stream, and pass them one by one through the mouth of the infant affected. If they are then placed again in the stream, the thrush will depart from the child as the Rushes are borne away by the river. In the days when every plant had its "virtues" it would appear that Rushes were not forgotten. Langham, in his *Garden of Health* (1633), tells us that the seed of the common Rush being taken will cause sleep, although "too much at once being taken it causeth headache." It appears also to be good for oxen when they are sick. "Seethe the roots in water, and give it them to drinke."

In former days it was customary in France, as well as in this country, to go through a pretended marriage ceremony, in which a Rush ring was used instead of the ordinary one. The Rush ring appears to have been employed under two different circumstances. When it was desired to silence the scruples of a timid maiden by a form of marriage, the Rush ring was employed. It appears from a passage in the *Constitutions* of Richard de la Poer, who held the post of Bishop of Salisbury in 1217, that such a fraud was in those days only too general; and he, moreover, condemns it in sufficiently strong terms. A Rush ring was also given to those who had lived together previous to their marriage. This was more especially a French custom. This ceremony of marriage with a Rush ring is referred to by several of the older

dramatists. Thus Davenant, in *The Rivals*' says :—

"I'll marry thee with a Rush ring."

It is possible, however, that the use of Rush rings may formerly have had some special signification which is now lost ; for there is in the museum of the Royal Irish Academy a small silver box, apparently of the fifteenth or sixteenth century, which was found in 1839 in a small artificial cave at Straidkelly, near Glenavon, co. Antrim. This contains a piece of linen cloth and a ring of plaited Rush.

Rushes are among the toys which Nature provides for her children, and few have not enjoyed plaiting their flexible stems into various shapes and fashions. Clare, one of the truest of Nature-poets, refers to this when he says—

"How happy have I felt
When here I sat and murmured nameless songs,
And, with the shepherd-boy and neat-herd, knelt
Upon yon Rush beds, plaiting whips and thongs."

Rushes have been the playthings of children from time immemorial; and it would appear from the following passage by Browne (in his *Britannia's Pastorals*) that little mills composed of Rushes were in his day made by the shepherds for their amusement. The spring, he says, should no more—

"Be seene to play
Nor drive the Rushy mils that in his way
The shepherds made."

B. M.

THE OLD WALLS AT KEW.

(*Continued from p.* 391.)

BEFORE leaving the genus Cratægus, I may mention that Paul's double scarlet Thorn is the best variety of that group. It has bolder foliage and deeper-coloured flowers than the common scarlet variety. Another species of this genus, C. coccinea, a native of North America, is one of the most ornamental of small trees for park planting, &c. The specific name applies to the fruit, which is large and showy, and ripens towards the end of September. It has a few straight thorns, or is quite unarmed, and bears large ovate-cordate or oblong angularly-lobed and toothed glabrous leaves, on rather long petioles. The white flowers are much larger than those of the Whitethorn, and the anthers are red as in the latter.

Holbœllia latifolia is a handsome evergreen climber from the Himalaya Mountains, with digitate leaves of three or five leaflets. H. acuminata and H. angustifolia are varieties of the same species. This genus belongs to a small group called the Lardizabaleæ, which is considered as an independent order by Lindley, and as a sub-order of the Berberidæ by Bentham and Hooker. They are nearly all climbers, with compound leaves and inconspicuous unisexual or polygamous flowers. Several of them, including our plant, bear fleshy edible fruits. The geographical distribution of the seven genera forming this group is interesting : two are from Chili and Peru, and the others from North India, China and Japan. Akebia quinata, Japan, is perhaps the most familiar member of the group. Holbœllia latifolia is sometimes called Stauntonia in gardens, but the latter genus has monadelphous stamens, whereas they are free here. Stauntonia is confined to China and Japan, whilst Holbœllia only occurs in the Himalayan Mountains. H. latifolia is usually met with as a greenhouse climber, but succeeds perfectly in the south and west, though in severe winters it may be cut to the ground.

When speaking of Forsythia suspensa, I promised to give the distinguishing characters of the three species in gardens in a subsequent article. F. viridissima is readily distinguished by its linear-lanceolate acute leaves, and its peduncles shorter than the flowers and covered with scaly bracts ; the style, too, in the cultivated form is always longer than the stamens. F. Fortunei, if I have seen the true thing, is nothing more, I believe, than a variety, if even that, of F. suspensa ; but I have not seen flowers. It has simple and trifoliolate leaves on the same branch, as in F. suspensa, and shows no difference whatever from the latter species without flowers. The flowers of suspensa are borne on slender peduncles, bracteate at the base only, and exceeding the flowers in length, and the style is shorter than the stamens. F. viridissima is of more erect habit, and better adapted for growing as a bush. It is perfectly hardy. I find on reference to p. 304, that I state there that all three species present the peculiarity in foliage alluded to above as common to F. suspensa and Fortunei. What I intended to say was, that these two have that character in common. F. viridissima is quite different in foliage, as described here.

In my note on Sophora tetraptera—where I should also have mentioned the beautiful tree named S. japonica—I alluded to the poverty of Leguminosæ in the New Zealand flora. In Australia, Tasmania and South Africa, this family forms one of the predominating features of the vegetation ; and in the extreme south of America there is no paucity of Leguminous plants. But only five genera are represented in New Zealand by about twelve species : the Sophora above-mentioned, one species of the otherwise exclusively Australian genus Swainsona, one species of the showy genus Clianthus, one of the endemic genus Notospartium, and eight or nine of the equally endemic genus Carmichælia. Carmichælia australis is the species under consideration, which, like all of its congeners, is a small almost, or quite, leafless shrub, with small clustered striped pink or red and white flowers. The pods are small, and when ripe the valves fall away, leaving the framework of the pod, to which the seeds are attached. This genus was dedicated to Captain Carmichael, who wrote an interesting account of the Island of Tristan d'Acunha—*Linnæan Transactions*, vol. xii. The allied genus Notospartium differs in having a pod with transverse partitions between the seeds, and which does not split open. These plants are of purely botanical interest alone ; but the handsome Clianthus puniceus, or Parrot Flower, as the colonists term it, from the shape of the keel petals of the flower, is deserving of a word here. It certainly is one of the most striking and brilliantly coloured of our half-hardy climbers. What I mean by half-hardy is, that with the exception of the South-west of England and Ireland, it requires a little additional protection in sharp weather. The large blood-red flowers are borne in clusters ; and the leaves are pinnate. There is another species, C. Dampieri, a native of Australia, but this is a greenhouse plant. Bystropogon maderensis, as the specific name denotes, is a native of Madeira and consequently quite tender in this country. It is a shrub belonging to the Sage or Salvia family, with small purplish labiate flowers, the throat of which is closed by hairs, hence the generic name. The charming cluster Rose, Rosa multiflora, deserves more than a passing notice, although it has been known in this country ever since 1822. It belongs to the climbing class, and is nearly allied to the evergreen Rose. The wild type or single form is unknown, or at least unrecognised ; we have only double varieties, such as were originally introduced from China or Japan, in cultivation. This Rose is remarkable for the smallness of its flowers, which scarcely exceed in size those of the double flowered Bramble. They are borne in dense clusters, and vary in colour from bright pink to white, in the different varieties. This is certainly worthy of more attention than it receives. It belongs to the group with columnar styles, from all others of which it is very readily distinguished by its lanceolate leaves. Another species, though of less interest, is R. sinica. It has large solitary white flowers, and large scarlet prickly fruits, surmounted by the leafy calyx lobes.

We pass on to a family of remarkable plants, now almost exclusively confined to the southern hemisphere in a wild state, though formerly represented in Europe, as the fossil remains of some of the earlier tertiary strata testify. I allude to the Proteaceæ, so named in reference to the multitudinous forms assumed by the foliage of its numerous members. The flowers are usually of very brilliant colours, and the seed-vessel presents the most curious forms imaginable. In the Australian genera, the fruit or seed-vessel is frequently of a more or less woody nature, and persistent on the tree for many years. The Wooden Pear of the colonists, Xylomelum pyriforme, is a familiar instance. A very remarkable one is the fruit of Hakea cucullata, exactly resembling a bivalve shell. But I must limit myself to noticing one more feature of these strange plants. The hard, woody, persistent seed-vessels contain two or more seeds, usually provided with an encircling or lateral wing of the most delicate texture, so that when the fruit splits open, or dehisces, as botanists say, the slightest breeze is sufficient to bear off the seeds. Without this admirable provision they must all fall to the ground beneath the mother tree, and there perish. I have already said that the Proteaceæ are nearly all natives of the southern hemisphere, and may here add, chiefly of Australia and South Africa, a few only reaching South America, the home of Embothrium coccineum, the plant that has given rise to the foregoing remarks. It is an evergreen shrub, with simple oblong-obovate leaves, and terminal clusters of large orange-scarlet flowers. The perianth, or calyx, as it is called in some old works, is four-lobed or cleft, and the four stamens are opposite and attached to the segments of the perianth—a character which obtains throughout the family. This shrub, although very handsome, is not suitable for a wall, and will only stand out in the warmer parts of the south-west; but like many other Proteaceæ, it is a fine shrub for the greenhouse or conservatory.

A yellow-flowered Clematis, C. orientalis, is an attractive climber not to be forgotten, especially as it blooms twice in one season—at all events it has this season, being in flower at the present time, and having flowered profusely in the spring. Let me say at once that it is perfectly hardy. It has a wide range of distribution through Asia Minor, the mountains of North India, and Chinese Tartary, reaching an altitude of 14,000 feet in the Himalayas. There is no figure of this species under this name in an easily accessible book, but the plant figured in the *Botanical Magazine*, plate 4495, as C. graveolens is C. orientalis. These species are very closely allied, differing principally is the shape of the sepals, orientalis having them ovate acuminate, and graveolens oval obtuse. The latter species has also an extremely penetrating odour. It may puzzle some readers to know why the single floral envelope is in this case termed a calyx and not a perianth ; and it is not easy to give a satisfactory answer. The principal reason is that the other characters of this genus bring it into a family, most of the members of which have both calyx and corolla, or the petals represented by rudimentary organs, as in the Christmas Rose, and, therefore it is more convenient to use the term calyx, and speak of its parts as sepals. In such families as the Proteaceæ, Thymelaceæ (Daphne, Pimelea), and Lauraceæ (Sweet Bay), on the other hand, we have invariably a single envelope, termed by most botanists a perianth. Unfortunately, however, there is no recognised uniformity of application of these terms, though the term perianth is never employed in cases where we have a distinct calyx and corolla among dicotyledonous plants. It is otherwise with monocotyledonous plants, for which it is in general used except for Orchids, even when the two whorls, or series of floral leaves, are dissimilar. But the two whorls are usually very much alike in shape and colour in monocotyledonous plants, and, therefore there is no great difficulty attending the application of the term perianth. I must not omit to mention that there is a white-flowered variety of C. orientalis, or some of my readers may be disappointed if they purchase it, believing it to be yellow.

Hydrangea Hortensia is an old, old favourite, a change whose pretty pink flowers from pink to blue has been the ambition of some men's lives. The change is effected spontaneously by planting in peat impregnated with mineral matter. Hortensia, not hortensis, is the correct specific name ; its older appellation being Hortensia opuloides. The latter name reminds us of a peculiarity in the flowers of this plant and the wild Guelder Rose, alike in the two plants in one particular, but widely different in another. The outer flowers of the corymbs, as this kind of inflorescence is designated, in the normal forms of the Hydrangea and Guelder Rose are larger than the others and sterile, that is, possessing neither stamens nor pistil. In the cultivated Guelder Rose, and in some varieties of Hydrangea, all the flowers are enlarged and barren. This peculiarity is common to both genera ; but the enlargement in Hydrangea is due to the expansion of the calyx, no petals being developed in the sterile flowers, whereas in Viburnum Opulus, the Guelder Rose, it is the corolla that becomes enlarged. The Hydrangea is another good seaside plant, and it is a most accommodating subject inland, where it is frequently cut to the ground by frost, for it will spring up again and flower the same season. Many handsome varieties, some of them very distinct, have been introduced, under the names of stellata, japonica, Azisai, &c. H. paniculata is a distinct species, in which the inflorescence is elongated, not flat or rounded. The variety grandiflora is a splendid plant, in which all the flowers are sterile and pure white. All the preceding forms are indigenous in China or Japan. The North American species, H. arborescens, is also one of the showy plants, but it is inferior from an ornamental point of view to H. Hortensia. It has the same general appearance, and would be recognised at once as a congener. The generic name is from ὕδωρ, water, and ἀγγεῖον (pronounced *angeion*), a vase, in allusion to the cup-shaped seed-vessel.

(*To be continued.*)

RECENTLY PUBLISHED PORTRAITS OF GARDEN PLANTS.

Name and Reference to Figure.	Character and Quality.	Leaves.	Flowers.	Season.	Native Country.
ELÆAGNUS LONGIPES, *A. Gray* .. .. Gard. Chron. 1873, 1015, fig. 206.—Elæagnaceæ.	Hardy spineless shrub, very ornamental when in fruit	Membranaceous, oval-oblong, silvery white beneath, and studded with brown scales	Inconspicuous, succeeded by orange-coloured oblong berries	May	Japan *Messrs. Veitch*
ENCEPHALARTOS VILLOSUS, *Lem.* .. .. Gard. Chron. 1874, i. 513, fig. 108.	Greenhouse shrub, of noble aspect (Cycadeacæ)	Pinnate, with narrow elliptic spiny pinnæ	(L. 3—6 ft. long, with stout woolly rachis)	....	South Africa *Mr. W. Bull*
ENCHOLIRION SAUNDERSII, *De Smet* .. Illust. Hort., 3 ser., t. 132.—Bromeliaceæ.	Stove perennial, elegant ..	Short, rosulate, linear-obtuse, decurved, spotted with red	Tubular, panicled, and together with the bracts pale yellow	....	Brazil *Mr. Saunders*
EPIDENDRUM CATILLUS, *Rchb. f. et Wars.* Illust. Hort., n. ser., t. 162.—Orchidaceæ	Stove epiphyte, handsome (near elongatum)	Distichous, oblong-acute, on tall stem	Rose-scarlet with white lip, in short dense racemes	December to March	New Grenada *M. Linden.*
EPIDENDRUM CRINIFERUM, *Rchb. f.* .. Bot. Mag., t. 6094.	Stove epiphyte, curious	Linear-lanceolate, sub-distichous	Yellow, spotted with red-brown, narrow petaled	January	Costa Rica *Messrs. Veitch*
EPIDENDRUM LINDLEYANUM, *Rchb. f.* .. Bot. Mag., t. 6098.	Stove epiphyte, handsome (= Barkeria Lindleyana)	Elliptic-oblong, on branched stems	Purple, with white disc on lip ..	December	Costa Rica *Messrs. Veitch*
ERICA CHAMISSONIS, *Klotzsch.* .. .. Bot. Mag., t. 6108.—Ericaceæ.	Greenhouse evergreen shrub, elegant	Linear obtuse, incurved, in whorls of three	Globoso-campanulate pendulous, rose-coloured	April	S. Africa *Kew.*
EREMURUS ROBUSTUS, *Regel* .. .. Gartenfl. t. 769.—Lilaceæ.	Hardy perennial, of stately habit	Linear - lanceolate carinate, glaucous	Rose-coloured, in large dense racemes	....	Turkestan *Petersb. Garden*
ERYTHRINA PICTA, *Linnæus*.. .. .. Floral Mag. 1873, t. 95; Gard. Chron. 1874, ii. 393, fig. 82.—Leguminosæ.	Stove shrub, with ornamental foliage [E. Parcellii, *Hort.*; a variety of E. indica]	Trifoliate, the leaflets with yellow feathered central blotch, costæ and veins	Crimson-red, in racemes, not very attractive	....	S. Sea Islands *Mr. W. Bull*
ERYTHRONIUM GRANDIFLORUM, *Hooker.* .. Gard. Chron. 1874, i. 832, fig. 173.—Liliaceæ.	Hardy perennial, very showy ..	Oblong or elliptic-lanceolate ..	Yellow, with six reflexed lanceolate segments, 2—5 on the stem	March, April	N. W. America
ERYTHRONIUM GRANDIFLORUM ALBIFLORUM, *Hook.*—Gartenfl. t. 767, fig. 1—4.	Hardy perennial, showy	Elliptic-lanceolate	White, on one-flowered scapes ..	March, April	N. W. America
EUPHORBIA PLUMERIOIDES, *Tejsm.* .. Gartenfl., t. 767, fig. 5.—Euphorbiaceæ.	Stove shrub, 6—10 ft. high ..	Lanceolate, 2—3 in. long ..	In lax cymes, with scarlet oblong floral l. 3—4 lines long	November to January	Java *Wurzburg Gar.*
FAGRÆA ZEYLANICA, *Thunb.* .. .. Bot. Mag., t. 6080.—Loganiaceæ.	Stove shrub, of bold habit ..	Obovate, coriaceous, 5—12 in. long	Large, white, funnel-shaped, the tubes 4 in. long, cymose	July	Ceylon *Kew.*
FICUS PARCELLII, *Hort.* .. .. .. Floral Mag. 1874, t. 124; Veitch Cat. 1874, 8-9.—Artocarpaceæ.	Stove shrub, remarkably handsome in its variegation	Oblong-ovate, cordate, acuminate, 6—8 in. long, of thin herbaceous texture	(L. variegated throughout with creamy white and green in angular blotches	....	South Sea Islands *Messrs. Veitch*
FICUS ROXBURGHII, *Wall.* .. .. .. Rev. Hort. 1872, 387, fig. 42.	Stove shrub, 20—23 ft. (=Artocarpus imperialis)	Roundish - oval, acuminate, glabrous	(Fruit 6—20, pyriform, about 2 in. long, dull orange)	....	India *French Gardens*
FREYCINETIA BANKSII, *A. Cunn.* .. .. Bot. Mag., t. 6028.—Pandanaceæ.	Greenhouse woody climber, with slender rooting stems	Linear-subulate, 2—3 ft., spinulose-serrate	Female spadix oblong; bracts ovate, fleshy white or pale lilac	March	New Zealand *Kew*
FRITILLARIA PUDICA, *Sprengel* .. .. Gard. Chron. 1874, i. 831, fig. 174.	Pretty hardy bulb, 3 to 9 in. high (Liliaceæ)	Ligulate-obtuse or linear ..	Drooping, funnel-shaped, yellow, sometimes reddish	May	N.W. America
FUCHSIA PROCUMBENS, *R. Cunn.* .. .. Gard. Chron. 1874, ii. 291, fig. 60.—Onagraceæ.	Greenhouse shrub, slender-habited and procumbent, suitable for baskets	Small, broadly ovate or orbicular, obscurely toothed	Axillary, with orange tube, and purple green-edged sepals; no petals	August	New Zealand *Mr. Kinghorn*
FUCHSIA SYRINGÆFLORA, *Hort.* .. .. Rev. Hort. 1873, 311, with tab.	Greenhouse shrub, perhaps a var. of F. arborescens	Elliptic, attenuated both at base and apex	Numerous, panicled, fine rose, as are the rachides and pedicels	Oct.—Feb.	French gardens
GAILLARDIA AMBLYODON, *J. Gay* .. .. Bot. Mag, t. 6081.—Compositæ.	Half-hardy perennial, resembling G. picta	Oblong, sessile, with rounded basal lobes	Deep sanguineous red, the involucral scales spreading	Aug.—Oct	North America *Mr. W. Thompson*
GALACTODENDRON UTILE, *Humb.* .. .. Rev. Hort. 1874, 314, figs. 42, 43.	Stove shrub of the Artocarpus family, yielding a bland milk	Coriaceous, elliptic oblong, acuminate	Greenish white, succeeded by large spherical fruits	April	S. America
GALEANDRA DEVONIANA, *Lindl.* .. .. Illust. Hort., n. ser., t. 176.—Orchidaceæ.	Stove epiphyte, handsome, 4—6 feet high	Lanceolate, three-nerved (stems many-leaved, erect)	Racemose; sepals brown and green, lip white, crimson veined	May	Brazil: Rio Negro *M. Linden*
GAULTHERIA GLABRA CARACASANA, *Reg.* Gartenfl., t. 777.—Ericaceæ.	Stove shrub, with terete branches, elegant	Ovate, or ovate-lanceolate ..	Racemose, white, copious ..	May and June	Columbia *Petersb. Garden*
GAULTHERIA INSIPIDA, *Benth.* .. .. Bot. Mag., t. 6070.	Half-hardy shrub, 6—8 ft., pretty	Ovate, acuminate, the old ones red	Racemose, white, succeeded by pearly fruits crimson spotted	....	New Grenada *Mr. And.-Henry*
GENISTA EVERESTIANA, *Moore* .. .. Rev. Hort. 1873, 390, with tab.—Leguminosæ.	Greenhouse soft-wooded shrub, very ornamental (known as Cytisus Everestianus)	Trifoliolate, with small, oblong-ovate leaflets	In dense racemes, deep golden-yellow	April	Garden variety *Mr. Everest*
GEONOMA GRACILIS, *Lind. et And.*. .. Illust. Hort., n. ser., t. 169.—Palmaceæ.	Stove Palm, of graceful habit	Pinnate, arching, with long, linear pinnæ	(L. dark green; resembles Cocos Weddelliana)	....	Brazil *M. Linden*
GEONOMA MARTIANA SEEMANNI, *Moore* .. Florist and Pomologist, 1873, 85, with tab.	Stove shrub, dwarf and distinct, ornamental	Dense, wedge-shaped at the base, and bifid at the apex	In slender-branched spikes ..	....	Central America *Mr. W. Bull*
GERANIUM BACKHOUSIANUM, *Regel* .. Gartenfl., t. 778.—Geraniaceæ.	Hardy perennial, very handsome, 2 ft.	Roundish-cordate, palmatifid ..	Large, showy, rosy purple, veined with black at base	June	Nepal *Messrs. Backhouse*
GLADIOLUS PURPUREO-AURATUS, *Hook. f.* Flore des Serres, t. 1992.—Iridaceæ.	Half-hardy bulb, showy, 3 ft. high	Ensiform, 6—9 in. long	Yellow, with purple blotches, almost bifarious	August	Natal *Mr. W. Bull*
GLAUCIUM SERPIERI, *Heldr.* .. .. Gartenfl., t. 776.—Papaveraceæ.	Hardy herbaceous perennial, showy	Bipinnatifid, with glaucous segments	Golden-yellow, produced very freely	August	Attica
GODWINIA GIGAS, *Seem.* .. .. .. Bot. Mag., t. 6048; Gard. Chron. 1873, 73, figs. 13, 14,—Araceæ.	Stove tuberous perennial, remarkably curious and ornamental in character	Trichotomously decompound, 13 ft. high	Spathe erect, boat-shaped, hooded, 2 ft. long, dark dull brownish purple	December	Nicaragua *Mr. Bull*
GONIOPHLEBIUM GLAUCOPHYLLUM, *J. Sm.* Gard. Chron. 1874, ii. 6, fig. 1.	Handsome stove Fern, suitable for baskets (Polypodiaceæ)	Fronds oblong-lanceolate, coriaceous, 6—10 in. long	(Fronds densely glaucous, almost silvery beneath)	....	Columbia *Mr. W. Bull*
GREVILLEA FASCICULATA, *R. Br.* .. .. Bot. Mag., t. 6105.—Proteaceæ.	Greenhouse evergreen shrub, 3—4 ft., pretty	Oblanceolate to linear-lanceolate, an inch long or more	Bright red with yellow tips, in fascicles	May	Swan River *Mr. Saunders*
GREYIA SUTHERLANDI, *Hook. et Harv.* .. Bot. Mag., t. 6040.—Sapindaceæ.	Greenhouse shrub, deciduous ..	Ovate or oblong cordate, stalked, lobulate and toothed	Drooping, subglobose, scarlet, in terminal racemes	March	Natal
GRIFFINIA HYACINTHINA, *Ker.* .. .. Gard. Chron. 1874, ii. 17, fig. 6.	Showy stove bulb, the umbels 9—10 fld. (Amaryllidaceæ)	Ovate-oblong, strongly lattice-veined	Violet-blue, and white, in bold showy umbels	July	Brazil
GUNNERA BREPHOGEA, *Lind. et And.* .. Illust. Hort., 3 ser., t. 111.—Gunneraceæ.	Hardy herbaceous perennial, with short stem	Orbicular-reniform, lobed, peltate	In spike-like panicles, with remote racemes of sessile flowers	....	New Grenada *M. Linden*
GYMNOGRAMMA DECOMPOSITA, *Baker.* .. Gard. Chron. 1874, i. 607, fig. 129.	Beautiful stove Fern, with golden fronds (Polypodiaceæ)	Decompound, the ultimate segments finely cut and fingered	(Fronds triangular, resembling G. pulchella)	....	S. Amer. Andes *Mr. J. Gair*
GYNERIUM ARGENTEUM CARMINATUM, RENDATLERI.—Flore des Serres, t. 2075.	Hardy perennial, of showy character (Graminaceæ)	Elongate linear, serrulate at the margin	Panicled, drooping, tinged with bright red	September	French Gardens
HAMAMELIS ARBOREA, *Masters* .. .. Gard. Chron. 1874, i. 187, fig. 47—Hamamelideæ.	Hardy shrub, curious and ornamental, 15—20 ft.	Not described	Numerous, primrose-yellow, interior of calyx deep claret	January	Japan *Messrs. Cripps*
HARDENBERGIA OVATA ROSEA, *Hort.* .. Flore des Serres, t. 2029.—Leguminosæ.	Greenhouse climbing evergreen shrub, pretty	Ovate, thickish in texture ..	Racemose, white, with pink wings	May	Australia
HIBBERTIA BAUDOUINII, *Brongn. et Gris.* Bot. Mag., t. 6053.—Dilleniaceæ.	Cool stove evergreen shrub, very handsome	Sessile, narrow lanceolate acuminate, 1 ft. long	In racemes, equalling the leaves, bright yellow, 2 in. across	....	New Caledonia *Glasnevin Gar.*
HIBBERTIA PERFOLIATA FLORE-PLENO, *Reg.* Gartenfl., 764.	Greenhouse evergreen shrub, very pretty	Perfoliate, oblong-ovate ..	Axillary, yellow, double ..	May—July	W. Australia
HIBISCUS ROSA-SINENSIS PUNICEUS, *Hort.* Floral Mag. 1873, t. 85.—Verbenaceæ.	Stove shrub, with remarkably showy flowers	Shortly and broadly ovate, toothed	Dense crimson, double	....	S. Sea Islands *Mr. W. Bull*
HOPLOPHYTUM LINDENI, *Ed. Morr.* .. Belg. Hort., 1873, t. 5—Bromeliaceæ.	Stove perennial, interesting ..	Erect, subfasciate, longer than the scape	In strobiliform spike, with orange calyx, and yellow petals	Summer	St. Catherine's *Belgian Gardens*
HYDRANGEA ACUMINATA, *Sieb.* .. .. Rev. Hort. 1874, 91, with tab.	Hardy deciduous shrub, ornamental (Saxifragaceæ)	Ovate-elliptic, glabrous, cuspidate, deep green, scented	Cymose, small, deep rose, neutral ones large, rose-pink	July	Japan *M. Thibaut, &c.*
HYDRANGEA PANICULATA GRANDIFLORA, *Siebold.*—Rev. Hort. 1873, 51, with tab.	Hardy deciduous shrub	Elliptic acuminate, toothed ..	In dense pyramidal panicles, white	September	Japan
HYOPHORBE INDICA, *Gærtn.* .. .. Flore des Serres, t. 1991.—Palmeæ.	Stove Palm of ornamental character	Long-stalked, pinnate, with linear pinnæ	(Known also as Areca lutescens, from its yellow stalks)	....	Bourbon and Mauritius
HYPOXIS LONGIFOLIA, *Baker* .. .. Bot. Mag., t. 6035.—Hypoxidaceæ.	Greenhouse perennial, curious ..	Persistent, 2 ft. long, grass-like, bright green, flaccid	4—5, umbellate, large, deep yellow, the scapes villous	August	Algoa Bay; *Mr. W. Saunders*
IRIS DOUGLASIANA, *Herbert* .. .. Bot. Mag., t. 6083.—Iridaceæ.	A hardy perennial of showy character	Linear ensiform, 1—1½ ft. long..	Pale lilac, with white disk veined with purple	May	California *Messrs. Veitch*

LIQUORICE CULTURE AT PONTEFRACT.

THE traveller who may leave Leeds for London by the Great Northern, or who may start from Wakefield for a journey eastwards, cannot fail, shortly after departure, to notice a town on a rising ground upon the right, with a tower in the centre, copied, one cannot but think, from the ripe and opened capsule of the Meconopsis cambrica, or Welsh Poppy. This is ancient and celebrated Pontefract, once the locality of a magnificent Norman castle, now famed for its schools, salubrity, malt, races, and Liquorice. The name, which, according to Camden, was given by the Romans, is of unknown date, and very questionable derivation, and is said to have succeeded the still more ancient Saxon one of Kirkby, in which case we must suppose Camden to have made a mistake. Tradition renders it pretty certain, at all events, that the spot was one of the earliest in the country where Christianity was planted, and where a rude and primitive kind of church was first erected.

After the Norman Conquest, the town and adjacent lands were bestowed on one Ilbert de Lacy, a soldier who appears to have been a great favourite with William, and who in a little while commenced the building of what continued for nearly 600 years not only a baronial castle, but a fortress, and at times almost a palace. During the whole of that long period it was both the ornament and the terror of the entire district. Even yet we may gather, from the sight of the ruined bastions, and from the fragments of the once massive walls that still remain, some idea of the original magnitude and splendour, and of the picturesque and extensive views that must have been commanded from the turrets. It stood upon an elevated rock, and upon the northern side was almost inaccessible, while on the western side it was protected by a deep moat. Here, too, were the drawbridge and the barbican. Seven lofty towers formed the conspicuous feature, while the dungeons below were simply frightful. Within the walls of this famous castle it was that Edward II. was imprisoned by his powerful nobles. Subsequently it was the scene of the captivity and wretched death of Richard II., and of the shedding of much innocent and illustrious blood by the cruel man who afterwards reigned as Richard III. Like most of the English castles in the Cromwellian times it was a stronghold of royalty, but in 1649 it was constrained to surrender to the Parliamentary forces, and shortly after that date it was dismantled and destroyed. When we call to mind how recently both Liverpool and Manchester have acquired distinction, and have had a voice in the government of the country, it is interesting to note that venerable Pontefract returned members to Parliament as early as the year 1298, though afterwards intermittently. Since 1625 the return has been unbroken. In 1298 members were required to give a couple of bail for their honest conduct. A lineal descendant of one of these bondsmen, bearing the name of Sayle, still lives somewhere in the neighbourhood. Three Parliaments only were held during the century which included A.D. 1298, and to two of them representatives were sent by Pontefract. These curious particulars, which, though totally unconnected with Liquorice, are full of interest, have been determined by the industry and the fine antiquarian taste and scholarship of Mr. Holmes.

The Liquorice culture and manufacture, for which Pontefract has been so long celebrated, commenced early in the reign of Elizabeth, or, to be as nearly exact as possible, in or about 1562, which year is assigned to it by Stowe. Whether the long-established cultivation of the plant at Mitcham and other places near the metropolis, also at Godalming and at Worksop, commenced at the same period, or not till later, we do not know. Several of the old Itineraries allude to the plant, the quaint one, for example, of Barnaby Harrington, whose doggrel Latin respecting Pontefract has been thus rendered with fair compliment to the author—

> "Here Liquorice grows upon the mellow banks,
> Decking the spring with her delicious plants."

In another we have—

> "Hence to Pomfret, freshly flowered,
> And with rods of Liquorice stored."

Probably the culture here was commenced very soon after the introduction of the plant to England, though as the source of a sweet and demulcent juice it had been known from time immemorial. The native soil is the South of Europe generally, say from Spain eastward to the Crimea. It occurs also in the warmer parts of Asia, as far, so it is stated, as China. From Dr. Fleming's *Catalogue of Indian Plants* it appears to be indigenous to Bengal, while Dr. Ainslie reckons it a native product of the coast of Malabar. The greater portion, however, of the prepared liquorice which is sold in the bazaars of Lower India, is imported from Persia, where the plant occurs abundantly, especially affecting the Date Palm groves in the neighbourhood of Bussora, and those on the borders of the Sewund River. Of course, it was known to the ancients, one of whose chief writers upon plants, Dioscorides, physician to Antony and Cleopatra, gives a very faithful and accurate description, and under the name which the plant has been allowed to retain ever since, namely, Glycyrrhiza, literally "sweet root." No plant of economic and ancient celebrity has more thoroughly escaped from the tormentors, in regard to its nomenclature, Glycyrrhiza being the appellation with all the mediæval authors, though no name has undergone more or greater mutations, if it be true that they are only varied spellings and perverted representations which we have in the Italian *legorizia* and *liquirizia*, the Spanish *regaliz*, the French *réglisse*, the Danish *lakris*, the German *lackrizen*, and our own English liquorice and "lickerdish." Chaucer spells it *licoris*, and in my annotated copy of Matthiolus it appears as *lichorise*. Mediately, perhaps the authentic English name has come from *liquiritia*, the term introduced into botany by Mönch, in the *Methodus Plantas Marburgensis*, &c., 1794, though much more than eighty years old—I find it in use, indeed, as far back as 1586.

Not very much can be said in favour of the plant as an object of beauty. The root is perennial, brown externally, yellowish inside, 3 or 4 feet in length, nearly simple, about the thickness of one's thumb, round and pliant; the erect stems rise to the height of about a yard, and are plentifully clothed with rather large impari-pinnate leaves, the leaflets of which, usually in five pairs, are oval, entire, and, like the stems, slightly sticky; the insignificant lilac flowers are papilionaceous, and produced in erect and axillary racemes, shorter however than the leaves, so that without scrutiny they are liable to be overlooked. Their time is the middle of August. A plantation of Liquorice, when fully developed, looks very much like a mass of juvenile Ash trees, but the hue of the foliage being glaucous and dull, it never gives one the idea of kindly verdure. The legumes, when ripe, are glabrous and 3—4 seeded. The root alone is of any value commercially. When fresh, this part is succulent and sweet, though the flavour is somewhat mawkish. Its value comes of the presence of glycyrrhizin, a principle discovered by Robiquet, and analogous to sugar, but differing therefrom, like Manna, in not being convertible into alcohol by fermentation. The chemical composition, according to the way of writing it until as recently changed, was, carbon 16, hydrogen 12, oxygen 6, cane-sugar being carbon 12, hydrogen 11, and oxygen 11. When pure, glycyrrhizin is a yellow, translucent, uncrystallizable solid; it is soluble both in water and alcohol, and is capable of forming compounds with acids and bases.

It may be added that several other species of the genus Glycyrrhiza are known to botanists, and that two or three of them, G. echinata in particular, contain a sufficient quantity of juice to render the cultivation profitable in foreign countries, though none are equal to the officinal glabra. An American species, G. lepidota, occurs in abundance upon the plains of Missouri. Perhaps it may be well to say also that the elegant West Indian twiner called Red Liquorice or Wild Liquorice, the Abrus precatorius of scientific botany, is a Liquorice only in name. Every one knows the seeds, which resemble little Peas, but are oval, and of a brilliant and glossy scarlet, with a patch of black at the extremity. Properly, they are "Rosary Peas."

The locality of the cultivation of Liquorice at Pontefract is somewhat remarkable. The immediately subjacent rock is new red sandstone, beneath which is magesium limestone. Ages ago, in the geological times, portions of the sandstone were carried away by denudation, leaving the limestone uncovered, and it is in the spaces thus established, and now overlaid with deep rich earth, and nowhere else in the neighbourhood, that the plant grows, or at least in a way worth speaking of. Tried upon the sandstone it is always a failure. All the way from Pontefract towards Knottingley, down in the valley and in the hollows, it grows to perfection, and the same is the case in the low grounds immediately adjacent to the station. Only within a mile or two of the town, that is to say, is the culture of the plant at all prominent, though not invariably confined to the hollows, since it is grown within the precincts of the ancient castle. According to Gent, who wrote in 1728—

> "Where once the stately castle rose,
> The luscious Liquorice now grows."

The soil is required to be quite a yard and a half deep, and to be heavily enriched with cow-manure. Once put in the ground, the roots are never disturbed. They are planted in rows almost a yard apart, and not rising high the first year, it is customary to interline them with Potatos or Onions. The second year, a crop of spring Cabbage is interlined, and this, like the former one, of course helps to pay the rent, which ranges from £4 to £10 the acre. The third year nothing whatever is interlined, and towards its close the roots are ready for digging—a process which requires considerable care. In each of the two previous autumns the herbage has been cleared away, and now, when the roots are dug, comes the time for propagation. This is effected by cutting off the crowns, with their buds or suckers, and storing them in dry earth till spring, when they are planted for another three years' growth. Propagation by seed is never attempted, so that the individual plants now growing may be regarded as veritable extensions of the original ones of 1562.

Some of the manufacturers of the liquorice sold in the shops cultivate their own plants, in that case securing a twofold profit. The latter is understood to be very considerable, but the secrets of the trade are all well kept, and little is known or ascertainable except that in due time we may buy, if we please, our box of "Pomfret-cakes," the little disks of prepared liquorice which seem most in favour. The trade, which is said to be a ready-money one, lies in only half-a-dozen hands. An acre of good Liquorice roots, when ready for digging, is reputed to be worth £150. Fine and sunshiny seasons conduce greatly to the excellence of the crop. Sand and ashes are inimical to its success: horse manure is too light for it. The best foreign liquorice, it may be added, is that which is prepared in Catalonia. Every one knows the black "sticks" and their wrapping of Bay leaves. The little cylindrical pieces, the thickness of a quill, esteemed the daintiest sort, are a combination of liquorice and mucilage, which last material seems not unknown to the "Pomfret-cakes," and is very probably accompanied by other auxiliaries to weight and bulk. Liquorice, though of no great importance therapeutically, has from time immemorial had the reputation of being able to allay thirst, whence the ancient writers on Materia Medica bestowed upon it the epithet of *adipson*, which word exactly denotes the attributed property. The special utility seems to be that of covering the taste of nauseous drugs, though inferior to peppermint as a swill for the mouth prior to the slimy agony, altogether unutterable, of castor-oil. *G.*

TULP.

IN our columns for 1871 (p. 1098), 1872 (p. 570), and 1873 (p. 1596), reference has been made to a plant known at the Cape by the above name, and the cause of fatal results to the cattle which chance to eat it. It has been shown that various Iridaceous plants are known as "Tulp," especially certain members of the genera Moræa and Vieusseuxia. A recent number of the *Pharmaceutical Journal* reprints a paper by Dr. George Grey on herb poisoning at the Cape, which throws additional light upon the identification and properties of the plant, and shows that the "Tulp" is poisonous, not only to cattle, but to human beings. The case which called forth his remarks was one of poisoning by recent poisonous herbs supposed to have been furnished to a Bushgirl by a Kaffir, and placed in soup, and the Moræa (or Homeria) uniflora is one of the plants which it is suspected were employed. The following are Dr. Grey's remarks upon it:—

"This plant is to be found in various parts of the colony, and the species vary apparently in different localities. They grow plentifully throughout the Karroo, and appear to thrive in arid plains and sterile rocky spots. We frequently notice their pretty vari-coloured flowers where little else of vegetative growth is to be seen—in dolorous-looking places, almost suggestive to the fancy of Ebenezer Elliott's

> "Grim region in a world of woe
> Where toil-sown Wheat and Pampas will not grow."

The variety best known for its poisonous properties is the M. collina, native in the Western Province, and is the only species yet described growing there. The late Dr. Pappe states that,

"Judging from the rapidity with which death ensued in recent cases when some of these bulbs had been eaten by mistake, they must be of a very poisonous kind. The only deaths resulting from these plants (except in a considerable number of cases in cattle) hitherto recorded have been caused by eating accidentally the bulbous parts of the M. collina; and a comparison of the symptoms in these cases with those of the fatal cases at Middelburg gives in some respects a slightly different result; for example, in the several persons in whom M. collina had been the fatal agent, acute gastritis and also enteritis occurred, notwithstanding that repeated vomiting had cleared the stomach, as in the persons affected at Middelburg. Consequently, in the former instances, the mucous membrane of the stomach and small intestines were found to be highly vascular and inflamed. Such was absent in the cases at Middelburg, though other *post mortem* appearances corresponded. To the present time, the only species of Moræa belonging to the Eastern Province which has been described is M. polyanthus, Thunb., the 'Tulp blommetje.'

"It is very probable that the effects of the 'Tulp' of the eastern districts differ from the western in degree only, and that the one is equally, or nearly equally, poisonous with the other. Portions of dry husks and stems of about a dozen specimens of Moræa were found in a room of Dr. Coward's house, previously occupied

by the suspected Bushgirl, and these were forwarded to me for further report. The fleshy parts of the root-stocks being absent would appear in itself to afford extra presumptive proof against the girl; for doubtless the active part of the herbs had been disposed of for some nefarious purpose."

Dr. Gray goes on to give the result of experiments upon animals with a decoction of Moræa, which proved fatal in all cases. Dr. Pappe, in his *Floræ Capensis Medicæ Prodromus*, gives one or two alarming instances of poisoning by the bulbs of Moræa collina, in most of which the result was fatal.

PETERBOROUGH HOUSE, FULHAM.

In the spring of the present year there was shown at one of the meetings of the Floral Committee a magnificent specimen of the truly regal Medinilla magnifica, which, as a matter of course, readily gained from that body its highest note of admiration—a Cultural Commendation. The plant was only in a 12-inch pot, yet the diameter of its branches measured 7 feet, and it was nearly the same measurement in height, and carried about eighty racemes of its glorious flowers. It was shown by Mr. Fairbairn, then gardener to W. Terry, Esq., of Peterborough House, Fulham, and we now present its portrait, taken at home, shortly after. Our illustration (fig. 87) shows the plant in the position, in a small plant stove, which it then and now occupies, its fellow-occupants being Stephanotis floribunda and Allamanda Hendersoni, growing with remarkable luxuriance on the roof; and some good specimens of Gardenias, the flowers of which are always in demand; choice young plants of the newer Crotons, Dracænas, Ferns, Marantas, Dieffenbachias, and such economic plants as the Cacao (Theobroma Cacao), which has flowered this summer; the Mango (Mangifera indica), the Pepper plant (Piper nigrum), now in flower; the Cotton plant (Gossypium), &c.; while in a small tank the beautiful Nymphæa lutea finds a suitable home.

From the gardens at Peterborough House have several times been exhibited some choice Orchids, one of which, a fine specimen of Angræcum sesquipedale, was figured in our columns last year, p. 255. There is here a very nice collection of Orchids, and of other plants, which we shall endeavour to enumerate; and first among these must be mentioned the Vanilla, which is grown most freely in two houses, and in each case there is a beautiful lot of fruit. The first plant that came under our notice occupies the end, over the door, of a fruiting Pine stove, and its growth is of the most luxuriant description. It bears five bunches of from ten to a dozen pods each. In this house, on the roof on either side, and low enough down as not to shade the Pines, the richly coloured Cissus discolor and Allamanda Hendersoni furnish masses of bright colouring, the latter especially being particularly lavish of its golden floral wealth. The other specimen of the Vanilla is in the East Indian compartment of a half-span Orchid-house, under the apex of the roof. This is a fine plant, though its growth is not so luxuriant as the first-named, but it bears a greater number of pods, and they are finer in size. This house contains the collection of Vandas and Aerides, Anæctochiluses, and other Orchids requiring the temperature of East Indian subjects. The next compartment contains the Cattleyas, a capital lot of plants. Behind these two houses are others devoted to cool Orchids, one containing principally Odontoglossums, Oncidiums, &c., the others principally Phalænopsis. These four houses contain the nucleus of a rich collection, which some day may make their mark on the exhibition tables. Another half-span roofed structure does duty as a greenhouse, and contains Camellias, Heaths, and the usual description of plants in flower at this time of the year. Here, also, may be seen a fine specimen of the Camphor tree (Camphora officinarum) and of Cinnamomum, whilst amongst climbers there is a large example of Lapageria rosea. A new Rose-house and a useful lot of pits completes the plant department.

For the production of choice fruits, besides the Pine-stove above alluded to—and which we omitted to state contained a nice clean lot of Queens and Smooth Cayennes—there are two good lean-to vineries on the Paxton principle, now, of course, almost denuded of fruit; a new Fig-case, covering a fine old tree of (it is believed) the Brown Turkey; a long span-roofed Peach-house, divided into two compartments, both containing young trees coming to a bearing age; and a similar house for Cucumbers and Melons; fifteen houses altogether, well heated and furnished with all modern improvements. The kitchen garden is not large, and consequently only the choicer kinds of fruits and vegetables are grown.

Mr. Terry is a warm lover of plants in general, and of old-fashioned and useful plants in particular. His garden is rather of the useful and instructive than the ornamental style; and under the management of such a thorough practical gardener as Mr. W. P. Roberts, late of Holwood Park, Kent, it may reasonably be expected that its keeping will be maintained in a manner in every respect worthy of so liberal a patron of horticulture.

Fig. 87.—Medinilla magnifica as grown in the gardens of W. Terry, Esq.

WEST INDIAN FRUITS.

(*Concluded from p. 400.*)

Placed near the line of the tropics, the Bahamas possess a climate that admits of the growth of the fruits and vegetables of both zones, though perhaps not favourable to the peculiar productions of either. In the gardens around Nassau, the capital town of the group of islands, the Strawberry and many other northern fruits are intermixed with the most delicate inmates of the English hothouse. Although remote in their natures as the positions of the countries to which they respectively appertain, the Pitch Pine, a native of the North American forest, overshadows and mingles its fallen cones with the fruit of the Pine-apple. Nothing, it is said, can exceed the richness of the soil under the shade of the primitive forests, but when deprived of shelter, and exposed to the air and summer rains, it soon becomes exhausted, and requires replenishment for the purposes of cultivation. The native forests abound with timber, the principal of which are Pitch Pine, Fustic, Lignum-vitæ, Mahogany, Cedar, Sabicu, Braziletto, Mastic, Satin-wood, Logwood, and Ebony. In summer the ther-

mometer generally ranges between 75° to 88°, and in winter from 65° to 75°. The mornings are fresh and invigorating; and from the flatness of the islands the full benefit of the sea breeze is felt throughout every part of them. Hurricanes occasionally occur during the months of August, September, and October.

The group is composed of about twenty inhabited islands, and an immense number of islets and rocks. The land rises almost perpendicularly from an immense depth of water, and seems to have been formed from an accumulation of shells or small calcareous grains of sand. At a short distance, a reef of rocks in many of the islands is observed to follow the direction of the land, and forms the boundary of the soundings. Without this rampart the ocean immediately near is often unfathomable; within it the bottom is either of a beautiful white sand, or chequered with rocks covered with seaweed. Amongst the retired shores and swamps, the flamingo, the largest and most brilliant bird in the western world, may be seen with its bright shiny plumage. The whole trade from North America and Europe to the Gulf of Mexico passes by the north; that from North America to the eastern parts of the islands of Cuba, to Jamaica, the Gulf of Honduras, and the northern coast of South America, passes to the southward of these islands. The Bahamas, therefore, lie in the track of two great streams of trade, and their importance was particularly manifest during the blockade of the Southern States.

The Orange and the Banana appear among the exports, but the principal fruit is the Pine-apple. The culture is carried on chiefly at Eleuthera, Abaco, and San Salvador, but the trees are also grown in some of the other islands. They flourish almost spontaneously in fields of considerable extent, but of late years more attention has been given to their cultivation, and plants of our best hot-house Pines have been taken out to improve their quality. The name of the Pine was given by the Spaniards, who saw the resemblance to the cone of the Fir-tree with which they were already familiar. The majestic appearance of the golden Apple covered with its coronet of leaves, combined with unequalled delicacy of flavour, has caused this to be proclaimed the king of fruits. That Nature has been more than usually watchful of one of her grandest productions, appears very evident from the arrangement of leaves, all bristling alike with prickly defences to guard the fruit until it can arrive at maturity and stand forth as a perfect work of beauty,

"Its luscious fruit Ananas rears
Amid a coronet of spears."

The skilful treatment by our own gardeners has more than made up for the sun and the deficiencies of natural temperature, and with careful cultivation the fruit grown in Europe is not inferior, but often superior, to that of places where it is a native.

It is related that when the Pine-apple first produced fruit in Europe, it was deemed so great a curiosity, and of so much importance, that persons of rank came from France, Holland, and Germany to see it. The art of the painter was invoked to celebrate the occasion, for amongst the famous collection of curiosities made by Horace Walpole at Strawberry Hill there was a picture wherein King Charles II. is represented in a garden before his palace at Ham, attended by two of his favourite breed of spaniels, and Rose, the royal gardener, is presenting his Majesty with the first Pine-apple. Phillips also mentions in his *Pomarium Britannicum*, that the late Sir Joseph Banks predicted how in less than half a century we should have forcing houses of such an extent that our markets would be supplied with the most valuable fruits of the West Indies, the Avocado Pear, Mango, Pine-apple, &c. Whilst inditing his work the first importations of the latter in any large quanties had taken place from the Bermuda Islands, and these were purchased by Mr. Mart, fruiterer, of Oxford Street. The export had been found to answer so well, about two-thirds having arrived in good condition, that it was anticipated that a regular supply might hereafter be received, not only from the Bermudas, but also from the other West Indian islands. It appears, however, that not until twenty years later—in 1842—was the trade really commenced which at the present time seems likely to increase and flourish. In 1872 the Bahamas exported the extraordinary number of 7,088,000 Pine-apples, valued at upwards of fifty thousand pounds sterling. In addition, the preserving of the fruit has been recently commenced at Nassau by two American firms, and 494,213 cans were sent to the United States in the same year, and there is good reason to believe that this quantity can be quickly doubled. The making of the cans, and the preserving of the fruits are already the means of employing between 200 and 300 hands in these islands.

The choicest variety of the Pine-apple grown in the West Indies is the Black Antigua, well known all over the world. This fruit may be recognised at the shops in Thames Street and Covent Garden, by the fulness of the eye, and the dark covering leaves. The Island of Antigua, although limited in extent, is one of the most productive of the West Indies; the soil is of a rich black mould on a substratum of clay, and seldom disappoints the hopes of the planter. The chief drawbacks to this fertility are the droughts which occasionally arise, when the inhabitants are dependent upon the neighbouring islands for their supplies of water.

The excessive heat experienced during the day is relieved by the delightful cool of the evenings; no sooner has the sun hidden his rays than the land breeze arises; this, blowing as it were from the centre of the island towards the sea, appears to come from all points of the compass at once, and bears along with it the odour of the yellow Acacia. When seen coasting along the shores, the land looks sprinkled over with gold from the flowers of the Aloe (Aloe vulgaris), which grows in great profusion. The heart of the island is verdant with an abundance of pasture and grass, and the numerous homes of the planters, embosomed in trees, have more the appearance of country mansions in England than almost any other in the West Indies. From a lofty eminence, when the western sky is dear, Guadaloupe, Montserrat, Nevis and St. Kitts may be distinguished by the naked eye.

All the tropical fruits flourish in abundance. Amongst the trees the Guava rises in the manner of a shrub to the height of from 2 to 12 feet; the leaves are of a dusky green, and the fruit is of the shape and colour of a Lemon ornamented by a crest of small leaves. The interior of the fruit is of a rose colour, or a pure white, containing numerous small yellow seeds: the flavour is exquisite, and the jelly made from it is said to exceed the whole world of confectionery. The bright primrose-coloured flowers of the Papaw, seated as they are upon their pale yellow-green flower-stalk, present a very beautiful appearance. The trunk of this tree (which is male and female), rises to the height of 18 to 20 feet. The fruit when good has the colour and something of the taste of an Apricot, whilst in size it is like a small Melon; when unripe, the internal part is quite white, and in such state is boiled and dished up in the manner of Turnip. It is also cut into various forms, and mixed with peppers and Cucumbers, and, as a conserve, is little short of the Mango pickles of the East Indies. The acrid milky juice which flows from all parts of the tree is said to possess the singular property of making meats tender, and accordingly its good qualities are often put to the test by notable housewives, who wish to pass off their old fowls of five or six generations for young chickens. The faith in its efficacy is so great that even the exhalations from the tree are stated to serve the same purpose, and meats and fowls are suspended in the upper branches, in order to prepare them for the table. In Barbadoes a great reliance is placed on wrapping the meat in its leaves for a few hours with a portion of the young fruit; but the experiments made by scientific persons do not confirm the belief in these properties of the Papaw, which nevertheless is widely diffused amongst the natives. The Avocado Pear is a lofty tree, covered with a dense foliage, and bearing one of the best fruits the island produces. The shape is that of a Quince, with a tough ligneous rind, and containing one large compressed globular seed. In flavour it somewhat resembles a boiled Vegetable Marrow.

Where horticulture abounds, its twin sister floriculture furnishes some of her choicest examples in the Jasmines, the Arabian and the Cape, the "King" and "Queen of Flowers," the "Lady of the night," one of the sweetest and most poetical of all the West Indian shrubs; the "Four-o'clock," Mirabilis Jalapa, or Marvel of Peru, so called from the circumstance of its opening its petals at that hour of the day. Perhaps the most beautiful and fragrant is the Frangepanier, or Plumieria, the flowers being of the most delicate pink shaded off to white, and of a velvety surface, the lower parts of the petals yellow. In all parts of the island the Cacti appear, and form a singular contrast to the withered-looking herbage upon the sun-dried plains. *E. T. B.*

MUSHROOMS AND TOAD-STOOLS.

Amongst the pleasantest recollections of boyhood still remembered, are our first lessons in geography, for our excellent teacher contrived to convert what might have been a toil into a pleasure. Instead of giving us to learn by heart an execrably hard calf-bound little book, a trifle less amusing than a Catechism, setting forth that Europe is bounded to the west by this, and to the east by that; that its capital cities are Reykiavik and sundry others, susceptible of being spelt in diverse ways; that it produces red-herrings and wine, silk and iron, and the other articles which figure on international tariffs—instead of cramming us with such crabbed lore, our schoolmaster set before us a large map of Europe, and gave to each boy an outline map of the same, stoutly mounted on card-board, with instructions to fill it up according to the model. But the process was long and interesting. First, there was the shading of the seaside of all the lines of coast with Indian-ink, finished off with a second darker and narrower line of the same, to distinguish land from water with greater precision, and to fix their outlines on the memory. Next came the colouring of the different countries—and what boy does not like what he calls "painting"?—Spain, yellow; Portugal, red; France, blue; England, rose-pink; Scotland, heather-purple, and the Emerald Isle, of course, grass-green. The interior frontier of each country was traced with a line of the national colour a little deeper in shade, for the same reason that the coasts had been similarly embellished. Then followed the putting in of the rivers and mountains, crowning the whole with the rather important addition of the names. The result was a striking work of art, of which every boy was proud—to say nothing of the pride of their fathers and mothers—which was shown to friends, and finally hung on the line, in a favourable light, in the family exhibition of cartoons and samplers. But the grand point was that an attentive boy, after completing his gaudy parti-coloured chart, could sit down and, from memory alone, sketch you a very decent map of Europe. And on this groundwork our teacher proceeded to give the details of European geography, which then became no longer dry, because they conveyed definite ideas to our minds, and every fact was localised and took its proper place in its proper order, all through the clear notion of the Continent's configuration obtained by the amusement of map-making.

The recent inexcusable because groundless attack on Mr. Smith's *Mushrooms and Toadstools*, attributing to him statements he never made and theories he never dreamt of, has led the present writer to study the book and its illustrative sheets of fungus portraits. While so doing, the question naturally suggested itself, "Why should not our young people learn something of practical and useful mycology in the same slightly laborious way in which they may learn the elements of geography?" There are the originals, the size of Nature, coloured, accurate, inexpensive. A blacklead pencil, a box of colours, camel's-hair brushes, and drawing-paper, are all that is required to start the learner in his career of Mushroom investigation. The sheets need not be copied as a whole, like a map, but each species may be depicted on a separate piece of paper, or two or three of the smaller species grouped on one piece. By cutting the pieces of paper all of one size, they may be stitched or bound, when the series is finished, into a handy and useful album. Mr. Smith's observations on each species (convenient for their brevity) may be copied in manuscript (to impress them better on the memory) at the time when each drawing is in hand, and stitched together with them in the album opposite to its corresponding subject. Twenty-nine edible and thirty-one poisonous species make sixty in all. Let the pupil copy, say only one species a week, and in little more than a year he will have learnt the whole by hand and eye, and probably by heart. It will be strange, too, if the execution of the drawings do not inspire him with the desire to compare them with the living specimens which he may find in the course of his country walks.

It might perhaps be worth Mr. Smith's while to make an arrangement with some respectable French publisher for a translated edition of his work. The task of translation would be neither long nor difficult, while the illustrative figures are immediately ready to accompany the book in whatever language it may appear. French literature is singularly poor in the special treatises and monographs on different branches of natural history in which English literature is so rich. This circumstance ought to increase its chance of success; and the coloured figures of edible and poisonous Mushrooms would decorate the walls of many a country dwelling at least as much to the inmates' advantage as fancy portraits of Jean and Marie, the story of Geneviève de Brabant pictorially told, the Empresses Joséphine and Eugénie combined in one group with Queen Hortense, or—why not write it?—the forms of visible splendour in which our ladies of La Salette and of Lourdes are imagined to have appeared to mortal eyes. *E. S. D.*

THE OCCURRENCE OF ALUMINIUM IN CERTAIN CRYPTOGAMS.

All the more recent and exact analyses of the ashes of plants show that the element aluminium is not to be found amongst the constituents of flowering plants, and that its presence is confined to a few of the cryptogams. During the last two years I have been endeavouring to give greater precision to our knowledge of this subject, and through the kindness of various friends, including Dr. Hooker of Kew, and Dr. M'Nab of Dublin, I have been enabled to secure authentic specimens of the different species of plants which I deemed it important to analyse. My researches are by no means finished, but I have obtained

results of so interesting and decisive a bearing that I think they should be made known at once, even if incomplete.

In undertaking an inquiry of this nature, there are three conditions of success which must be rigorously fulfilled: the plants must be absolutely freed from all extraneous matter previous to incineration; the process for the determination of the alumina must be accurate, and must not allow traces of this earth to escape precipitation; and the re-agents and apparatus must not introduce any alumina. The first condition was fulfilled by a system of washing and brushing the various plants operated upon, and analysing the material experimented on in different stages of purification; it may be noted here that, in the case of the plants in which aluminium occurs, more was invariably found in the completely washed than in the partially washed samples. The second condition was answered by the use of the well-known sodium hydrate and barium chloride process, as described in my *Laboratory Guide*, 3d edition, p. 137; while the third condition merely required the use of pure re-agents, such as sodium hydrate made from sodium, and of silver vessels instead of those of glass generally employed.

Before giving my chief results, a word must be said as to the work already done in this direction. So far as I know, aluminium has not been detected in the ashes of any plants save four, or possibly five, and in one or two of these cases we lack information as to the purity of the re-agents employed; indeed, in most of them we may be sure that the sodium hydrate was not prepared from pure sodium. On this account, I could not regard the recorded discovery of 1 or 2 per cent. of Al_2O_3 in the ash of some of the plants analysed as conclusive of the occurrence of this constituent amongst those essential to the plant itself. For instance, in 1856, Solms Laubach (*Ann. Chem. Pharm.* c., 297) found in the ash of the Lycopodium denticulatum of gardens (really a Selaginella, the S. Kraussiana of Kunze) 42 per cent. of silica and 2.0 per cent. of alumina, a small proportion, it will be seen, of the latter earth, and one due very likely to its introduction from the re-agents and the glass vessels used. But when Ritthausen (*Journ. Prakt. Chem.*, lviii., 13), in 1853, found 39.07 per cent. of alumina in the ash of Lycopodium Chamæcyparissus, and 20.69 per cent. in that of L. clavatum, it was obvious that there was no room to doubt the fact that alumina formed an important part of the fixed constituents of the plants analysed. Further, the above results confirmed others previously obtained (1851 and 1852), and have met since with general acceptance. What I have at present done has been to examine other species of the same genus, Lycopodium, and a few plants belonging to closely allied genera.

My first experiments were made upon two British Lycopodia, L. clavatum and L. alpinum, abundant supplies of these club-mosses in fruit having been obtained from a mountain district in Westmoreland. A quantity of plants of each species was cleansed by careful brushing, and the material thus prepared was burnt and the ash analysed. Other portions were then brushed and washed in a stream of cold distilled water, and then burnt, the ash being examined as in the first instance. A third portion of each kind was then purified by the most thorough brushing and washing, so that every particle of foreign matter was entirely removed. The ash in the samples which had been brushed merely, and in those also which had been further purified, was greater in amount, but contained less alumina, than the ash of the completely purified samples. As further washing neither lessened the ash nor increased its percentage of alumina it was considered that all extraneous matter had been removed. The following percentages were finally obtained:—

	Percentage of Ash in Dry Plant.	100 parts of Ash contained	
		Al_2O_3.	SiO_2.
Lycopodium alpinum ..	3.68	33.50	10.24
L. clavatum	2.80	15.24	6.40

These results really agree with those of Ritthausen; for L. alpinum is a species closely allied to L. Chamæcyparissus, in which he detected 39.07 per cent. of Al_2O_3, while my determination in the case of L. clavatum is not much lower than his, viz., 15.24 per cent. of Al_2O_3 in lieu of 20.69.

The next point to be settled was the absence or presence of alumina in the species of the closely allied genus Selaginella. I obtained a good supply of S. Martensii, var. robusta (the var. γ compacta of A. Braun) and thoroughly cleansed it previous to analysis. It gave—

	Percentage of Ash in Dry Plant.	100 parts of Ash contained	
		Al_2O_3.	SiO_2.
Selaginella Martensii..	11.66	0.26	41.03

Practically, this ¼ per cent. of Al_2O_3 must be regarded as accidental, and we may conclude that this constituent is absent from the plant in question.

Further, to see whether alumina is really distinctive of Lycopodium, and is always absent from Selaginella, other trials were made. A quantity of another species of Lycopodium, L. Selago, was obtained from Westmoreland, and cleansed and burnt, with the following results:—

	Percentage of Ash in Dry Plant.	100 parts of Ash contained	
		Al_2O_3.	SiO_2.
L. Selago	3.20	7.29	2.53

A result perfectly confirming my former conclusions, and the more particularly so, as the group of Lycopodia to which L. Selago belongs, is separated from the group to which L. alpinum belongs, by that to which L. clavatum belongs, thus:—

Botanical Series.	Order, according to Percentage of Alumina.
1. .. .. L. alpinum.	1. .. .. .. 33.50
2. .. .. L. clavatum.	2. .. .. .. 15.24
3. .. .. L. Selago.	3. .. .. .. 7.29

Now there is a most interesting British Selaginella, the only species found in these islands, and a plant which has been ranged amongst the Lycopodia until the last few years, when it was separated on account of its mode of reproduction. This plant, formerly known as Lycopodium selaginoides, is now called Selaginella spinulosa. If the element aluminium be really confined to the genus Lycopodium, this plant ought not to contain it—and it does not, according to the following analysis:—

	Percentage of Ash in Dry Plant.	100 parts of Ash contain	
		Al_2O_3.	SiO_2.
Selaginella spinulosa ..	3.44	none	6.67

A good supply of this plant was kindly obtained for me from Largo Links, Fife, by Mr. Howie, of Largo.

Many points remain to be determined by further research concerning this occurrence of aluminium in species of Lycopodium. Is the proportion in any one kind as fairly constant in quantity as the other constituents of the ash? Is the element present in every kind of Lycopodium? I have commenced the study of another point connected with the present inquiry, and have searched for and failed to find alumina in the ashes of the following cryptogams, more or less nearly related to Lycopodium:—

Equisetum maximum.
Ophioglossum vulgatum.
Psilotum triquetrum.

I hope to analyse species of Phylloglossum and Tmesipteris, two genera of Lycopodieæ closely allied to Lycopodium. Isoetes, also, which is separated from Lycopodium by Selaginella, should also be studied in this connection.

In the following table, the results recorded in the present paper are presented in a compact form:—

	Percentage of Ash in Dry Plant.	100 parts of Ash contain	
		Silica.	Alumina.
Lycopodium alpinum ..	3.68	10.24	33.50
L. clavatum	2.80	6.40	15.24
L. Selago	3.20	2.53	7.29
Selaginella Martensii ..	11.66	41.03	0.26
Selaginella spinulosa ..	3.44	6.67	none
Equisetum maximum ..	20.02	62.95	none
Ophioglossum vulgatum	8.25	5.32	none
Psilotum triquetrum ..	5.06	3.77	trace (?)

Professor A. H. Church, in "Chemical News."

THE GENUS TRICHOMANES.

In a hurried visit which I made some time ago to Kew Gardens, I had forcibly brought back to my view many old favourites, particularly "my old loves," the beautiful varieties of the soft "hair-like" Trichomanes. We have now, moreover, some associates for these, of more noble growth, elevating themselves "tree-like" above the more humble creeping rhizome-supported Trichomanes. I refer to the elegant Todeas, which may be planted, in company with the several varieties of the former genus, in some of those neat imitation rockworks used in Wardian cases and similar places. There are several very interesting varieties of that form which is known generally as the Irish Fern, and such as would afford sufficient interest if collected together and formed into what might be termed a miniature "Film Fern garden," with the addition of the New Zealand varieties, and those forms of more lowly growth found near Tunbridge Wells, viz., Hymenophyllums tunbridgense and Wilsoni. If a temperate warmth can be maintained, without resort to a purely stove temperature, a fairly developed plant of Todea might be introduced. With a temperature never below temperate (55°) there are few of them that will not succeed, including even those from the more tropical countries. With regard to actual culture, it may be fairly said that no class of plants requires less care or attention to insure their growing and doing moderately—though to succeed with them thoroughly the usual amount of skill must be displayed in their case, as with all other subjects which pay for good culture. It is a fact that many of them, if properly potted or planted, watered, and set going, will live, thrive, and do well, kept under bell or other glasses, without further trouble or attention, for three to six months at a stretch, continuing to grow freely, putting forth new lengths of rhizome, &c., which in their turn produce the young fronds freely.

I do not recommend such a negligent mode of culture to those who make the growth of these plants their "study and delight," but state this more by way of encouragement to the amateurs who could not always give such an amount of daily attention as these plants would certainly enjoy. Having pointed out this fact I think I have said enough as an inducement to many to make a start; but yet more is to be added.

We are all—perhaps the town-imprisoned population more than any other—fond of plants within-doors. Now, a neat glass receptacle for the Film Ferns, or an elegant Wardian case, is an ornament in itself; and if filled with these plants, flourishing amidst artificial rockwork, neatly formed, few more interesting objects are to be found. Having said thus much, I now turn to the subject of culture, and to make a few remarks regarding the more ordinary kinds.

The roots delight to grow around and adhere to rough porous stone of the freestone or Derbyshire spar type; hence, when procurable, lumps of this should be freely incorporated with the compost formed for them to grow in. With pieces of this, consisting of about one-fifth of the whole, one part of fibrous peat to two of sphagnum, chopped fine, and two of silver-sand, the necessary compost is formed. In addition to giving a thorough crocking of potsherds and pieces of charcoal to the base, the above compost must be placed in, so that perfect porosity exists, permitting all the water given to drain freely through. The fresher the water afforded by giving successional supplies, so much better the plants will thrive. In placing any small piece of this peculiar class of Ferns into a fresh pot, it is always advisable to fix the rhizome neatly between two pieces of such stone as the above, and then to fasten the stones firmly together by binding them tightly with copper wire. Always continue to increase the size of the bell-glass or other structure as the plant progresses in growth, as the fronds frequently have much of their beauty destroyed by being left in immediate contact with the glass. As a rule, established plants will be benefited by a sprinkling overhead once a week, or twice if convenient; though they may be permitted to remain with immunity from injury for more lengthened periods, if the glass is kept closed down, so as to retain the moisture. When frequent periodical waterings are possible, a little air should be given on the morning of each day, by simply tilting the bell glasses slightly, or having resort to any more convenient method which may exist in the variously formed Wardian cases.

During the three winter months a very limited sprinkling only is required, at more distant intervals; none should be given, in fact, during sharp frosty weather where the plants grow in cases. Sometimes the Trichomanes are grown successfully in glass dishes having no outlet for the water at their base, and over which shades are placed. In all such instances it will be advisable to give very copious waterings, and then to gently turn the dish with the roots and soil upon its side, to run the water away. By these means the roots and their surroundings will not only be sweetened but freshened. Under such conditions of culture, less water will be needed than where a free vent exists for all the water as it percolates down from the soil above. The glass dish will be found very clean and neat, besides the plants will thrive in it, provided always—and this I had omitted to mention previously—the roots are well elevated at the planting time on mound-like prominences above the body of the compost.

During winter, especially when, subsequent to sudden variations in temperature, the pellucid fronds will occasionally become densely weighted with dew-like moisture, I have found it necessary to shake the denser moisture off with the hand, and to expose the plants for ten minutes. If this be not done symptoms of rot will often set in and injure them materially, it only by the formation of dark specks on the fronds themselves; these facts being illustrated more frequently in instances when more than an ordinary supply of root moisture exists. Too frequently the glass structures placed over these are too shallow, hence the tops of the fronds have not sufficient room to extend freely. For this reason I advise a high glass shade as being preferable to a bell-glass, and that all Wardian or plant cases be made higher than the plants usually grow.

The commonest species, T. radicans, is known by the general name of the "European Bristle Fern;" Ireland used to be its home, but the collectors have nearly, if not quite, denuded the neighbourhood of Killarney of this gem in its flora. The county of Wicklow used to own it, and in 1782 it was found at Bingley, in Yorkshire. Mr. Rowbotham, Manchester, discovered the latest specimens, I believe, about 1863, somewhere on the Snowdon range in North Wales. This species was first noted in our modern garden literature as T. brevisetum, the "short bristled," one of its synonyms being Hymenophyllum alatum. The Island of Luzon, however, seems to be the headquarters of the genus, as it maintains some eleven or twelve dis-

tinct kinds. As the genus thrives so thoroughly in the Philippine Islands, which enjoy a mean temperature of not more than 70°, it is highly probable that the Fern in question will succeed well in cases in living-rooms, more particularly when it is considered how easily warm woollen cloths can be placed around them during all downward fluctuations of temperature, and during the nights of our occasional zero-courting winters—indeed, those we have had to deal with have not required an exotic temperature. An uniform dense humidity seems to be enjoyed by them, with fine spray sprinklings of water very frequently in summer, and a place sufficiently large and spacious so as to operate upon them. The several species from the West Indies, near which the Gulf Stream starts on its northern journey along with the heat-bearing upper current, enjoy a somewhat higher temperature, averaging a mean of from 77° to 79° and 81°, and they like more warmth when cultivated in an artificial manner than many of the others. *William Earley, Valentines.*

DR. BENNETT'S GARDEN AT MENTONE.

Many of our readers will recall with pleasure the letters with which Dr. Henry Bennett has occasionally for some years past enriched our columns. These letters have since been incorporated into one of the most charming books of the kind ever written, entitled *Winter and Spring on the Shores of the Mediterranean.* In those letters, as in the book just mentioned, Dr. Bennett alludes to his garden at Mentone, to the difficulties he had to encounter in its formation, and specially and notably to the nature of the climate as shown by vegetation. The accomplished physician has here turned his trained faculty of observation to the investigation of the relation between climate and vegetation. Having not long since hastily traversed a portion of the district so admirably described by Dr. Bennett, we are in a position to appreciate his accuracy, and, so far as our opportunities permitted, to endorse his conclusions.

It was a bold idea to conceive of a garden at all in such a situation. Imagine the steep slope of a mountain bending at an acute angle to the sea, with little or no surface soil, and with a hard rocky substratum of quartz. Imagine, too, a climate where rain rarely falls, and where for four or five months the sun beats so fiercely that scarcely a lizard can live. Yet here, on a lovely promontory overlooking the town of Mentone, sheltered from the north, and at about a mile's distance from it, Dr. Bennett has succeeded in scooping out a garden, which is not large in point of space, but which is large so far as intrinsic interest goes. It consists of three shelves—we beg pardon—terraces on the mountain side, each about 12 to 15 feet wide, and 200 to 300 feet long. Mounting by a narrow trackway overhanging a marble quarry, the visitor is greeted with a "Salvete Amici" sculptured on the entrance-gate of the garden, and, entering, finds himself in one of those "pergolas" or "topias" so common in Italy, and consisting of an avenue of pillars, if we may so call them, with beams laid across from one to the other, and on which Vines, Clematis, Bougainvilleas, and other climbers train in full luxuriance of health and growth. Climbing Roses add fragrance, brilliant Tacsonias (T. manicata, here called T. ignea) give glowing colour, while quaint Agaves, bristly Cactuses, and eccentric Opuntias impart variety to a spot such as a London scene-painter might conceive, but one which the British gardener, familiar only with gardening in his own country and in his own climate, can hardly realise. To indicate the principal plants in this garden would be, to a large extent, to reiterate what we have before enumerated while speaking of the gardens at Monaco, La Mortola, Genoa, &c. Succulents thrive *à merveille* all along the coast, and Dr. Bennett has turned this fact to good account by securing a large collection of them. Some of these are grown on the terraces in beds, or on the rocks, while others are grown in a kind of trough running along the top of a wall overlooking the sea. In this trough, which resembles a great window-box, the Cacti flourish admirably. This trough furnishes a hint which might advantageously be acted on, with any necessary modifications, to break up the straight lines of many a wall, and afford a home for such plants as Sedums, Sempervivums, Antirrhinums, Wallflowers, Pinks, and other plants which not only bear such exposure, but thrive under it. From one terrace to another access is afforded by a few steps, and thus the whole garden has much the aspect of a wide flight of stairs decorated with plants and flowers. On one of the terraces Dr. Bennett has constructed a house for sheltering tender plants from rain and such alternations of temperature as occur even here, and for purposes of propagation. We can well imagine that the natives, to whom such a thing as a greenhouse was utterly unknown, looked upon the English doctor as one not quite *compos.* It may be asked where in such a situation does the soil come from in which the plants grow? Well, part of the terraces have been used formerly for Olive culture, indeed Olives afford the *raison d'être* of the terraces. Again, in the crevices of the rock are found deposits of loamy soil washed down from the mountain's side and stored up in these cracks. Peat soil being unattainable use is made of Chestnut mould—mould that is composed in great part of the decaying bark and twigs of the Sweet Chestnut tree. This is a different thing from leaf-mould, consisting as it does principally of the decaying wood of the tree. Samples of this and of similar soils were, we may add incidentally, exhibited at the Florence exhibition, and excited our surprise as to what English gardeners, in dread of fungus at the root, wonld think of such a favourable fungus soil as that. The drier climate, however, has probably much to do with obviating these ill effects.

With abundant means of irrigation plant growth assumes literally enormous proportions when once the summer heats are over. From April to September there is little or no rain, though it was our unlucky fate to be drenched in a garden which should be rainless at the end of May. Between September and April the rainfall is about 25 inches. The temperature during those summer months ranges from 74° to 84°, and in winter is generally about 44° for a night minimum. Very rarely, and then only for a night, does the thermometer reach freezing point. This must have been the case in the present spring, for the Lemon trees were in some places even at Mentone severely blackened by the frost—the same probably which played so much havoc with the Vines at the end of May in Eastern France, and which completely destroyed the foliage of the Walnut. Dr. Bennett's garden would appear to be admirably suited for many Mexican bulbs, Yuccas, for Australian and Canary Islands and Cape plants, indeed for most plants to which bright light and ample heat are essentials. We have already alluded to the magnificent bushes which our common scarlet Pelargoniums make in this district, and we revert to the subject for the sake of impressing the moral, that these plants would do better with us, when bedded out in our moist climate, if not so liberally supplied with water. For a fuller account of this garden and its treasures we must refer to our volume for 1868 (pp. 379, 519, 602), or to Dr. Bennett's delightful book above mentioned. We can now only add, in conclusion, that our view (fig. 88), is taken from the end of the terraces, looking towards Mentone, and immediately over the railway from Genoa to Marseilles. The tower in the left-hand corner is one of the old watch-towers once so useful as points of outlook in the days when Barbary pirates were the terror of the inhabitants of this coast. The Agaves, Dracænas, Yuccas, &c., will serve to give some idea of the characteristic features of this gardener's eyrie.

Foreign Correspondence.

Wodenethe, Fishkill, on the Hudson.—In your issue of August 22 you gave a very interesting account of the Cycas revoluta flowering in the open air. I wish also to bear testimony to the many instances where tropical plants stand out during the summer months, all at home in our congenial climate; and here I will give the dimensions of another of the Sago Palms which are to be seen at the seat of H. W. Sargent, Esq., Wodenethe, Fishkill, on the Hudson, New York State, which has flowered every other summer for the past ten years. This summer it has been kept indoors on account of its too great bulk and weight to move about. At the base this majestic plant measures 41 inches in circumference, at 3 feet from the base it is 48 inches; the height of stem is 5 feet, and the diameter from the point of one frond to the other measures 10 feet. This year it has flowered, perfected its seed, and thrown a very fine head of fronds. By its side stands a magnificent plant of Latania borbonica, whose stem measures 3 feet in circumference at 2 inches from the ground; expanse of branches 15 feet, and height of plant 13 feet. Cannas planted out in May stand 14 feet high, and Castor-oils obtain the height of 18 feet. Thus you may form some idea of the grandeur of our subtropical gardens. Musa Ensete and M. Cavendishi, &c., all stand outdoors with fine foliage without being broken about with wind or storm for nearly four months in summer. But you will be apt to say, What about things for outdoor decoration in the fall, winter, and spring, when the thermometer runs down to 30° below zero? But it is a rare occurrence that we get it so cold. Still, this is not the worst. By day it will rise to 45° or 50°, and in the sun to 65° or 70°. Now this is very trying to plants of any character; no Laurels, Laurustinus, Bays, Yews, or variegated Hollies will stand it, although we have fine specimens of these things. Yet they have to be taken another course with in winter, namely, brought indoors. Before coming to this country I could not learn what the Americans could have in the way of evergreens that would stand their great extremes of cold and heat; now, as it may be interesting to many, as it was to me, I will give the names of a few varieties, that give the places where planted a very rich appearance. The gold, silver, and blue colours mixed in with the green give a most striking appearance. Retinospora aurea, R. plumosa aurea, R. obtusa elegans aurea, R. alba variegata; Cupressus Lawsoniana alba, C. pendula, C. cœrulea, C. erecta viridis, C. lutea; Taxodium alba, Thuja orientalis semperaurea, Thujopsis semperaurea, Thuja Feastii, &c.; Abies Englemanni (a seedling with the richest glaucous blue colour that I have ever beheld on any tree or shrub), and many more Abies, Piceas, Pinus, Thujas, &c., for grouping and planting. For winter we use such as Euonymus radicans variegata, Lonicera aureo-reticulata, Hedera Helix, Juniperus stricta, Euonymus flavescens, Golden Privet, Vinca minor lutea variegata, Vinca minor alba, &c. While speaking of the planting, I should mention that here for summer effect Mr. Sargent delights in the grouping of foliage deciduous trees, such as purple-leaved Filberts, purple-leaved Barberry, Golden Acacia, Quercus nigra, Quercus Concordia, Acer Negundo variegatum, Sambucus aurea nana, Rhus glabra laciniata, Acer marginatum roseum, Acer dissectum, Acer septumlobum, Acer palmatum fissum. Thus you will be able to see that in the Land of the West there is ample provision for a fine display all the year round. I cannot say anything at present about the country generally, but I have no cause to regret that I crossed the Atlantic for the Land of the West. *G. T. R.*

Forestry.

Notes on Indian Forest Produce (*continued from p.* 330).—Of all the Indian timber trees Teak (Tectona grandis, L.) is perhaps the most largely used, not only in the country of its growth, but also very generally in Europe; for ship and railway carriage building no other wood approaches it. Its recommendations are evenness and uniformity of grain, by which it is easily worked, great strength and durability without excessive weight, and, above all, its non-liability to attack from fungi. The Teak forests form one of the principal features of the Central Provinces, Berar, Bombay, and Mysore, and to some extent of Madras also, as well as in Burma. Mr. Baden-Powell says that—

"The natural limit northward to which Teak attains (about 25° latitude) corresponds in India to its limits in Burma, so far at least as we have any information on the subject. Towards that limit the rainfall diminishes, and night-frosts are not uncommon, and it will afterwards appear that, as a rule, temperature has as great an effect on the range of production as moisture. If a line be drawn from the mouth of the Nerbudda on the west, curving upwards to Jhansi, and then curving downwards again to the mouth of the Mahanadi on the east, the whole of the country to the south of the line may be said to be a tract containing more or less Teak. In Burma, similarly, the Teak limit will be indicated by a line drawn from the base of the Ærakau-yoma on its eastern face, following the hill range upwards to near the 25th parallel of north latitude, and then circling round to the hills enclosing the Salween river. Little is, however, known of the Teak tracts beyond the artificial boundary of British Burma.

"On the slopes of the great range of hills north of the Nerbudda river, known as the Vindhya, the forest consists of several thorny Acacias, including A. leucophlæa, Willd., called locally the Reunja. This tree produces a crooked, gnarled trunk, but in some places it grows to a very large size and a great girth. The wood is strong and tough, but is very liable to attacks by insects. The heartwood is so small that it is seldom used for cabinet or furniture work, but is said to make the best fuel for locomotives. From the bark a strong fibre is obtained, used for making coarse nets and cordage, and it is sometimes ground and mixed with flour and used as an article of food in times of scarcity. The seeds are also ground and used in a similar manner, while the young pods are eaten as a vegetable. Acacia Catechu also occurs in the same forest. It is a moderate sized tree, and is common in many parts of India, producing a hard, dark red, or reddish-brown wood, very strong and durable, and used for rollers for crushing sugar-cane, oil seeds, as well as for waggon work, ploughs, sword handles, &c. Cutch, or Catechu, so well known as an article of trade in this country, and used for tanning, is prepared from the heartwood by cutting it up into pieces and boiling them in water. This water, after boiling, partakes of the colour of the wood, and is again boiled with fresh chips several times, after which it is evaporated to the consistence of a thick paste, which, as it cools, becomes hard, and has a dark brown shining fracture. It has a very bitter and astringent taste, and is imported in masses or lumps in considerable quantities for dyeing and tanning purposes.

"On rocky ground in the neighbourhood of this forest the Dâk (Butea frondosa) is common, and in the lowlands the Mohwa (Bassia latifolia). The first is one of the most showy of all Indian trees when in flower.* It is distributed nearly all over India, growing to a height of from 40 to 50 feet. From the tree various useful products are obtained, such, for instance, as a kind of kino, which flows in the form of a red juice from cracks in the bark, or from incisions made for the purpose of obtaining it. Upon exposure it soon hardens

* The flowers being of a brilliant scarlet colour, appearing in early spring before the leaves.

into a brittle astringent substance, and is used in medicine in India. Lac is also obtained from the tree in some quantity. The flowers yield a yellow dye, and the bark gives a fibre used for caulking boats.

"The Bassia latifolia is a tree of 40 to 60 feet, found more or less abundantly all over India. It is valued for its flowers, which are used as an article of food either raw or cooked, sometimes as a confection, and at other times as a more substantial food, being cooked with corn or grain. These flowers have naturally a sweet taste and a powerful smell, and from them a strong spirit is distilled. So important, indeed, are they in some parts of India that they are frequently sold in the bazaars. They fall in large quantities from the trees during the night, and are collected and dried in the sun. The fruits are also eaten, while from the seeds a quantity of oil is obtained, which is used for burning in lamps, for making candles, soap, &c., and also for culinary purposes, more particularly amongst the poorer classes, as the oil soon turns rancid in the hot air of India; in a colder climate, however, it keeps good for a much longer time. The wood is close and even grained, strong and durable, and is occasionally used for railway sleepers.

"The Teak found in this forest in conjunction with the foregoing tree grows along the banks of rivers and nullahs, and occasionally on the sides of the small hills rising out of the plain near the rivers, where Bamboos grow. It does not, however, grow to perfection in this place, as will be gathered from the following opinion of Colonel Pearson. He says:—'These forests, no doubt, have never had a fair chance given them, for the reckless cutting and burning for "dhya" cultivation, which has been practised by the jungle tribes here as elsewhere in every part of Central India, has utterly prevented the formation of a coat of vegetable mould in which a forest could grow; but from long and extended opportunities of observation, I am convinced that it is an error to suppose that good timber of any size was ever produced on the north slope of the Vindhayas. I cannot say that I have ever seen a single indication of a true forest along the whole range; all natural elements for the production of good timber of any size are certainly wanting.'"

In the different districts of the Central Provinces Teak occurs mixed more or less with species of Terminalia, large Combretaceous trees, the fruits of two or more species of which furnish the Myrobalans of commerce, so largely imported and used for tanning and dyeing purposes, also with species of Nauclea, a Rubiaceous genus of hard-wooded trees, three species of which, described by Roxburgh as N. Cadamba, N. cordifolia, and N. parvifolia, are now referred respectively to Anthocephalus Cadamba, Benth. and Hook.; Adina cordifolia, Hook. f. and Benth.; and Stephegyne parvifolia, Korth. Another companion tree is Diospyros Melanoxylon, a near ally to the Ebony, and producing a similar black wood and an edible fruit. In the plains below grows the Babool (Acacia arabica), one of the sources of gum-arabic, and whose bark is used for tanning, together with species of Eugenia, Myrtaceous trees, mostly with edible fruits, and Buchanania latifolia, a moderate-sized tree, belonging to the Anacardiaceæ, useful as furnishing a pleasant sub-acid fruit, and a clear gum from the stems. Besides these are to be seen splendid specimens of Pterocarpus Marsupium, a Leguminous tree, which furnishes East Indian kino, and of the Satin-wood tree (Chloroxylon Swietenia), the Jack (Artocarpus integrifolia), and others. In Nimar, the most western district of the Central Provinces, Hardwickia binata, a fine Leguminous tree, producing a strong and valuable building timber, is said to be now the most abundant tree in the district. Mysore, in which large quantities of Teak grow, is described as

"A plateau at a mean elevation of 2000 feet above the level of the sea. The boundary towards the west is formed by the ghâts, which, attracting the abundant moisture of the seas, are clothed with luxuriant evergreen forest. The moisture, however, diminishes on proceeding eastward. Still the rainfall is everywhere fair, and falls at two monsoon seasons, viz., from September to December, and again from June to September. But though the whole country is elevated, it is by no means level; the ghâts form the great mountain series, and the whole province is varied by minor ranges and groups of hills. A sort of second series, generally parallel to the ghâts, traverses the province towards the east, running north and south from Madagiri to Kankanhalli.

At the top of the ghâts the dense evergreen forest belt varies in width from 6 to 12 or 14 miles. Species of Calophyllum, Artocarpus hirsuta, Diospyros (Ebony), Soymida febrifuga, Lagerstrœmia regina, Vateria, and Erythroxylon, are the most valuable; also Garcinia and Cedrela. The Teak occurs in what is called the mixed forests, which form the belt next below the evergreens, following the course of the ghâts and their outlying hills, circling also round the southern limits of Mysore and the whole of Coorg, especially on the south-east of the latter State; in this portion the Teak forests are on almost level ground. The forest belt extends from 10 to 45 miles in width; in it are situated the Cardamom gardens and Coffee plantations; and Sandal-wood jungles are also interspersed in the drier portions. The Teak is found with a large admixture of other species. The best forests are in the west and south, and, as before said, in the south-east of Coorg; in other parts the Teak is sparse and often stunted, especially when it occurs in the 'dry forest,' which, after passing the two forest belts alluded to, occupies all the rest of the province. The forest in which the Teak is found has a rich abundance of other trees; the species of which are valued for building purposes and for giving timber of a large size."

Amongst others occur Pterocarpus Marsupium, Terminalia tomentosa, Michelia Champaca, Schleichera trijuga, species of Dalbergia, Xylia dolabræformis, Conocarpus, Ulmus integrifolia, Gmelina, Lagerstrœmia microcarpa, Vitex, Eugenia, Bombax, Ægle, Feronia, Acacia, and Dalbergia latifolia. Many of these trees are valuable, not only as timber trees, but for other products yielded by them. Thus the Michelia Champaca, a splendid tree, growing in some situations to a height of from 60 to 100 feet, though essentially a timber tree, producing a wood very highly valued for a variety of purposes, is much planted around Hindoo temples for the sake of its sweet-scented flowers. Schleichera trijuga, a tree of 60 to 70 feet, producing a hard and durable wood, used for pestles, mortars, sugar and oil crushers, and other strong parts of machinery, as well as for building purposes, also furnishes a quantity of lac of superior quality, which is secreted on the young

FIG. 88.—VIEW IN DR. BENNETT'S GARDEN, LOOKING TOWARDS MENTONE.

branches, and the seeds yield an oil. Gmelina arborea, a moderate-sized Verbenaceous tree, produces, besides a strong wood somewhat like Teak, edible fruits; these, together with the root and bark, are used as native medicines. Bombax Malabaricum, a Malvaceous tree, growing sometimes to a height of 150 feet, produces a soft wood, used for planks, toys, floats for fishing tackle, &c. From the fruit, which is a woody capsule, 4 to 5 inches long, is obtained a quantity of soft, silky fibre, which envelopes the seed in the same manner as cotton. These silky hairs, however, are short and brittle, and are therefore unsuited for weaving purposes; it is, nevertheless, occasionally used by the natives for making into a kind of fabric, but its chief use is for stuffing pillows and cushions. From the trunk a gum exudes, which is used in native medicine, and the calyces of the unexpanded flowers are eaten as a vegetable. Ægle Marmelos is well known as the Bael tree; it grows to a height of from 30 to 40 feet, and though the wood is close and even grained, and used for agricultural implements and waggon work, the tree is not felled in any large quantities, on account of the value of the fruit, the pulp of which is used in medicine in cases of diarrhœa. When ripe it has a very agreeable perfumed flavour, and is eaten preserved in sugar. In general appearance it is very similar to a large Orange, to which indeed the tree is closely allied, differing from it only in having numerous disunited stamens. The root, bark, and leaves are used in native practice, and the flowers are distilled to make a perfumed water. The Elephant-apple, or Wood-apple (Feronia elephantum), is botanically closely allied to the last, producing a globular woody fruit, filled with pulp, and containing numerous oblong, flat seeds. The pulp is edible, of an acid flavour, and a jelly is made from it resembling, it is said, black Currant jelly. The several species of Dalbergia are essentially timber trees, all of them producing valuable variegated woods.

As a species Teak reproduces itself readily both by coppice and by natural seedlings, its great enemy, however, in its natural habitat is fire, which often devastates the forests. The export of the wood is

"Usually effected by floating, but the timber is too heavy to float unaided until it has become somewhat dry. It is, therefore, usual in Burma and in parts of India to girdle the trees—*i.e.*, to kill them by a deep circular incision through the bark and through every part of the sapwood. So great is the vitality of the Teak, that if this latter is not attended to a column of living tissue will remain, through which the juices of the tree will continue their circulation, and in many cases re-establish the functions of growth. When the tree has stood girdled for two seasons or more it has become dry, and is cut down, dragged to the nearest stream, and, after being marked by the blow of a marking hammer, is put into the stream, wherein it is floated till it arrives at a main river or broad stream, in which its collection and formation into rafts is possible.

"The dragging is done by elephants, or, in the case of lighter logs, by buffalos. The elephants are furnished with a kind of wooden saddle, and a broad belt, made of the fibre of Hibiscus or Sterculia, across the chest, to which the dragging chains are attached. The sagacity with which a trained elephant will drag a log or will launch it when he has reached the edge of the stream is marvellous to witness. The animal seems to exhibit an instinct amounting to reason in the way in which it will move a log, alternately lifting it with its tusks or pushing it with its forehead or knees, first at one end, then at another, till it has got it into the required position for rolling it down the bank of the stream.

"In the Domdami forests (Salween) a block of 1 cubic foot of fine close-grained Teak was cut green in the beginning of 1871; it then weighed 75 lb. It was dried in the sun, and when it had reached 62 lb. it would float heavily. By March 50, 1871, it had dried to 57 lb., and floated easily. The block was left in the water from March 30 to April 19, when it was found to weigh 60 lb., and floated heavily. It was again dried, and by June, 1871, it had lightened to 57 lb., and floated, as before, easily. It has been kept in the shade in a room ever since; on December 15, 1872, it had further lost weight, being only 47½ lb., and on August 6, 1873, it was 46 lb.

"On the Salween a peculiar mode of timber export is followed. The side streams and feeders take the single logs to the main river; but the whole of the upper portion is an unmanageable torrent, so that the logs have to be left to chance. So soon as the part of the river is reached where catching and forming into rafts is possible, stout ropes of twisted rattans are stretched across the river at intervals; thus the logs coming down in a confused mass are stopped. The expectant owners station themselves at the banks and, after stopping such logs as they perceive to belong to them, they push the other logs under the rope, they then pass on till a second party at the next rope makes a similar examination. Such logs as are stopped in this way are formed into rafts, but a number of logs, of course, which in the hurry of the moment are not recognised, or whose owners were not on the spot, escape the ropes, in spite of all precautions, and float down unclaimed. Below the last rope, therefore, a numerous band of people collect during the catching season, and gain a livelihood by boating, and even swimming, after the logs—'salving' them, as it is called. This is now done under Government supervision, and the owners reclaim their timber on payment of certain salvage dues at a regularly authorised scale.

"To return to the question of girdlings, the process has the advantage of rendering the timber floatable, and also of keeping it in position while seasoning, in which it is out of the way of the forest fires, which could attack logs left lying on the ground in the forest. It is also useful, if the process is continued long enough, as a means of check in the case of permit holders, as the timber acquires an easily recognised appearance, and so can be distinguished at the stations for examination and payment of royalty from timber that has not been girdled. Whether beyond these advantages, which are limited in themselves and easily provided for otherwise, girdling benefits the timber or injures it, is a question that has been hotly debated, and nothing for certain can be said on the subject: one allegation against it has been disproved by chemical analysis—it is found that the girdling does not deprive the hard wood of its strong-smelling oil.

"But girdling requires the attention of responsible officers, and by far the greater part of the time of Burma forest officers has been taken up in supervising girdling parties, which, in the present scattered condition of Teak trees (they stand on a general average at 1.38 per acre), is a work of both time and labour. This time and labour might have much more properly been given to the conservation and treatment of the forest with a view to doing something to reduce the enormously extended area of production, and render the Teak more numerous and the forest compact in growth by systematic treatment of limited areas of forest in situations where the conditions of growth are favourable and the facilities of export greatest."

With regard to the propagation of seedling plants it is said that the more northern the plane of its growth the less the Teak will tolerate shade, and it requires more favourable elements to coax it, as it were, into germination. It has been observed that in the Central Provinces the seeds do not germinate till the second rains after they are shed, and in many of the Indian nurseries the custom prevails of artificially forcing the seed, "by covering it with grass or straw in shallow pits, and then kindling the grass, thus letting a light fire pass over the seed. In Burma, on the other hand, the seed germinates in the first season, and no such forcing process is ever resorted to. The germination is sufficiently fostered by moisture, and in nursery plantations it is customary to hang the seed up in nets to catch the droppings from the roof eaves for a few days."

Teak grows best when planted with good shade-producing trees, which act as nurses to the young Teak plants. Mr. Baden-Powell gives it as his opinion, in which he is endorsed by Mr. King, that the Bamboo is one of the very best nurses for Teak in Burma. He says some of the finest Burmese Teak growth may be seen among Bamboos, the Teak, of course, towering straight and tall overhead.

The rate of growth of Teak varies, of course, exceedingly, according to climate and moisture; in Malabar, where Teak is at least as fine, or perhaps finer, than any Teak in the world, the rate of growth is remarkably rapid, trees of twenty-three years old having attained a height of from 70 to 80 feet. In young plantations one of the chief precautions required for the protection of the Teak plants is to keep them clear of creepers, many species of leguminous plants of this nature doing infinite mischief by over-running the young Teak plants. The epiphytic species of Ficus are also amongst the greatest vegetable enemies of the Teak.

(*To be continued.*)

Notices of Books.

The Forest Flora of North-West and Central India; *a Handbook of the Indigenous Trees and Shrubs of those Countries.* Commenced by the late J. Lindsay Stewart, and completed by Dietrich Brandis, Ph.D. 8vo, pp. 608, with companion quarto volume, containing seventy uncoloured plates by Fitch. London: Allen & Co.

The successful future of a new country depends in a great measure upon the industry and forethought of its early colonists, and in no respect more probably than in the line of action taken with the forest lands. Timber, even in these days of iron, is one of the most important articles of commerce, and the presence or absence of wood determines to a great extent the prosperity of a young colony. So far as fuel is concerned, a wood period advantageously precedes the use of coal, and timber increases in value from year to year. The reckless destruction of forests has been severely felt, not only in America and other settlements, but also in some parts of Europe, and much has been done to remedy the disastrous effects of indiscriminate disafforestation. In America, for instance, especially in the swampy parts, the total destruction of the forests was looked upon as the only thing to render the country salubrious, but it has since been discovered that a whole region may become uninhabitable through injudicious action in regard to the forest lands. There are, therefore, two great and important questions to be considered in connection with the destruction or conservation of the arborescent vegetation of a country, namely, the supply of timber, barks, gums, resins, oils, &c., and the preservation of a favourable, or the modification of an unfavourable, climate. Moreover, vegetation directly or indirectly affords the greater part of the purely mental enjoyment to be derived from the contemplation of a landscape. It is a great thing for India, then, that the Government has taken up this weighty question with so much spirit, though, of course, its power is limited; but something may be expected from example. When this subject first attracted attention, and the authorities looked around for competent men to carry out their views, few could be found qualified for the work, as the number of trained men in this country was exceedingly small, and the botanical publications relating to the flora of India either too bulky or too scientific to be of much service to the pioneers in Indian forestry. Fortunately many able men were selected who have devoted their lives to the subject, and collected the information for themselves, upon which a sound system of forestry for India will be based.

Previous to the appearance of the book before us and some others to be mentioned in connection with it, specially intended for the use of foresters, we possessed a considerable number of illustrated and other works on Indian botany; but the information they contained could be profitably used by a botanist only. Amongst the earliest is Rheede's *Hortus Malabaricus*, in twelve volumes, published from 1678—1703, but the figures are rude, and many of them indeterminable. Another old work containing figures of Indian plants is Rumphius' *Herbarium Amboinense.* Roxburgh's *Plants of the Coast of Coromandel* is the first modern work of importance. It consists of three large folio volumes, containing 300 plates, published from 1795—1819. Following this came Wallich's *Plantæ Asiaticæ Rariores*, 3 vols. folio, 1830—1832. This work also contains 300 coloured plates, very well executed by native artists. Passing over several minor works, we have the important *Icones Plantarum Indiæ Orientalis* of Robert Wight, consisting of several quarto volumes, containing in all upwards of 2000 uncoloured plates, drawn by native artists. This work was carried on under great difficulties, and met with little support at the time, but its value has long been recognised. It was commenced in 1840 and completed in 1853. During the same period the author of the preceding work published his *Illustrations of Indian Botany*, a quarto work in two volumes, with 182 coloured plates, also by native artists. Both works were published at Madras. Royle's *Illustrations of the Botany, &c., of the Himalayas* is a quarto work, containing about ninety coloured plates of plants, executed by native artists. It appeared in 1839. Griffith's *Palms of the East Indies*, and other works; Hooker's *Sikkim Rhododendrons and Himalayan Plants*, Bennett and Brown's *Plantæ Javanicæ Rariores*, and Miquel's writings on the *Flora of the Dutch Territory in the East*, include nearly all the principal works relating to Indian botany, many of which, however, are very expensive. Descriptive octavo works, none of which are complete, are represented by Roxburgh's *Flora Indica*, Hooker and Thomson's *Flora Indica*, a very elaborate work, of which only one volume, treating of a few families, has appeared; and Wight and Arnott's *Prodromus.* Two parts of a less extended *Flora of British India*, by Dr. Hooker, have appeared, and there is good hope that the work will be completed in this form. Naturally many less important works and scattered papers have not been noticed in the foregoing hasty sketch of Indian botany, which leads us down to the publication of Beddome's *Flora Sylvatica.* This is an illustrated work specially intended for the use of foresters in Ceylon and the Western Peninsula.

Coming now to the direct consideration of the book (or rather books, for there is a companion quarto volume containing seventy plates by Fitch), the result of Dr. Brandis' labours, we may say that it is unique in its way, and for the purpose better adapted than any previous work, not only on account of its portability, but also on account of its contents. To a certain extent, Beddome's work and this supplement each other, but the text of this work has the advantage of being in a practical handy volume, full of useful information. Possibly Beddome may some day give us a similar handbook for his province.

This, like Beddome's work, is restricted to a selection of trees and shrubs, herbaceous plants being altogether omitted. About 700 native and 80 introduced species belonging to upwards of 450 genera and 78 natural orders are described, and a large number of European and other species are mentioned in comparison, &c. With the exception of a few introductory pages, a synopsis of the order, and a copious index of vernacular English and scientific names, the work is entirely devoted to the descriptions, uses, distribution, &c., of the various species. According to their importance, they are treated of in half a page, or the matter is extended to six or eight pages. Thus, for instance, the account of Sal (Shorea robusta) occupies two pages, the Sissoo (Dalbergia Sissoo) two pages, the Teak (Tectona grandis) eight pages, and the Deodar (Cedrus Deodara) eight pages. In fact, the book is full of interesting and instructive information, which must

have cost an immense amount of labour to collect and arrange. The author says in his preface that the fault of his book is, not that it is too scientific, but that it is not scientific enough. We think he has succeeded in giving a maximum of good solid matter in a minimum of space, and would not on any account have it more scientific. He has followed Hooker and Bentham's *Genera Plantarum* and Bentham's *Flora Australiensis* in his arrangement, and to a certain extent in the keys and descriptions he has adopted the style of the Colonial Floras; but it differs essentially from all the latter publications in its main feature of practical and economic information. Where there was a chance of contributing anything to our knowledge of the history, &c., of any particular group the author has not missed it. Take the article on Oranges, for example, which appears to be a good summary of all that was previously known, with some additional notes by the author himself. We shall shortly have occasion to refer to this particular part again. Of course the only conclusive test of the merits of a book of this class is its practical use; but whatever its defects may be they are not prominent. It appears to have been very carefully edited, and yet the author makes up half a sheet of additions and corrections.

To give some idea of the work, we may take two families—the Palms and the Conifers. There are only six indigenous Palms described, but twenty pages are devoted to the family, chiefly to the consideration of the Palmyra, Date, Cocoa-nut, and other introduced Palms. There are fourteen native Conifers described, and several others noticed, occupying thirty-seven pages.

We give some extracts from the account of the Chir (Pinus longifolia), which succeeds the synonymy, description and distribution of this species:—

"The leaves generally remain two to three years on the branches, the oldest being shed in May and June; attains 70 feet, and at times 100 to 110 feet; trunk, tall, erect, straight, 5—7, rarely 10—12 feet in girth. Crown oval when young, rounded when old, extremities of branchlets turned upward; foliage of old trees dark, of young trees lighter green; bark half inch thick, cut up by deep fissures and cracks into polygonal, sometimes oblong, thick, large grey or reddish plates; inner substance reddish-brown, compact; wood yellowish, reddish-white or brown, no distinct heart-wood. The weight of seasoned Chir, according to experiments made at Rurki is 27 lb. per cubic foot. The wood is easy to work and is extensively used in the hills for building, roof-trees are said to last two generations in Kamaon—also for shingles where slate is not available; at the Tea plantations for boxes, and there is a considerable exportation of it to the plains on several of the Himalayan rivers. As a rule, however, the wood is not durable; it is attacked by insects, and decays rapidly when exposed to wet. In Kamaon, about Piura, and in several places on the Wardwan branch of the Chenab, a large proportion of the trees have the bark and the fibres of the wood much spirally twisted in the same way, only to a much greater degree than is often seen in Horse Chestnuts in Europe. The wood of the twisted trees is useless for any purpose except for fuel. It has been supposed that the twist is caused by local winds, but the twisted are often mixed with the straight grown trees, exactly as is the case in an avenue of Horse Chestnuts, and their occurrence is confined to particular localities not more exposed to the action of the wind than the neighbouring tracts.

"The Chir probably produces more turpentine and resin than the other Conifers of the North-west Himalaya; it is obtained by making incisions in the stem, or by stripping off the bark. . . . In a report on the resinous products of the Garhwal Forest Division, of March, 1867, R. Thompson states that the quantity of berja, annually brought down to the markets at the foot of the hills, may be estimated at between 1000 and 1200 maunds of 80 lb. each, at prices varying from 3 to 4½ rupees per maund. He describes the procedure as follows: 'Several deep triangular-shaped niches are cut into and around the trunk of the tree. The niches are 12—18 inches long and 6—8 inches deep. The base of the niche is hollowed out so as to form a sort of receiver for the resin after it exudes. . . . The yield of an ordinary sized tree is 10—20 lb. of berja the first year, and about a third of the quantity the second, after which it dies or is cut down.' In the Punjab in 1868 the crude resin sold for 4—7 rupees per maund. Tar (mixed with turpentine and products of destructive distillation of wood) is also made by filling an earthen pot (perforated at the bottom with small holes) with chips of resinous wood, the pot is closed and luted over with wet mud, pieces of dry cow-dung are heaped over it and lighted. This fuel burns slowly, and the tar runs into a smaller pot placed underneath the other in a hole dug in the ground. . . . The wood of stumps of trees which has been notched and mutilated is often so full of resin as to be translucent, and such wood is used for torches, and in the place of candles in houses and mines, &c."

It is scarcely necessary to say that the plates are good. The plants selected indicate that the book is intended for the forest officers. Common, though important, trees, like the Teak, Sal and Sissoo, find a place. Populus euphratica, remarkable for the extreme variability of its foliage, is another subject; and three species of the difficult genus Tamarix are also figured.

This book will be necessary to every one going to the Central and Northern Provinces, and useful to all at home concerned in any way with the botany of India.

—— Baron von Mueller has recently issued a supplementary list of the principal trees and other select plants that might be cultivated in the Colony of Victoria for economic or ornamental purposes. In preceding lists the Baron enumerated about 1000 species which might be advantageously cultivated, or which, at least, it was desirable to make trial of. The following extract will show the nature of the information published on this subject by the Baron:—

"*Acacia pycnantha, Bentham.*—Victoria and South Australia. Though frequent in many parts of our colony this tree, known as the Golden Wattle, deserves, even here, extensive cultivation, mainly for the sake of its bark, rich in tannin. It is of rapid growth, will succeed even in sandy tracts, and yields seeds copiously, which germinate with the greatest ease. It is never a large tree. By improved methods the fragrant oil of the flowers could doubtless be fixed, though its isolation might be difficult and unremunerative. Experiments in the writer's laboratory have shown that the perfectly dried bark contains about 25 per cent. of mimosa-tannin. The aqueous infusion of the bark can be reduced by boiling to a dry extract, which, in medicinal and other respects, is equal to the best Indian catechu, as derived from Acacia Catechu and A. Sundra. It yields approximately 30 per cent., about half of which, or more, is mimosa-tannic acid. This catechu is also of great use for preserving against decay articles subject to exposure in water, such as nets, fishing lines, &c. While, according to Mr. Simmonds, the import of the bark of Oaks and Hemlock Spruce into England becomes every year less, and while the import of Sumach and Gambir does not increase, the annual demand has, since the last twenty years, become doubled. Probably no other tanning plants give so quick a return in cultivation as our Acacia pycnantha, and particularly A. decurrens. The latter, the Black Wattle, is already alluded to in the list of timber trees, but the following additional notes may further show the importance of this neglected tree. The English price of the bark ranges generally from £8 to £11. It varies, so far as experiments under my direction have shown, in its contents of tannin from 18 to 33 per cent. In the mercantile bark the percentage is somewhat less, according to the state of its dryness—it retaining about 10 per cent. moisture. Any bare, barren, unutilised place might here be sown most remuneratively with the seeds of this Wattle Acacia, to secure a regular and continuous supply of the bark, which, necessarily, must fall off under the indiscriminate arrangements of obtaining the bark from the natural localities of growth. The return would be within very few years. 1½ lb. of Black Wattle bark gives 1 lb. of leather, whereas 5 lb. of English Oak bark are requisite for the same results, but the tannin principle of both is not absolutely identical. The bark of the variety passing generally as the Silver Wattle (Acacia dealbata, Link), is generally of less value, often even fetching only half the price of that of the Black Wattle. The tannin of these Acaciæ yields a grey precipitate with the oxyde salts of iron, and a violet colour with sub-oxydes; it is completely thrown down from a strong aqueous solution by means of concentrated sulphuric acid. The bark improves by age and desiccation, and yields about 40 per cent. of catechu, rather more than half of which is tannic acid. Bichromate of potash added in a minute quantity to the boiling solution of mimosa-tannin produces a ruby-red liquid, fit for dye purposes, and this solution gives, with the salts of sub-oxyde of iron, black pigments; and with the salts of the full oxyde of iron, red-brown dyes."

—— Dr. Pfeiffer has published a supplement to his *Synonymia Botanica* (Williams & Norgate), published in 1870, and containing a large number of names, which, from various causes, had been omitted in the original volume and which professes to contain a complete list of all the names of classes, orders, and genera of plants as published up to the end of 1858. We are too thankful to get a work of such magnitude and necessitating so much irksome labour, to be at all severe in our criticisms; let us rather hope that the promised supplements, including the names published since 1858, may speedily be forthcoming.

Natural History.

HORNETS.—However much bees may be petted, and wasps occasionally admitted as pseudo-pets or points of study, there can be but one opinion as to the prudence of keeping clear of collision with the V. crabro, commonly known as the Hornet.

This insect is too well known to require a specific description, and is usually easily distinguishable from others of the English Vespidæ by its greater size and the rich red glow of its colouring, the head, thorax, and nervures of the wings being more or less ferruginous, and the abdomen having its yellow bandings varied with bands and spots of red, reddish brown, and ferruginous. The female, male, and worker are similar in colouring, save in degrees of brightness of tint, but distinguishable by their size and the greater length of antennæ, and greater comparative total length in proportion to its width, of the male.

In the South of England the hornet is not uncommon, Mr. Smith gives it in his *Brit. Mus. Cat.* as "very plentiful in Hampshire," and in Gloucestershire it is of only too frequent occurrence, and locally associated in some vague way with the existence of the goat moth caterpillar, which is considered a species of hybrid in some way inexplicable (as certainly might be expected) by the rural speculator. The common locality of the nest is in the hollow of an old decayed tree, the position affording at once a shelter for the nest and material for its paper, which though resembling that of the other wasps in manufacture, is so much rougher and coarser in texture as to give the appearance of having sand or hard lumps mixed with the decayed wood of which it is formed.

Whilst collecting material the hornets are very patient of observation, and may be watched quietly working on some old decayed gate-post, till having gathered a sufficient load for one application they fly away with it, apparently unconscious of interruption.

The handsomest and most regularly formed nests are usually those built as pendants under a roof, and these are sometimes of great size. In one case a specimen taken from the roof of a cottage in West Gloucestershire was as much as 15 inches in transverse diameter, and exceeded 19 inches in diameter vertically; and another nest constructed in the same locality was not much inferior to it in size. Occasionally a subterraneous position is chosen, which possibly, if the subject was one of easier investigation, would be found to involve the presence of some piece of decayed wood as the point of settlement. In the only case in which I found a hornet nest made in the earth without any decayed wood at all in the hollow with it, the paper work was a mere beginning, and the operations not being allowed to proceed it proved nothing definitely.

The nest may sometimes be found in an early stage simply suspended from a few strong, dry grasses, built a few inches from the ground on the hard upright stalks, which have lasted through the winter. An exceedingly beautiful specimen so placed close by the margin of a pond had progressed till the first laying of eggs had developed into larvæ of considerable size, and it would have been interesting to watch the expedients resorted to as the increasing weight of the nest exceeded the supporting powers of its grassy prop, but the severe nature of the hornet sting makes experiment in cases which must necessarily be unguarded, too hazardous to be risked, and the nest was removed.

The hornets, like other wasps, appear very susceptible of want of moisture, and where circumstances permit show much taste in selecting their juicy food of the best quality, and where their presence (as on the ripest Moorpark Apricots) could very well be dispensed with. Reaumur, in his *Memoires*, draws attention to their attacks on the young Ash trees, and I have noticed this to a large extent on some Ash saplings which were growing with their roots almost in the water. During the heat of summer the hornets attacked them so as to remove large pieces of the young soft bark, but apparently only for the purpose of imbibing the sap flowing from the edges of the wound.

The hybernation of the queen hornet appears to be prepared for with great care, and the winter cells may sometimes be found rather numerously near together by breaking up soft decaying wood, or carefully lifting thick bark from trees left, as occasionally happens, in masses in some neglected woodyard. On the bark being carefully raised, the queen's cell may be found beneath, formed apparently of nothing but the decayed wood powder, pushed aside so as to form a flattish oval space, in the centre of which stands the hornet queen, usually (in the instances I have seen) covered with a fine dew, and irascibility of temper no way diminished, though its power of expression is necessarily limited to harmless attempts at attack.

The most characteristic cells I have seen were under bark, but I have procured as many as six or eight hornet queens in one season of hybernation from the inside of the bole of one decayed tree.

The destruction of a hornet's nest is a matter requiring some caution, the difficulty and the remedy being both of some standing, for Olaus Magnus in 1555, in his *Historia de Gentibus Septentrionalibus*, &c., gives the application of tar as the most effective cure of his own day, and as such it still continues, used strong and thick, as for agricultural purposes, not in a diluted form.

Where simply pouring tar in would not be effective, a lump of tar-sodden hay firmly pressed into the opening of the nest may be a cure, but where hornets abound, a careful eye has always to be kept on volunteer attacks. It may chance (little as such a performance would be credited) that a valuable team is found in the act of being chained to a log containing a nest, or (as on another occasion) an unwise experimenter reduced nearly to extremity by sixteen hornet stings, and an immersion in the pond where he had taken shelter from the insects, who not unnaturally objected to their nest being stirred up with a pitchfork.

Where a nest cannot be reached, the owners may often be destroyed by setting some one who can be trusted to sit quietly near it for a few hours with a common bag insect net, fixed on a long handle. The hornets may be thus secured quite safely without any bustle or disturbance, and the nest (or rather the tenants), soon and safely got rid of. *O.*

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

SALES BY AUCTION.

Erith, Kent.

SALE of GENERAL NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. W. North, to SELL by AUCTION, without reserve, on the Premises, the Erith Nursery, situate in the rear of No. 1, North End Villa, Erith, Kent, on MONDAY, October 5, at 12 for 1 o'Clock, the whole of the NURSERY STOCK, consisting of a nice assortment of Evergreen, Coniferæ, and Deciduous Shrubs, Forest and Ornamental Trees.

Now on view and Catalogues had.

Sussex—Maresfield, near Uckfield.

To the NOBILITY, GENTRY, NURSERYMEN, and others engaged in Planting.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Wood & Son, to SELL, without reserve, on the Premises as above, on WEDNESDAY, October 14, and two following days, at 11 for 12 o'Clock precisely each day, an enormous quantity of clean and well-grown ORNAMENTAL, FOREST, and FRUIT TREES, comprising Acacias of sorts, Cornish, English, and other Elms, Cut-leaved Birch, Alder, Scarlet and Common Horse Chestnut, Hornbean, Scarlet American Oaks, Poplars, Sycamores; Ornamental, Scarlet and other Thorns, Limes, Planes, Maples, Ailantus, Catalpas, Larch; choice Fruit Trees, including Apples, Pears, Plums; also a very choice collection of specimen and other CONIFERS, comprising Abies canadensis, Biotas of sorts, Cedrus Deodara, Cupressus Lawsoniana, C. macrocarpa, Junipers of sorts, Pinus abchasica, austriaca, Benthamiana, Halepensis, Hamiltoni, insignis, Jeffreyi, Laricio, Massoniana, Monspeliensis, Mughus, muricata, Pinaster, ponderosa, and Sabiniana; Retinosporas of sorts, Thuja Lobbii, orientalis, &c. Strong Scotch Firs and Black Austrian Pines, four times transplanted, from 4 to 7 feet high, and finely feathered. Also a quantity of Evergreen Privet and Thorns adapted for hedges, Mahonias, Sweet Briars, Berberis, &c., a quantity of well-grown HARDY CLIMBERS in pots, comprising the finest varieties of Clematis, Ivy, Jasminum, Honeysuckles, Escallonias, Cotoneasters, Aristolochia, Bignonias, Ampelopsis Veitchii, Virginian Creepers, Ceanothus of sorts, a beautiful assortment of EVERGREEN and DECIDUOUS SHRUBS, consisting of a large quantity of Common Laurels, Aucubas, Laurustinus, Portugal Laurels, Arbor-vitæ, Sweet Bays, Yellow and White Brooms, Junipers, Yews, Ribes, Spiræas, Syringas, Philadelphus, Weigelas of sorts, Lilacs, Berberis, Deutzias, Cytisus, &c., together with fine Tea-scented and other Roses, &c.

May be viewed any day (Sunday excepted) prior to the Sale. Catalogues may be had on the Premises; of Mr. Charlton, Summervale Nursery, Tunbridge Wells; at the King's Head Hotel, Uckfield; and of the Auctioneers and Valuers, 98, Gracechurch Street, City, E.C., and Leystonstone, Essex.

The Woodlands Nursery is situate three miles from Uckfield Station on the London, Brighton and South Coast Railway, from whence there is a direct communication to all parts of the Kingdom. A conveyance will be at the Station to convey Purchasers to the Sale.

Messrs. Wood & Son will undertake to remove and deliver any lots which may be purchased at a price to be agreed upon.

N.B.—To Gentlemen about forming new places this Sale offers a grand opportunity of obtaining trees of large size, capable of producing an immediate effect.

The specimens are young, beautifully grown, and will remove with safety.

Clearance Sale.

A WELL-BUILT WOODEN HOUSE, easily removable, 26 feet by 27 feet, with handsome SHOP of good elevation, Mahogany Counter, Nests of Seed Drawers, and other FITTINGS, the whole as good as new.

GREENHOUSES and PITS, well built, with Lights in excellent preservation; Large LEAN-TO SHOWHOUSE, 24 feet by 10 feet; SPAN-ROOF HOUSE, 37 feet by 10 feet; ditto, 43 feet 6 inches by 11 feet; Three BRICK PITS, 45 feet long; BOXES with Lights, HEATING APPARATUS, and a quantity of BRICKS.

Beautifully grown EVERGREENS and CONIFERÆ SHRUBS in great variety; 1000 Large Common LAURELS, EUONYMUS; 2500 ACUBAS; 500 Green and Variegated HOLLIES, LAURUSTINUS, CUPRESSUS, ARBOR-VITÆS, &c.; and 2000 FRUIT TREES, many of them in fine bearing condition.

Fine, Large, ORNAMENTAL TREES, 10 feet to 14 feet high, in good condition for removal.

Eight thousand magnificent SEAKALE and ASPARAGUS ROOTS, extra strong, for immediate forcing; Cabbage ROSES, LILIES of the VALLEY, AZALEAS, and CAMELLIAS, FERNS, FLOWER POTS, TOOLS, BARROWS, and other Effects.

The whole of William Hooper's extensive Stock of the above will be SOLD by AUCTION, without reserve, by Messrs. PROTHEROE AND MORRIS, on MONDAY and TUESDAY, October 12 and 13, at 11 for 12 o'Clock precisely, on the Premises, New Wandsworth, S.W., five minutes' walk from Clapham Junction Station, the Land being immediately required for Building.

Catalogues on application.

Preliminary Notice.—Dorchester.

HIGHLY IMPORTANT CLEARANCE SALE of the noted WOLVERTON GARDENS' Collection of Specimen STOVE and GREENHOUSE PLANTS, PALMS, and FERNS, together with seven GREENHOUSES, with all the Hot-water Apparatus and Fittings thereto.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from W. H. P. Weston, Esq., to SELL the above by AUCTION, without reserve, on the Premises, the Wolverton Gardens, near Dorchester, Dorset, on THURSDAY and FRIDAY, October 22 and 23, at 23, at 11 for 12 o'Clock precisely each day.

Full particulars will shortly appear.

Bagshot.

By ORDER of the MORTGAGEE.

GREAT UNRESERVED SALE of well-grown NURSERY STOCK.

One month allowed for clearing.

MESSRS. PROTHEROE AND MORRIS are instructed by the Mortgagee, with the concurrence of the Executor and surviving Partner of George Baker, deceased, to SELL by AUCTION, without reserve, on the Premises, the American Nursery, Windlesham, near Bagshot, Surrey, on MONDAY, October 5, and five following days, many Acres of well-grown NURSERY STOCK, including a large number of fine specimen Coniferæ, 7 to 10 feet; also several thousands of smaller stuff, including 8000 fine bushy Portugal Laurels, 2 to 5 feet; 5000 Cupressus Lawsoniana, 2 to 5 feet; 1000 C. Lawsoniana stricta, 1000 Picea nobilis, 1 to 5 feet; 1000 seedling Aucuba japonica, 1 to 2 feet; 9000 Green Hollies, 1 to 2½ feet; specimen fancy Hollies, 1000 Thujopsis dolabrata, 1000 Retinospora plumosa aurea, &c.; also 10,000 choice named Rhododendrons, mostly set with flower-buds; several specimen and standard Rhododendrons, 10,000 pontica and hybrid kinds, 5000 Kalmia latifolia (well set), 3000 Ghent and other Azaleas, promising a profusion of bloom; 3000 hardy Heaths, 1000 Roses in pots, 5000 standard and dwarf Roses, 80,000 Forest Trees, consisting of clean grown Larch, Spruce, Scotch and Austrian Pines, Spanish Chestnuts, Birch, Beech, &c.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, City, E.C.

New Wandsworth, S.W.

CLEARANCE SALE of GLASS ERECTIONS, consisting of a large Lean-to Show House, 24 feet by 10 feet; a Span-roof House, 37 feet by 10 feet; a large do., 43 feet 6 inches by 11 feet 3 inches; Brick Pits, each 45 feet long, all with glazed lights; several Light Boxes, Hot-Water Piping, a quantity of Bricks, a well-built Wooden House, 26 feet by 27 feet, with handsome Shop, easily removable, and with Plate-glass Front, Mahogany Counter, &c. Also the whole of the valuable NURSERY STOCK, consisting of a variety of Evergreen, Coniferæ, and Deciduous Shrubs, which, with the usual assortment, will include 2500 Aucubas, 6 inches to 3½ feet; 2000 Laurels, Green and Variegated Hollies, Laurustinus, &c.; 3000 Ornamental Trees, 2000 Fruit Trees, 7000 strong Seakale, 1200 large 4-yr. old Asparagus, 700 Cabbage, Provence, and other Roses, 500 strong clumps of Lily of the Valley, Herbaceous Plants, Hardy Climbers, and numerous other effects.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Wm. Hooper to SELL by AUCTION, on the Premises, St. John's Hill Nursery, New Wandsworth, S.W., five minutes' walk from Clapham Junction Station, the above, on MONDAY and TUESDAY, October 12 and 13, at 11 for 12 o'Clock precisely each day, without reserve, the Land being required immediately for building purposes.

May be viewed prior to the Sale. Catalogues had on the Premises: of Mr. HOOPER, Florist, 88, Oxford Street, W.; and of the Auctioneers and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Chigwell, Essex.

CLEARANCE SALE, a portion of the Ground being required to be cleared immediately for other purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Joseph Protheroe to SELL by AUCTION, on the Premises, The Nursery, Grange Hill, Chigwell, E., on SATURDAY, October 17, at 11 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, including some thousands of remarkably well-grown Aucuba japonica, 1 to 4 feet, particularly worthy the attention of the trade and private buyers; also a rich assortment of other Evergreen and Coniferæ Shrubs, 800 clean-grown Limes, 9 to 12 feet, and other Ornamental Fruit and Forest Trees, beautiful Standard Roses, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the Proprietor, Roll's Park, Chigwell, E.; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Sunningdale, Surrey.

HIGHLY IMPORTANT and EXTENSIVE SALE of NURSERY STOCK, beautifully grown, and in the finest condition for transplanting.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. Charles Noble, to SELL by AUCTION, on the Premises, the Sunningdale Nursery, close to the Sunningdale Railway Station, South-Western Railway, on MONDAY, October 19, and eight following days, at 11 for 12 o'Clock each day, without reserve, the Lease of a great portion of the Nursery having expired, necessitating an immediate clearance of an immense quantity of beautifully grown NURSERY STOCK, including a great number of magnificent Specimen Coniferæ and Evergreens, such as Cupressus Lawsoniana, Green and Variegated Hollies, Thujas, Retinosporas, Junipers, Piceas, Wellingtonias, Thujopsis; 100,000 Cupressus Lawsoniana, 1 to 10 feet; 75,000 Cupressus Lawsoniana nana, 6 to 24 inches; 20,000 Pinus austriaca and Laricio, 1½ to 8 feet; 10,000 Picea Nordmanniana, 1 to 10 feet; 10,000 Arbor-vitæ, americana, and Warreana, 2 to 8 feet; 5000 Juniperus chinensis, 1 to 2½ feet; 10,000 Retinospora ericoides, 1 to 4 feet; 10,000 R. pisifera and obtusa, 2 to 8 feet; 5000 R. aurea and plumosa, 6 to 18 inches; 5000 Cupressus Lawsoniana viridis, 3000 Picea nobilis, 3000 Wellingtonia gigantea, 1 to 2½ feet; 5000 Thujopsis borealis, 1 to 6 feet; 5000 Picea Pinsapo, 1 to 4 feet; 3000 Cryptomeria elegans, 1 to 2½ feet; 75,000 Thujopsis dolabrata, 6 to 24 inches; 50,000 Retinospora leptoclada, 10,000 Thuja Lobbii, 2 to 10 feet; 100,000 Laurels, 1 to 4 feet, fine bushy plants, consisting of the Colchic and common varieties; 100,000 Mahonia Aquifolia, 9 to 24 inches; 50,000 common Hollies, 1 to 2 feet; 10,000 Privet, oval-leaved and common; 10,000 White Broom, 1 to 6 feet; 5000 Skimmia japonica, 9 to 18 inches; 3000 Yucca filamentosa; 50,000 Portugal Laurels, 1 to 2½ feet; 20,000 Berberis Darwinii, 1 to 4 feet; 10,000 Spruce Firs, 2 to 8 feet; 5000 fancy and variegated Hollies, 1 to 6 feet; 3000 Aucuba japonica vera, 9 to 18 inches; 75,000 Rhododendrons, 1 to 4 feet, consisting of hybrid seedling Catawbiense, californicum, pontica, and best named varieties, and numerous other American Plants; 50,000 Deciduous Flowering Shrubs, 2 to 6 feet; 30,000 Spiræa japonica, 5000 Deutzia crenata flore-pleno, 3 to 6 feet; 5000 Sweet Briars, 50,000 Ornamental Trees, including 3000 Common and Purple Beech, 6 to 8 feet; 10,000 Birch, 6 to 12 feet; 20,000 Spanish Chestnuts, 1 to 8 feet; 10,000 Horse Chestnuts, 2 to 8 feet; 10,000 Clematis of sorts; 5000 Green and Variegated Ivies, 10,000 Fruit Trees, including Standard and Pyramid Apples, Plums, and Pears of the finest known kinds; 150,000 3-yr. Quick.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, Valuers, and Estate Agents, 98, Gracechurch Street, City, E.C., and at Leytonstone, Essex, E.

N.B.—The Railway communication is so complete that goods may be transmitted from Sunningdale Station to any part of England, Scotland, and Wales without change of truck.

Preliminary Notice of

FORTHCOMING SALES by PROTHEROE AND MORRIS.

OCTOBER 26 to 28.—EXOTIC NURSERY, Tooting, S.W. By order of Mr. R. Parker. Large assortment of young and thriving Nursery Stock; also specimen Coniferæ.

OCTOBER 29 and 30.—LOUGHBOROUGH PARK NURSERY, Brixton. By order of Messrs. Ponsford and Son. A quantity of General Nursery Stock.

NOVEMBER 2 to 10.—THE NURSERIES, Wandsworth Common, S.W. By order of Messrs. R. Neale & Son. An immense quantity of General Nursery Stock.

NOVEMBER 2 to 4.—GROOMBRIDGE NURSERIES, Tunbridge Wells. By order of Mr. Hollamby. A beautiful assortment of General Nursery Stock.

NOVEMBER 11.—EAST DOWN NURSERY, Lewisham, S.E. By order of Mr. B. Maller. A quantity of well-selected Nursery Stock.

NOVEMBER 16.—WHITCHURCH RECTORY, Edgware. By order of the Rev. J. B. Norman. A choice assortment of Coniferæ, Evergreens, Fruit Trees, and Roses.

NOVEMBER 16, 17, and 18.—THE NURSERIES, Loughton. By order of Mr. W. Paul. Many thousands of Coniferæ and Evergreen Shrubs, Fruit and Ornamental Trees, Roses, &c., in fine condition.

Catalogues of the above Sales may be had (when ready) on application to Messrs. PROTHEROE AND MORRIS, Auctioneers, Estate Agents and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL AUCTION, at his Great Rooms, 38, King St., Covent Garden, W.C., on TUESDAY, October 6, at half-12 o'Clock precisely, 400 Lots of choice POULTRY and PIGEONS, from the Yards and Lofts of well-known Breeders and Exhibitors.

On view the morning of Sale, and Catalogues had.

Wigginton Nurseries, near Berkhamsted, Herts.

EXPIRATION of LEASE.

IMPORTANT SALE of VALUABLE NURSERY STOCK.

MESSRS. WOODMAN AND SON will SELL by AUCTION, at the above Nurseries, on October 12, 13 and 14, about 38,000 TREES and SHRUBS, including 700 Cupressus Lawsoniana, 8 to 12 feet; 1000 English Yew, 3 to 5 feet; 1200 Box, 650 austriaca, 5 to 8 feet; 3000 Spruce Fir, 2000 Hollies, 6000 Mahonia, 700 P. nobilis, 3 to 8 feet; 200 P. Nordmanniana, 4 to 9 feet; 900 Variegated Yews; 200 T. borealis, 6 to 10 feet; 350 Thuja gigantea, 5 to 7 feet; 250 Retinospora ericoides, 2 to 4 feet; 6500 Beech, 5000 Oak, 750 Variegated Hollies; 300 Irish Junipers, 5 to 6 feet; 250 Cedrus atlantica, 500 P. Cembra, 3500 Rhododendron ponticum, 1500 Rhododendron Hybrids, and large specimens of Deodars, Araucarias, Wellingtonias, Abies Douglasii, &c.

Catalogues may be had on application to the Auctioneers, Hemel Hempstead, Herts; and of Messrs. LANE AND SON, The Nurseries, Great Berkhamsted.

Extensive Sale of upwards of 2,200,000 Trees and SHRUBS.

MR. JAS. S. MARSHALL will SELL by AUCTION, at John Stewart & Sons' Camp and Fort Nurseries, Broughty Ferry, near Dundee, on TUESDAY and WEDNESDAY, October 13 and 14, commencing at 10 o'Clock each day, a large assortment of FOREST and ORNAMENTAL DECIDUOUS and EVERGREEN TREES and SHRUBS, Coniferæ, Rhododendrons, Roses, Fruit Trees and Bushes, &c., Alpine and Herbaceous Plants, Hardy Ferns, Greenhouse Plants, &c. In small and large lots to suit buyers.

Catalogues now ready. Inspection of the stock invited.

JAS. S. MARSHALL, Auctioneer, Dundee.

Oatlands Park Nursery, Weybridge, Surrey.

IMPORTANT NOTICE to LANDSCAPE GARDENERS, GENTLEMEN, the TRADE, and OTHERS engaged in PLANTING.

MR. W. ABRAHAM has received instructions from Mr. Jesse Chapman (proprietor of the above) to SELL by AUCTION, on TUESDAY, October 13, and three following days, at 12 o'Clock each day punctually, a large portion of his NURSERY STOCK, including some very handsome specimens of Cedrus Deodara, Thujopsis borealis, Picea lasiocarpa, P. nobilis, P. Strobus, P. excelsa, Wellingtonia gigantea, Cedar of Lebanon, Thuja Warreana, Cupressus Lawsoniana, C. kewensis, C. Goveniana, Abies Douglasii; also Silver Birch, Scarlet Oak, Mountain Ash, Sycamore, all in the best possible condition and size to move successfully, with many thousands of Thuja Lobbii, T. americana, T. sinensis, Weymouth Pine, Hemlock Spruce, Picea nobilis, P. Nordmanniana, Cedrus Deodara, Abies Douglasii, Spruce Fir, handsome stock, 3 to 5 feet; Scotch Fir, 3 to 4 feet; Larch, Pinus Laricio, P. austriaca, all good stuff, 2 to 4 feet; with large quantities of common Laurel, Portugal Laurel, Aucuba japonica, Green, Gold, and Silver Holly (good), Tree Box, Retinosporas, Rhododendrons, Privet, Standard and Pyramidal Pears, choice Standard and Dwarf Perpetual Roses, and many others, enumerated in Catalogues, to be obtained on the Premises, or post-free of the Auctioneer and Valuer, Goldworth Nurseries, Woking, Surrey.

N.B.—This Stock is particularly worthy the attention of Gentlemen and Public Companies planting for immediate effect.

Preliminary Announcement.

GREAT CLEARANCE SALE of NURSERY STOCK on R. PENNELL AND SON'S NURSERY, at BRACEBRIDGE, close to Lincoln, the first or second week in NOVEMBER, in consequence of land being sold.

5000 Apples, standard, pyramid, and bush.
1500 Pears, do. 1250 Plums, do.
400 Peaches, Nectarines, and Apricots, trained.
600 Cherries, &c.
20,000 Oaks. 30,000 Spruce.
50,000 Larch. 100,000 Quick.
6000 Laurels, &c., and several thousand Standard and Dwarf Roses, Evergreens, standard ornamental Trees, Shrubs, &c.

The whole properly transplanted and in the best possible state for removal. Further particulars in future advertisements.

Catalogues will be ready at the end of October, and may be had of the Auctioneer, Mr. RICHARD HALL, Silver Street, Lincoln; and of R. PENNELL AND SON, Nurserymen, Lincoln.

STRONG AUTUMN SOWN CABBAGE PLANTS can now be supplied of the undermentioned kinds (all true to name):—

EARLY BATTERSEA
ENFIELD MARKET } at 3s. 6d. per 1000.
NONPAREIL

ROBINSON'S DRUMHEAD, at 3s. per 1000.

W. VIRGO AND SON, Wonersh Nurseries, Guildford.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6*d.* each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.	JAMES BATEMAN, F.R.S.
W. WILSON SAUNDERS, F.R.S.	BERTHOLD SEEMANN, Ph.D.
Rev. M. J. BERKELEY, F.L.S.	ARCHIBALD F. BARRON.
M. DECAISNE.	Hon. MARSHALL P. WILDER.
G. F. WILSON, F.R.S.	JOHN GIBSON.
Dr. MOORE, of Glasnevin.	Professor ASA GRAY
Professor REICHENBACH.	I. ANDERSON-HENRY.
Rev. S. R. HOLE, M.A.	Professor KARL KOCH.
E. J. LOWE, F.R.S.	Baron VON MUELLER.
JAMES MCNAB.	JOHN SMITH (Kew).
ROBERT HOGG, LL.D.	Professor WESTWOOD.
Dr. REGEL.	Dr. THWAITES.
	Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W.C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5*s.* 11½*d.* | Six Months .. 11*s.* 11*d.*
Twelve Months .. £1 3*s.* 10*d.*

FOREIGN SUBSCRIPTION.

£1 6*s.* *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10*s.* 4*d.* *for* 12 *months, including postage to*—
AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14*s.* 8*d.* *for* 12 *months, including postage to*—
RUSSIA, ITALY, DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, t the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 3, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Oct. 5	Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Oct. 6	Sale of 400 Pens of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Oct. 7	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; and Exhibition of Fungi. Sale of Camellias, Azaleas, Palms, &c., from Ghent, at Stevens' Rooms.
SATURDAY,	Oct. 10	Sale of 800 Lots of Dutch Bulbs, at Stevens' Rooms.

ONE or two letters which have lately appeared in our columns, lead to the inference that some reform is necessary in reference to the AWARDS OF THE ROYAL HORTICULTURAL SOCIETY'S FLORAL COMMITTEE. As these letters were sent to us for publication, the subject in question may be considered open to discussion, and we shall offer one or two remarks. The object, as we understand it, of the gentleman who first moved in the matter, is to have the number of votes for and against each certificate recorded, in order that the public may be able to appraise the value of the award by a comparison of numbers in each case. To some extent we agree in this, but only thus far, that it would be information useful to the public if the fact of an unanimous award could be made known; for the committee is of so composite a character, that practically little, if any, advantage would be gained by recording the number of assenting or objecting members. The only means which could have any utility from this point of view would be to publish the names of the members voting on each side, and then every one could draw his own conclusion as to the value of individual votes in each particular case. In stating this, we by no means imply the incompetence of members of the committee; but merely that this body consists of a large number of members of varied knowledge and attainments, selected so as to include some who know something of each set of subjects likely to be exhibited; and, according to the special training or knowledge of the individual, would be the value of his vote as to the merit of any particular subject. We believe it would be impracticable to record the names of the voters on each side: the press in its reports could not do it, and it must therefore be reserved for the Society's *Journal*, which we hesitate not to say might be filled with more useful matter. Let it be understood that it is to serve as a better guide to the "public" that it is proposed to alter the present order of proceeding, so that the publication of details must take place if this object is to be gained. In the above remarks we have chiefly sought to indicate in the briefest possible manner one or two of the many objections which might be raised to the plan suggested.

That a change might, however, be beneficially made we fully believe, but it is in another direction. The committee, in view of the variety of subjects coming before it, has gradually grown too large, so that of those present probably half the number have no practical acquaintance with the subject exhibited, and yet each one is entitled to vote. Now, we feel certain that a division of the committee and a division of labour might be made with advantage. Instead of a heterogenous committee, judging a heterogenous series of subjects, let there be formed a New Plant Section and a Florists' Flower Section, each of about a dozen well-selected members, and each section holding a separate meeting, and we venture to think that then the work would both be more quickly and better done. We merely launch the idea. If it finds favour the details can easily be arranged.

So far our remarks have had reference to the Floral Committee, but the Fruit and Vegetable Committee is equally composite, and might with equal advantage be divided into a Fruit Section and a Vegetable Section, each acting separately and independently. In both cases it would be a real working advantage to adopt any such scheme as this of subdivision, so as to lessen the number of jurors, and at the same time bring responsibility more directly home to each.

THE disappearance of a favourite plant from our flower gardens, or the failure of a crop owing to the ravages of insects, fungi, and some other causes less understood, naturally lead us to reflect upon the conditions which appear to be most favourable to the spread of these adverse influences. VEGETABLE DISEASE in many of its forms arises, like that of animals, from, or is engendered by, a debilitated constitution; that is to say, to a certain extent the devastation of these blights, as they are popularly termed, is in many cases due to an enfeebled constitution, unable to resist or repel their attacks. This would be bringing it to a narrow compass if generally applicable, and there seems to be little to negative this view, which is simply this—that blights are not, in all cases, the cause of the disease, but are frequently the consequence of a weak constitution. But this very inadequately explains what we believe to be a struggle for life, a conflict between different organisms which is continually going on in all parts of the world, but is more especially noticeable where large areas of one thing are cultivated, or where large numbers of cattle are reared.

The gradual disappearance of the bedding Calceolarias, in spite of all that has been attempted to keep them in health, the terrible effects of the Phylloxera on the Vine, and the fungus Peronospora on the Potato crops, have led us to a consideration of this subject. The constitutions of plants and animals vary considerably, but all appear to be subject to some general law of rise and fall. And the decline is all the more rapid where the agencies are concentrated within a narrow sphere, or upon a few individuals. To illustrate our meaning more clearly we may state that bedding Calceolarias have been known little more than fifty years, that they have been chiefly propagated from cuttings, and that in a natural condition they probably do not live many years. We have endeavoured then, so to say, to keep the same individual alive for fifty years. We have partially succeeded in this by raising young plants, but as the smallest cutting on the wearing-out theory must convey the germs of natural decay, the constitution would gradually break up, in spite of all we could do.

This may raise the question, Would not a fresh introduction of these plants from the original stock give us another lease of success? Plants reproduced sexually, or partly so, do not seem to lose their natural vigour in so short a period. But, as already mentioned, the constitution of different species of plants varies widely. Certain changes of climate, soil, and intercrossing of races act beneficially. An exchange of seeds by neighbouring farmers even is not without its good results. The best varieties of Potato will deteriorate sadly on some soils, but a change for one season to a more congenial soil will effect a great improvement, which will last for several years even if the Potato be taken back to the original place. A great deal has been written respecting the Vine pest, and amongst other things it is affirmed on very good authority that certain North American varieties are able to withstand its attacks, although it is also believed that the Phylloxera was brought over to Europe with these same varieties. If this really be the case, why not employ them as stocks upon which to graft the European varieties? All sorts of remedies have been proposed, but nothing could be more simple than this.

Professor PLANCHON recommends the introduction and cultivation of American Grapes in the place of the European, but the growers say they cannot part with their old ones unless compelled to. If his suggestion be practicable, then is ours also. This appears to be another case of constitution. But let us not be misunderstood: sometimes the invading foe so gathers strength that the strongest fall before it, but the time comes when the foe is exhausted. Grafting on seedling stocks, however, will not preserve the health and vigour of a variety for an indefinite period, witness the Ribston Pippin Apple, which has got the canker in its sap to such an extent that it is by no means common to see a perfectly healthy tree of this variety.

Very much more might be advanced in support of the views shadowed forth in the foregoing lines, but we think nobody will be likely to contest the soundness of our argument so far as regards the infusion of fresh elements or agencies. Superiority of new seed varieties is only relative, of course; but the raisers will continually find profitable work to do. Healthy subjects alone should be chosen for seed-bearing in all classes of plants.

We know that continued in-breeding of stock will not answer beyond a certain point, and it is quite reasonable to suppose that the same law holds good in the vegetable kingdom. *H.*

—— IT is necessary for us to state, in allusion to some remarks in the *Gardener*, that we never entertained any "unworthy suspicion" against the SPEECHLYS, FOWLERS, DICKSONS, and HUNTERS, and we do not believe that our correspondent "Pomona" did so either. Our correspondent simply inquired whether MONSTER BUNCHES OF GRAPES might not be produced by grafting. A letter in our next issue, which our contemporary has apparently not seen, afforded evidence that they might be. For

ourselves, we utterly repudiate the suggestion of our contemporary, that we have "tolerated or propagated any such disgraceful libel" as he alludes to, and we would ask him, whether, in penning such an article, he has not propagated quite as serious a libel against ourselves. As we are sure this has been done under a misapprehension, we make no further remark on it, being assured that, on reflection, our contemporary will see that we are to the full as incapable of attributing unworthy procedures to worthy men as he is himself. Of more practical interest is it to observe that, according to the figure given in the *Gardener*, Mr. HUNTER's famous 21 lb. bunch is a composite one. How this compound condition has been brought about—whether from an unusual degree of branching of the inflorescence, from fasciation, or from the fusion of several bunches into one by natural grafting—is more than we can tell from the illustration before us, and we had no opportunity of examining into this point at Belfast.

—— Three ERANTHEMUMS received at Kew from the South Sea Islands are novel and striking, on account of their coloured foliage. As they have not flowered they are yet without names. One has broadly ovate leaves, in some cases a foot long, and of a rich copper colour. Another has lanceolate leaves beautifully veined with golden yellow; it was called E. aureo-reticulatum by Messrs. VEITCH. The other has leaves marbled with creamy white. If less succulent they would be of great value, still they are acceptable additions, being quite distinct in character.

—— At this period of the year, when the AUTUMN TINTS ON THE FOLIAGE begin to assume their richest and most vared hues, there are not to be found amongst all our hardy foliage plants any richer or more effective than is produced on the leafage of the homely Virginian Creeper. Looked at in close proximity, the leaves present a bronzy red tint, but when seen from a short distance, the whole of the leafage presents a glow of brilliant red, and the stronger the sunlight reflected through it the more effective is the result. Whether trained over walls, summer-houses, or cottage roofs, this creeper affords during the summer months a vigorous mass of large green foliage that is at once pleasant to the eye and deliciously cool in its shading powers. To get its colouring power brought out into full relief, this creeper should be planted amidst other hardy foliage trees and shrubs, and if trained as pillars in the same way that both the Rose and the Clematis so well favour, the result would be in the few weeks that the foliage is undergoing transformation to produce in our shrubberies and other suitable spots colouring effects such as only a clump of red Hollyhocks can otherwise produce. This creeper will bear any amount of pruning after its leaves have fallen, and as its shoots would necessarily be drooping and pendant, it would present at all times when in leaf a graceful and ornamental outline.

—— The successor to Mr. SMITH as gardener to the Earl of GAINSBOROUGH, Exton Park, is Mr. ATHERNE, who has for some years filled the post of chief foreman at Arundel Castle, with great credit to himself and to the entire satisfaction of his chief—Mr. WILSON.

—— The Ananassa sativa variegata, or VARIEGATED PINE-APPLE, is a beautiful plant for the decoration of the dinner-table. Mr. SAGE, at Ashridge, grows it rather largely for this purpose, the plants being especially handsome when in fruit, since, in addition to the fine white and green variegation, the bracts and all the central parts of the plant take on a strong tint of bright red, which renders them exceedingly effective, and which, under the influence of good cultivation and abundance of light, spreads more or less over the whole plant.

—— The "Silk Oak"—GREVILLEA ROBUSTA—is very handsome in a young state, of which there are several examples in the Conservatory at Kew. Like many other plants of feathery habit, it should be raised clear of other foliage to show it to advantage. Small plants are valuable for the decoration of dinner-tables. The leaves are durable, and very Fern-like. Seeds are not always in commerce, but could, however, be easily obtained from Australia. The wood is there in much repute for cabinet-work.

—— Among the scarcer varieties of the CLEMATIS in cultivation, C. AURELIANA is one deserving of a prominent notice because of its lively violet-mauve hue, its fine form, and its remarkably floriferous character. It is one of several fine varieties that have been raised on the Continent; and it is said that this particular form was bred from C. lanuginosa hybridised with C. patens. It is thoroughly distinct in character, and should be included in a select collection of varieties. The beautiful pure white C. lanuginosa nivea, which is sometimes confounded with lanuginosa candida, is the finest white summer flowering Clematis in cultivation; the flowers large, of fine form, and remarkably free. It is one of those varieties that require to become well-established, and to be pruned somewhat sparingly. In the open ground the flowers are very pure in colour, and without any tendency to become tainted with very pale mauve, as in the case of lanuginosa candida.

—— We noticed the other day in Messrs. LANE's nursery at Berkhamstead, some of the SHRUBBY IVIES, grown in pots, both as dwarf bushes and as standards, and which formed exceedingly interesting objects, very useful for many decorative purposes, such as the furnishing of halls or corridors, or for mixing with other plants in cold conservatories and greenhouses. Neatly grown into compact symmetrical specimens, they have a much more tasteful and pictural appearance than might at first be supposed; they are in fact remarkably effective.

—— We understand that our correspondent, Mr. R. GILBERT, who has been for some time kitchen gardener to the Marquis of EXETER, at Burghley, is now superintendent of all things horticultural in that establishment.

—— MESEMBRYANTHEMUM TRUNCATELLUM is flowering in the Succulent-house at Kew. It belongs to the dumplin section of the genus, and may safely be mentioned as the most curious—"a vegetable oddity." The leaves are very fleshy, and connate to near the apex, which is flat, or slightly convex, and warted. When a pair of young leaves are being produced, the older enclosing pair are forcibly torn asunder. They have a peculiar glaucous brown colour. The flowers are yellow. "M. truncatellum," says Dr. HOOKER, in the *Bot. Mag.* for January last, "was introduced into Kew in 1795; it is a very rare species, was unknown to Prince SALM DYCK, and is hence not included in his magnificent work; it has never before been figured."

—— Amateurs and others in search of a heating medium of moderate price, and one that will not ruin them by reason of their fuel consuming powers, may be interested to know that several of our correspondents speak highly of the merits of ROBERTS' PATENT PORTABLE TERRA COTTA STOVE, which can be fed with coal, or coal and coke. "This stove is made of terra cotta contained in perforated sheet iron, and operates with slow combustion. The fire burns downwards, and the heat is purified and radiated by the terra cotta. Where there are chimneys, no pipes are required for the exit of the smoke; but, with small iron pipes attached, the stoves, being portable, can be used in any place. As they sustain continuous heat, with a very small amount of ordinary coal, without attention, for twenty-four hours, or longer, they are most efficient and economical. The advantages of continuous heat are obtained by a measured quantity of air being admitted and discharged uniformly on to a measured quantity of coal; whereby slow combustion is obtained with certainty, whilst thorough ventilation is secured. They emit no effluvium or dust, and the atmosphere heated by them is perfectly pure, safe, and healthy; the gradual and complete absorption of the caloric by the terra cotta through which it permeates before being communicated to the outer air, where it is evenly dispersed, precluding the possibility of the existence of any empyreumatic odour whatever. Greenhouses are heated by them regularly, constantly, and economically; without labour (the fires not requiring to be replenished or disturbed), and with heat which is not injurious to the most delicate plants."

—— M. CASIMIR ROUMEGUÈRE, a botanist of Toulouse, France, has, says the *Illustration Horticole*, for many years been engaged in collecting AUTOGRAPHS OF ANCIENT AND MODERN BOTANISTS. He has already brought together a considerable collection of these interesting and valuable documents in the history of plants; and at the last meeting of the Botanical Society of the Pyrenees he was able to show some extremely curious letters, written by the younger LINNÆUS, GOUAN, LAMARK, ACHARIUS, PICOT DE LAPEYROUSE, &c. M. ROUMEGUÈRE now appeals through the press to all those possessing autographs, in order to effect exchanges or purchases.

—— One of the best of the free-flowering varieties of CANNA is that named M. CELLER, which has been flowering in great beauty with Messrs. STANDISH & Co. during the past summer. It appears to have been raised from C. Bihorelli by M. CHRÉTIEN, and was sent out by M. LEMOINE. It grows about 2 feet high, has green leaves, and bears fine bold compact spikes of large deep crimson flowers of a very showy character. These two Cannas are most desirable varieties for general cultivation, either in beds or in the borders.

—— The plant in cultivation as FOURCROYA COMMELYNI is flowering in the Succulent-house at Kew, and proves to be identical with F. gigantea of the *Botanical Magazine*, 48, t. 2250. F. Commelyni, as figured in *Commelynus Hortus Amstelodamensis*, is quite distinct; the leaves are very plicate, and have large serrations. The panicle of a fine plant of F. gigantea is 28 feet high. F. SELLOA, with a panicle 22 feet in height, will soon be in flower, and, never having been figured, it may be expected to appear in due course in the *Botanical Magazine*.

—— Mr. F. E. KITCHENER, of Rugby School, has a thoughtful paper "On TEACHING BOTANY to JUNIOR CLASSES" in the September number of the *Monthly Journal of Education*, which is worth the careful attention of teachers of all kinds. He is especially strong upon the necessity that boys should be taught as much as possible by the plants themselves, and that botanical text-books should be kept from them until they have learnt to dissect flowers, and to know the principal terms employed. His remarks upon "the present terminology" are, however, unnecessarily severe, and it may fairly be doubted whether the use of "the English equivalents," instead of the botanical terms, would be satisfactory in its results. The following is Mr. KITCHENER's summary of the principal points in his paper:—

"1. No plants should be discussed without, as far as possible, every boy having his own specimen for dissection.

"2. No observation should be recorded till every boy in the class has seen it with his own eye.

"3. To ensure 2, the classes must be small, or else the lazy boys will evade the teacher, and take their observations second-hand. Much, however, may be done by an assistant-teacher assisting the lecturer by passing from pupil to pupil, directing them in dissection.

"4. Terms should never be supplied till the things themselves to be named are familiar, and then the English equivalents should be preferred. In fact, such terminology should be chosen as will be picked up at once by the boys.

"5. The flowers chosen for examination should be chosen with a purpose, and the ideas of the boys should not be confused, or their memories overladen, with too many flowers at once: choose your typical forms, and keep impressing them on the memories of your boys, till they can schedule a plant of a typical family from memory without mistake.

"6. With care and good teaching there is then much to be made of botanical teaching; but whatever is taught must be taught thoroughly. The early part must be known well; it is almost as fatal to neglect the first lessons of botany as it is not to know the earlier propositions of Euclid."

—— The large BOUQUETS which were used to decorate the chief communion table, and that of the chapel, at St. Paul's Cathedral on the 27th ult., on the occasion of the Harvest Thanksgiving, were made and arranged by our correspondent, Mr. WILLIAM EARLEY.

—— There is a very fine specimen—perhaps the finest in Europe—of VEITCHIA CANTERBURYANA, at Kew. Visitors to the Palm-house may remember a magnificent plant in one of the beds labelled "Areca sp.; Lord Howe's Island." On trustworthy authority it is known to be the above. It is about 30 feet high, and having reached the glass will soon require transplanting.

—— We learn from the *Daily News* of Monday last that "a tradesman residing in the centre of the High Street, the busiest street in Worcester, observed the other morning that a square stone on the pavement adjoining to his cellar-grating had been lifted out of place, and as a neighbour had not long before been robbed by thieves entering his premises by raising a stone of the pavement, he became somewhat alarmed, and sent for the police. After an examination, the stone, which weighed over 80 lb., was raised, and it was then discovered, not that a thief, but three Mushrooms, had caused the displacement. The Mushrooms were fine specimens, 6 inches in diameter, and with unusually thick stems." A similar occurrence at Basingstoke some years ago will be remembered by many of our readers. The same paper contains an account of a recent case of "poisoning by Mushrooms."

—— The *Journal* of the French Central Society of Horticulture speaks of the ARTIFICIAL COLOURING OF NATURAL FLOWERS. Flowers naturally of a violet colour when exposed to the fumes of a cigar assume a green tint, all the more decided in proportion to their original brightness. This is well exemplified in the case of the violet Thlaspi, or Iberis umbellata, and of the Julienne, or Hesperis matronalis. The alteration in colour is due to the ammonia of the tobacco. Starting from this point the Italian Professor, L. GABBA, has made a series of experiments in order to determine the effect of ammonia on the colours of various plants. Pouring a little ammonia into a plate, and placing a funnel over it, the Professor inserts the flower in the tube of the latter. In this way blue, violet, and purple flowers become of a fine green colour; deep carmine-coloured flowers, such as Pinks, become black; white blossoms yellow, and so on; but the most curious effects are produced on parti-coloured flowers, such as red and white, when the former colour is changed to green and the latter

becomes yellow. Another remarkable example was that of the Fuchsias with white and red flowers, which became yellow, blue, and green. When the colours have been thus changed, if the blossom be dipped in pure water it will retain the artificial colour for several hours, and will afterwards return gradually to its natural tint. Another curious observation of Prof. GABBA is that Asters, which are naturally without scent, acquire an aromatic odour under the influence of ammonia. The same flowers of a violet colour become red when sprinkled with water containing nitric acid; and if enclosed in a wooden box and exposed to the action of hydrochloric acid gas, will in six hours become of a fine carmine colour, which they will preserve if first dried in a dark place and kept dry and in the shade.

—— RHODODENDRON SESTERIANUM well deserves attention as a fine early spring flowering variety for conservatory decoration. Its pure white is very attractive, and it appears to flower with considerable freedom.

—— An interesting and instructive exhibition of collections of EDIBLE AND POISONOUS FUNGI will be held in the Council-room of the Royal Horticultural Society at South Kensington on Wednesday next, October 7, when the following prizes will be competed for:—

Class 1.—Collection of Fungi, arranged according to their botanical affinities. Neat arrangement and correct nomenclature will be taken into account in awarding the prizes. The edible and poisonous species are to be so marked on their respective labels—the edible species being named on white labels, the poisonous on red ditto, the rest on yellow ditto. Open. £5, £3, £2.

Class 2.—Collection of Edible Fungi. These should be shown, when possible, in juxtaposition with specimens of similar but noxious species. Open. £3, £2, £1.

Class 3.—Collection of New or Rare Fungi. Open. £3, £2, £1.

Class 4.—Cultivated Edible Fungi. This class is intended for species likely to be useful as esculents, but which are not now known in the cultivated state. Open. £3, £2, £1.

—— We have received from Mr. DON, gr. to Sir CHARLES H. MILLS, Bart., M.P., the Wildernesse, Sevenoaks, a specimen of the NELSON CODLIN APPLE, which weighs 1 lb. 5 oz., and measures 16 inches in circumference. Mr. DON states that it was gathered with several others of large size from a tree of three years' growth; and that he has gathered Blenheim Orange nearly as large.

—— COCCOCYPSELUM REPENS is very ornamental as a basket plant in the stove at Kew, and is eminently suited for the purpose. The stems are purple, and hang down for a length of 2 feet. There are a large number of dark blue berries, in clusters of from two to five, which last in perfection for a long time, and would be useful for mixing with cut flowers. The long stems would droop gracefully from the edge of tall vases. The upper surface of the leaf is green, but is covered with purple hairs like the rest of the plant. It is easily cultivated, and may be increased from seeds or cuttings. Native of the West Indies.

—— We learn from the *Illustration Horticole* that the handsome evergreen, TORREYA MYRISTICA, is now bearing fruit, it is believed, for the first time in Europe, in the nurseries of Messrs. THIBAUT & KETELEER, at Sceaux, Seine.

—— Among berry-bearing plants of extraordinary beauty may be mentioned the HIPPOPHAË RHAMNOIDES FŒMINA, which we recently saw in a well-furnished condition in Mr. W. PAUL'S nursery at Waltham Cross. The bright golden-orange hue of these berries renders them particularly attractive, while from the profusion in which they are produced the plant becomes a very ornamental one, which should find a place in all collections of shrubs.

—— A recipe for the destruction of insects, which, says the *Builder*, if it be one-half as efficacious as it is stated to be, will prove invaluable, is published by the *Journal of Chemistry*. HOT ALUM WATER is the suggestion AS AN INSECTICIDE. It will destroy red and black ants, cockroaches, spiders, chintz bugs, and all the crawling pests which infest our houses. "Take 2 lb. of alum and dissolve it into three or four quarts of boiling water; let it stand on the fire till the alum disappears, apply it with a brush, while nearly boiling hot, to every joint and crevice in your closets, bedsteads, pantry-shelves, and the like. Brush the crevices in the floor of the skirting or mop boards, if you suspect that they harbour vermin. If, in whitewashing a ceiling, plenty of alum is added to the lime, it will also serve to keep insects at a distance. Cockroaches will flee the paint which has been washed in cool alum water."

—— One of the best forms of CURLED PARSLEY we have lately met with was growing in the finely-kept and carefully-managed kitchen garden at Ashridge Park. It was perfectly true, long rows of it not showing the least variation, and it was densely curled in every part, having the finely-cut elegant crispiness which is so desirable for garnishing purposes. Doubtless Parsley may be met with equally true and equally well curled, but there is to be observed in many of these a coarseness of cutting which is scarcely desirable, and which does not appear in this Ashridge Parsley, which has been carefully selected and improved by Mr. SAGE.

—— SPRAGUEA UMBELLATA is an interesting Californian biennial, flowering on the rockwork at Kew, perhaps more curious than showy. The leaves are spathulate, somewhat succulent, and form a rosette close to the ground. The flowers are produced in simple or compound umbels of scorpioid spikes. The sepals are very large, white, and scarious, giving the inflorescence a woolly appearance. The corolla is red. It should be sown in summer, to get strong plants before winter, but will flower the same year if sown early.

ON THE FIBRE OF THE JUTE PLANT.

AT the meeting of the Association held in this College twenty-two years ago I had the honour of reading before this section a report on the composition of the Flax plant, the fibre of which supplies the raw material of the staple industry of this part of Ireland. In that and subsequent reports I gave an account of a series of investigations which had been undertaken by me at the request of the Association, and in which the composition of the fibre and the changes which it undergoes in its technical preparation were for the first time completely examined. The interest which these reports excited in this great centre of the linen industry has encouraged me to submit to this section some account of the history and chemical composition of another textile material which, at the time of our former meeting, was scarcely known in this country, but which has lately assumed a most important place among the vegetable substances employed by manufacturers. Fifty years ago the fibre of the Jute plant was to be found only in our museums; now the quantity of it introduced into the United Kingdom almost equals that of the Flax which we import, and exceeds the annual importation of Hemp; and, owing to the improvements which have been effected in the processes for its preparation, and especially in the methods of bleaching, it is, I believe, destined to occupy in future a far more important place among the raw materials of our textile manufactures.

The plant which yields the fibre known in commerce as Jute—a name which is supposed to be derived from a corruption of the Bengali name of the plant—is a member of the family Tiliaceæ, the Linden or Lime tree family, which from remote periods has been cultivated by the natives of Southern Asia for textile purposes. Two species of it are used for the production of fibre, Corchorus capsularis and Corchorus olitorius, and both kinds are found in the Jute brought to this country. The Corchorus is an annual, the seeds of which are sown broadcast in the months of March and April on ploughed land along the sandy banks of rivers, usually neither irrigation nor manure being required. In August, before the seeds which replace the small yellow flowers of the plant have ripened, and when the stems have attained the height of about 12 feet, the crop is cut; when the seed is allowed to become fully ripe, as is also the case with Flax, the fibre becomes stiff and hard, and the stem is rendered of a reddish colour. The stalks, when cut, are tied in bundles and placed in tanks, usually of dirty water, and allowed to ferment, or "ret," for five or six days, and then taken out and swung about repeatedly in the air, by which the long fibres are separated from the brittle wood which constitutes the bark of the stem; and thus prepared, the fibres are dried by exposure on the ground to the air, and when dry packed in round bundles for the market. The treatment of the plant for the separation of the fibre is, therefore, precisely like the ordinary methods used by farmers in this country in the preparation of the Flax fibre. The produce of Jute far exceeds that of Flax, being, it is stated, five times as great as that which Flax affords. Though India is the great seat of Jute cultivation, and supplies the fibre used in this country, yet the Jute plants, especially Corchorus olitorius, have been long cultivated in China and other Eastern countries.

Experiments have been made to grow the plants for textile purposes in the Southern States of America, on the banks of the Lower Mississippi, and also in Algiers, and it is said the results are encouraging. A large portion of the Jute grown in India is used in making sacks, which, under the name of gunny bags, are sent in great numbers to America to be used for packing Cotton. Dr. Royle states that textures from other Indian plants, as well as from the Jute, are used for the manufacture of these bags; among others the fibres of the Crotalaria juncea, Linn., the Bengali name of which, goni, is supposed to be the origin of the term "gunny," applied to the bags. In the monthly reports of the Department of Agriculture of the United States of America, it is stated there were lately in the States 200 looms working Jute, and that their existence depended entirely upon the imported gunny cloth. For some time after the introduction of Jute the opinion prevailed that it could not be bleached, and was, therefore, of little value as a textile material. Experiments made at several times proved that this was a mistake, but until lately scarcely any progress has been made in improving the qualities of the fibre, or giving it the whiteness of linen fabrics.

The difficulties, however, which retarded the success of Jute bleaching have, during the present year, been completely removed by the application of methods which have been patented by my son, and which are at present in operation at works erected for the purpose by Mr. W. Sibbald Johnston, of this town, at Milecross, near Newtownards, in the neighbouring County of Down. In the processes employed, the cloth or yarn, by means of ingeniously arranged machinery, is made to pass in succession through baths of alkaline solutions and hypochlorates of magnesia and soda, the magnesia used being economically obtained from kieserite, which is found in large quantities in Germany in the kainite deposits, and has hitherto been regarded as of but little commercial value. The length of the fibre of the Jute of commerce is frequently no less than 12 feet; usually the lower end near the ground is dark-coloured and woody. At first the fibre is colourless, or only slightly coloured, but some kinds after a time become darker, just as wood darkens in colour by the action of the air. Many specimens preserve a dull yellowish colour, and in appearance can with difficulty be distinguished from the finer qualities of hemp. The microscope, however, shows us that the structure of the Jute is different from that of any of our common textile fibres; thus, while a fibre stripped from the flax plant is shown to consist of bundles of cells with thick walls and somewhat circular outline, and exhibiting a very minute central space, the wall of the Jute cell is of very irregular thickness, and the central space does not conform to the external outline, but at one part will be found wide, while at another part it dwindles to a mere line. By this remarkable difference in the contour of the inner and outer cell walls, Jute fibre is distinguished from Flax, Hemp, Cotton, and New Zealand Flax.

The application of the sulphate of aniline, proposed as a re-agent for woody matter by Runge, and recommended by Professor Wiesmer, of Vienna, also affords us assistance in distinguishing it from both Hemp and Flax fibres. Thus while Hemp is scarcely at all affected by this action of the re-agent, and Flax unchanged in colour, the Jute fibre shows that it contains a large amount of woody matter by becoming of a deep golden-yellow colour. The sulphate, however, does not enable us to distinguish Jute from several other Indian fibres. In connection with the technical preparation, bleaching, &c., of the Jute fibre, I lately commenced a series of investigations which, though not so far advanced as I had hoped, may not be destitute of interest. The samples of fibre which I submitted to examination were kindly supplied to me by Mr. Sibbald Johnston, the proprietor of the Kiltonga Bleachworks, and were of the kind known as "Red Seraigunge." The fibre has a faint red colour, and measured in length 10 feet 9 inches. It had been prepared in the ordinary manner, and of course contained only those constituents of the plant which remained attached to the cellular structures after being subjected to the process of retting. Portions of the fibre cut into small pieces, after being treated with distilled water and boiled for several hours, gave an acid solution of the colour of pale ale, which evolved an odour that suggested the aromatic smell of moist Flax yarn. On evaporation over the water bath, it left a brownish black extract, which in appearance resembled black Currant jelly; it was translucent at the edges, and was easily reduced to a light brown powder. This extract amounted to only 0.726 per cent. of the fibre, and was found to contain sugar and a tannic acid which gave an olive-green precipitate, and persalts of iron, a fatty substance, and a brown red colouring matter. The extract was in part soluble in alcohol, and heated on platinum it carbonised without melting, leaving a white ash. It contained no starch. The fibre employed dried at 212° was found to contain 15.5 per cent. of moisture, and when incinerated, to leave 1.329 per cent. of a pale ash.

Treated by the successive action of solvents, according to the methods described in my reports on Flax, and the amount of nitrogen determined by Wills' method, both in the original samples and in the fibre after the action of the solvents, the results obtained were as follows:—Moisture, 15.540; organic matter, 83.131; mineral matters, 1.329; total, 100.000. (See Reports of the British Association for 1852 and 1853.) 100 parts of the fibre dried at 212° yield wax and fatty matters soluble in ether, 0.235; tannic acid and colouring matters soluble in alcohol, 1.135; sugar, pectine, &c., 2.427; soluble nitrogenised matters, 0.512; insoluble nitrogenised matters, 2.433; inorganic matters united with the fibre, 1.010; cellular fibre, 92.248—100.000. Nitrogen in the original

fibre, 0.291; nitrogen in the fibre after treatment with solvents, 0.210.

I had hoped to be able to give an analysis of the Jute plant in the condition in which it is removed from the field; but, unfortunately, a specimen which had been forwarded from Calcutta arrived only a few days ago, and I must, therefore, defer its investigation until some other opportunity. With respect to the magnitude of the Jute manufacture, I may state that in the present year 100,000 tons of the fibre were imported into Dundee alone, by direct shipment from Calcutta, while London, Liverpool, and Glasgow received probably half as much more. The rapidity with which, by means of improved machinery, it can be manufactured, may be judged from the fact, that, since the opening of the Suez Canal, the fibre has been delivered in Dundee, spun and woven, and the goods shipped back and paid for—viz., within six months from the date of the bill of lading. At the present time Jute is used for the manufacture of a great variety of fabrics. In fact, it will serve for the production of every kind of coarse textile material. It is even used as a substitute for hair, and can be formed into admirable chignons. The dust from the mills is employed to make silk hats, and the waste fibre yields an excellent pulp for the manufacture. Stair carpets of Jute with bright colours can be sold at 3*d*. per yard, and woven into what are known as carpet bed-covers, a fabric is produced at not more than one-third the price of wool. *Paper read by Professor Hodges at the late meeting of the British Association.*

AZALEA VISCOSA A FLY-CATCHER.

Under this heading Mr. W. W. Bailey gives the following observations in the current number of the *American Naturalist*:—

"The many curious observations published of late in regard to vegetable fly-catchers have opened my eyes to such phenomena as are presented in my forest walks. As is well known to all botanists, our sweet swamp Azalea (Azalea viscosa) has its corolla covered on the outside with innumerable clammy and glandular hairs. Each hair is a prolongation of the cuticle, and is surmounted by a purple and globular gland. In the bud these hairs appear to cover the whole surface of the flower, but when the corolla expands they are seen to occupy the midrib of the petals as well as the tube of the corolla. These glandular hairs are efficacious fly-catchers, but what the object is in thus securing insect prey I will not pretend to state. I have been amusing myself, if any such apparently cruel occupation can be considered entertaining, in watching the capture of flies by the Azaleas. When I first brought the flowers home, many small insects, as winged ants, were entrapped amidst the hairs. These have remained alive several days, still vainly struggling for freedom. As the house-flies are abundant in my room it occurred to me that I might extirpate the pests, and at the same time learn something of the process of insect-catching. I have not noticed that the powerful fragrance of the blossoms attracts the house-fly, although I have no doubt that it does the smaller insects. It seemed to be accidental when the house-flies were captured. I exposed a number of buds and fully opened blossoms on a sunny window-sill thronged with flies. It was not many minutes before I had several captives. A mere touch of a fly's leg to the glutinous hairs was sufficient for his detention. A struggle only made matters worse, as other legs were by this means brought in contact with the glands. These emit long glairy threads, which fasten to the hairs of the flies' legs. They may be drawn out to a great length and tenuity, still retaining their strength. If two buds are pressed together, and then drawn apart innumerable threads may be seen to bind them. There is a complete network of them between the various glands. They will confine the strongest fly; he is at once held like Gulliver among the Liliputians. Under the microscope the legs of the fly are seen to be covered with the secretion, which is perfectly white and transparent. In one attempt to escape, a house-fly lifted a flower bodily from the window-sill, perhaps a quarter of an inch, but at once sank back exhausted amidst the hairs. One, after long efforts, escaped, but seemed incapable of using its legs; it flew away readily. In one instance I have found the dried remains of a small insect embedded amidst the hairs, but cannot say whether its juices were in any way absorbed by the plant. If such assimilation takes place, what is its purpose? Can this phenomenon of fly-catching be accidental, or is some nice purpose concealed in it? I merely state the facts as I have observed them; perhaps others can supply further information."

THE COMMON HOLLY AND ITS VARIETIES.—I.

Though exceedingly popular and useful in its ordinary form as an evergreen shrub, and though to some extent appreciated in regard to diversity of form, yet there are, we suppose, few persons comparatively, amongst those who take an interest in hardy shrubs, who are fully aware of the wealth of variety which the common Holly (Ilex Aquifolium) affords. Whether as a specimen plant, a shrubbery plant, or a hedge plant, the Holly, if it has any equals, has no superiors, and therefore we need not wonder at its popularity.

It is, however, on the ground of variety that we now invite especial attention to the Holly, and from this point of view no evergreen whose beauty is derived from its foliage, not its flowers, can at all compare with it. So much is this the case, so marked is the variety, that a garden of H[illegible] alone would be a horticultural feature of im[illegible] interest, and one which, following up the idea [illegible] Yew garden presented by a former illustration [illegible] p. 1635, fig. 328), might be very safely recomm[illegible] to those who are desirous of introducing feat[illegible] marked character into their pleasure grounds, [illegible] of following the usual and too common system [illegible] miscuous admixture. A Holly garden, as the [illegible] 327 at the page above quoted shows, might in[illegible] some noble-looking specimens; and when we a[illegible] these standards, a series of well-grown specim[illegible] dwarf, pyramids, and globes, and of column[illegible] drooping trees, dressed in gold and silver of v[illegible] shades, in the brightest of greens, and in [illegible] almost changed to purple, the leaves smo[illegible] thorny, regular or fantastic in shape, and var[illegible] forms from narrow lanceolate to broadly ovate [illegible] in size from half an inch to four or five inches lo[illegible] will be evident that a good effect would not be m[illegible] for lack of materials. It is these varieties whi[illegible] now purpose to pass in review, accompan[illegible] remarks by illustrations of some of the mos[illegible] forms, where the characteristics can be repre[illegible] a woodcut.

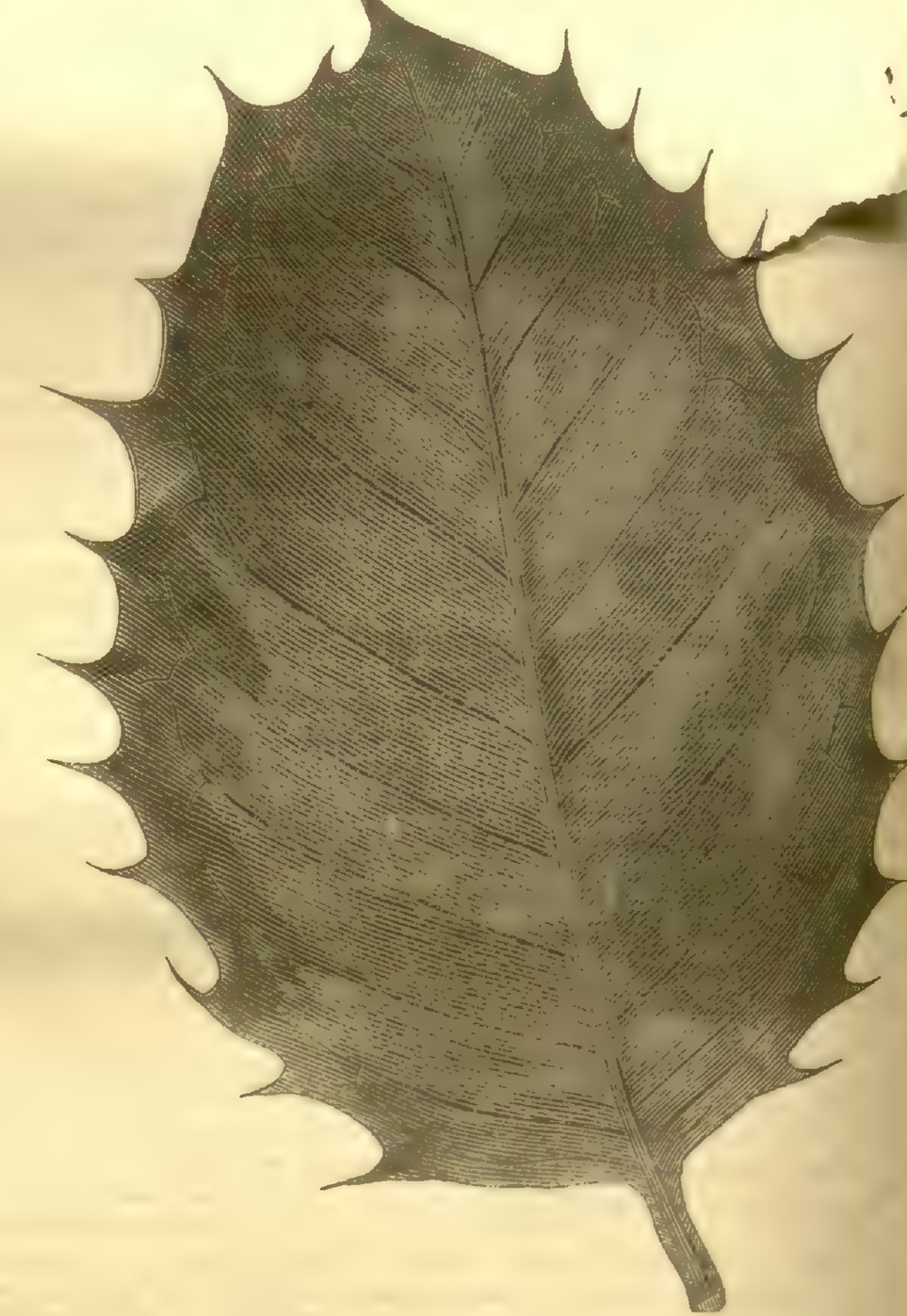


Fig. 89.—1, Ilex aquifolium nobilis; 2, I. aquifolium grandifolia.

The notes we offer are the result of a tolera[illegible] familiar acquaintance with the rich collection of M[illegible] Waterer at Knap Hill; supplemented by specim[illegible] which have been kindly forwarded by Messrs. Fish[illegible] Holmes & Co., of Sheffield; Mr. W. Paul, of W[illegible] tham Cross: The Lawson Seed and Nursery C[illegible] Edinburgh; and Mr. R. Smith, Worcester, a fe[illegible] being also obtained from other sources.

The arrangement adopted is founded chiefly on th[illegible] colour and size of the leaves, and the presence, absen[illegible] and character of their spines. There is no doubt a[illegible] of varieties, called Black Hollies in the nurseries, wh[illegible] have the bark of the young shoots (leading shoots a[illegible] most characteristic) of a deep purple, and we ha[illegible] hoped to make use of this peculiarity in subdivid[illegible] the varieties, but though this feature is certai[illegible] characteristic of some sorts, we have found othe[illegible] in which it appears to be variable, whether th[illegible] result of differences of soil or exposure we a[illegible] unable to say. The two races, if we may so s[illegible] them, of green-barked and purple-barked, are repr[illegible] sented in plants grown and known as the comm[illegible] Holly. We propose to take the green-barked so[illegible] first:—

A. Leaves Green.

§ Spines marginal, numerous, strongly developed.

* Spines divaricate, *i.e.*, variously directed.

† Leaves large, 3 inches long or more.

1. I. A. NOBILIS, Lawson, Paul; Urquhartii (fig. 89, 1).—A truly noble variety, with purplish young bark, and having some resemblance to Hodginsii. The leaves are dark green, roundish ovate, from 2¼ inches to 3¾ inches long, in different samples, having very bold marginal spines, which are somewhat distant, but tolerably equally disposed. It is a plant of vigorous growth.

2. I. A. NIGRA, Fisher.—A bold thick-textured variety, with green young bark. The leaves are of a very dark green, measuring 3 inches by 2 inches, broadly ovate-oblong, with an obtusely rounded apex; the spines strong and regularly disposed.

3. I. A. GRANDIFOLIA, Lawson (fig. 89, 2).—A variety of noble aspect, having the young bark green. The leaves are of a dullish green, ovate obtuse, 4 inches long by 2½ inches broad; the spines less strongly developed than in the preceding sorts.

4. I. A. LATIFOLIA, Lawson (fig. 90, 1).—A fine Holly of the Hodginsii type, having the young bark dark purple. The leaves are dark green, 3½ inches long by 2¼ inches broad, ovate, blunt, coarsely and rather distantly spined.

5. I. A. HODGINSII, Waterer, Paul; Shepherdii, Fisher.—This is one of the finest of all the strong-growing varieties, and remarkably characteristic. The young bark is purple, and the leaves are of the deepest and richest green; they are very broadly ovate, 3 inches to 4 inches long by 2½ inches broad, and furnished with rather distant, sometimes unequally disposed, but strongly developed spines. It grows into a splendid bush.

6. I. A. PLATYPHYLLA, Fisher, Paul.—A variety with thick leaves and green or purplish young bark. The leaves are deep green, 3½ inches long by 2¼ broad, broadly ovate, with a bluntish apex; the spines are rather less coarsely developed than in some of the forms approaching grandifolia in this respect; they are in some cases tolerably evenly disposed around the edge, while sometimes there are here and there entire or spineless portions.

7. I. A. BELGICA; Dutch, Lawson (fig. 90, 2).—A fine, vigorous-habited variety, with the young bark green. The leaves are of a sap-green, 3½ inches long, ovate or oblong-ovate, with a formidable array of strong and rather thickly-placed spines at the edge.

8. I. A. RIGIDA, Lawson.—A distinct variety, with the young bark green; but, though bearing the name of rigida, it is less rigid than the typical form. The leaves are a full green, about 3 inches long by 1½ inch wide, ovate, furnished with rather long and strong marginal spines.

9. I. A. ALCICORNIS, Lawson (fig. 90, 3).—One of the most distinct of the larger-leaved prickly Hollies. It is a free-growing variety, and one of those in which the young bark is green. The leaves themselves are bright green, 3½ inches long by 1¼ inch broad, oblong-obovate in outline, with an entire wedge-shaped base, the rest of the margin furnished with numerous very long (⅝ inch), narrow, stiff, sharply-pointed spines. *T. M.*

FIG. 90.—1, ILEX AQUIFOLIUM LATIFOLIA; 2, I. AQUIFOLIUM BELGICA; 3, I. AQUIFOLIUM ALCICORNIS.

Home Correspondence.

Pears Ripening.—I find that the time of ripening some varieties of Pears may be considerably prolonged by adopting different modes of training (irrespective of wall-trained trees). We have Williams' Bon Chrétien growing as pyramids, and also the same variety growing as espaliers. The fruit was gathered off the pyramids August 29, and they are now (September 21) all over; whereas the fruit off espaliers was not gathered till September 14. They are now ripe, and will keep good some time longer. I find the same difference in time of being ready for gathering manifest itself in Marie Louise, Louise Bonne of Jersey, Beurré Diel, and other varieties. *Owen Thomas, The Gardens, Drayton Manor.*

The Banbury Onion.—Having heard a good deal of the now celebrated Banbury Onion, I purchased two packets of seed direct from Mr. Perry of Banbury, and sowed it on March 5 last on some good light loam, deeply trenched last autumn, side by side with five or six well-known sorts. The Banbury Onion took the lead from the first, and has grown into some beautiful bulbs. I grew 150 bulbs on 55 feet by 2 feet of ground, and they weighed 140 lb. The heaviest twelve pulled down 15 lb. The Banbury Onion is, in my opinion, the best of the White Spanish type in cultivation. *Henry Pomroy, The Gardens, Rousham Park, near Oxford.*

Roses and Rose Shows.—Were I to assume, for argument's sake, that Rose plants from nurseries in which the good culture essential to the produce of fine blooms is not practised, are not intrinsically so valuable as plants grown otherwise, I should proceed to state my case thus: First of all the worst possible soil is selected, some stocks, not too numerous, are planted on it after it has been dug, not deeply; and as manure is injurious none is given, either directly or indirectly; water, however much needed, is withheld; weeds, especially the grosser feeding sorts, are encouraged; large and continuous bunches of flowers are spared; in fact, all means are used which prevent the plants breaking away from the so much desired moderate growth. Would not the readers of the *Gardeners' Chronicle*, perhaps the largest body of practical trained cultivators in the world, say I was making use of absurd arguments? Yet these are but the negatives of the practices of exhibiting firms. Well, I have visited this year many of the nurseries of the leading non-exhibiting firms, and I can assure you their cultures are not such as I have drawn; in fact I can see little difference between their culture and ours. Large breadths of stocks seem planted on soil on which, as here, the Rose seems at home and to thrive; the soil is richly manured to produce free growth in the stocks, for without this buds do not take kindly, nor does the plant start early enough or vigorously into growth from the dormant eye. Cleanliness and the loose tilthy ground seem, in most cases, a *sine quâ non*. Are not all these the first principles of the good culture of any plants? I incline to think that the best non-exhibiting firms go yet further with us, who hold that the production of prize blooms is, in the nurseryman's case, but a happy accident resulting from thorough cultivation, and also know that the desire for first prizes goes but hand-in-hand with the desire to produce the best possible plants. Disbudding helps both, and is practised here as the result of careful study and comparison of its value with the "pinching back" system. I found the practice of stopping the shoot when it had made two or three leaves in our uncertain English spring-time was too severe a check to the roots and general habit of the plant, while disbudding had the effect sought to be attained by the system, viz., the development of what may be termed the secondary eyes of the dormant buds, so as to form a good vigorous, healthy head. It seems when a plant is properly disbudded these shoots do not wait for the removal of the flower but shoot at once, so that the majority of the nurserymen's flowers of the July shows are the result of this system. I need hardly say that those flowering shoots produced in July (healthy and vigorous as they are) will be well ripened by November. The mention of the supposed "large quantities of water frequently given" is just sufficiently incorrect as to render the conclusion as to sappy plants unsound. The last week of June and the first week of July are hot drying weeks, most trying to all young growths, and the Rose, developed freely as it has been by the thorough culture described, is no exception to the rule; it is desirable to hasten the growth and to assure to the shoots a long period for ripening by having the terminal flowers ready for the July shows. Hence two or three waterings of pure water are given between June 25 and July 8, none before or after those dates. The result, speaking of this late season, is that the three to five base shoots were thoroughly developed by July 20, produced in the succeeding fine weather a second growth, with the flowers shown by my firm at the August meetings of the Royal Horticultural Society; and again a third growth, sufficiently strong to produce, unassisted, except by disbudding, flowers good enough for show. Shoots with a second and third protruding growth must be ripe; they must have their fair proportion of wood

to sap, and certainly are anything but sappy and unripened. I should add that this expression is not confined to the plants on the Cheshunt stiff Rose soil, but is confirmed by my experience of the light sandy loam of our High Beech nursery. I venture to think that the experience of your practical readers does not bear out the conclusion, that plants in well tilled ground have bad roots. I also fail to see the justice of the simile between a well cultivated plant, with all its parts in healthy fine condition, and a Dives removed from luxury to penury. I should rather compare a well grown Rose to a healthy, carefully dieted man; and does not experience prove that such a man bears privation better than the man already weakened by semi-starvation? Such treatment and want of skilful attention is, amongst the buyers of Roses, we know, happily rare. In conclusion I must ask pardon for intruding so much on your space, but, writing what must be my last contribution to this controversy, I must yet further ask for room to thank you for the fairness and courtesy with which you have guided this discussion. *George Paul.*

—— The present mode of showing Roses cannot be much improved. It will never do to dress up Rose boxes with "foreign substances." It is troublesome work enough now to cut Roses and travel with them long distances. Moreover, amateurs may have neither Ferns nor Lycopods at command. Roses dressed up with other flowers would be much like "lambs dressed up old ewe fashion." I think it would be nice if nurserymen would take pot Roses for a backing up of the boxes. I also think that simply ornamental boxes of Roses, bouquet-fashion, might be admitted. These Roses would not do for exhibition when separated, but, viewed as a whole, would be very nice and attractive. Years ago I took to Kensington a box with twenty-four cups and ten cuttings in each cup, some pure and some mixed, in different stages of development. This would enable humble growers to help out and vary the present mode of exhibition. A prize might be given to the best ornamental box of twelve cups, with from five to ten cuttings in each. I merely suggest this. Moss is very unequal in quality, but I do not think you could improve upon it. I know no one more able to advise upon this subject than my friend, the Rev. R. Hole, to whom the whole Rose world is so indebted. I do not think he would advise "foreign substances." I wish he would express his opinion. I think nurserymen should not show more trebles than forty-eights, and that amateurs should not show more than twenty-four trebles. We want at exhibitions good ones in good condition, not one good one marred by one indifferent one and one bad one. *W. F. Radclyffe, Sept.* 27.

—— From several private communications which have reached me during the last fortnight, I am made acquainted with the fact that I have been in some instances imperfectly understood in the remarks I made on this important subject at p. 368. I am supposed to have written disparagingly of the trade, and the way in which they prepared their annual stock for sale. Permit me to state that this was certainly not my intention. I need not again enter into the direct question, as to what system of showing will be likely to increase the estimation in which the Rose is already held, and which I have already debated. This I will say, however—and my opinion should be worth something, as I have spent a season in the Rose department of one of our oldest and most popular London nurseries, have budded Roses therein six weeks at a stretch, with tyers to follow, and originated the feature of growing "hedges of Roses"—the Roses sent out by our nurserymen are unsurpassable, and, indeed, unapproachable by any. All knowing buyers shrug their shoulders when, through being late in giving orders, they are obliged to put up with imported Continental-worked plants. If a misunderstanding were possible in regard to what I have said, it is but just I should add this, the more particularly as I study no interest in any remarks I may think it desirable to make. *William Earley.*

—— As the first who took up the challenge thrown out by the leading article printed in the *Gardeners' Chronicle* as to the present system of Rose-showing, will you permit me to express my regret at the devious course into which the discussion has run, and the personalities engendered by it? If anything ought to be free of such, surely it should be a Rose discussion. If I understand the matter right, the simple question was whether it was possible to improve the present system of Rose-showing in flat boxes with moss, and whether something more artistic, or, if you will, more natural, could not be devised. I therefore dismiss Mr. Prior's 1st, 3d, and 4th propositions as beside the question, and with regard to the 2d and 5th I may say these few words: It is impossible to make an exhibition of cut flowers anything but unnatural, for, take them from their proper position and arrange them as you will, the unnaturalness is merely a question of degree; and as I believe the object of exhibiting a cut flower is to display it to the best advantage, no massing together of huge quantities will ever do this. One thing, I think, seems to have been entirely lost sight of, viz., the difficulty of getting Roses to a show. How is it possible, unless on some such plan as now adopted, to get them, say 150 miles, as Mr. Cranston brings his, in the wonderful state of perfection they are shown? I believe the present system of showing has produced the marvellous taste for Roses that now extends far and wide. I see no signs of its diminution, nor do nurserymen. I happen to know that one grower, whose stock had recently to be valued in connection with a change in the firm, has 250,000 dormant buds on Manettis, and I venture to prophesy that if none of your correspondents are troubled with a headache until the present system is changed they will attain a good old age. It is no love of old ways makes me say this, and it is the result, not only of my own observations, but I may say that of every manager of flower shows, and every exhibitor I have spoken to (and they are many) on the subject. *D. Deal.*

—— I quite agree with the remarks of your correspondent, Mr. D. T. Fish, as to the advantages of the present system of exhibiting the Queen of Flowers. The idea of using dividing bands of colour, by placing the Maréchal, Gloire de Dijon, &c., between the collections, appears a most excellent one, as the individual collections would stand out more distinctly, and, if backed up with well-arranged groups of fine-foliage plants, the effect would be perfect and satisfying. I am doubtful if any of the colours suggested for covering the tables will be found as suitable as green baize, as it is the nearest approach we have to Nature's setting—the ever-satisfying green turf; and nothing can ever replace the lovely green leaves of the Rose as an adornment to the flower itself; and this holds good with everything that blooms, and reminds me of a very pertinent reply made, I think, by Hogg, the celebrated Carnation grower. When asked what green he would advise to dress his favourite flower, he replied, "Sarve 'em up in their own sauce." *J. Sheppard, Woolverstone.*

The Green Rose.—I observe that your correspondent from Kew thinks that the green Rose was not known in England till 1856. I saw it in 1852 in Baltimore (U.S.), and got my own plant early in 1853. I send you a spray, to show how it flourishes with me. *H.*

Royal Horticultural Society's Provincial Exhibitions.—The time is now approaching when, perhaps, it may be fairly asked, What are the arrangements (if any) which the Council have made for the Society's provincial show next year?—presuming, of course, that it is their intention to hold one. The place of meeting should be fixed upon by this time (if not, no time should be lost in deciding it, this doubtless being the cause of last year's failure), as the canvassing for the local special prize fund involves no small amount of time and labour. It will be a matter for sincere regret if these annual provincial meetings of the Royal Horticultural Society are discontinued, as, apart from the great stimulus to horticulture which such exhibitions give in the towns in which they are held (which is, or should be, the Society's chief object), they have added very materially to the Society's exchequer—a consideration certainly not to be lost sight of in the present state of the Society's finances. *J. R. A.*

The Determination of Fungi, &c.—Your correspondent, M. Roumeguère, is really very careless. In correcting this writer's errors (p. 298) I never said that Panus stypticus (as now asserted by him) had coloured spores, but that it did not belong to the "numerous section of white-spored Agarics," to which M. Roumeguère had referred it, and which (as all fungologists know) is a totally different thing. M. Roumeguère then tells us that all the authors he has been able to consult say the spores in this species are white, except Fries, whereas Fries himself is the founder of the genus, and distinctly says under Panus (*Epic.*, p. 397) "sporidia alba," and again, in his *Monographia Hymenomycetum*, vol. ii., p. 239, under Panus, "sporæ albæ." It is clear from the above that M. Roumeguère is as ill acquainted with Fries' writings as with my small book, to which he before distinctly referred. Again, so far from the yellow spores of some Russulæ being an "optical illusion," my critic needs to be told there is a *whole section* of Russulæ whose leading character is yellow gills and spores ("Lamellis primitus luteis, sporis ochraceis," *Mon. Hym.*, vol. ii., p. 203). A word as to Agaricus nebularis (venomous to a high degree, says M. Roumeguère) and Mr. Berkeley's opinion of it, as quoted by my critic. There is, perhaps, no man in the world more cautious and correct as to what he says about fungi, than Mr. Berkeley, who even says under A. rubescens (one of the most delicate and delicious of all Agarics), "quality doubtful" (*Outlines*, p. 91); now Berkeley says under A. nebularis, "esculent" (*l. c.*, p. 107). I will not occupy your space by combating the opinions of M. Roumeguère about the qualities of diverse species of fungi, as my principal aim has been to deny the paternity of the absurd "theory" over which M. Roumeguère has expended so many heavy blows. It is, indeed, now a question with me whether it is necessary to reply to a writer like M. Roumeguère at all—a writer who employs exploded synonyms more than a century old, and who says it is a "matter of opinion" whether an Agaric should be placed under Amanita, Clitocybe, or Tricholoma; it may be a "matter of opinion," but whose opinion? The works of Schæffer, Persoon and Bulliard, are, of course, valuable in their way, but without the aid of more recent knowledge they must lead to error. As to Krombholz, the coloured illustrations are magnificent, but if the work is used without the critical aid supplied by Fries, it must lead to innumerable and fatal mistakes, owing to the excessively wrong naming of the species. I may say in conclusion that the title of "Laureate to the Royal Society of Agriculture" is as foreign to me as all the rest of M. Roumeguère's letter: that nobody holds the "doctrine" he has been fighting with, and, in fact, no such "doctrine" has now, or ever had, any existence anywhere. *Worthington G. Smith.*

Potatos.—Potatos left in the ground till now are fearfully diseased; the only exceptions are the Red-skinned Flourball, a fine Potato for poor people. I could not see a speck on those dug up by a poor neighbour last week, but my white Potatos were much affected. I dug up my Potatos about August 7, and though there is no developed disease, I am certain that if I had left them in the ground they would have been much affected. I had the ground from which they were taken dug over last week, and the "skulkers" are almost totally diseased. I see in Myatt's Ashleaf and Royal Ashleaf, served for dinner, blue splotches, sometimes in the heart and sometimes at the eye, which I believe to be undeveloped disease. *W. F. Radclyffe, Sept.* 28.

Mandevilla suaveolens Hardy.—A strong plant against a wall, has been growing without winter protection for a few years, and blooms almost every season, in the Rectory gardens at South Stoneham, Hants. Other reputed greenhouse climbers are to be found there, hardy. Would it not be worth while planting out many of these things to test their hardiness and adaptability as hardy climbers, to enable us to use more variety than at present? Here is another opening for the Floral Committee. *An Old Wall.*

Erythrina Parcellii.—The plant figured last week under this name is no doubt the E. picta of Linnæus, a variegated variety of E. indica. There is a very good plate of it in Rumphius' *Herbarium Amboinense* (1741—1755), vol. ii., t. 77. In reference to its habitat Rumphius says: "hæc species raro in Amboina occurrit et tantummodo hinc inde in alterave arbor prope ædes plantata;" and he goes on to say that it has been observed in several places in the eastern part of the Moluccas and Celebes, though very rarely, if at all, in the western. Seemann, *Flora Vitiensis*, does not appear to have seen this variety, but the typical E. indica is common in the Fijian islands. The custom of planting it near houses or temples, as mentioned by Rumphius in the above note, is general in the Fijian islands, according to Seemann. He says: "The flowering of the Dra (Erythrina indica), which takes place about the end of July or the beginning of August, is the general sign for planting the yams, and one of the natural phenomena upon which the Fijian Calendar is based. For this reason the tree is found near almost every village, either wild or planted. The seeds are used by children for toys, and by the heathen priests to cover the so-called oracle boxes." This species is also commonly cultivated throughout India. There is a fragment of E. indica var. picta in the herbarium at Kew from Sir Richard Schomburgk, dated 1872, under the name of E. Parcellii; but no other information accompanies the specimen. In the *Floral Magazine*, new series, plate 95, it is figured as Parcelsii. It is also called Purcellii, but it is of no great importance which of these forms is right, as the name picta must be adopted, if we regard the rights of priority. Linnæus held picta to be a distinct species, Lamarck in his *Encyclopædia* unites it with indica, whilst De Candolle in the *Prodromus* again separates it. *W. B. H.*

The Tuberose.—Although the facts bearing upon the native country of this plant appear to be almost wholly in favour of the view held by "B. M." in his interesting article at p. 257, it is not so easily explained how it became so widely diffused in Asia as long ago as we have any records of the vegetation of that country. We can only assume that Clusius's plant came from the West Indies on the strength of the evidence; taken alone it is, to say the least, doubtful whether De Tovar obtained it from the East or West. I am able to add very little to the evidence adduced by "B. M.," but I recently came across a reference to this plant which, if true, has some interest. In speaking of the true Sumbul, Dr. Regel (*Gartenflora*, p. 324, 1871) says that amongst other things the Persians formerly offered the roots of Polyanthes tuberosa as Sumbul. Of course it is very probable that the Persians would cultivate a fragrant

flowered plant like the Tuberose, though one would scarcely think so extensively as to substitute it for a wild plant, yet even that might be. Salisbury's description and historical account of this plant was, in its time, pretty well exhaustive. References to all the authors known to have written upon it are given, and all the evidence, direct and indirect, is carefully analysed, bringing the author to the conclusion that the Tuberose is a native of the New World. Mexico is usually given as the region where it is indigenous, but I have seen no specimens from that country likely to be wild. The only specimens I have seen having any claim to be wild are those collected by Mandon in the vicinity of Sorati, Larecaja, in the Bolivian Andes, at an elevation of 2650 metres (about 8000 feet), and there is no mark on the accompanying label to indicate that they were not wild, except, perhaps, the *viciniis Sorati*. The main cause of the impossibility of determining the native countries of many widely cultivated plants lies in the fact that early collectors especially were quite content with the first specimen available, whether wild or cultivated. In fact, the importance of giving exact habitats has only been recognised within a comparatively recent date. It must be still possible, one would think, to determine the native country of the Tuberose if collectors will only bear in mind that it rests with them to furnish undisputable evidence. With regard to its being one of the plants sold as Sumbul, perhaps this notice may elicit further and more explicit information. Dr. Regel simply enumerates it amongst other plants without further remark. *W. B. H.*

Cydonia japonica.—May I add a few lines in addition to the reply already given to the inquiry of "J. N. C." regarding the fruit of the Cydonia japonica? In the south of Devon this fruit attains a great size, and is sometimes regularly preserved, and set before the guests as a special dainty. Having tasted it myself, I am able to say that it can be eaten (literally speaking), for albeit the operation is one of some difficulty, it can be subjected to the process of mastication and subsequently swallowed. With regard to the taste—or rather feel in the mouth—of this most unpleasing conserve, it seemed to me just like that of a bunch of Barberries laid aside till it was candied into lumps and the flavour gone, and then eaten whole, stems and all. It seemed nothing but a fibrous sugary mass, and I cannot recommend it in any point of view, excepting that it appeared harmless; but having had an opportunity of making its acquaintance, a description of it may be of some interest to your correspondent. Should he desire the recipe, I shall have much pleasure in procuring it for him. *O.*

Fungi in Peach Borders.—I send you root and leaves of a Peach, and also specimens of the soil from the border in which they are growing, that you may see how badly it is permeated by fungus, and the effects of the same on the roots and leaves. The border was made some years back in the usual way, with good turfy loam, and as, you will see, a good deal of this fibre is not yet decomposed, and owing to the excessive dryness of this last two or three years has generated fungus. The effect on the fruit is even more marked than that on the leaf, giving it a scabby appearance, and causing the parts affected to adhere tightly to the stones. During winter a great many bloom-buds fell off, and many that opened had imperfectly formed flowers that failed to set. I may add that previous to the fungus getting possession of the border the trees were in luxuriant health, and the admiration of all who saw them. I am of opinion that many failures in fruit culture result from the above cause, and instead of attributing the disease to atmospheric influences the mischief should be sought for and overcome at the roots. The seasons have been so excessively dry for our light soil that I have been unable to obtain a sufficient supply of water to drown the fungus out, or I might have been saved the renewal of the borders, which I am now doing. As usual in such cases I have had all sorts of advice—to syringe with diluted carbolic acid, to pick off the leaves and burn them—but fortunately I knew the cause of the mischief. I can unfortunately point to plantations of Larch and Scotch Fir dying from the same cause—through an accumulation of vegetable matter, principally their own leaves, which drifted round the collar of the plants, where it became a perfect mat of fungus. *J. Sheppard, Woolverstone Gardens.*

Appoline Rose for Autumn Blooming.—It may be doubted whether any subject treated of in the *Gardeners' Chronicle* affords more practical service to gardeners generally, than your practice from time to time of drawing their attention to forgotten or neglected old plants and fruits, at one time favourites. Many a real good thing, were it not for these seasonable reminders, would no doubt in time be altogether lost. In any collection of Roses grown for garden decoration, the above Bourbon Rose ought to find a place. Here with me for the last three weeks it has been a most beautiful object. We have no other Rose out-of-doors at the present time half so attractive as it. This afternoon I counted thirty-five blooms as free and beautifully expanded as any forced Rose in May. It is a very sweet-scented Rose, and does well with us as a standard. *Owen Thomas, The Gardens, Drayton Manor.*

The Red-Skinned Flourball Potato.—I have at different times read in your pages bad accounts of this Potato—that it is waxy, close, &c., and anything but answering to its name of "Flourball." Allow me to say that this spring I obtained some seed of this variety, and that to-day, September 29, I have had the crop lifted. The produce is enormous, and for quality I will match them with any Potato grown. That you may not think I am lavish in my praise I take the liberty of sending you a few for trial, and I am ready at any time to do the same to any person whose faith in this excellent Potato requires confirmation. But I have further praise for it. Next to the ridge on which it was grown there were on one side Paterson's Victoria, and on the other the Torquay Kidney; and, whilst both of these have suffered immensely from disease, I cannot find one infected tuber in the Flourball. I have had a gentleman from Wells staying with me for a couple of days who is a pretty fair gardener, and who had read of but never seen this Potato. On putting a dish of them on the table to-day he was so charmed with their quality that he assures me he shall "go in" for them next year on a large scale. *J. B. C., Fontmel Magna.*

Pink Nosegay Pelargoniums.—We have now, thanks mainly to Mr. Pearson, quite a plethora of pink-flowered forms of the Nosegay Pelargonium. In spite of the abundance, however, it would be folly to assume that they have therefore reached perfection; still the best kinds are very beautiful, and unless speedily supplanted by newer and improved forms must inevitably become great favourites. After the long experience we have had of the value of the Nosegay Pelargonium as a bedding plant, gardeners generally will hardly favour the new-found idea that they are becoming too good for outdoor culture. Certainly some kinds produce immense trusses, but where such is the case there is usually less of them, and consequently the florescence of the plant is not greater than if the trusses were smaller and more abundant. To get large trusses may be a matter of importance to those who propose to exhibit them as cut flowers—a common practice at provincial shows, but to those who grow these Pelargoniums either for house decoration or for bedding it is much better that a plant of equal size should carry twenty medium-sized trusses rather than ten large ones. The pink-flowered kinds, as a rule, do not yet produce very large trusses, but the best are of a fair and useful size, whilst all those of the Christine family, although differing in tint, yet scarcely excel that good old kind in size of truss or of flower. The two best forms of the Christine family are Master Christine, a robust grower and a most abundant bloomer; and Mrs. Haliburton, sent out last spring by Mr. Kinghorn, of Richmond, and which presents Christine exactly in all respects, except that the flowers possess a much richer and therefore more effective hue of colour. In the Nosegay section, however, the selection is not so easy, as there are so many really good things in it. Of the dozen and more kinds that I saw the other day growing in pots in one of the houses at Chiswick none were more beautiful in my estimation than Pearson's newest kind, Mrs. Turner, and the older but still indifferently known Florence Durand. In the beds, however, where there is a good collection, but which do not include Mrs. Turner, Mrs. Tate, and a few others of the most recently raised kinds, Florence Durand is certainly the best, and I should say that, both as a pot plant and as a bedder, it is first-rate. Mrs. Turner is a beautiful variety, has a good-sized rounded truss, and the flowers are in colour deep rosy pink, the petals also are broad, and almost equal our best types of flower. Mrs. Tate is also a very fine kind, but of course these are perfectly new, and I think not yet in commerce. Florence Durand carries a fine rounded truss of rich rosy pink colour, and makes a fine plant for exhibition. Princess has flowers rather deeper in colour than the preceding, but the petals are not quite so broad. It is, however, a very beautiful kind. Sir Richard Wallace is rather a loose grower, but carries good trusses of bloom; the petals are large but rather loosely set; the colour, however, is deep, and it is a charming variety. Rose of Allandale and Blue Bell are also both good and effective forms, and all who secure them will possess no common varieties. There is one Nosegay Pelargonium that stands almost alone in hue of colour—Forest Hill Nosegay. It is a robust grower, flowers very freely, and makes both first-rate bedding or pot plants. The colour of the blooms may be best described as salmon-carmine, and the trusses fine and of good form. *A. D.*

A Bean with Many Names.—During last winter a cottager named Wilson gave me a few Beans of a dwarf French variety, that had, at least, the merit of novelty, as they differed in appearance from any known forms of the dried seed. Some of them were sent to Chiswick, under the provisional name of Wilson's Wonder, for trial during the past summer. Unfortunately, the Bean trial, owing to the prevalence of drought, proved a failure; but enough was seen to satisfy Mr. Barron that Wilson's Wonder was not only the same in seed, but also in growth, with eight other so-called kinds, so that although really a new Bean, it is pretty widely distributed. Its other titles are:—Exhibition Dwarf, Victoria Long-podded, Pooley's Prolific, Clapham Prolific, Flageolet Prolific, Chiswick Forcing, White Long, Black Blotch, and Kemsley's New Dwarf. Considering that it was received under all these designations simultaneously, it would have been exceedingly difficult for the Fruit Committee, had it come before them, to have decided under which name it should be recognised. Perhaps in such a case the simplest solution would be for the committee to give it a name and call all the rest synonyms. The ripe seed is of medium size, long, thin, and of a creamy-white colour, with small black blotches near the eye. In growth it is tall and robust, and an immense cropper, the pods being long, slim, and very handsome, and valuable for exhibition. I class it as a main crop kind, and, of some dozen or more standard kinds grown here, it was by far the heaviest and most continuous cropper; indeed, the plant has the habit of throwing out racemes of flowers at the sides of the row like to the Scarlet Runner, and has a most striking appearance. I commend this dwarf Bean as a real acquisition. *A. D.*

The Pelargonium Society.—Amongst the objects of this new Society I trust it will consider the desirability, or otherwise, of abolishing the use of wire trainers in growing Pelargoniums for exhibition. I look upon these crinolines as veritable abominations, disfiguring the growth and vilely contorting the plant, instead of presenting it to view as a naturally-grown and beautiful object. In offering prizes for the best plants it is, no doubt, intended to favour size if allied to quality of growth and flower, and plenty of the latter; but these points can be easily attained in the case of Zonal or Nosegay Pelargoniums without such ungainly aids as trellises. In starting a good bottom to produce a show plant it is desirable to tie down a few of the leading shoots for a time, until a proper base of action is formed, and when that is accomplished constant and careful pinchings will secure the remainder. The grower has need but to stop pinching in good time, and keep his plants well fed with manure-water, to produce first-rate results when the time of exhibition arrives. If a grower can secure good plants, large, and full of flower, without the assistance of other training than that mentioned, he certainly deserves a much greater amount of credit than that grower whose exhibits, although veritable flower beds, are yet more the productions of ill-spent labour than of real culture. *A. D.*

Trial of Celeries at Chiswick.—Those interested in Celeries will be gratified to hear that a capital trial of a large number of assumed kinds is being conducted at Chiswick just now; and, in spite of the drought, the whole of the plants are doing well and making rapid growth. The raising seed of these kinds was conducted with great care, seed being sown in pots simultaneously, and raised in gentle heat. As soon as the plants were large enough, about three dozen of the best of each kind were pricked out into large shallow boxes, and these again, when well-established, were put out into the open air, and thoroughly hardened. From these again twelve plants of each kind were selected and planted out in trenches in the usual fashion, the reds together, and the whites the same, and water has not been spared to secure a good growth. Just now they present a favourable opportunity for comparison of growth, and also to judge of distinctness where it may exist, although it is probable that the entire number will be eventually reduced to less than a dozen kinds. All the best known sorts appear to be represented, and most likely all commonly grown kinds are so. In addition to the test of growth, those of solidity, flavour, and eating quatities, will be tried; and it is to be hoped that when the committee shall undertake this labour, the concomitants of bread and cheese will be abundant. I hear that it is Mr. Barron's intention to show samples of all the sorts, properly classified, at the November exhibition at South Kensington. *A. D.*

Reports of Societies.

Stevenage Horticultural: *Sept.* 16.—Small, but interesting and good, is the verdict we must pronounce on the autumn exhibition of this provincial Society. Held on the above date in the Public Hall of this extremely neat little town, in a quiet and unobtrusive style, it presented a singular contrast to those livelier and more energetic floral exhibitions that are found so abundantly in the towns of the South and West of England, where the show day of the local horticultural society is the fête day of the season. Stevenage is quiet and unpretentious, and a show of the obtrusive

pattern would here be almost equivalent to a revolution; therefore, in wending our way to the place of exhibition it was not to be wondered at that, being strange, we went by the Public Hall, seeing no evidences of the show within, such an entire absence of publicity was there in the whole proceedings. It is much to the credit of the clergy of Stevenage and its neighbourhood that they rank amongst the most liberal supporters of the Society, and are also some of its best exhibitors. Usually at the summer show one of the local gentry gives a large garden party on the day of the exhibition, as this assists materially to bring together a large number of persons, who thus by their attendance give the committee both countenance and support. The tables are laid out in the form of a cross, a long one running down the centre of the room, and a raised table across the top; tables are also placed on each side of the room, and on these are placed the smaller contributions. There are three classes of exhibitors—gentlemen's gardeners, amateurs, and cottagers; the amount of money offered as prizes being pretty equally divided between them. Plants are not largely invited, and with the exception of some capital bush Fuchsias, well grown and flowered, there was little in that way of special merit. Of cut flowers the best things were Asters, Dahlias, and some very neatly dressed centre-pieces for table decoration. For twelve cut Asters the Rev. J. E. Pryor was placed 1st, with a capital lot of blooms, chiefly Victorias; he was also 1st with a neat lot of twelve cut Dahlias. Fruit was a much more distinguished feature, there being some really good Grapes, Peaches, Pears, Apples, &c. In the class for the best bunch of indoor Grapes Lord Lytton took 1st, with a small but splendidly ripened bunch of Muscat of Alexandria; his lordship was also 1st for twelve sauce Apples, showing a very fine Codlin-shaped variety, named Malvern Hall. Of baskets of fruit the Rev. Canon Bloomfield was the only exhibitor: his contained Black Grapes, Peaches, Plums of sorts, Morello Cherries, Apples, Pears, red, white and black Currants, Figs, and Gooseberries, all very good. There was a considerable competition in the class for twelve Plums, but the best dish was a fine lot of the Caledonian, shown by Colonel Wilkinson. A most interesting feature of the exhibition consisted of baskets of vegetables of an unlimited quantity and artistically arranged; these were shown by each class of competitors, but the two staged by the Rev. Canon Bloomfield and the Rev. Mr. Seager were largest and most effectively displayed. Canon Bloomfield took the 1st prize in this class, having good Cauliflowers, Cabbages, Globe Artichokes, Marrows, Onions, Peas, Runner and Dwarf Beans, Carrots, Celery, Cucumbers, Turnips, Lettuce, Endive, Mushrooms, and Round and Kidney Potatos, with mixed herbs. These baskets were most difficult to judge, and being so equal in arrangement quality was the only remaining point. The cottagers' produce was of the most meritorious order, Potatos only being excepted. Of Kidneys the best was a neat lot of Waterloo Kidney, and a fair dish of Red Emperor was the best of the Round.

Carrots grow to perfection at Stevenage, the Scarlet Intermediate being generally shown, and these of good size and faultless form. Onions, Savoy Cabbages, Parsnips, and Turnips, were also very good; better, indeed, than the usual average of cottagers' produce. In the class for outdoor Grapes some good well-ripened bunches of Sweetwater were staged, showing that the summer, after all, has not been devoid of ripening powers. There were also some large and well-coloured fruit of the Hollandbury and Cellini Pippins, both of these taking 1st prizes in their respective classes. Whatever may have been the financial result, the horticultural portion of the affair was an undoubted success. (*From a Correspondent.*)

THE FARM.

CABBAGES.—Among the cultural directions for the farm we notice that this month it is directed to plant out Cabbages. Now, as we have already described a plan for growing this crop by a less expensive mode than transplanting, we will offer a few remarks upon the transplantation system, first remarking, that at the present moment our sheep are luxuriating on Cabbages sown, thinned, and cultivated like Swedes; unlike these, however, this year the Cabbage crop is very regular, each head well hearted, and not a single case of bolting. We have found this crop exceedingly useful in this exceptional season, as it has supplied our flock with some excellent keep from as early as July, and is now standing us in good stead, while Swedes and late Turnips are taking advantage of the later rains. Still Cabbage is generally grown by sowing the seed in the first week of August, and transplanting the young plants during the present month.

Such plants of almost any preferred sort are to be bought from nurserymen or in the market at so much per thousand, and may be used, from a hundred or more in the garden, to about 10,000 to the acre for field culture. The best preparation for this crop is to break up the stubble or other ground to be planted by as deep ploughing as can be done, or by smashing up with the steam cultivator, having previously dressed the land with a thick dressing of rotten dung. When ploughing is done, the whole should be well worked so as to get the soil into a fine "tilth," and at the same time to so mix the manure that it shall become part of the soil itself; indeed, we always think that manure should be made to enrich the land by thorough incorporation, and not be left about in lumps with the idea that plants can seize and eat it, as animals do food. We prefer this plan to that of throwing up the soil in ridges, and putting the dung in raw between, then splitting and putting our plants immediately into the manure; for in this state the crop will be ridged, and, as we always fold our sheep upon them, there is thus great danger of their being cast. But besides, the ridge system with Swedes and Mangels allows the soil to be hoed from the roots, so we prefer cultivating all these crops on the flat, and direct our hoers in pulling away the soil from one row of roots to direct it around the contiguous row. This is especially useful to the Cabbage, as it takes a start into luxuriant growth the moment this operation is completed.

If sufficient farmyard dung be not available, we have found 5 cwt. to the acre of guano, or the like quantity of Proctor's "root manure," to be advisable. This can be broadcasted before the soil is finally harrowed down for the reception of the plants. In the choice of plants, good strong, stocky, healthy individuals should be chosen; but if they are grown too thickly in the seed-bed they are apt to be weakly, and this is often the cause of bolting.

We prefer the rows to be 20 inches apart for medium-sized sorts, but for Drumheads, 2 feet. In thinning out our drilled seed we use the 12-inch hoe, and so leave from 12 to 15 inches between each plant, and this will do for such smaller sorts as the London Market and Battersea; but the Drumheads should be planted quite 18 inches apart, and when the soil is good and the treatment liberal 2 feet will not be too much. Cabbages grown this way will come in sooner than the untransplanted lot. The transplanted Cabbages will come in, according to season, as early as the end of May or the beginning of June.

Thus early it is a very useful crop, as it may be carted for feeding purposes for all kinds of stock; we, however, prefer it for sheep, as they thrive remarkably well upon it and eat up every scrap. It gets the going off sheep fat for the market, and forwards the ewe flock in good condition; for which reasons, and considering the amount of yield, we consider the Cabbage to be a very important crop, alike to the small as to the large farmer.

The Villa Garden.

DURING the prevalence of the fine dry weather of the past fortnight, a slovenly garden would be inexcusable. There should be a pitiless slaughter of all weeds, and the surface of any cropped ground be kept hoed over. Our beds of Strawberries are being gone over and thoroughly cleaned. All the strongest runners have been lifted and planted in store beds, or used to make new plantations of this fine fruit, and all the small runners have been cut away close to the plants and thrown on the rubbish heap. Some persons at this season of the year cut away leaves, runners and all, from their Strawberry beds, leaving the plants quite bare and open to all the influences of weather. This is regarded by all fruit cultivators of note as an unwise proceeding. Our plan is, after the runners are removed, to leave every leaf, whether decaying or not, then to fork lightly between the plants, taking care not to injure the crowns; then to place about them a coating of well decomposed manure, and after a good rain or two has fallen on the beds, add a dressing of loamy clay, no matter if in fair sized lumps. Towards Christmas, when severe weather is imminent, some half-long manure, as gardeners term that gathered from a stable or cowyard, is thrown over the crowns, and assists to protect them from hard frost; this decays by the spring, and affords a valuable top-dressing. Strawberries require in the first instance a good stiff loam, deeply dug and well enriched with manure; and if when well established a good surface dressing be given annually, as just suggested, fine crops of fruit will be certain to result. Almost any top-dressing assists Strawberries—the refuse heap, if at all decayed, can be turned to account in this way. Patches of Broccoli, Winter Greens, Cabbage, &c., should be deeply hoed in fine weather; and the beds of Spinach will be benefited by a top-dressing of soot, if it can be applied during showery weather, while, being a powerful fertiliser, it also serves to keep vermin at bay. Soot can always be applied to the garden with manifest advantage. In an out-of-the-way dry corner we keep a box, into which is placed all soot from the fire-places, when not required for immediate use. The chimney-sweep is not permitted to cart away the invaluable product, it is claimed for the garden as its rightful due. Some old mortar rubbish, a little fine slacked lime, soot, and dry soil, mingled together, makes an excellent dressing for occasional application. Beds of Pansies, Primroses, Polyanthuses, Daisies, &c., are apt to be infested with slugs at this season of the year, especially if there be a Box edging or handy place of shelter near; an occasional sprinkling of this mixture, however, has a deterrent effect, and greatly assists the growth of the plants. Plants in pots, the roots of which have become a home for worms, are freed from them by an application of this mixture dissolved in water. The worms soon rise to the surface, and are captured as they emerge from the holes.

Plantations or beds of autumn-sown Lettuces to stand the winter should be made, or, if the seeds were not sown in August, a few plants can soon be obtained from any seedsman or neighbouring gardener. A crisp, sweet Lettuce is very pleasant eating in early spring, and as soon as they grow into anything like size they are very acceptable for winter salads. One of the best Lettuces for winter work is the Acme White Cos, or the Hardy Winter White Cos, a probable selection from the Paris White Cos, very hardy, and quick to turn-in at the right season. It is a Lettuce much grown by the market gardeners round London, because it stands so long before it bolts to seed. The Bath Cos, black-seeded, is another good one; and, among Cabbage Lettuces, there is nothing better than the old Hammersmith Hardy Green. In planting out beds of Lettuces avoid a low, wet, cold spot; rather a warm sunny border should be preferred, and a kind of sloping bed be formed, higher at the back than in front, so that heavy rains can readily pass away and not remain stagnant about the roots. If space allows a little Endive may be similarly planted out, either the Green Curled or the White Batavian; a nicely blanched Endive is an excellent ingredient in a salad. If a cold frame be at liberty it would be well to plant a few under that also, so as to be secure against the worst weather; and such handy contrivances as Looker's propagating boxes, or Gilbert's hand-lights may be utilised in the same way. Lettuces are very subject to the attack of slugs during the winter, but an occasional dressing of the mixture of lime, soot, &c., mentioned above, will be found rather too much for them.

A line or small bed of Parsley is indispensable to the smallest garden. Seed of this ought to be sown in August where it is to stand, and the plants thinned out to 4 inches or so apart; however, it transplants very well, and it is not difficult to procure a few plants. A short line of it will supply ample garnishing material for a family during winter. It should be in good soil to do it justice, and an occasional top-dressing of soot in showery weather will greatly assist it. Cabbage can still be planted out on any spare piece of ground, so as to secure an early and continuous supply of this favourite vegetable.

The line or bed of Rhubarb requires attention; the leaves are fast decaying, and should be removed. We have just lifted some roots, divided them, and laid in carefully in some fresh dug soil the strongest crowns, and of the smaller crowns have planted a new bed in a piece of ground that was recently trenched to the depth of 2 feet, and well manured, treading the soil firmly about the roots at the time of planting. The strong crowns laid by have been lightly covered with some light stable dung to keep them cool and moist during the prevailing dry warm weather, and by-and-by they will be used for forcing in a very homely but successful fashion. It is great mistake to grow Rhubarb in poor exhausted ground, the quality becomes much deteriorated in consequence. It should find a place in the smallest of Villa Gardens, for it is a real delicacy early in the season, while during the summer its strong stalks can be converted into a wholesome preserve for autumn and winter use.

Obituary.

DIED, on the 26th ult., at his residence, St. Peter's Street, Canterbury, WILLIAM MASTERS, Esq., J.P., aged 78.

The gentleman whose death is above recorded was one of a small class of nurserymen whose interest in his work was as keen from a scientific and artistic point of view, as from a merely commercial one. Undertaking, many years ago, the management of his father's long-established business, he hastened to make his nurseries serve, not only a commercial purpose, but to make them available also as schools of botany and horticulture. An ardent lover of the natural history sciences and geology at a time when they were not so popular as they are now, he exerted himself vigorously to establish a museum in his native city, and for years acted as its Curator, delivering lectures on botany and geology, organising occasional exhibitions of pictures, and other objects of art, in connection with it, and making his nursery a supplementary feature by arranging it in part as a botanic garden.

Some years afterwards his natural tastes and artistic feeling enabled him to obtain a considerable reputation as a landscape gardener, and once again his nursery was, to a large extent, modified, with a view to show the effects of groups of ornamental trees and shrubs, and of isolated specimens of the more noteworthy trees. Many of these still remain, though the nursery in which they are planted is situated in the heart of the City. The nurseries were also at one time famous for their collections of herbaceous and alpine plants, and possessed one of the most extensive and remarkable assortments of succulent plants in the country. As these plants found little favour with the public, the collections gradually dwindled, and the nurseries assumed less of a special character, and more that of a commercial undertaking. They still contain many plants, especially among hardy trees and shrubs, which are not commonly met with in such establishments. A catalogue which Mr. Masters published many years since, under the title *Hortus Duroverni*, was formed on the model of the *Hortus Britannicus* of his friend, J. C. Loudon, and is, even now, occasionally asked for as a garden catalogue, though it has long since been out of print, being succeeded by others of a more commercial and less ambitious character.

As a landscape gardener Mr. Masters was, as has been already stated, at one time in great request, and earned considerably more than a local reputation. His taste led him naturally to adopt the picturesque treatment rather than the more formal architectural style now fashionable. Among his more important works were the St. Pancras and Marylebone Cemeteries at Finchley, which have been much approved of; Linton Park, near Maidstone; Pergo Park, in Essex; Lord Granville's garden at Walmer Castle, and a large number of garden establishments in the home counties.

Mr. Masters was an occasional correspondent of the *Magazine of Natural History* and the *Gardeners' Magazine*, conducted by Mr. Loudon. He was also the author of sundry papers in the *Horticultural Transactions*, and was a contributor to these pages, from the time of the first establishment of this journal till within the last few years. His letters on the gardening of Holland, whither he proceeded to arrange the grounds of a Dutch nobleman, attracted considerable attention at the time, his notices of gardening matters being pleasantly interspersed with notes on art and literature, which, though slight, were suggestive, and revealed great sympathy with and knowledge of those subjects. He was frequently consulted on matters relating to scientific horticulture by the late Dr. Lindley, and the pages of Mr. Darwin's *Animals and Plants under Domestication* give abundant testimony to the extent and variety of his observations. As a hybridiser and raiser of seedling varieties his experiments were mainly devoted to Elms, of which an account will be found in Loudon's *Arboretum*: to the varieties of Hibiscus syriacus (Althæa frutex), Sweet Peas, Hollyhocks, and other florists' flowers, as well as to vegetables, especially Peas. At one time Mr. Masters raised a number of varieties of Hyacinths from seed and cultivated them. The result showed that although Hyacinth culture could be as well conducted in Kent as in Holland, yet that it was by no means so profitable, and it was consequently abandoned. It may be interesting also to mention, at the present time, that Mr. Masters formerly grew Briars from seed as stocks for Roses, but discontinued the practice, finding that the suckers became too troublesome. Indeed, his experiments on hybridisation and grafting were so numerous that it is to be regretted that no proper record of them exists.

Mr. Masters was in his younger days an ardent politician, and received from his fellow-citizens a handsome recognition of his services in connection with the passing of the first Reform Bill. For many years he was an alderman of the city, and served the office of mayor. Latterly, on account of advancing years and infirmity, he withdrew from public affairs, but he retained his position as magistrate and trustee of the city charities to the time of his death; while in his business affairs he was aided by his partner, Mr. Kinmont, on whom the conduct of the nurseries now devolves. In private life Mr. Masters was beloved and respected for his sympathetic intelligence, amiability, and urbanity of manner.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, SEPT. 30, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall
Sept.	In.	In.	°	°	°	°	°	°			In.
24	30.02	+0.25	69.5	52.6	16.9	59.1	+ 4.1	56.8	92	S.W.: WSW	0.00
25	30.07	+0.32	78.1	55.0	23.1	65.6	+10.8	58.0	77	S.W.: WSW	0.00
26	30.00	+0.26	77.1	51.1	26.0	62.2	+ 7.6	57.0	83	S.W.: NE: S	0.00
27	29.83	+0.09	76.9	49.4	27.5	60.9	+ 6.5	57.8	89	S.E.: S.W.	0.00
28	29.64	−0.08	71.1	54.4	16.7	61.0	+ 6.8	57.3	88	S.W.	0.02
29	29.58	−0.14	67.7	52.6	15.1	58.4	+ 4.3	52.7	82	S.W.	0.05
30	29.61	−0.10	66.3	51.4	14.9	57.3	+ 3.3	50.2	77	S.	0.53

Sept. 24.—A very fine day. Generally cloudy till afternoon, nearly cloudless afterwards.
— 25.—Generally cloudless till noon; afterwards variable amounts of light cloud prevailed. A very fine day.
— 26.—Foggy in morning; small amounts of light cloud were generally present. A very fine day.
— 27.—A fine day; foggy and cloudy in morning. Lightning seen frequently between 9 P.M. and 11 P.M.
— 28.—Rain in early morning; generally overcast till noon; fine and partially cloudy afterwards.
— 29.—Generally cloudy during the day; rain fell in the afternoon.
— 30.—Overcast, with rain in early morning; fine and partially cloudy during the afternoon. Heavy rain with thunder and lightning between 10 P.M. and midnight.

—— In the neighbourhood of the metropolis the reading of the barometer, at the level of the sea, decreased from 30.03 inches at the beginning of the week to 29.63 by the afternoon of the 21st, increased to 30.01 by the evening of the 22d, decreased to 29.92 inches by the afternoon of the following day, increased to 30.28 by the morning of the 25th, and was 30.13 inches at the end of the week. The mean reading for the week was 30.01 inches, being 0.08 inch lower than that of the week ending September 19. The readings were below their averages on the first three days, and above on the remaining four, the mean departure for the week being 0.05 inch in excess.

The highest temperatures of the air varied from 62½° on the 23d to 78° on the 25th, the mean value for the period being 71°. The lowest temperatures at night varied from 48° on the 23d to 55° on the 25th, with a mean for the week of 51½°. The mean daily range of temperature was 19½°, the greatest being 26°, on the 26th, and the least 14½°, on the 23d.

The mean daily temperatures of the air were all above their averages, the readings being as follows:—20th, 60°.2; 21st, 59°.7; 22d, 58°.7; 23d, 55°.4; 24th, 59°.1; 25th, 65°.6; 26th, 62°.2; and their departures in excess of their respective averages, 4°.2, 3°.9, 3°.2, 0°.2, 4°.1, 10°.8, 7°.6.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 135° on the 25th and 127° on the 22d, and the mean of all the highest daily readings of this instrument was 114°. The mean of the lowest temperatures at night by a thermometer placed on grass, with its bulb fully exposed to the sky, was 44¼°, the extreme values being 40¼° on the 23d and 47° on the 25th.

The direction of the wind was variable, and its strength generally gentle; the greatest pressure during the week was 6.2 lb. on the square foot on the 22d.

The weather was generally fine but cloudy, the sky on the 23d being overcast throughout. Rain fell on three days, the amount collected was 0.21 inch, two-thirds of which fell on the 23d.

During the morning hours of the 23d, 24th, and 26th, fog was prevalent. On the 23d the air was saturated with moisture almost the entire day.

In England the highest temperatures observed by day ranged from 80° at Sunderland to 68¼° at Liverpool, the general average over the country being 73½°. The lowest temperatures observed at night varied from 50° at Bristol to 44° at Nottingham and Hull, with a general average of 47½°. The mean range of temperature was 26°, varying from 34½° at Sunderland to 18¾° at Bradford. The mean high day temperatures ranged between 71° at Blackheath and 63½ at Liverpool, the general average being 67°. The mean low night temperatures varied from 53° at Liverpool to 50° at Nottingham, with an average value of 51½°. The mean daily range of temperature was 15½°. The mean temperature for the week was 58°, the highest being at Blackheath, 65°, and the lowest at Hull, 56½°. Rain fell on six days in the week at Nottingham; the amount collected was four-tenths of an inch; this amount, however, was exceeded by two-tenths on three days only at Bristol; at Portsmouth and Hull one-tenth only was measured; the average fall over the country was four-tenths of an inch.

The weather during the week has been generally fine, but somewhat cloudy.

In Scotland the highest temperatures ranged between 67½° at Glasgow and 59° at Paisley, the general average over the country being 63½°. The lowest temperatures varied from 47° at Greenock and Paisley to 42° at Aberdeen, with a general average of 45°. The range of temperature was 18½°. The mean temperature for the week was 55°, the highest occurred at Glasgow, 55¾°, and the lowest at Greenock and Paisley, 54¼°. The amounts of rain measured during the week varied from 2¼ inches at Greenock to half an inch at Leith, the average fall over the country being 1¼ inch.

At Dublin the highest temperature was 71¼°, the lowest 41¼°, the mean 57½°, and the fall of rain 0.67 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—Any plants yet remaining out-of-doors should not be risked longer, however mild the weather may be, as frost may now be expected, and sometimes it comes with little apparent warning. Whilst it continues fine and mild give plenty of air, both night and day, so as to harden up the wood and prevent any excitement to growth, of which there is danger, should we have a continuance of the late warm weather; this is especially necessary where plants are required for exhibition purposes in spring, as upon their being kept during the autumn and winter well backward depends in a great measure the condition they can be brought to at the time they are required. The retarding process, where necessary, should, as far as possible, be carried out in the early stages of bud development. Give sufficient, but not too much, water, that is, do not allow the soil to get too dry before applying it, or give it before the roots require it; but not even at this season, when the plants are approaching their least active state, must anything in the shape of half measures be practised in giving it by littles: always give enough so that it can be seen to make its appearance through the bottom of the pot. It is necessary to point this out, as sometimes an impression exists among beginners in the cultivation of these plants that at this season the roots may be allowed to get dry to an extent that is afterwards found to have done serious injury, most frequently through giving the water in dribblets. *Cassia corymbosa.*—Any plants of this useful autumn-flowering subject which have yet a considerable number of their bright yellow flowers to open will be benefited by being placed in a good light position in a house a few degrees warmer than the ordinary greenhouse. Such plants of this Cassia as are done flowering should be at once cut back and placed at the warmest end of the greenhouse, where they will quickly break into growth and move slowly through the winter. If this plant is not cut back freely after flowering it soon gets into a straggling state, which destroys its beauty. Where a good stock exists of *Daphne indica* a few of the most forward plants may be placed where they will receive a little warmth; these will come in at a time when most useful. The few degrees of extra heat, say from 45° to 50° in the night, will, besides bringing them earlier into flower, cause them to form more roots: by this means they will make much more growth next spring than the later flowered plants, and these early flowerers will bear more of their deliciously scented flowers being cut than such as bloom later on. The useful *Nerium splendens*, both white and pink, are not nearly so much grown as they deserve to be, neither is the system of their cultivation so generally known as it might be. The plant from its stiff upright habit soon gets bare at the bottom and unsightly; from this, probably, arises its comparative neglect. Two or three large plants in 16 or 18-inch pots should be grown, from which to take cuttings, or rather plants, which after being thoroughly ripened in the autumn and their flowers set, can be taken off and rooted; so treated they make beautiful dwarf decorative subjects in 6-inch pots. The large plants, that made their growth early in the season, and were turned out-of-doors to ripen, and are now

got inside, should receive no more water than will keep the roots in a healthy state until the flowers are visible, after which they must not be allowed to suffer from the want of it, or the flowers will fall.

Conservatory.—Encourage late *Fuchsias* to continue flowering by regularly removing their seed pods as soon as the flowers have fallen, and the application of weak manure-water. These plants cannot stand it strong; if used so the flowers will drop before they open. From this, until the time of the *Chrysanthemums* coming in, is about the worst season in the year for flowers. *Zonal Pelargoniums*, that have been well grown, and are stout and bushy, and have been prepared by the removal of their flowers as soon as formed, instead of allowing them to open, will here, at the present season, be most useful; keep them at the warmest end, and where they will receive plenty of light. Any of the strong growing kinds that are free flowerers are the best to employ for some weeks yet, after which, when a little heat will be required, the smaller-leaved varieties, such as *Vesuvius*, are the best. Plants of this and similar sorts that have been prepared by turning out-of-doors in the full sun in comparatively small pots should now be taken indoors, and put in a good light house or pit, until they are removed to where they will receive a little heat to bring them into flower previous to their being required. Any late *Gladioli* that have not yet flowered, if taken up and placed in 6-inch pots, will be now most useful for conservatory decoration; their removal will not perceptibly interfere with their flowering. The old purple Globe *Amaranthus* is very useful at this season, and should be prepared in quantity for decorative purposes. *T. Baines, Southgate, N.*

Succulents.—*Agaves* will now be in full vigour of growth, and will require attention in watering, to see that they do not get over dry. Should the days be wet and cold nights prevail, care should be taken that no water is allowed to stay on the foliage, or spots will be the result. The keeping of the foliage perfect being a great point with these plants, special care should be given to it. Towards the end of the month those that have been outside ought to be put under glass, and the house should be closed at night. Greater care is required now in watering *Cacti*, giving it only once a week, and at the end of the month cease quite with all except *Phyllocactus*, *Rhipsalis*, and *Epiphyllum*. So long as the temperature of the house is not below 40° at night, avoid fire-heat. *Stapelias* are more susceptible of cold now than at any time, so watering should be done in the morning, and only on sunny days. Keep them close at night: any one not able conveniently to keep them warm enough will find them greatly assisted by a piece of white paper laid over them during cold nights. *Aloes* will require keeping watered when dry, especially the *Saponaria* group, or the points of the leaves will go off. *Crassulas* will feed freely now; an occasional drop of manure-water will assist such as *C. lactea*: the same will apply to *Echeveria retusa* and *fulgens*, which are now coming into flower. Plants of *E. metallica*, and *metallica glauca* should be taken in soon, as they are easily spoilt by frost or even cold. *Mesembryanthemums* should be taken in by the end of the month. *J. Croucher.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—The parterre is still bright as ever; the summer weather of the past fortnight has again brought out the flowers, and the carpet beds are still perfect, and all that was said in last fortnight's Calendar is yet applicable. Propagation should now be finished, and the winter quarters got ready for receiving the plants, as sharp frosts may shortly be expected, and ought not to catch us napping. Any plants that are intended to be lifted or saved should be watched and protected on the first appearance of frost. It is generally advisable to save a good batch of Tricolor and other variegated *Pelargoniums*, as they come in nicely for the planting of vases, baskets, &c., another season, and flower more freely than young plants. Where *Winter* or *Spring Bedding* is contemplated, let all the plants be in readiness and fully arranged, that no time be lost in clearing and refilling the beds. A list of plants specially suited for winter bedding will be given in the next Calendar. Mow once more, frequently roll, and keep the broom at work if neatness is desired. *W. Wildsmith, Heckfield.*

Ornamental Trees and Shrubs.—Attend to the directions given in last month's Calendar for planting, and press on the work, so as to have all completed before the end of the month. Deciduous sorts may now be planted with advantage, certainly better now than later, especially in land that is apt to become very wet in winter. In such cases, if effective drainage cannot be secured, it is better to defer planting till spring, be the plants evergreen or deciduous. Get in a sufficient stock of cuttings of evergreens that may be propagated in this way as early as possible, if not already done. A little mild bottom-heat should be given to all evergreen cuttings, if possible, to induce them to callus freely and quickly; 18 inches of warm dung, or the same depth of hemp waste trodden firm and level in the bottom of a pit or frame will be quite enough for the purpose. The latter, if it can be got easily, is the best material that can be used for the purpose, because it retains its heating power so long, and is retentive enough of moisture, while it is more porous than dung after the lapse of months, and consequently secures better drainage for the plants when they begin to emit roots. Plant out in nursery rows all thoroughly well-established cuttings of the hardier sorts of evergreen trees and shrubs, but weakly ill-rooted ones and tender sorts should not be turned out till spring. Those even that may be so well rooted as to be turned out now should be placed in a thoroughly well-sheltered position, and in a well-drained piece of ground. Remove ties from such sorts as have been budded during the season. Owing to the peculiarities of the season many buds have started into growth, and are in a bad condition to pass safely through the winter; the first sharp frost may be too much for many of them unless they are protected. This may be best accomplished by means of well-clothed sprays of Spruce branches fastened to the stock, so as to protect the base of the scion as much as possible from the influence of the weather, and should be attended to early, in order to prevent mishap from sudden frost, which can hardly fail to be fatal to such tender growth. Well-rooted layers of evergreen or deciduous shrubs and trees may be taken off and planted in nursing lines in a sheltered spot, and if enough layers have not been made to meet the requirements of another year no time should be lost in making up the deficiency, for it is not too late to make layers of well-ripened wood of either deciduous or evergreen plants. Some attention should be given to the requirements of tender plants as regards protection during winter, and the materials to be used for protecting them should be had in readiness for use. *W. S., Aigburth Nursery, Grassendale, Liverpool, September 23.*

FRUIT HOUSES.

Figs.—Now is the time to see to the requirements of Fig trees in pots which are subjected to early forcing. Examine the condition of the roots of such trees, and if it be deemed needful, which is usually the case with those trees which are forced annually without being put into larger pots, remove a few inches of the soil from the base of the balls, cut back the roots, and replace the soil which has been moved with fresh fibrous loam having a slight admixture of road sand or scrapings; also take away all the loose surface soil, and apply the requisite quantity of the same compost with a fourth part of decomposed manure added. After this operation is finished water the trees thoroughly, and give them a place where they can obtain plenty of air, but without being subjected to the influence of frost or heavy rains. Fig trees which are planted out should now be kept drier at the roots, avoiding extreme dryness; it will tend to promote the perfecting of the growths properly. As soon as the second crop of fruit are all gathered keep the house cool and dry, ventilate it fully except when frost is predominant. If root pruning or partial lifting will be requisite, it should be done as soon as the leaves fall off the trees. *G. T. Miles, Wycombe Abbey Gardens.*

Melons.—Water must now and henceforth be supplied very sparingly; just enough to prevent severe flagging will suffice. It is important, however, to give a fair soaking when this operation becomes necessary, rather than a teacupful each day or two, which will only just wet the surface. The weather is greatly in favour of late crops, and the fruits are still of very good flavour. Let the glass be well washed, outside and inside too, where that is possible, and the foliage kept fairly thin, so as to admit every ray of the lovely autumn sun—the great and only real flavour-producing agent. The last batch are now swelling their fruits apace, and are being supported by tables as before recommended. A mean temperature of summer heat or thereabouts should still be secured. Pits and frames are now being called into requisition for winter salads and the like, and should be turned to some such account directly the crops become cleared off. In the case of dung-heated beds, where the heat may have quite declined and the fruits be still quite green, it is advisable that such fruits be removed to a sunny position in the Melon-house proper or other heated structure, taking care to remove a goodly portion of stem attached. To prolong the season of supply only a few fruits may be thus removed at a time—say once a week—taking care to keep the remainder in the frame as warm as is possible under the above conditions, and also dry at the root. *Thos. Simpson, Broomfield.*

Cucumbers.—The winter fruiters should be in their places about the middle of October, to ensure a good supply at Christmas and during the early salmon season; bring to a close, therefore, any contemplated alterations to the heating appliances (being especially watchful to see that the pipes and joints are all sound), and complete the preparation of the fermenting material, and thoroughly cleanse the house. In the meantime be careful not to overcrop the autumn fruiters which are just coming into bearing, or the result will be quickly seen hereafter; on the contrary, strive to maintain a healthy and vigorous growth, which is to be secured by a kindly treatment coupled with a close and regular attention. Under a kindly treatment the Cucumber is most obedient, and there is nothing in the vegetable kingdom will yield a better return for a fair amount of pains bestowed upon it: but it can be very obstinate under a neglected or adverse treatment. Maintain a mean of about 76°, and gradually reduce the supply of moisture as the days shorten and the power of the sun declines. Attend well to the young plants, to secure a sturdy growth, and be careful to test the heat of the bed before planting out. A bottom-heat of from 85° to 90° will be safe, but it is not wise to exceed the latter figures. Add a little fresh compost to the autumn bearers about once a fortnight, apply weak liquid manure about twice a week, and fumigate occasionally. *T. Simpson, Broomfield.*

The Orchard-house.—The ventilators of this house should now be kept open by night as well by day, while any *Fig trees* in pots which may be showing a good second crop of fruit should, if possible, be removed into some other house or pit where they can be assisted with a little artificial heat and be well supplied with water in order to enable them to swell off and ripen their fruit. Most other fruits will now be gathered, with possibly the exception of a few late *Plums* and *Peaches*, and the trees bearing such should not be disturbed while the fruit remains upon them, but as soon as all the fruit is gathered the trees should be well washed with the garden engine, in order to remove all dust and insects, &c., from the fast ripening foliage. And, as it is of the greatest importance that the wood of all kinds of fruit trees should, as soon as possible, be thoroughly ripened, so all superflous shoots may be at once cut out so as to admit of as great an amount of light and air to the remaining shoots and spurs as possible. Should there be any appearance of unripened wood in trees which may have been placed in the open air, with the view of retarding the ripening of their fruit, such trees should now be returned to the house in order that the ripening process may be assisted by the comparatively dry atmosphere of the structure, while any trees which it may be necessary to leave for a time in the open air should have the surface of their pots well covered with littery manure, or some similar material, in order to throw off the heavy autumnal rains which it is possible we may ere long experience, and to prevent, as far as possible, the soil contained in the pots from becoming saturated with the same. Get soil suitable for the purpose of repotting and surfacing the various fruit trees in pots placed under cover and in readiness for use, as these operations will require to be attended to as soon as the leaves have fallen. *P. Grieve, Culford, Bury St. Edmunds.*

HARDY FRUIT GARDEN.

Continue to gather *Apples* and *Pears* as they become ripe, and place them singly upon the shelves of the fruit-room, which ought to be kept cool, dry, and scrupulously clean. Apples and Pears, particularly the latter, are exceedingly susceptible of injury, so avoid anything like rough handling in the gathering and storing of the same. *Plums* of all sorts have this season been produced in abundance, and the quality has generally been good. Some late sorts, such as *Coe's Golden Drop*, *Ickworth Impératrice*, &c., may be still upon the trees, but will generally be found to be quite ripe, and in many instances inclined to drop; to prevent this, as well as to protect them from the ravages of the wasps (which it is exceedingly difficult to do while they are exposed upon the trees), they may now be gathered and placed singly upon the shelves of a light airy fruit-room, where they will keep good for some considerable time. Many indeed prefer this fruit when it has lain some time, and become partially shrivelled, to using it fresh from the trees. *Filberts* and *Nuts* of various sorts should also be gathered now, and should be spread very thingly upon shelves in an airy room, but should not as yet be divested of their calyx or husks, as for a time they are generally placed upon the table in their natural covering. Any vacancies which may exist upon walls or espaliers should now be filled up with healthy young trees of the desired sorts. But before planting them a considerable portion of the worst of the old soil should be removed from the borders, and replaced with good fresh turfy loam. Where the natural soil is of a heavy or strong character it is advisable to plant such trees upon a small hillock, or slightly elevated above the level of the surrounding soil, while a contrary practice should be pursued where the soil is naturally light or gravelly. Where root-pruning may be deemed necessary to check over-luxuriance of growth, and to induce the formation of fruit spurs, &c., the present time, or as soon as the fruit is gathered,

is the proper season to perform this operation, and at the same time any useless or unnecessary shoots may be cut out of the trees, so as to admit abundance of light and air in order to thoroughly ripen the spurs and bearing wood for next season. Wherever it may be intended to form plantations of young fruit trees of any kind, whether they be intended to be trained to walls, &c., or grown as standards, the ground should now be prepared for their reception. What that preparation may be of course depends greatly upon the character of the soil; but, as a rule, all soils resting upon a heavy and retentive subsoil will be benefited by thorough and effective drainage, together with the introduction of a considerable portion of fresh turfy loam; and when the soil is of a light sandy nature drainage may not be required, but the original soil should be enriched by a liberal drainage of turfy loam, well-pulverised clay, and a portion of well-rotted manure. The trees should be planted as soon as the leaves have fallen, and care should be taken to keep them as short a time out of the soil as possible. By non-attention to this very important matter, many fruit trees are as good as dead when they are planted. A tree taken from the soil in which it has been growing, with its more or less consolidated roots and fibres exposed to the action of the air, is in similar circumstances to a fish out of the water, or to an air-breathing animal placed under the same, and can only retain its vitality for a limited period. Intending planters should about this time visit a nursery and select their trees, and insist on having the same lifted carefully, and their roots enveloped in moss or damp litter of some sort, carefully packed, and forwarded with as little delay as possible; and the site of the intended plantation being in all respects in readiness, the trees should be planted immediately they come to hand, spreading the roots carefully out, and treading in very lightly at present, if at all. Unless the soil is very wet, a hollow or basin should be left around the stem of each tree, and in this basin should be dashed a few pails of water, which will tend to fill up all interstices, and settle the soil among the roots and fibres. In this state the trees may remain for a few days, or until the soil has become tolerably dry, when the basins may be filled in, and the trees rendered steady by having the soil trodden firmly around the stems, and if staking is likely to be required this should be attended to at once; while to check, to some extent, evaporation, and at the same time to keep the soil in a friable and healthy condition, a mulching of partially rotted manure should surround the stems of the trees. *P. Grieve, Culford, Bury St. Edmunds.*

KITCHEN GARDEN.

The Mushroom-house.—Preparations for the early winter crops of Mushrooms must now be made without delay. Where the necessary materials have been collected during dry weather, they will not require nearly so much preparation as that which is only being collected now, owing to the fact that they are not likely to be secured in so dry a state. In all my suggestions about Mushroom growing, I have always strenuously advocated that the necessary drying of the materials should be secured with as little resort to the fermentative process as possible; and for this reason—by fermentation a state of decay is superinduced, and once this is so it cannot, in its practical sequence, be arrested. Mushrooms do not require decayed manure to grow upon or amongst, they rather prefer to attach themselves to such as is fresh, amongst which they ramify and extend in their underground progress with a far greater zest. Excepting occasionally, it is not possible to obtain such a state of materials, owing to several opposing elements at work. As there is then no other method of drying them resort must be had to fermentation. Those who have an open, airy shed, would do well to spread out the materials thinly in small quantities. Even should it be necessary to create a warmth within them, with the end in view of diffusing abroad the excess of moisture they contain, every particle of moisture evaporated in process of drying will tend to lessen the extent of this. Many growers imagine that crude horse-droppings alone should be used for this purpose, whereas the fact is that more enduring beds, and such as produce the best are invariably made up of, say, four parts of horse-droppings to about one of stable litter or sweepings formed of straw, hay, chaff, and suchlike. It is absolutely necessary to have a certain amount of latent heat in the materials themselves whilst being formed into beds, and after the beds are made and finally finished off; on the other hand it is not judicious to dry them too much at the first, because whilst heating or sweating when placed upon the site where the bed is to be made, which is necessary to ensure them settling down more firmly together, much moisture is evaporated; and if too dry previously, the chances are that the heat will become exhausted from the want of just sufficient moisture to feed itself upon: so that beds to succeed well require some studious handling. *William Earley.*

FORESTRY.

All trimmings of hedges, weeds, and rubbish collected into heaps through the busy season of cleaning in summer should now be all cleared off into the store heap. Thinning of *Fir* plantations of sizes suited for spars, paling wood, and pit props may now be proceeded with. These may be cut into lengths to suit the purchasers, and piled up in a convenient place for carting. Put all roads into good order before winter cartages commence. *Large Scotch Fir* requiring to be cut up for deals and rafters may now be felled; the sap in this class of trees is now sufficiently elaborated for all requirements. Any young *Coniferæ* that have had their leaders early destroyed by game or otherwise should be all looked over at this season, and those showing divided stems should be reduced to the strongest and straightest one; small hand nippers suit well for this operation. Remember that in draining ground with sharp declivities the direction of the drain should be always oblique instead of straight, so as to catch the water as it exudes in its downward course. Turn compost heaps in the nursery department, and trench unoccupied ground. Examine recently planted trees having supports, and see that they are not injuring the stems. *J. Webster, Gordon Castle, N.B.*

Enquiries.

He that questioneth much shall learn much.—Bacon.

[Many enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. Eds.]

11. Horse Mowing-Machine.—Will some of your correspondents be good enough to give an opinion as to which they consider the best machine for mowing short grass? We have several acres to keep down, and are desirous of obtaining one with the latest improvements, and which will cut grass when wet as well as dry. *G. B.*

Answers to Correspondents.

Antirrhinum: *Mrs. C. M.* Your seedling is hardly up to florists' form, but on account of its fine colour it is worth propagating for your own borders.

Azalea Leaves Diseased: *J. McDonald.* The Azalea leaves do not appear to be affected by any insect, consequently the cause of their bad condition must be looked for elsewhere. But, as in most cases, without seeing the plants in the situation where grown, and also being unacquainted with their general treatment, it is difficult to arrive at the cause from which they are suffering. It is not at all uncommon to meet with Azaleas in this state, which may be traced to various causes. Fumigating with tobacco, or its various preparations, will frequently affect the leaves so; syringing in the morning, and the sun coming upon them before they get dry; the texture of the leaves being weakened by shading and insufficient light whilst making their growth; or sudden destruction of the feeding roots through over-watering; or the application of water in which exists anything injurious to them—such, for instance, as its being highly impregnated with chalk or lime; any of the above would produce the condition such as those you send are suffering under.

Cicuta: *C. W. D.* The plants have been received. Many thanks.

Digging, &c.: *S. C. H.* You will find the information required in Hogg's *Gardeners' Year Book.*

Insects: *G. W.* Your dwarf Beans are badly infested with the common little mite miscalled the red spider, and also a black aphis. The only remedy we can suggest is to pick off and burn the leaves which show pale spots, caused by the punctures of the insects. *I. O. W.*

Mildew on Roses: *Belfast.* Dust the affected leaves with flowers of sulphur as soon as the mildew makes its appearance.

Names of Fruits: *T. W. K.* 1, Fearn's Pippin, very handsome; 2, Alfriston; 3, not known; 4, Cellini; 5, King of the Pippins; 6, Kirke's Scarlet Admirable.—*A. D. Apples:* 1, Not known, a very fine fruit; 2, Dumelow's Seedling. *Pears:* 1, Not known; 2, Chaumontel.—*Mrs. Charles Maynard.* The darkest-coloured and spotted fruit is Louise Bonne of Jersey, the other, now ripe, is Williams' Bon Chretién.—*Rev. C. Jackson. Apples:* 2, Brickley Seedling; 8, Scarlet Nonpareil, most probably; 10, Fearn's Pippin; 9, Downton Nonpareil. *Pears:* 13, Marie Louise; 14, Urbaniste, or Beurré Diel, fruit much rubbed and damaged; 17, Nutmeg; 19, Knight's Monarch; 22, Fondante d'Automne; 20, Beurré d'Amanlis.—*Henry Langford.* 1, Hacon's Incomparable; 2, Urbaniste; 3, Fondante d'Automne; 4, Doyenné Boussoch; 5, Passe Colmar.—*H. A. B. Apples:* 2, King of the Pippins; 3, Ribston Pippin, probably; 6, Cockle Pippin, probably; 7, Scarlet Nonpareil, probably; 10, Yorkshire Greening. *Pears:* 4, might be Calebasse Bosc; 1, might be Chaumontel. It is utterly impossible to name with anything like certainty such miserable rubbish as you have sent us.—*H. L. P.* 4, Kirke's Scarlet Admirable; 6, Dumelow's Seedling; 7, Hughes' Golden Pippin. The others are so bad that we can make nothing of them.

Names of Plants: *Kansas.* Petalostemon violaceum.—*J. C. Wheeler & Son.* Ipomœa Quamoclit, a tender annual.—*Gawton.* Polygonum cuspidatum.—*G. P.* 1, Fuchsia Riccartoni; 2, F. gracilis; 3, F. macrostemma var.; 4, F. globosa, Aster Amellus, and Dianthus deltoides.—*J. S.* Funkia subcordata.—*H. H.* Leontopodium alpinum (the Edelweiss).—*V. P. G.* Photinia (Eriobotrya) japonica.—*J. H. M.* Hippophaë rhamnoides.—*Bournemouth.* Atriplex Halimus.—*J. A. Shaw.* Æschynanthus ramosissimus.—*O. W.* Lycaste Skinneri and Zygopetalum Mackayi; the Fern is Campyloneurum angustifolium, and the Crocus Colchicum autumnale alba-plena.

Plants Unhealthy in a Conservatory: *G. B.'s* very explicit communication contains enough to account for the unsatisfactory condition of the Fuchsias, Balsams, Pelargoniums, &c., which in all probability is traceable to gas, on which very incorrect ideas often exist. The nearest burner you mention, at 20 feet distance from the door leading to the house, has very probably not much to do with the mischief; for if combustion was perfect, little injury would be likely to occur, even if the distance was considerably less. It is by the, as would appear inevitable, escape of this most subtle element from the joints in the pipes, before it reaches the burners, that the air becomes impregnated, and rendered pernicious to vegetable life, of which soft-leaved plants like the above are the first to show the effects. It is from the openings described, at the back of the conservatory, coming under the dwelling, and which most likely are in communication with the supply-pipes of the gas, that the mischief arises. When any air passage exists betwixt a plant structure and the apartments in the basement of a dwelling-house in which gas is burnt, and through which, as most generally, the pipes conveying such are taken, the plants are almost certain to suffer more or less in the way described. Try the effect of thoroughly closing these openings, so as to make them air-tight; and if this does not succeed, then the cause may be sought for elsewhere.

Primula sinensis: *Young Seedsman.* The peculiarity you mention is a natural habit of many Primroses, and in this instance has probably been caused by over-luxuriance.

Runner Bean: *H. L. P.* The Bean you have sent is called the Purple-podded Runner. It is quite distinct from the Mont d'Or Butter Bean, the pods of which are yellow.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

Catalogues Received.—Louis Van Houtte (Royal Nurseries, Ghent, Belgium), Catalogue of Azaleas, Camellias, Rhododendrons, Magnolias, and other Hardy Plants.—William Paul (Waltham Cross, London, N.), Catalogue of Roses, and a Select List of Selected Pelargoniums.

Communications Received.—H. W. G.—G. A. Y.—A Subscriber.—H. M.—W. M.—W. H. D.—A. S.—G. P.—C. D. S.—C. D. M.—A. M. C. J. C. (we cannot accede to your request in this instance).—G. M.—E. Payne.—Shem.—W. J.—A. B C.—T. S.—J. B.—T. B.—D. T.

Markets.

COVENT GARDEN, October 1.

There is no alteration worth notice; supply and demand continue steady, with a fair attendance of buyers. *Thos. Taylor, Wholesale Apple Market.*

Fruit.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Nectarines, per doz.	2 0– 6 0
Cherries, Morellos, per lb.	0 6– 2 0	Nuts, Cob, p. lb.	1 0– 1 6
Figs, per doz.	1 0– 3 0	Oranges, p. 100	10 0–18 0
Filberts, per lb.	1 0– 1 6	Peaches, p. doz.	2 0–10 0
Grapes, English, p. lb.	2 0– 6 0	Pears, p. doz.	2 0– 3 6
— Muscats, do.	2 6– 6 0	Pine-apples, p lb.	3 0– 6 0
Lemons, per 100	10 0–15 0	Plums, ½-sieve	1 6– 2 0
Melons, each	2 0– 3 6	Walnuts, p. bush.	16 0– ..

Vegetables.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Beans, Fr., per bush.	5 0– ..	Mint (green), p. bun.	0 6– ..
— Scarlet, do.	3 0– 5 0	Mushrooms, per pott.	1 0– 2 6
Beet, per doz.	1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle	0 9– 1 6	Parsley, per bunch	0 4– 0 6
Brus. Sprts., ½ sieve	2 6– ..	Parsnips, p. doz.	0 9– 1 0
Cabbages, per doz.	1 0– 2 0	Radishes, per bunch.	0 2– 0 4
Carrots, new, p. bun.	0 4– 0 6	— black, Turnip, do.	– 0 6
Cauliflowers, per doz.	2 0– 6 0	Shallots, per lb.	0 3– ..
Celery, per bundle	1 6– 2 0	Salsify, per bundle	1 6– ..
Cucumbers, each	0 6– 1 0	Spinach, per bush.	2 0– 3 0
Endive, per doz.	1 0– 2 0	Tomatos, per doz.	1 0– 3 0
Herbs, per bunch	0 2– 0 4	Turnips, per bundle	0 3– 0 4
Horse Radish, p. bun.	3 0– 5 0	Veg. Marrows, doz.	1 6– 2 0
Leeks, per bunch	0 2– 0 4		

New Potatos:—Round, 60s. to 90s. per ton; Kidneys, 90s. to 120s. per ton.

Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Asters, per doz. bun.	4 0	6 0	Mignonette, 12 bun.	2 0	6 0
Carnations, per doz. bunches	3 0	6 0	Pelargoniums, per 12 sprays	0 6	1 0
Corn-flower, doz. bun.	2 0	6 0	Pelargoniums, Zonal, per 12 sprays ..	0 3	0 9
Dahlias, p. doz. bun.	3 0	6 0	Roses, indoor, p. doz.	1 0	6 0
Eucharis, per doz....	4 0	9 0	— Outdoor, do...	0 4	1 0
Eschscholtzia, 12 bun.	2 0	6 0	Spiræa, per 12 sprays	1 0	2 6
Gardenias, p. doz...	3 0	9 0	Stephanotis, 12 sprays	5 0	9 0
Gladiolus, doz. sprays	1 0	2 0	Tuberoses, p. doz. ..	1 0	2 0
Heliotropes, per doz. sprays	–	0 6	Violets, p. doz. bun.	0 6	1 0

Plants in Pots.

	s. d.	s. d.		s. d.	s. d.
Asters, per dozen ..	4 0	8 0	Fuchsia, per dozen	4 0	12 0
Balsams, p. doz. ..	3 0	9 0	Heaths, in var., do.	12 0	30 0
Begonias, do. ..	6 0	12 0	Liliums, in var., each	1 0	3 6
Bouvardias do. ..	9 0	18 0	Mignonette, per doz.	4 0	6 0
Coleus, p. doz... ..	3 0	9 0	Myrtles .. do.	3 0	9 0
Chrysanthemums, p. dozen	4 0	9 0	Pelargoniums, dble., per doz.	4 0	9 0
Cyperus, per dozen	6 0	12 0	— Scarlet, per doz.	3 0	9 0
Dracæna terminalis	12 0	30 0	Solanums, per doz...	6 0	18 0
— viridis, per doz.	12 0	24 0			

SEEDS.

London: *Oct.* 2.—Our seed trade shows but little change since our last. In Clover and Trefoil seeds very few transactions are reported; the occasional sales that are taking place are almost entirely for export. For Trifolium small orders continue to drop in. White Mustard seed is very firm; fine qualities being rather scarce. Rape seed is now unusually cheap. In winter Tares we have had a good business doing; as the supply is now proving short prices since this day week show a further advance of 2*s.* to 3*s.* per quarter. Winter Barley and Rye move off slowly at last week's currencies. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

Heaviness characterised the trade in Wheat at Mark Lane on Monday, English descriptions giving way from 1*s.* to 2*s.* per quarter. Excepting American, the foreign kinds were about 1*s.* cheaper than on the previous Monday. Barley was quiet, but prices were fairly supported. Malt was dull, and about the same in value. Sound old Oats were scarce, and very firm in price; prices for new corn were rather lower on the week. Maize was at about late rates. Beans and Peas went off slowly, but there was not much variation in the figures. Flour was flat: English fell 1*s.* per sack, and American 6*d.* per barrel.—Trade on Wednesday was again very dull, and the value of Wheat had a weakening tendency. Barley was steady, and malting qualities attracted some attention, but malt, if anything, was slightly easier, and the quotations for Maize and new Oats were with some difficulty maintained. Beans and Peas were without alteration, while flour experienced a slow sale at about previous figures.—The average prices of corn for the week ending September 26 were—Wheat, 46*s.* 9*d.*; Barley, 41*s.* 11*d.*; and Oats, 27*s.* 9*d.* per quarter. For the corresponding week in 1873—Wheat, 64*s.* 2*d.*; Barley, 44*s.* 8*d.*; and Oats, 27*s.*

CATTLE.

Trade in beasts at the Metropolitan market on Monday was slow, and prices were lower for all kinds. In sheep the trade was dull, at reduced rates. For calves, notwithstanding a short supply, trade was very bad. Quotations:—Beasts, 4*s.* to 6*s.* 2*d.*; calves, 4*s.* to 5*s.* 2*d.*; sheep, 4*s.* 6*d.* to 5*s.* 8*d.* per 8 lb.—There was a good demand for beasts at Thursday's market, and prices recovered somewhat from Monday's depression. Choicest qualities of sheep were readily disposed of at a small advance. Trade was also better for calves and milch cows.

HAY.

At Whitechapel the supply of fodder, and particularly of hay, has been large, and though a fair demand existed, prices were hardly so firm. Prime clover sold at from 100*s.* to 130*s.*; inferior do., 75*s.* to 85*s.*; prime meadow hay, 90*s.* to 112*s.*; inferior do., 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load.—The report for Thursday's (Cumberland) market states that supplies continue good, but the trade was not quite so brisk, the heavy rains during the night of Wednesday having been against the condition of the goods. Current rates for dry goods were unaltered. Quotations:—Clover, best, 124*s.* to 130*s.*; inferior, 80*s.* to 90*s.*; hay, best, 108*s.* to 114*s.*; inferior, 70*s.* to 80*s.*; and straw, 31*s.* to 38*s.* per load.

POTATOS.

There have been large arrivals of home grown Potatos offering at the Borough and Spitalfields Markets. Prices:—Choice Regents, 70*s.* to 80*s.*; ordinary, 60*s.* to 70*s.*; Rocks, 50*s.* to 60*s.*; and Kidneys, 90*s.* to 100*s.* per ton. The arrivals from abroad last week were very light.

COALS.

There was a fair demand at Monday's market, and firmness characterised the transactions of Wednesday at the subjoined quotations:—Bebside West Hartley, 23*s.* 3*d.*; Hastings Hartley, 23*s.* 3*d.*; Walls End—Hetton, 24*s.* 6*d.*; Hetton Lyons, 22*s.* 3*d.*; Lambton, 24*s.*; Tunstall, 22*s.* 3*d.*; East Hartlepool, 24*s.* 3*d.*; Original Hartlepool, 24*s.* 6*d.*; Tees, 24*s.* 3*d.*

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.

JACKMAN'S LIST of FRUIT TREES.

JACKMAN'S LIST of ROSES.

JACKMAN'S LIST of AMERICAN PLANTS.

JACKMAN'S LIST of CONIFERS.

JACKMAN'S LIST of HARDY SHRUBS.

JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.

JACKMAN'S LIST of CLEMATIS (Special Catalogue).

JACKMAN'S LIST of TRANSPLANTED FOREST TREES.

JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.

GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality:—

MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 ft.
CHESTNUTS, Common Horse, and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.

Woking Nursery, Surrey, S.W.

LILIUM AURATUM.

SOUND BULBS, grown from Seed and Scales in this Nursery, will be supplied at from 12*s.* to 84*s.* per dozen, £5 to £30 per 100. These bulbs had this year from three to forty flowers on a stem.

SMALLER BULBS, the majority of which would flower next year, 9*s.* per dozen, or 63*s.* per 100.

ANTHONY WATERER, KNAP HILL NURSERY, WOKING, SURREY.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT, QUEEN VICTORIA STREET, CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to

THOMAS THORNTON, Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

SEED BUSINESS, Well Established, for DISPOSAL. Situated in the South of England. Present Owner retiring. For full particulars, &c., apply to X. Y., Messrs. Hurst and Son, 6, Leadenhall Street, London, E.C.

A New Grape.

VENN'S SEEDLING BLACK MUSCAT combines all the good qualities of a Grape; it is an abundant bearer, sets its fruit well in large clusters and handsome berries, with a delicate bloom, the flesh firm, juicy, and of delicious flavour; thrives well in hot or cold house. It has now been proved four years, and maintains its character. It has obtained First Prize for New Grapes at Bristol, 1870. First class Certificate at Bristol, Taunton, and Wootton-under-Edge, 1871; Bath, 1872; Bristol and Clifton, Royal Horticultural Society (Bath), Trowbridge, and Weston-super-Mare, 1873; and of the Royal Horticultural Society's Fruit Committee, Kensington, 1874; also First Prize at Midland Counties Great Show at Birmingham, 1874. Good planting Canes are now on Sale, price Two Guineas each, and will be delivered to order on receipt of Cheque or Post Office Order on Bristol payable to THOS. Y. VENN, Sneyd Park, near Bristol.

To Florists and Market Gardeners.

TO BE LET, with immediate possession, six GREENHOUSES, with Cisterns well supplied with water, free, in each house, the whole heated with hot water, also sixty FRAMES, with 6-foot lights, and 50 Roods of GARDEN GROUND. Apply to 30, Lancashire Hill, Heaton Norris.

Seed and Nursery Trade.

TO LET, a good paying BUSINESS, of many years' standing. Incoming small. All the Stock-in-Trade to be taken-to at Valuation. Possession may be had immediately. (The Seed Business can be taken to with or without the Nursery Business.)

Apply to Messrs. PROTHEROE AND MORRIS, Horticultural Agents, Gracechurch Street, London, E.C.

THE LONDON MANURE COMPANY (Established 1840)

Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

Autumn Sowing.

ODAMS' MANURES, Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (Limited), consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.

Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
Chief Office—109, Fenchurch Street, London, E.C.
Western Counties Branch—Queen Street, Exeter.
Irish Branch—40, Westmoreland Street, Dublin.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

FIBROUS PEAT.—Brown Fibrous Peat, best quality, for Orchids, Stove Plants, and Potting, £6 6*s.* per 6-ton truck load. Black Fibrous Peat, for Azaleas, Heaths, New Holland Plants, &c., £5 5*s.* per 6-ton truck load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.

WALKER AND CO., Farnborough Station, Hants.

PEAT EARTH.—Fibrous Peat Earth for American and New Holland Plants, Ericas, and for Potting, delivered on Rail at Blackwater, South-Eastern Railway, and Farnborough, South-Western Railway, in truckloads of 4 tons and upwards, at 12*s.* 6*d.* per ton. Extra fibrous quality, for Orchids and Ferns, 25*s.* per ton. Sphagnum Moss for Orchids, 10*s.* per sack.

T. WALKER, 46, Cannon Street, London, E.C., where samples can be seen.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

MILDEW

May be entirely prevented as well as cured by

EWING'S INFALLIBLE COMPOSITION. Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions for use.

RUSSIA MATS.—A large stock of Archangel and Petersburgh, for Covering and Packing, Second sized Archangel, 100*s.*; Petersburgh, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

To Florists, Gardeners, &c.

FOR SALE, TOBACCO CLOTH and PAPER suitable for fumigating purposes. For Terms and particulars apply to

Messrs. W. AND M. TAYLOR, 119, Francis Street, Dublin.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

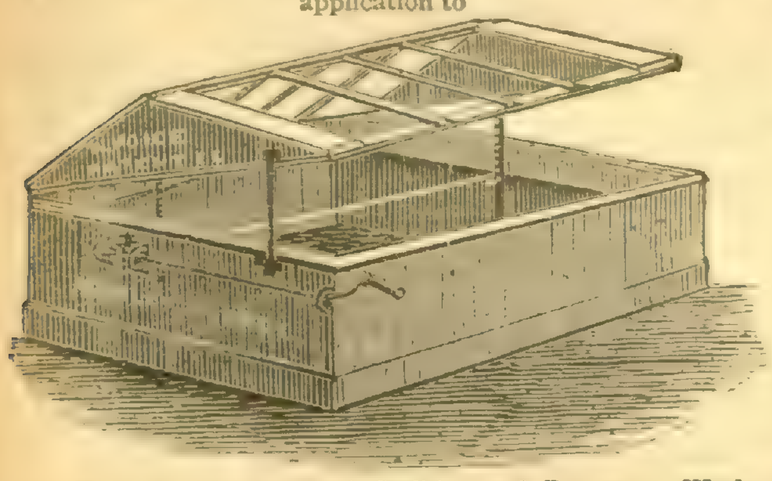
MAW AND CO., Benthall Works, Broseley.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Manures, Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of

POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.

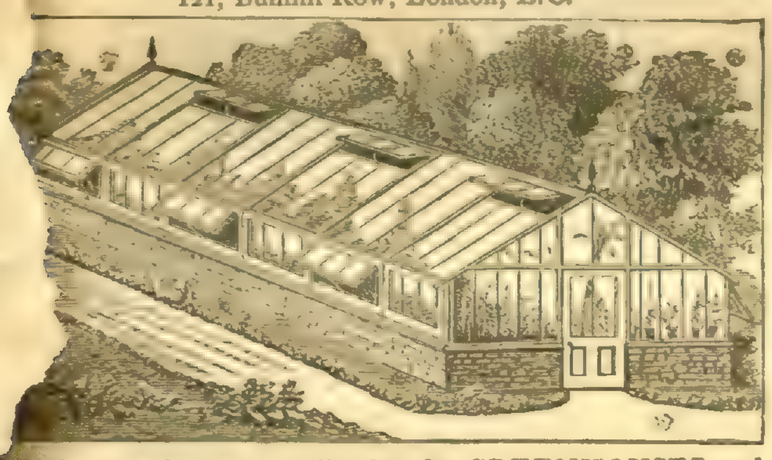
SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.
HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



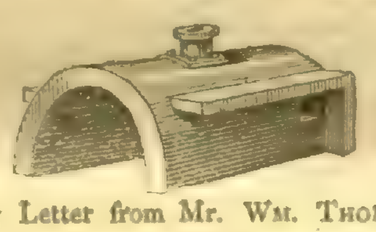
N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.
N.B.—AGENTS WANTED.

N. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



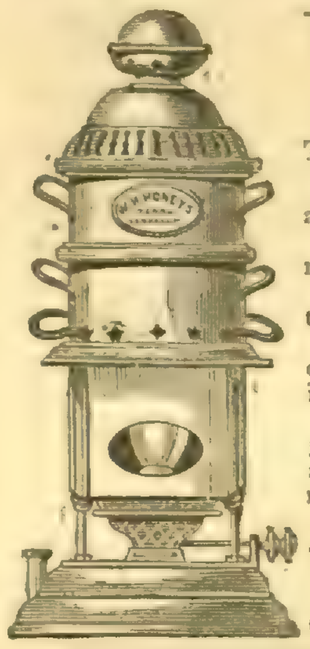
Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.
Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

First-class Certificate.
THE TERMINAL SADDLE BOILER is by far the cheapest and best, and is working its way into general favour.



The following Letter from Mr. WM. THOMPSON needs no comment:—
"Tweed Vineyard, March 21, 1873.
"Dear Sir,—I have now had your Terminal Saddle Boiler heating two large Span-houses, 21 feet wide and 15 feet high, containing 1484 feet of 4-inch pipe, and it does its work to my entire satisfaction. In fact I know of no Boiler of the same size and cost that will do the same amount of work with the same quantity of fuel. It is an excellent Boiler. You should advertise more than you do, for it deserves to be better known than it is.—Yours truly, WM. THOMPSON."
Illustrated Circulars, post free.
THOMAS JONES, Temple Street, Manchester.

ESTABLISHED 1856.
KEEP OUT THE FROST.



WILLIAM H. HONEY'S PORTABLE
VAPORISING STOVES,
To Burn Kerosene or any mineral oil.
They will burn for twenty-four hours at a cost of one penny for three hours.
They require no attention beyond replenishing the oil.
Suitable for greenhouses, conservatories, halls, bed-rooms, &c.
They will not injure the most tender exotics, nor are they in any way injurious to the health.
Prices, in block tin, 30s.; in copper, 50s. Copper, with glass, to give light and heat, 55s. Either will be sent on receipt of Post-office Order.
To be seen in operation at
WILLIAM H. HONEY,
263, REGENT STREET, W.
Catalogue free. No agents appointed

The Improved Imperishable Labels!!!
IMPORTANT NOTICE.

J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.
J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose. The Labels are made of a white metal with RAISED BLACK-FACED LETTERS.
All future orders will be executed with the new type.
Samples and Price List free.
Address—J. SMITH, Label Factory, Stratford-on-Avon.

CARSONS' PAINT,
PATRONISED BY THE QUEEN,
The British, Indian and Colonial Governments, 8000 of the Nobility, Gentry, and Clergy, Railway and Canal Companies, Collieries, Ironmasters, &c., &c.,
Is extensively used for all kinds of
OUTDOOR WORK.
It is especially applicable to
WOOD, IRON, BRICK, STONE & COMPO.
CAN BE LAID ON BY UNSKILLED LABOUR.
Sold in all Colours.
2 cwt. free to all Stations.
Prices, Patterns, and Testimonials sent Post Free.
WALTER CARSON & SONS,
LA BELLE SAUVAGE YARD,
LUDGATE HILL, LONDON, E.C.,
And 21, BACHELOR'S WALK, DUBLIN.
NO AGENTS.

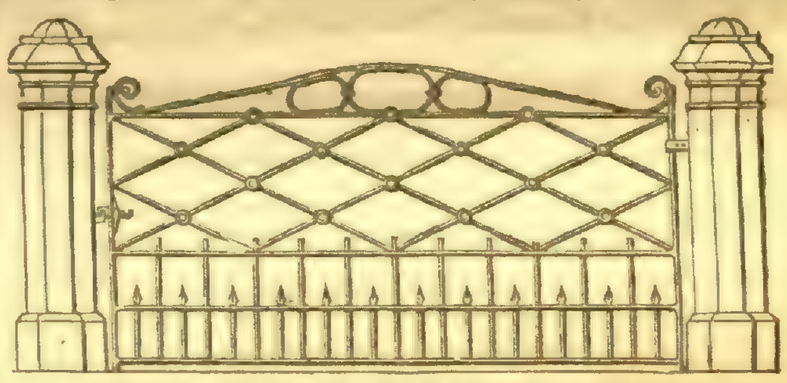
Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all outdoor work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the Kingdom.
UNSOLICITED TESTIMONIAL.
"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.
"Mr. Lloyd Lloyd encloses cheque for £3 5s., amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."
Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.
CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

J. G. SMEATON & CO.,
Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.
HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

For Park, Farm, and General Enclosures.

Is in use over many thousand miles,
And has been awarded the Silver Medals and Highest Commendations of the leading Agricultural Societies, it forms the most efficient strained iron fence known.
ORNAMENTAL
IRON ENTRANCE GATES, &c.,
IN WROUGHT AND CAST IRON,
Designed for the Mansion, Villa, or Farm.



Field, Wicket, and Garden Gates
In Great Variety of Patterns.
ORNAMENTAL and FIELD HURDLES,
With Round or Flat Bars.
Continuous Bar Iron Fencing,
Fitted with F. M. & Co.'s Patent Self-locking Joints, which form a continuous rigid brace from end to end of the Fence, and the most perfect system for securing its efficiency.
F. M. & Co.'s New Illustrated CATALOGUE is now ready, and will be forwarded on application.
LONDON OFFICE—
1, DELAHAY ST., WESTMINSTER, S.W.

ST. PANCRAS IRON-WORK COMPANY.

CONSERVATORIES, GREENHOUSES, &c.
ARCHITECTS' DESIGNS CAREFULLY CARRIED OUT.
APPLY FOR ESTIMATES TO
OLD SAINT PANCRAS ROAD, LONDON, N.W.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

Old Barge Wharf, Upper Ground Street, London, S.E., ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.

Price List on application, or six stamps for Catalogue.

HENRY ORMSON,

HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,

Stanley Bridge, King's Road, Chelsea, London, S.W.

PLANS and ESTIMATES on application.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the Duke of Northumberland, Duke of Devonshire, late Sir J. Paxton for the Crystal Palace; Royal Gardens, Kew; Professor Lindley for the Horticultural Society, &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. It is adapted for all Horticultural and Floricultural purposes.

THE CHEAPEST AND MOST DURABLE

SHADING.

"FRIGI DOMO" CANVAS.

Two yards wide	.. ..	1*s.* 10*d.* per yard run.
Three yards wide	.. ..	3*s.* per yard.
Four yards wide	.. ..	3*s.* 10*d.* per yard.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.

E. T. ARCHER, Stanstead and Brockley Roads, Forest Hill, London, S.E. All goods carriage free to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

Hyacinths in Pots.

POTS made expressly for HYACINTHS can be supplied by

J. MATTHEWS, The Royal Pottery, Weston-super-Mare. Price List free.

Rhubarb and Seakale Forcing.

STRONG, well made POTS for the above can be supplied by

J. MATTHEWS, Royal Pottery, Weston-super-Mare. Price List free.

GARDEN POTS, ORCHID POTS, ALPINE POTS, FERN PANS, SEED PANS, and all other GARDEN POTTERY of the best quality can be supplied by

J. MATTHEWS, Royal Pottery, Weston-super-Mare. Price List free.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants. See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s.*

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS'S Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,

THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

Garden Wall Wiring.

R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.

For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.

Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

To be published on November 15, 1874,

ANNUAIRE de l'HORTICULTURE BELGE pour 1875 (Year-Book of Belgian Horticulture for 1875), by MM. F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. It will contain a complete List of the principal Nurserymen, Garden Engineers, Seedsmen, and Constructors of Horticultural Implements. Price for Great Britain, post paid, 1*s.* 6*d.*

Advertisements will be inserted at the following terms:—A whole page in 16mo, 13*s.* 6*d.*; half page, 8*s.*; quarter page, 5*s.*; and must be forwarded not later than October 15, to

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL AND NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.

Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertisement Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Brides Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

Have the largest and most complete Stock in the Trade of

HOT-WATER BOILERS, | PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

They are thus enabled to offer these Goods at Low Prices, notwithstanding the very great increase in the cost of all kinds of Iron.

NEW PATENT CLIMAX BOILER (1874).

GOLD MEDAL BOILER (Birmingham, 1872).

PATENT EXCELSIOR BOILER (1871).

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE.

THE AGRICULTURAL GAZETTE,
SATURDAY, OCTOBER 3, 1874,
Contains—

ORIGINAL ARTICLES on Wheat; Composts; Stubbles—Worms in the Lungs of Sheep—The Guinea Fowl—Poultry and Birds—How to get a Bell-glass Super Tenanted—Plants for Covering Walls—Agricultural Machinery (Illustrated)—The Milk Supply—Land Tenancy Laws—Oaks in North Wales—Autumn Aquatics—Shorthorn Breeding—The Wheat Crop of 1874: a Second Clover Crop in Place of Wheat—A Portrait and Memoir is given of

Mr. ROBERT SCOTT SKIRVING.

HOME AND FOREIGN CORRESPONDENCE on Waste Lands—Wheat as Food for Stock—Steam Ploughing—Music in Farmhouses—The Value of Rain in the Summer Months—Sheep and Bullock Keep—Canadian Farming—Butter Dairies in the United States (Illustrated).

FARM NOTES AND MEMORANDA from various Counties in Great Britain.

REPORTS OF RECENT AGRICULTURAL SHOWS.

ALSO—

The Veterinarian—The Poultry Yard—The Garden of the Farm—The Household—The Beekeeper—The Weather—Reports of Markets, &c.

Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

THE COTTAGER'S CALENDAR of GARDEN OPERATIONS. By the late Sir JOSEPH [illegible]TON, M.P.
[illegible]eprinted from the *Gardeners' Chronicle*, with Additions.
[illegible]rice 3*d.* each, or 5*s.* for 25 Copies for distribution amongst [illegible]age Tenantry.
[illegible]elivered anywhere in London on receipt of a Post Office [illegible], payable to WM. RICHARDS, at the King Street Office, [illegible]t Garden.
[illegible]blished at the Office of the *Gardeners' Chronicle*, 41 [illegible]ington Street, Covent Garden, London, W.C.

[illegible]ANTED, a GARDENER, for a small [illegible] place in Lincolnshire. Wife must be a good Laundress. [illegible] and garden rent free.—G. M. H., Post Office, [illegible]borough.

[illegible]ANTED IMMEDIATELY, a middle-[illegible] aged married Man, without family, as GARDENER, [illegible] understands the Management of Flower, Fruit, and [illegible]chen Gardens. Must milk a cow and attend to a small [illegible]ny. A cottage and garden provided as part of wages. [illegible]ferences as to character and ability indispensable.—E. C., [illegible]ost Office, Holbeach.

WANTED, an unmarried Man, as WORKING GARDENER, to take charge of the Gardens and Grounds of a large School. He must understand Cuttings and Growing from Seeds, also the Management of a Greenhouse and Forcing Frames, and be willing to share the work of the place with the man under him. Pigs and sheep are kept, and must be attended to by the Gardeners. Wages 12*s.* a week, with board, lodging, and washing. A high character will be required.—Rev. T. FORD FENN, Trent College, near Nottingham.

WANTED IMMEDIATELY, for the Cape, a practical and intelligent unmarried GARDENER, not beyond 40 years of age, English or Scotch, who is thoroughly efficient, with a knowledge of Orchids, Sub-tropical and Hardy Plants, including Florist Flowers, and should also have some knowledge of Fruit Trees and Vines. Testimonials for sobriety and integrity indispensable. The position will be guaranteed for some time by an agreement.—Apply in person, or otherwise, with a full statement of all past experience, age, references, &c., to Messrs. E. G. HENDERSON AND SON, Wellington Nursery, St. John's Wood, London, N.W.

Gardener and Laundress.

WANTED, a Man and Wife—the Man as HEAD WORKING GARDENER, thoroughly up in the Culture of Greenhouse and Garden Flowers, Grapes, Kitchen Garden and Forcing. The Wife must be a competent Laundress. A good cottage and superior laundry accommodation.—Address full particulars to T. H. S., 10, Argyll Place, Regent Street, London, W.

WANTED IMMEDIATELY, a WORKING FOREMAN, with a knowledge of Landscape Work, to Superintend Planting, &c.—For further particulars apply to JAMES MITCHELL AND SONS, Pilt Down Nurseries, near Uckfield, Sussex.

Nursery Foreman.

WANTED, a sober, industrious WORKING FOREMAN for a small Provincial Nursery; must be a good Budder and Grafter.—Apply, stating wages and reference, to L., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

WANTED, a thorough practical MAN, one who understands the Growing of Camellias, Epacrises, Heaths, Geraniums, &c. Must have a thorough knowledge of Greenhouse and Soft-wooded Plants, and also understand Budding and Grafting in and outdoors.—Send references and wages required to ISAAC MATTHEWS AND SON, The Nurseries, Milton, Stoke-on-Trent.

WANTED IMMEDIATELY, a MAN and his WIFE, middle-aged, and without children, to take Charge of a House in the neighbourhood of Guildford during the Winter Months. The Man must understand Garden Work, and the Woman be able to undertake the Laundry during the summer, when a cottage will be provided. Good references required.—Apply, stating terms, by letter, to H., 5, Lothbury, London, E.C.

WANTED, a few miles from Newcastle-on-Tyne, a MAN and WIFE—the Man to help in the Garden and do odd jobs, the Wife to Milk Cows, look after Poultry, &c.—R. C., Box 46, Post Office, Newcastle-on-Tyne.

WANTED, a managing, homely SERVANT, over 30 years old, fond of children, and who can Wash, Cook a plain Dinner, and Bake good Bread. References required. The situation will be a home.—Apply to Mrs. BUTLER, Moorfield House, Birkenshaw, near Leeds.

WANTED, a CLERK.—Must be well recommended, sober, middle-aged, and understand Ledger-keeping, &c.—State last employment, with references, salary expected, age, &c., to F., Box 39, Post Office, Newcastle-on-Tyne.

WANTED, a CLERK, accustomed to the Seed and Nursery Business. Salary £80 per annum.—Apply by letter, stating age and experience, to BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

WANTED, a good DRAUGHTSMAN.—The Cowan Compensating Heating Company, Limited, who undertake the Heating of all kinds of Buildings, and also the Erection of Horticultural Buildings, require a good Draughtsman who understands the Technical Drawing connected with such work.—Testimonials to be forwarded with applications, by letter only, to the Secretary, 4, Lothbury, London, E.C.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENERS.—We have on our List the names of a few excellent Gardeners who want situations at the term of Martinmas.—THOMAS KENNEDY AND CO., Nurserymen and Seedsmen, Dumfries, N.B.

GARDENER (HEAD), where three or more are kept.—Age 42; thoroughly practical and efficient in all branches of the profession. Sixteen years' unexceptional character.—WOODBRIGE, 25, East Street, Reading.

GARDENER (HEAD), where two or more are kept.—Age 33, married; thoroughly understands the profession in all its branches. Three years' excellent character from late employer, William Birkbeck, Esq., Thorpe, near Norwich.—WM. WILFORD, D. McEwen, 4, Red Lion Street, Norwich.

GARDENER (HEAD), where one or more are kept.—Age 38, married; thoroughly understands all branches, Forcing, Vines, and Flower and Kitchen Gardening. Has a knowledge of Farming. Nine years' reference.—T. M., Dick Radclyffe & Co., 129, High Holborn, W.C.

To Noblemen and Gentlemen.

GARDENER (HEAD).—In consequence of the death of the Right Rev. Bishop Sumner, the Advertiser is at liberty to engage with any Nobleman or Gentleman requiring the services of an efficient Gardener. Age 46. Twenty-two years Head Gardener at Farnham Castle.—J. W. LAURENCE, Farnham Castle, Farnham, Surrey.

GARDENER (HEAD).—Age 28, single; thoroughly understands the profession in all its branches. Good references. No Single-handed place accepted.—J. WIGHTON, The Hall Gardens, Cossey, near Norwich.

GARDENER (HEAD).—A GENTLEMAN wishes to recommend his Gardener, who has been with him six years, to any Nobleman or Gentleman requiring the services of a first-class practical Man. Good wages expected.—Mr. DRIVER, Wistaston Hall, Nantwich, Cheshire.

GARDENER (HEAD).—Age 32, married; thoroughly understands the profession in all its branches; the Forcing of Pines, Vines, Peaches, Melons, Stove and Greenhouse Plants, &c. Will be at liberty in November.—C. R., John Butcher, Nurseryman, Stratford-on-Avon.

GARDENER (HEAD, WORKING).—Age 28; thoroughly acquainted with Fruit, Flower, and Kitchen Gardening. Three years' excellent character.—C. N., 6, Upper Homerton Terrace, Homerton, N.E.

GARDENER (HEAD, WORKING), where two or more are kept.—Age 31, married; understands Growing Pines, Forcing Strawberries, Grapes, Cucumbers, &c., and Flower and Kitchen Gardening. Four and a half years' good character.—H. C., Post Office, Coggeshall, Essex.

GARDENER (HEAD), where two are kept, or good SINGLE-HANDED.—Good character.—W. W., 1, Catherine Terrace, Holland Park Road, Kensington, W.

GARDENER (SINGLE-HANDED), in a Gentleman's Establishment where assistance is given.—Thoroughly practical in all branches. First-class character from last employer.—H. S. K., Eaton Bray, near Dunstable, Beds.

GARDENER (SECOND).—Age 21. Has had experience in Growing and Forcing Departments under Glass, also in Outdoor Cultivation. Two and a half years' good character.—A. B., 3, Henstridge Villas, Ordnance Road, St. John's Wood, N.W.

GARDENER, where two or three are kept.—Age 39, married, one child (6 years old); thoroughly understands Vines, Stove and Greenhouse Plants, and has a general knowledge of Stock. Six and a-half years' good character.—G. P., 6, Love Lane, Mitcham, Surrey.

FOREMAN, or SECOND, in a Nobleman's or Gentleman's Family.—Age 25. Eleven years' experience in first-class places. Has first-class references.—A. B., 5, Mill Place, King's Road, Chelsea, S.W.

GARDENER (UNDER, or SINGLE-HANDED).—Age 29. State wages.—GARDENER, 28, College Street, Putney, S.W.

GARDENER (UNDER), in a Gentleman's Establishment, or in a Market Forcing Garden.—Age 20. Four years' experience. Good character.—UNDER GARDENER, 8, Reddish View, near Stockport.

GARDENER (UNDER).—Age 21. Can be well recommended from recent situation.—H. B., Mr. Bartholomew, Mayford, Woking Station, Surrey.

To Seedsmen and Nurserymen.

MR. W. HEALE is now open to an engagement. Practically acquainted with every detail of the Seed and Nursery Business, more especially the London Plant Trade, both Wholesale and Retail. Many years holding responsible positions in the Establishments of Messrs. F. & A. Dickson & Sons, of Chester; Messrs. Hugh Low & Co., of Upper Clapton, &c.; and for some years representing Mr. B. S. Williams; also Author of the Bath and West of England Agricultural Society's *Prize Essay* on the Management of Orchids, and well known throughout a great portion of the United Kingdom.—Present address, 21, Bell Place, Stockbridge, Edinburgh.

MANAGER.—J. D. TREHEARNE, for the past four years Manager to Messrs. Dick Radclyffe & Co., seeks a similar engagement.—40, Cochrane Street, St. John's Wood, N.W.

FOREMAN and PROPAGATOR.—Age 34; well up in the Propagation and Growing of Plants for Market. Expert Budder and Grafter. Sixteen years' experience. Can be highly recommended.—W. L., Post Office, Blewbury, Didcot, Berks.

NURSERY FOREMAN (useful WORKING).—Good Plant Grower and Propagator, up in general and new work, &c. Suited for small general Nursery with increasing business. Near London preferred, but not essential.—Particulars to C., 21, Southwell Street, Kingsdown, Bristol.

SALESMAN, TRAVELLER, or MANAGER.—The engagement of Mr. GLENDINNING with the Lawson Seed and Nursery Company, Limited, having terminated, he will be happy to treat with any House requiring his services as above.—3, Summer's Place, Inverleith Row, Edinburgh.

SHOPMAN and TRAVELLER.—Married. Well up in the Trade, both Wholesale and Retail. Eleven years' experience.—W. T. J., 32, Welbeck Street, Nottingham.

SHOPMAN (SECOND).—Age 24. Six years' experience. London preferred. Good reference.—W. ROBINSON, Messrs. Thomas Gibbs & Co., Seedsmen, 47, Half-Moon Street, Piccadilly, W.

To Horticultural Builders and Nurserymen.

DRAUGHTSMAN and OFFICE CLERK.—A middle-aged Man desires an engagement as above; has been for eight years so engaged in one of the best Horticultural Building firms in London. Can lay out grounds, if required.—H., 454, King's Road, Chelsea, S.W.

BOOK-KEEPER.—Age 20.—G. B., 41, Francis Street, Chelsea, S.W.

To Noblemen, Gentlemen, and Others.

FARM BAILIFF, or BAILIFF and CLERK of the WORKS; has a practical knowledge of all its branches, and thoroughly understands Steam Cultivation, having had many years' experience of the same. Ireland or Wales not objected to.—R. W., 2, Edward Terrace, Hartfield Road, Wimbledon.

FORESTER.—Age 40; has a good practical knowledge of Planting and Measuring and Felling of Timber; also the Planting and Erecting of Fences of all descriptions. Good reference if required.—B. GOOCH, Astley Abbotts, near Bridgnorth, Salop.

COWMAN.—Married, no family; thoroughly understands the Management of Stock, and would not object to fill up his time in the Garden; or could Manage a small Farm. Ten years' good character. Wife a good Dairywoman.—T. W., Bognor Cottage, Hawks Road, Norbiton, Surrey.

GOVERNESS.—A young Lady, with some years' experience and unexceptionable references. Competent to undertake the Teaching of English, French, German, Music, &c.—K., *Gardeners' Chronicle* Office, W.C.

KINAHAN'S . LL . WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES,
in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA,
BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills.—*Civil Service Gazette.*

MANUFACTURE OF COCOA.—"We will now give an account of the process adopted by Messrs. James Epps & Co., manufacturers of dietetic articles, at their works in the Euston Road, London."—See Article in Cassell's *Household Guide.*

Made simply with boiling water or milk.

Sold by Grocers, only in packets, labelled
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS,
48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, N.W.

Lea & Perrins' Sauce,

THE "WORCESTERSHIRE,"
pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.

ASK FOR LEA AND PERRINS' SAUCE.
BEWARE OF IMITATIONS,
and see the names of LEA AND PERRINS on all Bottles and Labels.
Agents—CROSSE AND BLACKWELL, London; and sold by all Dealers in Sauces throughout the World.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.

Newton Nurseries, **Chester.**

New Rhododendrons.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to announce that they are now sending out the undermentioned Hardy RHODODENDRONS, price 21*s.* each. The usual Discount to the Trade.

MRS. RUSSELL STURGIS.
MRS. JOHN KELK.
HELEN WATERER.
JOHN WALTER.
JAMES MASON.
FREDERICK WATERER.

Forest and Ornamental Trees, Evergreens, Plants for GAME COVERTS, &c.

FRANCIS & ARTHUR DICKSON & SONS, the "Upton" Nurseries, Chester, respectfully invite inspection of their almost unlimited stock of

FOREST TREES, PLANTS for GAME COVERTS,
ORNAMENTAL TREES, CONIFERS,
EVERGREEN and DECIDUOUS SHRUBS,
FRUIT TREES, VINES, ROSES,
STOVE and GREENHOUSE PLANTS, &c.

The special recommendations of their Plants are extreme hardiness, their Nurseries (over 150 acres) being situated in a very bleak and exposed position; and, by constant transplantation, the plants are well furnished, and have abundance of fibrous roots, so that removal to any part of the country may be effected with perfect safety.

Descriptive Priced CATALOGUES post-free on application.

M. Souchet's New Gladioli.—Gladioli, New Roses, &c.

EUGÈNE VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Gare d'Ivry, Paris, has the honour to announce to his numerous friends that his SPECIAL CATALOGUE of GLADIOLI is now to be sent free of charge, on application by letter (post paid); also that relating to the NEW ROSES of 1874.

The GLADIOLI will be sent out in the Autumn, in 50, 100, and 1000 of each variety, at the lowest possible price (for which, and conditions, see Catalogue).

Surplus Stock of

RHODODENDRON MULTIFLORUM and PRÆCOX, all sizes, a perfect mass of flower-buds for winter blooming; DAPHNE INDICA RUBRA, strong bushes; ANDROMEDA FLORIBUNDA, compact bushes; SKIMMIA JAPONICA, all sizes; CLEMATIS JACKMANNI and LANUGINOSA, strong; CUPRESSUS LAWSONIANA, 4 to 8 feet; and the pretty berry-bearing PERNETTYA SPECIOSA. Prices, &c., on application to

ISAAC DAVIES, Nurseryman, Ormskirk.

HUGH LOW & CO.

HAVE PLEASURE IN INFORMING THEIR FRIENDS AND THE PUBLIC THAT THEIR

STOCK OF WINTER AND SPRING FLOWERING PLANTS

Is this season unusually extensive in quantity and fine in quality, and well worth the notice of intending purchasers, who are very cordially invited to an inspection of the Plants, which comprise amongst other things:—

Many Thousands of ERICA HYEMALIS, of various sizes.
Many Thousands of ERICAS, of the best varieties, such as alopecuroides, persoluta alba, Cavendishi, Spenceri, Regerminans, perspicua nana, ventricosa in variety, hybrida, Sindriana, Willemorea, grandinosa, caffra, gracilis, melanthera, barbata major, rubens, &c., &c.
Many Thousands of EPACRIS, in many varieties.
Many Thousands of GENISTAS.
Many Thousands of AZALEA INDICA, in variety.
Many Thousands of CAMELLIAS, in variety.
Many Thousands of SOLANUMS, well berried.
Many Thousands of BOUVARDIAS, red and white, all strong bushy plants, blooming size.
Many Thousands of EPIPHYLLUMS, in many varieties.
Many Thousands of the best GREENHOUSE PLANTS, such as Chorozemas, Aphelexis, Genetyllis, Dillwynias, Acacias, Statices, Polygalas, Boronias, Pimeleas, Cyclamens, Tree Carnations, Coronillas, Jasminums.

Also on hand, a very large Stock of

ORNAMENTAL FOLIAGE and DECORATIVE PLANTS, PALMS, DRACÆNAS, FICUS ELASTICA, &c.

FERNS—Many thousands of the most approved kinds.

ORCHIDS.

The Stock of these is very extensive, contained in Ten Houses, each of considerable size.

Dendrobiums, Cattleyas, Odontoglossums, Phalænopsis, Cypripediums, Lælias, Saccolabiums, Oncidiums, &c., can be seen in large quantities.

CLAPTON NURSERY, LONDON, E.

THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company are now prepared to undertake Contracts for the Erection of Heating Apparatus on the COWAN COMPENSATING SYSTEM, and of all other kinds.

The Company keep in Stock a Large and Select Collection of the most Improved Kinds of Boilers, Fittings, Pipes, and all other necessary Materials for such Apparatus, inspection of which is invited.

The Company can confidently recommend their System for Heating all kinds of Buildings by Hot Water, all Contracts which have been carried out having proved successful, without exception.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

For proofs of the foregoing Statements vide the Company's Illustrated Pamphlet, post free on application.

CERTIFICATE OF APPROVAL OF COWAN'S COMPENSATING SYSTEM OF HEATING.

We, the undersigned practical Horticulturists of Dublin, its vicinity, and the adjoining counties, have inspected an apparatus on Mr. Cowan's new compensating system lately erected by the Dromore Heating Company in the gardens of John T. Gray, Esq., Temple Hill, desire to record our entire approval of its thorough efficiency and great economy for heating all kinds of Horticultural or other Buildings by means of hot water. From careful calculations made at the time of our inspection we feel convinced the entire extent of piping, between 3000 and 4000 feet in length, on different levels, was heated in the most efficient manner, nearly free of cost. There was a total absence of any untidiness or disagreeable smell. From the mass of glowing limestone then in the kiln we could quite understand how competent the apparatus would be to heat, in the most efficient manner, even a much greater extent of piping. As practical Horticulturists we feel certain that this system will in time commend itself to the public.

D. PRESSLY, Knockmaroon, *Chairman.*

DAVID MOORE, Glasnevin.
THOMAS MOORE, Editor, *Gardeners' Record.*
JOHN CAMPBELL, Churchill Nurseries.
MICHAEL GUILFOYLE, Merrion.
P. GRAY, Albert Model Farm.
D. INGLIS, Powerscourt Gardens.
THOMAS P. TURNER, Killruddery.
GEORGE WILLIAMS, Exhibition.
SAMUEL LAIDLY, Montrose.
JAS. DOUGLAS, Charleville Gardens, Bray.
JAMES DICKSON, Richmond Nursery.
W. H. FLACK, Willow Park.
WM. WATSON, Sec. D. H. C.
JAMES NOBLE, Phœnix Park.
EDWARD MCDERMOTT, Yapton Gardens, [Monkstown.
WM. BRACKEN, Roebuck Castle
JOHN KEARNS.
G. MACGUBRIE, Roebuck Hill.
JAMES LISTER, Dunardugh.
WM. TOOLE, Richview, Roebuck.

THE COWAN COMPENSATING HEATING COMPANY, LIMITED,

4, LOTHBURY, BANK, LONDON, E.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, October 3, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 41.—Vol. II. { New Series. } SATURDAY, OCTOBER 10, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Aganisia fimbriata .. 452
Aloes at Mentone (with cut) 453
Apiary 459
Aponogeton distachyon . 463
Autumnal flowers .. 452
Azaleas at Lake Como .. 463
Berberis, on the movements of the stamens of 461
Books, notices of 459
Cinchonas, experiments on 462
Dionæa muscipula .. 464
Farm, the 467
Folk-lore of Nuts, the .. 451
Forestry 459
Fungus meeting at Hereford, the great (with cuts) 454
Garden arrangements, the picturesque in 453
Garden operations .. 469
Hoya carnosa fruiting .. 465
Jarrah-wood, the .. 464
Law notes 468
Lord Palmerston 456
Nitrogen of the soil, the . 453
Pampas-grass, the .. 465
Parrotia persica 462
Passiflora cœrulea, hardiness of 465
Pennsylvania, the Pine woods of 459
Plants, new garden .. 452
Raspberry, autumn-bearing 466
Roots, the management of 467
Rye-grass seeds, killing and colouring 466
Scenograph, the 462
Smith, Mr. W. G., presentation to 461
Societies:—
Royal Horticultural .. 466
Sonchus laciniatus .. 462
Strawberry, Vicomtesse Hericart de Thury .. 464
Tea planting in the Himalayas 456
Tillery, Mr. William (portrait of) 463
Villa garden, the 468
Weather, the 469
Woolhope Club, the (with cuts) 454

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is $6.30 gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth*, 16*s*.
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

ROYAL POMONA PALACE and GARDENS, MANCHESTER.
A GRAND EXHIBITION of NATIVE and EXOTIC FRUITS, CHRYSANTHEMUMS, FLORAL BOUQUETS, CONIFEROUS PLANTS, &c., will be held on TUESDAY, WEDNESDAY, and THURSDAY, December 1, 2, and 3 next.
Schedules are now ready, and may be had from the various Seed Establishments in Manchester, or from the Proprietor, Mr. JAMES REILLY, Pomona Gardens, Manchester.

SOUTH DURHAM and NORTH YORKSHIRE FAT STOCK and POULTRY SHOW, at Darlington, on DECEMBER 16 and 17. Prize Lists on application to W. SEWELL, Darlington.
Entries close November 23.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

J. B. DELEUIL, Horticultural Establishment, Traverse du Fada, Marseilles, France. Special cultivation of AMARYLLIS, BEGONIA, ECHEVERIA, YUCCA, &c.
CATALOGUE of novelties has just been issued.

WHOLESALE CATALOGUE of TREES, SHRUBS, CLIMBERS, &c., free on application.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

AUCUBA JAPONICA.—Thousands of strong and very bushy plants, from 1 to 3 feet. Prices on application.
WM. RUMSEY, Joyning's Nursery, Waltham Cross, N.

TO BE SOLD, Two large, healthy Plants of DRACÆNA INDIVISA, 6 feet high. Apply to A. D., Messrs. Bunny & Evans, Shrewsbury.

FOR SALE, by Private Contract, several large CAMELLIAS and Specimen Fine-Foliaged Plants. For further particulars apply to T. C. ANDERSON, Greenroyd, Halifax.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to
CARTERS', The Royal Seedsmen, High Holborn, London.

ROSES, Standard, all best kinds, good heads, £4 per 100. Also 1 ton EARLY VERMONT, and 2 cwt. SNOWFLAKE POTATOS, cheap.
JACKSON'S, Blakedown, Kidderminster.

EIGHTY THOUSAND of the FINEST TEA, NOISETTE, CHINA, and other ROSES to select from, all strong and healthy, in pots. Descriptive priced LIST on application.
RICHARD SMITH, Nurseryman, Worcester.

Roses, Roses, Roses.

EWING AND CO.'S Illustrated, Priced, and Descriptive CATALOGUE will shortly be ready. All Rosarians should possess a copy, which will be forwarded, gratis and post free, to applicants.
The Royal Norfolk Nurseries, Norwich.

WHOLESALE CATALOGUE of ROSES, FRUIT TREES, &c., free on application.
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey.

Early Planting.

DAVISON AND WHITTEM'S CATALOGUE of all the Best and Newest ROSES is now ready. Also a GENERAL CATALOGUE of CONIFERS, FOREST, FRUIT, and other TREES. Post free on application. White Cross, Hereford.

LAURUSTINUS.—An immense quantity of very healthy plants, 12 to 18 inches high, can be supplied at very moderate prices by
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

CALANTHE VESTITA RUBRA. Flowering Plants 30*s*. per dozen. Apply to S. WOOLLEY, Cheshunt, Herts.

Lily of the Valley.

ROBERT NEUMANN, The Nurseries, Erfurt, begs to offer large quantities of strong flowering roots, for forcing, of the above, at 45*s*. per 1000.
Also strong clumps of SPIRÆA (HOTEIA) JAPONICA.

FOR FORCING.—LILY of the VALLEY, 1000 roots, 30*s*.; 100 clumps, 46*s*. SPIRÆA JAPONICA, 100 strong clumps, 26*s*. Delivery against Bank Post Bill.
D. JACOBSON, Haarlem, Holland.

Lily of the Valley.

JULIUS HOFFMANN, 131, Koepnickerstrasse, Berlin, begs to offer large quantities of strong flowering, for forcing, of the above, at 40*s*. per 1000. Stock of about 150,000 flowering plants. Lily of the Valley grown on Berlin soil is known to be of the earliest forcing.

SWEET VIOLETS.—Extra strong blooming Plants of LEE'S VICTORIA REGINA at 6*s*., 9*s*., and 12*s*. per dozen; 1*s*. each post free. Also CZAR, KING, QUEEN, and other varieties. See Autumn Catalogue, free.
B. R. DAVIS, Seedsman, Florist, &c., Yeovil.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

Special Offer to the Trade only.

LARCH (Scotch), ELMS, LIMES, SYCAMORES, ROSES (Standards), OAKS, &c., APPLES, PEARS, GOOSEBERRIES, &c. Prices on application to JOSEPH GREEN, The Nurseries, Garforth, near Leeds.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1*s*. per bushel, or 6*d*. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE, invaluable for Forcing, Plunging, and Resisting Frost and Cold. Price 9*d*. per bushel; 20 bushels, 5*d*.; 100, 4½*d*. per bushel.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

WANTED, a large quantity of LARCH FIR, from 1½ to 2 feet high. State price to SAMUEL KIDLEY, The Gardens, Cross Keys, near Newport, Monmouthshire.

WANTED, LARCH FIR, 2 to 3 feet, and 1 to 2 feet. Samples and price per 1000 to H. APPLEBY, Box Hill Nursery, Dorking, Surrey.

WANTED, a large, healthy, well-grown specimen plant of LUCULIA GRATISSIMA. Full particulars with lowest price to
FRANCIS & ARTHUR DICKSON & SONS, The Upton Nurseries, Chester.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

To the Trade.

HURST AND SON have ROMAN HYACINTHS and SNOWDROPS to offer.

Dutch and other Flower Roots.

JAMES DICKSON AND SONS have received large and superior consignments, in excellent condition. Priced CATALOGUES post free.
108, Eastgate Street, Chester.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s*. carriage free. CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete ever published.
Hale Farm Nurseries, Tottenham, London, N.

Hyacinths, Crocus, Tulips, &c., all extra picked ROOTS.

J. SCOTT'S CATALOGUE of the above is now ready, and may be had Gratis and Post Free on application. Bulbs extra fine and sound. Prices low. Address, JOHN SCOTT, The Seed Stores, Yeovil.

Horticulture.

THOMAS RIVERS' Descriptive and Illustrated CATALOGUE of FRUITS is now ready. Also, CATALOGUE of SELECT ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

DAPHNE CNEORUM MAJUS (true). Probably the largest stock in the Trade. Plants well set for bloom. Price, by the dozen, 100, or 1000, on application.
WILLIAM COLLYER, Nurseryman, Horsell Birch, near Woking Station, Surrey.

HARDY WELSH WINTER VETCHES, and all other seeds for present sowing.
JAMES DICKSON AND SONS, 108, Eastgate Street, Chester.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s*. to 60*s*. per dozen. Extra strong Fruiting Canes, 7*s*. 6*d*. to 10*s*. 6*d*. each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s*. each.
RICHARD SMITH, St. John's Nurseries, Worcester.

GRAPE VINES.—A fine stock of all the leading sorts; strong, well-ripened short-jointed Canes. Extra fruiting size, in 11-inch pots; smaller plants, in 6-inch and 9-inch pots. Prices from 3*s*. 6*d*. to 10*s*. 6*d*. each. Free from any kind of disease.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

Notice.

HORTICULTURAL SOCIETY'S STOCK GRAPES, first year.
Very fine well ripened Canes of all the best sorts, 3*s*. 6*d*. each; extra fine, in 11-inch pots, 5*s*. each; and PULVERISED BONE.
Mr. RANSLEY TANTON, F.R.H.S., The Nurseries, Epsom.

Grape Vines.

EDWARD MORSE has many Hundreds of strong Fruiting Vines in pots, at 5*s*., 7*s*. 6*d*., and 10*s*. 6*d*. each. Special Prices quoted for large quantities.
Original Nurseries, Epsom, Surrey.

STANDARD TRAINED PEACHES, NECTARINES, and APRICOTS, fine Trees of the hardiest and best sorts, with all other forms of Fruit Trees in great variety. Descriptive Price Lists gratis.
RICHARD SMITH, Nurseryman, Worcester.

NEW STRAWBERRIES, Exquisite and Traveller (First-class Certificate).—The best for flavour and transmission. See advertisement in *Gardeners' Chronicle* of the 8th ult. Strong plants now ready. Particulars post free from W. AND J. BROWN, Stamford.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three, and four years old. Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

To the Seed Trade.

TO BE SOLD, a Quantity of MACLEAN'S BEST OF ALL PEAS, as grown by the original grower. Apply to
Mr. THOMAS WILDE, Hathorn, near Loughborough, Leicestershire.

Novelties.

NEW SWEET-SCENTED RHODODENDRONS now offered for the first time, the most novel and beautiful ever raised. NEW INDIAN AZALEAS and a fine Collection of AZALEA MOLLIS. A Descriptive Priced List forwarded to any address on application to
ISAAC DAVIES, Nurseryman, Ormskirk.

Eltham Nursery, Kent, S.E.

One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.

THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c. Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

Carnations, Picotees, Pinks, Cloves, and Winter-
BLOOMING CARNATIONS.

CHARLES TURNER'S stock of the above is now ready for delivery. The stock is most healthy, and being cheaper at this season, with less expense in carriage, C. TURNER recommends intending purchasers to have them at once. The Royal Nurseries, Slough.

New Apple, Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now Booking Orders for this splendid Novelty, which obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, on November 12, 1873. Circulars with full particulars will be forwarded gratis and post-free to applicants. The price for strong maidens on and after November 1 next, is 7*s.* 6*d.* each, or three for 20*s.* The usual discount to the Trade.

SPRING GARDENING PLANTS. — 500,000 DAISIES, PANSIES, PRIMROSES, SILENES, FORGET-ME-NOTS, and all the most useful sorts for the above purpose, from 4*s.* per 100. See Catalogue of above and Roses. Post free.
J. MOORE, Nurseryman and Seedsman, 52, Market Place, Warwick.

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other Dutch Roots, in fine condition. Early orders are requested. CATALOGUES post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

J. SCOTT'S FRUIT TREES cover many Acres, and form the most complete Collection in the World, consisting of 2200 sorts of Pears, 1400 sorts of Apples, and other kinds in proportion, amounting in the whole to over 5000 sorts. CATALOGUES, gratis, sent to all applications; or SCOTT'S ORCHARDIST, post free, for 5*s.* 6*d.*, the most complete work upon Fruit Trees in the English Language.
Merriott Nurseries, Somerset.

J. SCOTT'S TREE and SHRUB CATALOGUE is replete with information about Trees, &c. It enumerates the names and gives descriptive notes of one of the best and well-grown Collections in the West of England. Parties intending to Plant should send for a copy, supplied gratis, as are also the SEED and BULB CATALOGUES; and SCOTT'S ORCHARDIST, at 5*s.* 6*d.*, free by post.
The Nurseries, Merriott, Somerset.

Roots.

MR. C. F. CHONÉ, 60, Frankfurter Alée, Berlin, recommends his Special Cultures of LILY of the VALLEY (Convallaria majalis). His Stock comprises more than a Million Roots for Forcing, and capable of Blooming. FICUS ELASTICA, DRACÆNAS, PALMS, CAMELLIAS, AZALEAS, DOUBLE PRIMROSES, &c., ready to be sent out. Catalogues on application.

STRONG AUTUMN SOWN CABBAGE PLANTS can now be supplied of the undermentioned kinds (all true to name):—
EARLY BATTERSEA, ENFIELD MARKET, NONPAREIL } at 3*s.* 6*d.* per 1000.
ROBINSON'S DRUMHEAD, at 3*s.* per 1000.
W. VIRGO AND SON, Wonersh Nurseries, Guildford.

DICK RADCLYFFE AND CO.'S
ILLUSTRATED
AUTUMN CATALOGUE
OF
HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.,
is now ready, and can be had gratis and post free on application.
129, High Holborn, London, W.C.
Seed Grounds—Erfurt, Prussia.

LAURELS.
COMMON LAUREL, 2 to 3 feet, 16*s.* per 100, £7 per 1000; 3 to 4 feet, 25*s.* per 100, £10 per 1000.
COLCHIC LAUREL, 3 to 4 feet, 30*s.* per 100; 4 to 5 feet, 42*s.* per 100.
PORTUGAL LAUREL, 1½ to 2 feet, 34*s.* per 100.
Good, bushy, well-grown plants.
RICHARD SMITH, Nurseryman, Worcester.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6*s.*, 9*s.*, and 12*s.* per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40*s.* cash. Baskets and Packing included.
Crown Nursery, Reading.
N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1*s.* per packet, post-free.

Dutch Flower Roots.

B. S. WILLIAMS begs to announce that his ANNUAL CATALOGUE of DUTCH FLOWER ROOTS, containing a Descriptive List of Choice Hyacinths, Tulips, Narcissus, Crocus, &c., also a Select List of Fruit Trees, Roses, Vines, &c., is now ready, post free to all applicants.
Victoria and Paradise Nurseries, Upper Holloway, N.

New Plant Catalogue, 1874-75.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has much pleasure in announcing that he has just published his New CATALOGUE of PLANTS, containing all the leading Novelties and General Nursery Stock. May be had on application of his Agents,
Messrs. R. SILBERRAD, 5, Harp Lane, Tower Street, London.

WINTER and SPRING FLOWERS.

Carters COLLECTIONS OF BULBS

For Open Ground, adapted for Ordinary Good Garden Soil

COLLECTION No. 14, *Price* 21*s.* (*Packing and Carriage Free*), *contains*:—

Hyacinths, 12, in three colours.
Narcissus, Double white, 12.
,, Poeticus, or Pheasant-eye, 12.
Double Daffodils, 25.
Tulips, extra fine mixed, double, 12.
,, ,, ,, single, 12.
,, finest mixed, late, 12.
,, Duc Van Thol, 12.
Polyanthus Narcissus, fine mixed, 6.
Campernel Jonquils, 6.
Star of Bethlehem, 12.
Triteleia uniflora, 6.
Dog's-tooth Violets, 6.
Crocus, blue, 25.
,, striped, 50.
,, large yellow, 50.
Crocus, white, 25.
Anemones, extra fine mixed, 24.
Iris, extra choice mixed English,
,, extra fine mixed Spanish,
Lilium candidum, 3.
,, tigrinum, 3.
Ranunculus, extra fine mixed, 24.
Snowdrops, 50. Winter Aconites.

Other Collections, price 10*s.* 6*d.*, 42*s.*, 63*s.*, and 84*s.* 20*s.* value Carriage Free.

From the Rev. W. C. PLENDERLEATH, *Calne, Wilts.*

"I was unwise enough to get some Bulbs last autumn from another grower, and your 'Old Bulbs,' saved from forcing the year before, did better than those new ones, so I will not experiment again."

CARTER'S, THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON.

DUTCH FLOWER ROOTS.

JAMES VEITCH & SONS

HAVE RECEIVED THEIR

SUPPLIES OF HYACINTHS, TULIPS, AND OTHER BULBOUS ROOTS

IN SPLENDID CONDITION.

They offer select named varieties of Hyacinths, for Pots or Glasses, at the following prices:—

SINGLES, Red, White, Blue, and Yellow, 6*s.*, 9*s.*, and 12*s.* per dozen.
DOUBLES, Red, White, Blue, and Yellow, 6*s.*, 9*s.*, and 12*s.* per dozen.

HYACINTHS, for Bedding, &c., Red, White, and Blue, in separate shades, 25*s.* per 100.
TULIPS, for Bedding, in separate colours, see BULB CATALOGUE.
CROCUS, for Bedding, in separate colours, see BULB CATALOGUE.

HYACINTHS, for Borders, Red, White, and Blue, in mixed shades, 21*s.* per 100.
TULIPS, for Borders, all colours, mixed, 4*s.* per 100.
CROCUS, for Borders, all colours, mixed, 12*s.* 6*d.* per 1000.

JAMES VEITCH & SONS have had the honour of supplying the Bulbs for the Decoration in Hyde Park for the past Four Seasons.

ILLUSTRATED BULB CATALOGUE POST FREE ON APPLICATION.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,

SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.
First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, *price* 7*s.* 6*d.* *each.*

NEW HYBRID PERPETUAL ROSE,

CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3*s.* 6*d.* *each*; 30*s.* *per dozen.*

CLIMBING PERPETUAL ROSE,

CLIMBING JULES MARGOTTIN (Cranston's).

A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3*s.* 6*d.* *each.*

Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

ROSES.

CHARLES TURNER'S CATALOGUE

IS NOW READY.

STANDARD ROSES.

These are grown in great numbers, they are very fine this season, with well-ripened wood, and are now ready for removal.

DWARF ROSES

Are also grown most extensively, and can be had on the Manetti and Briar Stocks, or on their Own Roots.

ROSES IN POTS

Are a speciality at the Royal Nurseries, where a fine stock can be seen of extra strong TEAS and HYBRID PERPETUALS, grown especially for early forcing.

☞ *The CATALOGUE also contains full Lists of FRUIT TREES, CONIFERÆ, EVERGREEN and DECIDUOUS SHRUBS, &c., and can be had on application.*

THE ROYAL NURSERIES, SLOUGH.

Rose Catalogue.

WM. PAUL, Paul's Nurseries, Waltham Cross, Herts, has just published the New Edition of his ROSE CATALOGUE, which he will be happy to forward, free by post, on receipt of Postage Stamp.

NEW ROSES for 1874, GLADIOLI, &c.—The following varieties of Roses, all of the first order, are from the Nurseries of the Horticultural Establishment of EUGÈNE VERDIER, FILS AINÉ, and selection can be made from a stock of nearly 25,000 plants:—

H.P. Bernard Verlot
" Frederick Wood
" Henry Ward Beecher
" La Souveraine
" Mdlle. Ilona de Adarjon
May Turner
" Monsieur E. Y. Teas
H.P. Princesse Antoinette Strozzio
" Souvenir de Charles Sumner
" Souvenir de Duche
H. (not P.) Mdme. Rivière (gratis).

All other French varieties are also to be obtained.

CATALOGUES, with names, descriptions, prices, and mode of forwarding, will be sent, together with a Special CATALOGUE of GLADIOLI (which are sold by the hundred or thousand of each variety), post free, to all who may apply to EUGÈNE VERDIER, FILS AINÉ, Horticulturist, 72, Rue Dunois, Gare d'Ivry, Paris.

Richmond Nurseries, Richmond, Surrey.
(ESTABLISHED 1802.)
To the TRADE and large CONTRACTORS.

G. AND W. STEELL have to offer this season, extra to their usual large stock of ROSE, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN SHRUBS, &c., a large quantity of fine, clean grown and straight in the stock Standard GOLDEN QUEEN and other varieties of variegated HOLLIES, from 2 to 5 feet in the stem; Pyramid Green and Variegated do., from 2 to 7 feet; also an immense quantity of Hybrid and Ponticum RHODODENDRONS, uncommonly well set with bloom-buds, which they are prepared to supply at extremely low figures. Where large quantities are required special prices will be given.

PAUL'S ROSES.

"Mr. Wm. Paul has been deservedly placed at the head of English Rose growers."—*Standard.*
"The Roses of Mr. Paul are things to see once and dream of for ever."—*Athenæum.*
"Mr. Wm. Paul is famous for his Roses all over the world."—*The Graphic.*
"Mr. Paul is the most successful Rose grower in England."—*Journal of culture.*

WILLIAM PAUL,

PAUL'S NURSERIES, WALTHAM CROSS, HERTS,

Begs to announce that his NEW ROSE CATALOGUE is now ready, and will be forwarded,

Post Free, on receipt of Postage Stamp.

The Public is respectfully requested to observe—

1. That the stock is in the finest possible condition. The growth is healthy, moderate, and well matured, rather than gross and ill-ripened.

2. Every Plant in this Establishment is for Sale, no reserve being made for prize winning or other purposes.

"Despite the much talked of disadvantages of the season in regard to Roses, Mr. Wm. Paul manages to bring together a marvellous assortment of cut blooms."—*Daily Telegraph*, July 9, 1874.

PRICES OF ROSES FOR 1874-75:

STANDARDS, large, full, and finely shaped Roses, selected from the exhibitor's point of view. Per dozen, 15*s.* and upwards; per 100, £6 and upwards.

STANDARDS, for Garden and House Decoration, hardiness of constitution and freedom of flowering being here specially considered. Per dozen, 15*s.* and upwards; per 100, £6 and upwards.

STANDARDS, Newer Sorts. Per dozen, 24*s.* and upwards; per 100, £8 8*s.* and upwards.

STANDARDS, Tea-scented, for Garden or Conservatory Decoration. Per dozen, 24*s.* and upwards; per 100, £10 and upwards.

DWARF STANDARDS. Per dozen, 12*s.* and upwards; per 100, £4 10*s.* and upwards.

DWARFS ON THEIR OWN ROOTS, summer kinds. Per 100, £2 10*s.*

DWARFS ON THEIR OWN ROOTS, from the open ground, Hybrid Perpetuals. Per 100, £3 3*s.*

DWARFS ON THEIR OWN ROOTS, in pots, Hybrid Perpetuals. Per dozen, 12*s.* and upwards; per 100, £4 10*s.* and upwards.

DWARFS ON BRIAR. Per dozen, 12*s.* and upwards; per 100, £4 10*s.* and upwards.

DWARFS ON MANETTI. Per dozen, 10*s.* 6*d.* and upwards; per 100, £3 3*s.* and upwards.

DWARFS, Tea and Noisette. Per dozen, 15*s.* and upwards; per 100, £6 and upwards.

DWARFS, New Varieties of 1874. Per dozen, 30*s.* and upwards.

DWARFS, New Varieties introduced by the Establishment:—FIREBRAND, Standards, 3*s.* 6*d.* each; Dwarfs, 2*s.* 6*d.* each. DIANA, Dwarfs, 3*s.* 6*d.* each. PEACH BLOSSOM, Standards, 5*s.* each; Dwarfs, 3*s.* 6*d.* each. ST. GEORGE, Standards, 5*s.*; Dwarfs, 3*s.* 6*d.* each.

DWARFS, extra sized, for Forcing or Greenhouse Culture. A large and splendid stock. Per dozen, 24*s.* and upwards. Specimen Roses, 5*s.* to £5 5*s.* each.

DWARF ROSES for Bedding or Massing, a fine selection. Per 1000, £25 and upwards.

My Rose Shows at the Royal Horticultural Gardens, South Kensington, and the Crystal Palace, Sydenham, where thousands of Roses in pots, the sole produce of my Nurseries, have been shown year by year, and the show of Cut Roses at the Royal Botanic Gardens, in the Regent's Park, where 8000 trusses of flowers were staged last July, have, one or the other of them, been visited by—

HER MAJESTY THE QUEEN,
THEIR ROYAL HIGHNESSES THE PRINCE AND PRINCESS OF WALES,
THE DUKE AND DUCHESS OF EDINBURGH,
and several other Members of the Royal Family;
HIS IMPERIAL MAJESTY THE EMPEROR OF RUSSIA,
THEIR MAJESTIES THE KING AND QUEEN OF THE BELGIANS;
and Thousands of Visitors, many of them Amateur and Professional Horticulturists.

These Shows, as artistic displays, and the plants and flowers of which they were composed, have also received the highest encomiums of the Horticultural and General Press. The idea which prompted them was not conceived or worked out in opposition to existing Rose shows, but to occupy ground which they failed to touch—to show Roses in a free and natural rather than in a crowded, formal and artificial state—in a state in which any one might produce them with ordinary advantages and ordinary cultivation without the technical knowledge of the florist's art.

WORKS on ROSE GROWING by WILLIAM PAUL, F.R.H.S.

THE ROSE GARDEN. Third Edition. Price 7*s.* 6*d.*, post free 8*s.*
"Infinitely the best work ever written on the Culture of the Rose."—*Botanic Garden.*

ROSES IN POTS. Fourth Edition (in the Press). Price 2*s.*

ROSES AND ROSE CULTURE. A Shilling Book on Roses. Second Edition.
"In this little shilling book, Mr. Wm. Paul tells Amateur Rose growers all that is really necessary for them to know."—*The Garden.*

PAUL'S ROSE MANURE. In Boxes, with directions for use, 2*s.* and 4*s.* each.

DR. SCOTT, *Sandwich, says:*—It is by far the best Manure I have ever tried."
THOMAS LAXTON, Esq., *Stamford, says:*—"I shall certainly use it again."
A. H. KENT, Esq., *Blechingly, says:*—"An invaluable boon to Amateur Rose growers."
MR. DOUGLAS, *Loxford Hall Gardens, Ilford* (writing in the *Journal of Horticulture*), *says:*—"The best Manure for this purpose is Mr. W. Paul's Rose Manure."

IMPORTANT.—Address, WILLIAM PAUL (the Christian Name in full), PAUL'S NURSERIES, WALTHAM CROSS, HERTS.

NEW CATALOGUES for 1874.

A Descriptive CATALOGUE of ROSES.
A Descriptive CATALOGUE of FRUITS.
A Descriptive CATALOGUE of BULBS.
A General CATALOGUE of GENERAL NURSERY STOCK. Address
WM. WOOD AND SON, The Nurseries, Maresfield, near Uckfield, Sussex.

TO THE TRADE.

2,000 Dwarf-trained PEACHES and NECTARINES, very handsome Trees, of the best kinds.
100,000 GREEN HOLLIES, 18 inches, beautifully grown and well rooted, moved last season.
50,000 YEWS, 9 to 12 inches, bushy.
17,000 Dwarf ROSES, on Manetti and Briar, vigorous grown plants of all the best varieties known, and a like quantity of splendid Standards and Half-Standards.
Prices and Lists on application.
GEORGE GRAY AND SON, Chertsey, Surrey.

Strawberries to Fruit in 1875.

CHARLES TURNER can supply established plants, in small pots, that will fruit next season, of the following fine kinds:—

British Queen,	Dr. Hogg,
Frogmore Late Pine,	Keens' Seedling,
Lucas,	President,
Royalty,	Sir Charles Napier,
Sir Joseph Paxton,	Vicomtesse Hericart de Thury.

Also good plants from the ground of the above and thirty other varieties. CATALOGUES on application.
The Royal Nurseries, Slough.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

New Rhododendrons.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to announce that they are now sending out the undermentioned Hardy RHODODENDRONS, price 21s. each. The usual Discount to the Trade.

MRS. RUSSELL STURGIS.
MRS. JOHN KELK.
HELEN WATERER.
JOHN WALTER.
JAMES MASON.
FREDERICK WATERER.

Surplus Stock of

RHODODENDRON MULTIFLORUM and PRÆCOX, all sizes, a perfect mass of flower-buds, for winter blooming; DAPHNE INDICA RUBRA, small bushes; ANDROMEDA FLORIBUNDA, compact bushes; SKIMMIA JAPONICA, all sizes; CLEMATIS JACKMANNI and LANUGINOSA, strong; CUPRESSUS LAWSONIANA, 4 to 8 feet; and the pretty berry-bearing PERNETTYA SPECIOSA. Prices, &c., on application to
ISAAC DAVIES, Nurseryman, Ormskirk.

Victoria, Australia.

IMPORTATION of GRAPE VINES or GRAPE VINE CUTTINGS PROHIBITED.—It is Hereby Notified for General Information, that the Governor of the Colony, with the advice of the Executive Council, and in accordance with the provisions of the Act 37 Victoria, No. 457, has Prohibited the Importation into Victoria of Grape-Vines and Grape-Vine Cuttings.
ARCHIBALD MICHIE, Agent-General for Victoria.
8, Victoria Chambers, Westminster, October 1, 1874.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.

The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

A New Grape—Venn's Seedling Black Muscat.

WILLIAM DODDS has the pleasure to inform his friends and the public that he has made arrangements with Mr. Venn to send out his splendid new Grape, BLACK MUSCAT. The fact of its having taken a First-class Certificate at the London Royal Horticultural Society, the First Prize at the Birmingham Exhibition this year, and many other Certificates at different Exhibitions held during the past four years, is a sufficient proof of its qualities as a first-class Grape. Good PLANTING CANES are now on sale, price 2 guineas each, delivered to order on receipt of cheque or Post-office Order on Horfield, Bristol, payable to WILLIAM DODDS, Gladstone Villa, Bishopston, near Bristol.

There being a very small stock of Plants, early orders are requested.

FOR AVENUES and ORNAMENTAL PLANTING.

ABIES DOUGLASII, 10 to 12 feet, £3 per dozen.
CEDAR, Mount Atlas, 10 to 12 feet, £8 8s. per dozen.
CHINESE JUNIPER, 5 to 6 feet, 30s. per dozen, £10 per 100; 6 to 7 feet, 30s. per dozen, £12 10s. per 100; 7 to 8 feet, 42s. per dozen, £15 per 100.
PICEA NORDMANNIANA, 3 to 4 feet, 42s. per dozen, £12 10s. per 100; 4 to 5 feet, 60s. per dozen, £20 per 100.
PICEA PINSAPO, 6 to 7 feet, £6 6s. per dozen; 7 to 8 feet £8 8s. per dozen.
THUJA LOBBII, 12 to 15 feet, £4 4s. per dozen.
WELLINGTONIA GIGANTEA, 5 to 6 feet, £5 per dozen.
All well grown and recently transplanted. For full descriptions see LIST of the EVERGREEN FIR TRIBE.
RICHARD SMITH, Nurseryman, Worcester.

SUCCESSION PINE PLANTS.—A quantity of clean healthy plants of

OLD QUEEN,	BLACK ANTIGUA, and
RIPLEY QUEEN,	SMOOTH CAYENNE

To be disposed of. For prices, &c., apply to
Messrs. OSBORN AND SONS, The Nursery, Fulham, S.W.

THE OXFORD ROSES, or Roses budded on the Cultivated Seedling Briar (Rosa canina).

. . . . "I still retain my confidence in its superiority, and I believe that Rose trees thus established will prove to be the most enduring of all." Rev. R. HOLE. [See the *Garden*, Sept. 5, p. 213.]

A dwarf plant of Maréchal Niel on this stock, only four years old, trained to a south wall, produced 600 first-class blooms at one time.

Thirty-five Thousand TEA, NOISETTE, and HYBRID PERPETUALS, of the best Exhibition and Garden varieties, Now Ready, in well-ripened wood, and first-class condition. [See D. Deal's visit to George Prince's Rose Grounds at Longworth. *Journal of Horticulture*, Sept. 17, p. 252.]
Descriptive CATALOGUES on application.
GEORGE PRINCE, 14, Market Street, Oxford.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,
MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.
JOHN BESTER, Manager.

LILIUM AURATUM.

SOUND BULBS, grown from Seed and Scales in this Nursery, will be supplied at from 12s. to 84s. per dozen, £5 to £30 per 100. These bulbs had this year from three to forty flowers on a stem.

SMALLER BULBS, the majority of which would flower next year, 9s. per dozen, or 63s. per 100.

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

NEW PLANT CATALOGUE 1874,
Gratis and Post Free.

B. S. WILLIAMS'
NEW PLANT AND GENERAL
CATALOGUE OF NURSERY STOCK
Is now ready, and will be forwarded to all applicants.

It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

PANCRATIUM NOTATUM
AND
CRINUM PRATENSE CANALICULATUM,
Vide Illustrations, Descriptions, and Prices in
MR. WILLIAM BULL'S
BULB CATALOGUE,
Just issued.

ESTABLISHMENT for NEW and RARE PLANTS,
KING'S ROAD, CHELSEA, LONDON, S.W.

BUY YOUR BULBS
OF THE
HEATHERSIDE SEED COMPANY,
QUEEN VICTORIA STREET, LONDON;
Specially selected for the Public, as below.
CARRIAGE PAID.

No. 3. Collection of Bulbs for the Greenhouse, price 21s.

18 Hyacinths, in 18 choice named varieties.
12 Polyanthus Narcissus, in 12 varieties.
24 Jonquils, sweet-scented.
25 Crocus, Louis d'Or.
25 ,, Prince Albert.
25 ,, Caroline Chisholm.
12 Scilla sibirica.
50 Snowdrops, double.
12 Tulips, Duc Van Thol.
6 ,, Tournesol.
6 ,, Rex Rubrorum.
6 Tulips, Lac Van Rhyn.
6 ,, Molière.
6 ,, Queen Victoria.
6 ,, Souvenir.
6 ,, Royal Standard.
6 ,, Yellow Prince.
6 ,, Couleur Ponceau.
3 Iris Pavonia.
9 Ixias, in variety.
9 Sparaxis, in variety.
12 Triteleia uniflora.
3 Liliums, in variety.
1 Clump Lily of the Valley.

No. 7. Collection of Bulbs for Outdoors, price 21s.

18 Hyacinths, in three colours.
18 Narcissus, double, white.
18 ,, Poeticus.
18 Double Daffodils.
18 Tulips, mixed, choicest double.
18 ,, ,, ,, single.
9 ,, ,, ,, late.
18 ,, Duc Van Thol.
6 Polyanthus Narcissus, choicest mixed.
6 Jonquils.
6 Triteleia uniflora.
9 Dog's-tooth Violets.
75 Crocus, large blue.
25 ,, ,, white.
50 ,, ,, yellow.
25 ,, ,, striped.
18 Anemones, finest double.
12 ,, ,, single.
9 Iris, English.
12 ,, Spanish.
3 Lilies.
25 Ranunculus.
25 Snowdrops.
25 Winter Aconites.

CHOICEST CARNATIONS and PICOTEES for Sale—20,000 of the choicest and finest, all of which are strong, healthy, and of kinds, to name. Selection left to J. H. Per dozen pairs, for rooted plants. Old Crimson CLOVE, 3s. per dozen plants and 12s. True c[illegible] Packages included.
J. HUNT, Apollo [illegible] Nurseries, Caister Road, Great Y[illegible]

To the Trade Only.

A. M. C. JONGKINDT CONING[illegible]ST, including a fine stock of M[illegible] WHOLESALE L[illegible] Moss Roses, Dwarf, Half-st[illegible] Apples, Pears and Plums, M[illegible]a spectabilis, Hoteia jap[illegible] and Standard Roses, Dielytite, [illegible] Hardy Perennials, Bulb[illegible] Convallaria majalis, and other xtra [illegible] ready, and will be sent [illegible] Tuberous-rooted Plants, is now ice [illegible] near Zwolle, Ne[illegible] free, on application. mi[illegible]
Tottenham Nurseries, Dedemsvaart, [illegible]

NEW RHODOD[illegible] mixed, 2[illegible]
JAMES MARSHALL BROOKS, rich scar[illegible] Aconite[illegible] spot, very fine and distinct.
LADY ANNETTE DE TRAFFORD, crea[illegible] distinct chocolate blotch.
MRS. FREDERICK HANKEY, salmon, ric[illegible] very pleasing kind.
MRS. SHUTTLEWORTH, scarlet, lighter [illegible] spotted, a very beautiful and distinct variety.
VAUBAN, mauve, with a rich yellow blotch, ver[illegible] and habit,
The above-named new, beautiful, and distinct Hardy Rhododendrons will be supplied, nice plants, for 5 guineas the set.
ANTHONY WATERER, Knap Hill Nursery, Woking Surrey.

Camellias, and Indian Azaleas, &c.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to acquaint his Customers and the Trade in general that his Stock of Budded Plants of the above is unusually fine, and ready for delivery on the following terms, viz:—
CAMELLIAS, with bud, from £7, £8, and £10, to £12 per 100.
,, without bud, £5 to £6 per 100.
INDIAN AZALEAS, with bud, splendid stuff, £5, £6, and £8 to £10 per 100.
Selection of varieties of the above, which are composed of the best quality, to be left entirely to A. V. G.
A. V. G. begs further to offer the following cheap articles:—
OTAHEITE ORANGES, with fruit, 18s. per dozen.
GREVILLEA ROBUSTA, fine, 15s. per dozen.
BALANTIUM ANTARCTICUM, nice stuff, in single pots, 50s. per 100.
PHŒNIX RECLINATA, in store pots, 25s. per 100.
CHAMÆROPS FORTUNEI, strong, 18s. per dozen.
CORYPHA AUSTRALIS, 18s. to 24s. per dozen.
LILY of the VALLEY, strong clumps, 50s. per 100.
SPIRÆA JAPONICA, strong, 21s. per 100.
YUCCA ALOIFOLIA, fine plants, 18s. per dozen.
AGAVE FILIFERA, 24s. per dozen.
,, VERSCHAFFELTII, fine young plants, 30s. per dozen.
ARAUCARIA IMBRICATA, 3-yr. seedlings, 63s. per 100.
WELLINGTONIA GIGANTEA, fine young plants, in pots, to 8 inches, 63s. per 100.
GLOXINIA, strong bulbs, seedlings, in fine mixture, 25s. per 100.
FUCHSIA SUNRAY, 6s. per dozen.
THUJA SEMPERAURESCENS, 30s. per dozen.
CUPRESSUS MACROCARPA, 25s. per 100.
PINUS EXCELSA, 3-yr. seedlings, 21s. per 100.
CHAMÆROPS HUMILIS, fine plants, 2s. 6d. to 5s. each.
MAGNOLIA GRANDIFLORA, var. Exoniensis, strong specimens, in tubs, 21s. each.
LOMARIA GIBBA, fine strong plants, 9s. per dozen.
GARDENIA RADICANS and FLORIDA, 6s. per dozen.

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.

JACKMAN'S LIST of FRUIT TREES.

JACKMAN'S LIST of ROSES.

JACKMAN'S LIST of AMERICAN PLANTS.

JACKMAN'S LIST of CONIFERS.

JACKMAN'S LIST of HARDY SHRUBS.

JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.

JACKMAN'S LIST of CLEMATIS (Special Catalogue).

JACKMAN'S LIST of TRANSPLANTED FOREST TREES.

JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.

GEORGE JACKMAN AND SON
Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality:—
MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 feet.
CHESTNUTS, Common Horse, and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.
Woking Nursery, Surrey, S.W.

Vines Grown from the Celebrated Lambton Castle EYES.

S. BIDE is now prepared to book Orders for fine short-jointed, clean-grown VINES in Pots, from the above well-known stock, at the following moderate prices, viz.—Single Plants, 5s. each; Six for 21s., Twelve for 36s.

Mr. Hunter has grown this year Bunches of the Black Hamburgh weighing 21 lb. 12 oz., being the heaviest on record. The Vines S. B. now offers are from eyes off the same plant.

S. BIDE, Alma Nursery, Farnham, Surrey.

Forest and Ornamental Trees, Evergreens, Plants

For GAME COVERTS, &c.

FRANCIS & ARTHUR DICKSON & SONS, the "Upton" Nurseries, Chester, respectfully invite inspection of their almost unlimited stock of

FOREST TREES, PLANTS for GAME COVERTS,
ORNAMENTAL TREES, CONIFERS,
EVERGREEN and DECIDUOUS SHRUBS,
FRUIT TREES, VINES, ROSES,
STOVE and GREENHOUSE PLANTS, &c.

The special recommendations of their Plants are extreme hardiness, their Nurseries (over 150 acres) being situated in a very bleak and exposed position; and, by constant transplantation, the plants are well furnished, and have abundance of fibrous roots, so that removal to any part of the country may be effected with perfect safety.

Descriptive Priced CATALOGUES post-free on application.

French Roses. 6000 Paul Neyron Roses for Sale.

L. PAILLET, NURSERYMAN, Chatenay lez Sceaux, near Paris, established 1827, begs to offer a splendid lot of the fine ROSE, PAUL NEYRON, at the following prices:—Standards, £6 per 100, £55 per 1000; Half or Dwarf Standards, £5 per 100; Dwarfs, £4 per 100, £35 per 1000. L. PAILLET begs also to offer for the present season a very large stock of ROSES of every kind, at the following prices:—Fine Standards, £5 per 100, £45 per 1000; Half or Dwarf Standards, £4 per 100, £35 per 1000; Dwarfs, £2 per 100, £19 per 1000; own roots, 1-yr., £1 15s. per 100, £16 per 1000; own roots, 2-yr., fine, £2 5s. per 100, £20 per 1000; own roots, Souvenir de la Malmaison, strong, £1 15s. to £2 5s. per 100, £16 to £20 per 1000; Bengals, assorted, four of the best sorts, £6 per 1000. L. PAILLET will deliver any of these free to London, packing included, for cash on delivery, for an additional 5s. per 100 for Standards and Half or Dwarf Standards, and 3s. per 100 for Dwarfs and own roots.

Large quantities of FRUIT TREE STOCK, such as Quince, Pears, 1 and 2-yr., Apples from seed, Doucin and Paradise Apple, Plums, Mahaleb, Cherry stocks; also large quantities of ORNAMENTAL TREES and SHRUBS. Prices and Catalogues sent on application.

ACACIAS, 1 and 2-yr., in large quantities.
POTATO, Early Rose, £6 12s. per 1000 lb.
WELLINGTONIA GIGANTEA PENDULA, new varieties, from 16s. to 28s. each.

Orders must be sent to

L. PAILLET, or to his Agents, Messrs. R. SILBERRAD and SON, 5, Harp Lane, Great Tower Street, London, E.C.

Thuja gigantea, Nuttall.

TO THE TRADE.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to offer fine seedling plants of the above, from 2½ to 3½ feet, at 80s. per 100, or 10s. 6d. per dozen. Samples sent if required.

To the Trade.

C. WHITEHOUSE, Brereton Nursery, Rugeley, has a few dozens of THUJA GIGANTEA to offer, true, from seed. Splendid Plants, 3½ to 4 feet, all transplanted in the autumn of 1873, 15s. per dozen for cash; six plants sent as sample, securely packed, on receipt of 8s. 6d.

CABBAGE PLANTS, very strong autumn-sown:—

ENFIELD MARKET,
NONPAREIL,
WHEELER'S IMPERIAL
LITLE PIXIE, and several other kinds, } 3s. 6d. per 1000.

W. G. CLARKE, Nurseries, Wellington, Somerset.

Plant at Once.

CABBAGES.—For Ewes and Lambs, Sheep and Cows, or for Garden purposes, nothing can surpass Enfield Market and Robinson's Champion Drumhead. Good plants now ready, at 3s. per 1000, package free. Cash with orders. Large buyers liberally treated with. References given to the leading Agriculturists of the day.

F. GEE, Seed Grower, &c., Biggleswade, Beds.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS and CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.

Wandsworth Common Nursery, Surrey, S.W.

The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester, have this season an unlimited stock of FOREST TREES, FRUIT TREES, ROSES, SHRUBS, and all other kinds of Nursery Stock, in the best condition for moving, and they respectfully invite intending Planters to pay their Nurseries a visit. To prevent mistake, visitors should ask for the "Upton" Nurseries, which are situate about a mile and a half from Chester Railway Station. Priced CATALOGUES Post Free on application.

The "Upton" Nurseries, Chester.

VINES, VINES, VINES, quality unsurpassed.—Fine stock of short-jointed, well-ripened CANES, of all the leading varieties. Prices, extra strong planting Canes, 5s. to 7s. 6d. each; ditto, fruiting Canes, 7s. 6d. to 10s. 6d. each.

W. G. CALDWELL AND SONS, The Nurseries, Knutsford.

EVERGREEN HEDGES.

AMERICAN ARBOR-VITÆ, 6 to 7 feet, 60s. per 100.
SIBERIAN ARBOR-VITÆ, 5 to 6 feet, 100s. per 100.
CHINESE JUNIPER, 5 to 6 feet, 150s. per 100.
COLCHIC LAUREL, 6 to 7 feet, 100s. per 100.
ENGLISH YEW, 3 to 3½ feet, 120s. per 100.
THUJA LOBBII, 4 to 5 feet, 90s. per 100.

RICHARD SMITH, Nurseryman, Worcester.

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.

Newton Nurseries, **Chester.**

VINES, VINES, VINES—EPIPHYLLUMS, PERESKIA STOCKS.

VINES.—Fruiting and Planting Canes, strong, well ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Buckland Sweetwater, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2s. 6d. to 5s. each; a few extra strong canes, 6s. 6d.

EPIPHYLLUMS.—Good Standards, with nice heads, in twelve best sorts, 9s. and 12s. per dozen.

PERESKIA STOCKS, out of pots, 15s. per 100.

CINERARIA HYBRIDA, fl.-pl., 6s. per dozen.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

WANTED, ONE or TWO ACRES of MARKET GARDEN LAND, within 15 miles of Covent Garden. Immediate possession.

HORTUS, Bollington's Library, 12, High Street, St. John's Wood, London, N.W.

Loam, Loam, Loam.

THE TOP SPIT of a MEADOW, delivered at Bexley Railway Station, at 5s. per yard. Sample and Testimonials on application to

J. ELLINGHAM, Bexley Heath, Kent.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Manures, Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of

POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.

THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company are now prepared to undertake Contracts for the Erection of Heating Apparatus on the COWAN COMPENSATING SYSTEM, and of all other kinds.

The Company keep in Stock a Large and Select Collection of the most Improved Kinds of Boilers, Fittings, Pipes, and all other necessary Materials for such Apparatus, inspection of which is invited.

The Company can confidently recommend their System for Heating all kinds of Buildings by Hot Water, all Contracts which have been carried out having proved successful, without exception.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

For proofs of the foregoing Statements vide the Company's Illustrated Pamphlet, post free on application.

CERTIFICATE OF APPROVAL OF COWAN'S COMPENSATING SYSTEM OF HEATING.

We, the undersigned practical Horticulturists of Dublin, its vicinity, and the adjoining counties, have inspected an apparatus on Mr. Cowan's new compensating system, lately erected by the Dromore Heating Company in the gardens of John T. Gray, Esq., Temple Hill, desire to record our entire approval of its thorough efficiency and great economy for heating all kinds of Horticultural or other Buildings by means of hot water. From careful calculations made at the time of our inspection we feel convinced the entire extent of piping, between 3000 and 4000 feet in length, on different levels, was heated in the most efficient manner, nearly free of cost. There was a total absence of any untidiness or disagreeable smell. From the mass of glowing limestone then in the kiln we could quite understand how competent the apparatus would be to heat, in the most efficient manner, even a much greater extent of piping. As practical Horticulturists we feel certain that this system will in time commend itself to the public.

D. PRESSLY, Knockmaroon, *Chairman.*

DAVID MOORE, Glasnevin.
THOMAS MOORE, Editor, *Gardeners' Record.*
JOHN CAMPBELL, Churchill Nurseries.
MICHAEL GUILFOYLE, Merrion.
P. GRAY, Albert Model Farm.
D. INGLIS, Powerscourt Gardens.
THOMAS P. TURNER, Killruddery.
GEORGE WILLIAMS, Exhibition.
SAMUEL LAIDLY, Montrose.
JAS. DOUGLAS, Charleville Gardens, Bray.
JAMES DICKSON, Richmond Nursery.
W. H. FLACK, Willow Park.
WM. WATSON, Sec. D. H. C.
JAMES NOBLE, Phoenix Park.
EDWARD MCDERMOTT, Yapton Gardens, [Monkstown.
WM. BRACKEN, Roebuck Castle.
JOHN KEARNS.
G. MACOUBRIE, Roebuck Hill.
JAMES LISTER, Dunardugh.
WM. TOOLE, Richview, Roebuck.

THE COWAN COMPENSATING HEATING COMPANY, LIMITED,

4, LOTHBURY, BANK, LONDON, E.C.

12 Fine Hyacinths for 6s.

Suttons Sons

HAVE NOW RECEIVED THEIR LARGE CONSIGNMENT OF

HYACINTHS, TULIPS, CROCUS,
NARCISSUS, JONQUILS, &c.,

In Splendid Condition, and are Prepared to Receive Orders for the Same.

SUTTONS' CHOICE COLLECTIONS
OF THE ABOVE.

FOR SPRING BLOOMING IN THE OPEN GROUND.

		£	s.	d.
No. 1	Collection, containing 1089 Fine Bulbs ...	2	2	0*
No. 2	" " 591 " ...	1	1	0*
No. 3	" " 302 " ...	0	10	6
No. 4	" " 148 " ...	0	5	0

* *Carriage Free.*

FOR SPRING BLOOMING IN POTS OR GLASSES.

		£	s.	d.
No. 5	Collection, containing 278 Fine Bulbs ...	2	2	0*
No. 6	" " 143 " ...	1	1	6*
No. 7	" " 69 " ...	0	10	0

* *Carriage Free.*

12 Beautiful Hyacinths for 9s.

HOW TO GROW FLOWER ROOTS SUCCESSFULLY, see SUTTONS' AUTUMN CATALOGUE for 1874,

Illustrated, and containing complete Cultural Instructions. Gratis, and Post Free, on application.

SUTTON & SONS, THE QUEEN'S SEEDSMEN, READING.

LEAMINGTON BROCCOLI.

THE ONLY

BROCCOLI

AWARDED A

FIRST-CLASS CERTIFICATE

BY THE ROYAL

HORTICULTURAL SOCIETY

FOR

FOUR YEARS.

F. PERKINS

BEGS TO ANNOUNCE THAT HE HAS SAVED A LIMITED SUPPLY OF

LEAMINGTON BROCCOLI

From picked heads grown in his own Nursery, which he will offer in Sealed Packets only, bearing his Registered Trade Mark,

Price 2s. 6d.

F. P. has again arranged with

MESSRS. WAITE, BURNELL, HUGGINS & CO.,

SEED GROWERS and MERCHANTS, SOUTHWARK STREET, LONDON, S.E.,

For the Wholesale Distribution, who will quote Price to the Trade on application.

By Her Majesty's *Royal Letters Patent*

Rendle's New Patent System of Glazing.

RENDLE'S
PATENT
PLANT HOUSES,
ORCHARD HOUSES, GREENHOUSES, CONSERVATORIES, &c.

A Medal has been awarded by Her Majesty's Commissioners, at the International Exhibition, 1873, to

Mr. WILLIAM EDGCUMBE RENDLE,

3, Westminster Chambers, Victoria Street, London, for his

PATENT ORCHARD HOUSE,

Erected for the Commissioners, to illustrate the growth of the Tobacco Plant, in connection with the Exhibition.

Rendle's Patent Woking Clematis House.
Prices on application.

PATENT PORTABLE
GREENHOUSES, ORCHARD-HOUSES, &c.

The Patentee is now in a position to Contract for and Build any description of Greenhouses, Orchard-Houses, or Conservatories of all sizes and dimensions.

The New Patent System of Glazing is the cheapest and most perfect ever introduced.

The Houses are built on Wooden Framework, with Zinc or Galvanized Iron Grooves; the Glass slides in the grooves, and the most complete plan of ventilation is secured. No paint or putty is required, and the Zinc and Glass are the only materials exposed to the action of the atmosphere. When the system is known and understood, it will become universal.

A Span-Roof Orchard-house complete, 12 feet wide and 30 feet long, from £52 10s.

A Span-Roof Orchard-House, 40 ft. by 15 ft., for £75.

A Lean-to Greenhouse, 30 feet long and 10 feet wide, from £33 10s.

These Houses are all portable, and can be removed and fixed again in a few hours.

These are the Cheapest Glass structures ever introduced, and intending purchasers of Greenhouses should compare the above prices with others.

Extract from "The Times."

Royal Counties Show at Reading, June 27, 1874.

"To Horticulturists the specimens of Rendle's Patent System of Glazing and the Portable Glass Protectors for walls proved attractive.

"Their distinctive features are that all the work is done Without Putty.

"It is asserted that 1500 square feet of Glass can be put in the building in one hour by one man, and any damaged glass can be replaced without calling in the aid of a Glazier.

"All the Wood and Paint are covered by the Glass, and the system was well and satisfactorily tested by the heavy showers on Wednesday, there not being the slightest leakage of water to the interior."

Important Testimonial

From Mr. JAMES LITTLE, Gardener to Major BRIDSON, Rockend, Torquay.

"Rockend Gardens, September 1, 1874."

"The Houses you have put up for Major Bridson have given the highest satisfaction, and do you much credit.

"Last night we had the roughest night we have had for the last six months, the wind has been blowing a gale all night, and yet not a square of glass has been moved, nor has a drop of water come in. You will never have a more severe test than this, because, as you well know, Rockend is on very high ground fully exposed to all the south-western gales."

Illustrated CATALOGUES and BOOKS of DESIGNS, with One Hundred First-class Illustrations, can be had on application to the Patentee and Inventor,

Mr. WILLIAM EDGCUMBE RENDLE,
3, WESTMINSTER CHAMBERS, VICTORIA STREET, LONDON, S.W.

The New Edition for 1874 is now ready, and all who have Gardens should send to the Patentee for a copy.

SATURDAY, OCTOBER 10, 1874.

THE FOLK-LORE OF NUTS.

THE first point which calls for notice in connection with the folk-lore of Nuts is that there is a special day assigned by tradition as the one on which they ought to be gathered. This apportioning of special days to various agricultural and horticultural operations is of great antiquity, and its retention in the present day is another illustration of that natural conservatism to which we referred when speaking of Rush-bearing (p. 385). It is easy to be understood how this custom arose. Each planting or reaping has, of course, its proper season, and this season, at first indefinite within certain limits, was gradually restricted until one special day was by general use set apart for certain work. This day was, in most cases, the feast of some saint, chosen, not on account of any devotional feeling, but because the general observance of such days in England, in pre-Reformation times, rendered them easily remembered. That this was the case is readily seen by reference to any sixteenth century Herbals or books upon farming subjects. Thus Tusser, in his *Five Hundred Points of Good Husbandry* (first published in 1588), says that white Peas are not to be sown till Saint Gregory's Day (March 12), and tells us to "set Garlick and Beans at Saint Edmund the King" (November 20). It is unnecessary to multiply quotations, which may be found in plenty in any old book of husbandry, and many of which are, at the present day, somewhat unintelligible. Such, for instance, is the direction frequently given in Herbals to gather certain plants "between the two Lady Days." The title Lady Day is now restricted, in general parlance, to March 25 (the Feast of the Annunciation), but in former times each feast of the Blessed Virgin was so called, and "the two Lady Days" in the case cited are the Feast of her Assumption (August 15), which is still retained in the calendar of certain companies (*e. g.*, the Stationers'), and that of her Nativity (September 8). Tusser has the same days in view when he says—

> "Pare Saffron between the two Saint Mary's days."

This regard for church festivals still holds its place in many country districts, although its origin is forgotten. Thus nothing is more common than to be told that the right period for setting certain seeds or gathering certain crops is at the time of the fair, or "the wakes," which at their outset were usually connected with the feast of the saint to whom the parish church was dedicated, or with some other church festival.

To return to our Nuts, which are responsible for this digression, it appears that a particular day was set apart by some for gathering them; and this, too, was a Church festival—Holy-rood Day (September 14), which is called "Holy Cross Day," in the Book of Common Prayer. There is, however, this peculiarity about this custom, that while it was regarded by some as the correct thing to gather nuts on Holy-rood Day, others looked upon it as a thing to be avoided. The former are represented by two passages in the old play (1662) of *Grim, the Collier of Croydon*:—

> "To-morrow is Holy-rood Day,
> When all a-nutting do take their way;"

and—

> "This day, they say, is called Holy-rood Day,
> And all the youth are now a-nutting gone."

It was, also, formerly a custom at Eton that "on a certain day" in September, probably the 14th, the Eton boys should have a holiday for the purpose of gathering nuts, part of which were to be presented, on their return, to the various masters of the school. A correspondent of *Notes and Queries* (1st series, x., 263), gives a long account of a "curious custom in the town of Penryn in Cornwall," which was, in all probability, connected with this day. He says, "On some particular day of September or October, I forget the precise date, about the time when Hazel Nuts are ripe, the festival of Nutting Day is kept. The rabble of the town go into the country to gather nuts, returning towards evening with boughs of Hazel in their hands, shouting and making a great noise." For the description of the "saturnalia" by which the nutting is followed, the reader is referred to the work quoted, as it has no apparent connection with the subject with which we are now concerned. Another correspondent of *Notes and Queries* (4th series, ix., 57) says that in Sussex, Saint Matthew's Day (September 21) was sometimes observed as a nutting day.

So much for one side of the question. Turning to the other, we must admit that there was a good reason for remaining at home on "Holy-rood Day," as the nutter stood a very good chance of meeting the devil! This, too, is no new notion. "Poor Robin," in 1709, says—

> "The devil, as common people say,
> Doth go a-nutting on Holy-rood Day;"

and this festival appears to have been popularly known in various places as the "Devil's Nutting Day." From different notes in the volume of *Notes and Queries* last referred to it appears that this belief was existing at a recent date in Kent, East Sussex, Suffolk, and Lincolnshire, although in the last named county the interview with the Evil One was not specified, the nutters being only "certain to come to grief of some kind." So strange and unusual a superstition—which was sufficient to deter people in East Sussex from passing along the lanes of the village—must have a remarkable origin, but of this no trace exists in any of the books to which hunters after folk-lore usually refer for information of this kind. His Satanic Majesty, by the way, also exercised power at this time of year over other vegetable productions. Threlkeld, in his *Synopsis Stirpium Hibernicarum* (1727), speaking of Blackberries, says that it is said by some that "after Michaelmas the d—— casts his club over them, which is a fable."

An abundant crop of nuts has several significations. In old times it was believed that it was indicative of a good Wheat harvest, a belief which is referred to by Virgil and other classical poets.

Surflet, in his *Countrie Farme* (1660), says that "this speech hath growen common amongst the people, that the yeere which yeeldeth plentie of nuts doth also yeeld many marriages;" while in Hertfordshire and other parts of England, as well as in some districts of Germany, it is said that a good nut year is indicative of a corresponding increase in the population. According to Mr. Conway, "it is believed in Bohemia that where Hazel Nuts abound there will be many illegitimate children." The nut harvest itself depends greatly upon the weather at midsummer. We read in the *Shepherds' Calendar* that "if Midsummer Day be never so little rainy, the Hazel and Walnut will be scarce," and a similar belief is prevalent in France and Germany. The same superstition was attached in some places to rain upon Midsummer Eve, and the popular notion that a wet Saint Swithin's Day will be followed by forty more

or less rainy days was formerly attached to Midsummer Day.

Antiquity tells us of the custom of scattering nuts at weddings, which is also mentioned by Virgil; this may have been intended, as some assert, to symbolise that the bridegroom was bidding farewell to boyish sports and pleasures, of which the scrambling for nuts was a type, or possibly as an emblem of fertility, just as Rice is occasionally strewn over a bride at weddings now-a-days. It is certain that nuts were in some way looked upon as indicative of fruitfulness, as, besides the already mentioned signification of a good nut year, we read in Kelly's *Curiosities of Indo-European Tradition and Folk-lore* that "in Westphalia and other parts of Germany a few nuts are mingled with the seed corn to make it prolific." In Brittany it was formerly the custom to place a basket filled with nuts in the nuptial chamber. According to Macaulay the custom of scattering nuts at weddings was retained until a comparatively recent period in Minorca.

The use of nuts for divination in love affairs is well known and widely spread. In Scotland it is especially on "Hallowe'en," as the eve of All Saints' Day (November 1) is called, that this is practised, with many other curious spells; and the evening is also known as "Nut-crack Night," from this use of nuts upon it. Burns, in his poem of *Hallowe'en*, thus refers to the custom:—

"The auld guidwife's weel-hoarded nits
Are round and round divided,
An' monie lads' and lasses' fates
Are there that night decided;
Some kindle, couthie, side by side,
An' burn thegither trimly;
Some start awa wi' saucy pride,
And jump out-owre the chimlie
Fu' high that night."

To understand this passage, it must be remembered that the custom was to place two nuts together in the fire, one representing the lad and the other the lass; if they burn quietly together, the result of the courtship will be favourable; but if they start away from one another, an unsatisfactory termination to the suit may be expected. The custom is English as well as Scotch, and is described by Gay, who says—

"Two Hazel Nuts I threw into the flame,
And to each nut I gave a sweetheart's name;
This with the loudest bounce me sore amazed,
That in a flame of brightest colour blazed;
As blazed the nut so may thy passion grow,
For 'twas thy nut that did so brightly glow."

In Ireland the same custom is observed, but n a somewhat different shape. Brand says that "when the young women would know if their lovers are faithful, [they] put three nuts upon the bars of the grate, naming the nuts after the lovers. If a nut cracks or jumps, the lover will prove unfaithful; if it begins to blaze or burn, he has a regard for the person making the trial; if the nuts named after the girl and her lover burn together, they will be married." Many strange things were foretold from the ashes of nut-shells burnt on Hallowe'en. Goldsmith, in the *Vicar of Wakefield*, says that the farmers of that neighbourhood, among other observances, "religiously cracked nuts upon Michaelmas Eve;" but this does not appear to have been at all general, and possibly All Saints' Eve may have been meant. The Bohemians have a different mode of divination, and practise it at a different date—namely, Christmas Eve. The girls crack a parcel of nuts and fix coloured wax lights into the shells; each represents a suitor, and, the wicks being lighted, they are set to float in water. The first to arrive at the girl will be her future husband; and by judicious management on the part of the damsel whose fortunes are at stake, the race is usually won by the favourite. Should any light go out during the ordeal, it betokens the death of him whom it represents.

In Wales the throwing of nuts into the fire has a somewhat different signification from that which obtains in the rest of Great Britain. Those that burn bright betoken prosperity to the owners during the following year; but those that crackle and burn black indicate misfortune.

When the wood of the Hazel comes under notice—which must be in a future paper, as the folk-lore of the divining-rod alone is very extensive—we shall see that among its virtues was that of causing death to serpents struck with it. Surflet tells us that the fruit also has "a certaine contrairie vertue against venemous beasts, for if you hang a cluster of small nuts in any part of the house, no scorpion or venemous beast will enter thereinto, but flee away presently: and it is no marvell, seeing nut kernels eaten with Figs and Rue doe resist venome, and the biting of venemous beasts."

The Hazel is considered an unlucky tree by the Highlanders of Scotland; but the discovery of what is termed a "double nut," or two nuts joined together, is very fortunate; and even of recent years such nuts were worn about the person as charms or amulets. It is generally considered "unlucky" to eat both of the kernels when two, as sometimes happens, are found in the same shell. From a passage in Fuller's *History of the Holy War* it would seem to have been at one time the custom to beat nut trees as Walnut trees are beaten; but the absence of other references to the practice renders it probable that the Walnut was intended in the passage alluded to, which runs as follows: "Who like a nut tree must be manured by beating, or else would not bear fruit."

Brand cites a passage from Owen's *Welsh Dictionary*, from which it appears that the Hazel as well as the Willow was given to "such as are forsaken." It runs thus: "There is an old custom of presenting a forsaken lover with a stick or twig of Hazel; probably in allusion to the double meaning of the word. Of the same sense is the following proverb, supposed to be the answer of a widow, on being asked why she wept: 'Painful is the smoke of the Hazel!'" What is the "double meaning" here alluded to? It is believed in Sweden that Hazel Nuts confer the gift of invisibility; and it was once supposed that the ashes of burnt nut-shells placed at the back of a child's head would change its eyes from grey to black!

The variety of Hazel Nut known as the Cob-Nut is said to take its name from a game described by Brand as being played by children in Yorkshire. Numerous nuts are strung together "like the beads of a rosary," and the two persons engaged in the game are each provided with one of these strings. The field of battle is most frequently the crown of a hat, and the object of each player is to crush the nuts of his opponent by striking them with one of his own nuts. The nut which has been successful in breaking many of the nuts opposed to it is called a cob-nut, the Anglo-Saxon *cop* meaning a head. *B. M.*

New Garden Plants.

Aganisia fimbriata, *n. sp.**

A very unexpected novelty. Having obtained, at first, only the inflorescence, I received later the information included in the diagnosis between the signs ("") :—"I decidedly name it a stiff climber. The stem is ¼ to ⅜ inch thick. Pseudobulbs rather close to the stem, and two inches apart, alternate, 1½ inch wide. Leaves leathery, reminding one of weakly grown Cœlogyne leaves. The plant was sent over with plants of Paphinia cristata from Demerara." A pencil sketch was added, which was highly welcome. The flowers are like those of the Aganisia pulchella, with white petals and blue lip. The saccate fimbriate lip is quite peculiar. It is to be hoped the plant may improve when fully established, and it is much to be wished that some representation of it may appear. It flowered in the stoves of A. Sillem, Esq., Laurel Park, Sydenham. *H. G. Rchb. f.*

* (Scandentes.) "Pseudobulbis amplis fusiformibus in caule stricto distichis; foliis oblongo-lanceolatis acutis ternis; pedunculo porrecto;" paucifloro; bracteis triangulis brevissimis; sepalis oblongis; tepalis subæqualibus; labelli hypochilio parvo unguiculato saccato utrinque angulato, callo anteposito crasso subtriangulo utrinque tridentato, apice retuso tridentato, epichilio saccato marginibus fimbriato; columna apice utrinque acutangula; anthera apiculata; sepala ochroleuca; sepala et epichilium aquose violacea; reliqua alba.

AUTUMNAL FLOWERS.

The fine warm autumn, supervening upon copious showers, has brought out in great beauty many of the later flowering plants, and our poor parched and dried up herbaceous borders have been looking quite gay. The Virginian Poke, Phytolacca decandra, makes a great show with its crowded spikes of rich mulberry-looking berries standing out amidst the dense heads of greenish flowers; but I am yet more pleased with its congener, Phytolacca purpurea, which I have grown for the first time this autumn. It forms a large spreading herbaceous bush, stem, leaves, and flowers and fruit all more or less of a rich red-purple, which in the flowers is beautifully relieved by the white stamens. Whether, like P. decandra, it is a hardy perennial, remains yet to be proved, but it might, I imagine, be easily propagated by cuttings, and certainly by seed. The little single Dahlias, D. Cervantesii, coccinea, aurantiaca, and glabrata, are now invaluable both out of the house and in; nothing looks better in specimen glasses, and nothing is more effective in a mixed bed. There is a yellow variety of aurantiaca, and a white one of glabrata which no one ought to be without who wants the mixture to be complete. I have lost them both, but shall take the earliest opportunity of getting them back. The little black Dahlia-like plants, Cosmos bipinnatus atropurpureus, are very pretty and striking just now; they make very good perennials, if you take up the roots and pot them, keeping them tolerably dry through the winter, turning them out with the Dahlias in May. A couple of their neat little flowers, with a leaf of Lady Plymouth Pelargonium for a background, make a most effective button-hole. Dianthus atrorubens, the latest of all the Pinks, and one far too seldom grown, is now very useful and pleasing both on a rockwork or in a mixed border, and the same may be said of Pentstemon heterophyllus. Amongst the Asters, A. amygdalinus, a tall slender-growing species, with long narrow leaves, and corymbs of silvery white flowers, is a great favourite of mine. A. bessarabicus is simply superb, and A. Amellus runs it hard; A. formosus, versicolor, coccinea, Chapmanni, and Fortunei are all now very beautiful. I noticed A. elegans last week at the Oxford Botanic Gardens as a gem which I must procure if spared till another year. Pyrethrum uliginosum, with its tall bush of big white stars, is one of autumn's brightest jewels. I am very fond of Actinomeris virginica, an ally of the Rudbeckias and Sunflowers; its yellow and black flowers are the brightest of the bright and gayest of the gay. Encelia californica, a near relation, is another plant I have grown with pleasure for the last few years; but our autumns are not sufficiently long to let it thoroughly perfect its beauty. In Devonshire, Cornwall, and the Scilly Isles, it would probably be a most effective plant. It is a tall shrubby Composite, with whitish green oval leaves, and pale lemon-and-black flowers. Amongst the Sunflowers I made a note of Helianthus dentatus and argyrophyllus last week at Oxford as very effective. Pentstemon Lobbii is a very neat little autumn plant when you can get it to do well. It looks like a little Myrtle bush, covered with yellow stars. I have lately had Gladiolus cruentus, purpureo-auratus, and dracocephalus in bloom. The two former are so pretty, and the latter so curious, that I shall increase them to the utmost of my power, and, if spared till another year, shall certainly make a quaternion by the addition of G. Saundersii. Can any one tell me whether G. sericeo-villosus is still in cultivation in this country? Colchicum byzantinum has, as usual, been a thing of things for brightness and beauty, and C. latum, which much resembles it, but has narrower petals, has trod close on its heels.

The remarkable flowers of C. Parkinsoni (chicnense), which I had several years ago from that fine old man, George Wheeler, of Warminster, ought now to be found in every garden. I hope to add C. speciosum to my list another autumn. The autumnal Croci have been very fine this season. C. speciosus and its var. ibericus, nudiflorus, and hadriaticus, have done their duty, and are passing away; but C. medius, longiflorus, byzantinus, Kotschianus, serotinus, and pulchellus, are coming on. I have lately procured what appears to be the pure white variety of the latter species mentioned by Herbert, and a most lovely thing it is. I hope the New Plant and Bulb Company will not rest till they have procured for us every known vernal and autumnal Crocus.

Polygonum capitatum is now a very effective little thing, both in leaf and flower. The winter kills it,

Fig. 91.—Group of Aloes in a Garden at Mentone.

but it comes up freely from self-sown seed. Exogonium Purga is now a mass of buds, and, if the frost will only keep off another ten days, will be a mass of magenta bloom. It is needless to extol the charms of its lovely congener, Convolvulus mauritanicus. Diplacus splendens has been good plunged out. I mean to leave it for the winter, to take its chance. Sedum spectabile is, as usual, invincible and incomparable; and Sternbergia lutea, Androsace lanuginosa, and Bellis sylvestris, are things of autumn by no means to be despised. *H. Harpur-Crewe, Drayton-Beauchamp Rectory, Tring, October* 6.

ALOES AT MENTONE.

We have of late frequently had occasion to call attention to the luxuriance with which succulent plants thrive on the northern shores of the Mediterranean, as along the Riviera from Genoa to Nice. Agaves there are used as hedge-row plants. Mesembryanthemums and Opuntias spring out from the face of dry walls. In this locality, indeed, the plants in question seem to find the most favourable conditions of existence. They can root deeply in the chinks of the rocks, which are filled with rich soil washed down from the mountains. Mountain torrents and the rain (which, if it falls rarely, at least falls heavily when it does come) afford a supply of water which filters into the cracks of the rocks and accumulates in the soil therein contained. For a great part of the year the foliage is exposed to the fierce heat and the bright light of the sun. Their thick rind now stands them in good stead, by checking inordinate evaporation and preserving moisture in the leaves at a time when other plants are scorched up by the excessive heat.

We have already mentioned the splendid effect which these plants produce when bedded out on architectural terraces or grown less formally on raised banks, rockwork, &c. No one who has seen their gorgeous colouring, their *distingué* if somewhat *bizarre* form, as seen when left to grow half wild at their own sweet will, will ever allow a prejudice against these striking plants to remain in his mind. The illustration we give (fig. 91) represents a group of Aloes in full flower in a garden at Mentone: the climbing plant against the wall is Bougainvillea spectabilis, which thrives remarkably well in this region, and flowers most abundantly. For the photograph whence our illustration was taken we have to thank Dr. H. Bennet.

THE NITROGEN OF THE SOIL.

As the necessity of nitrogen to plant life is universally admitted, it has become an important problem in agricultural chemistry to ascertain the source whence plants derive their supply of that element. Lawes, Gilbert, and Pugh (*Phil. Trans.*, 1861) showed that the cereals, at least, are incapable of

assimilating free nitrogen from the air; and this is probably true of all plants. It seems unlikely that the compounds of nitrogen—nitric and nitrous acids and ammonia—existing in the atmosphere, are assimilated, to any appreciable extent, from the air, under natural conditions. It has been abundantly proved, on the other hand, that a fertile soil is capable of supplying vegetation with all needful nitrogen, and we may conclude that it does so. The circumstances of the supply of nitrogen to the soil become therefore of the greatest importance to the agriculturist.

It is known that nitrogenous organic substances, such as are in freshly manured soils, may yield nitrogen in the free state by decomposition, though the particulars of this process are as yet imperfectly ascertained. It has been shown that under some circumstances organic bodies, such as exist in the soil, are capable of causing free nitrogen so to enter into combination with them as to increase their content of that element. This increase has been generally attributed to the formation of nitric acid from free nitrogen by some oxidising action.

Mulder raised Bean plants, in a soil free from nitrogen, and with no nitrogen supplied except from the air. The crop contained two or three times as much nitrogen as the seed. The gain must have taken place through the medium of the soil. It has been shown by Will (*Ann. Chem. Pharm.*, 45, 106,) that this is not due to the formation of ammonia by the combination of nascent hydrogen and free nitrogen. Boussingault found that fertile garden soil, spread thinly in a glass dish, and moistened daily for three months with water free from nitrogenous compounds, gained a small quantity of nitrogen and lost carbon. When Lupins, Hemp, and Beans were raised in a soil protected from dews and rain, the absolute gain of nitrogen, both on the part of the soil and the plants, was demonstrated. In the case of an experiment on Lupins, which was given in full detail, the gain appears partly as nitric acid and partly as ammonia, the former being the greater; but the total increase of nitrogen is much greater than that comprised in the sum of these two compounds. But in similar experiments, where the soil was originally destitute of nitrogen, there was none accumulated. Cloez has, however, shown that a gain of nitrogen may take place in the absence of organic matter. In a later series of experiments Boussingault kept a rich vegetable soil mixed with sand in large glass vessels, sealed tightly for eleven years in a cellar. The amount of nitric acid increased over two-hundredfold, but the total amount of nitrogen decreased, vigorous nitrification having taken place at the expense of the organic matter of the soil.

Schönbein's theory that water during aërial evaporation united with nitrogen, forming nitrate of ammonia, was disproved by Zabelin, who showed that this compound was only produced in the presence of cellulose or some similar organic body. A series of experiments by Cloez on porous substances mixed with carbonated alkalies and long exposed to continual streams of purified air, confirmed these results, the exceptional cases being traceable to impure materials. The influence of humus in determining the fixation of nitrogen is further shown by the abundance of nitric acid in washed soil, as compared with the mere traces found in that which is ignited.

A third and probable theory explains the fixation of nitrogen by the soil by the supposition that where it is contained in the interstices it is converted into nitric acid by ozone developed by the slow oxidation of humus, or, possibly, by electrical disturbances. This process would accord with admitted properties of ozone. Gorup-Besanez showed that ozone was formed during the evaporation of water in contact with organic matter. The condensation of nitrogen and oxygen in the pores of humus, proved by Reichardt and Blumtritt, would favour this reaction. Experiments of Lawes, Gilbert, and Pugh (*Phil. Trans.*, 1861) do not impugn this theory, though showing that organic matter must pass into the comparatively stable condition of humus before ozone with it can produce nitrification. Dehérain has recently shown that the amount of nitrogen fixed by organic bodies is more than sufficient to have formed nitric or nitrous acid with all the oxygen present. Many details of these experiments, which were numerous and various, were adduced. The escape of free nitrogen from decomposing animal substances has been fully determined by experiments of Reiset, Lawes, Gilbert, and Pugh. There are substantial reasons for the belief that this results from the oxidation of amide-like bodies in which, the hydrogen being oxidised, the nitrogen is set free. Schloesing showed that this reaction could be brought about by the oxidising effect of nitrate of potash. König and Kiesow demonstrated that the escape of nitrogen could be prevented by the addition of gypsum.

The author of this paper made a series of experiments to throw light upon the loss and gain of nitrogen; the method adopted being to allow organic matter containing a known amount of nitrogen to decay under circumstances in which all the nitrogen given off or accumulated could be measured. The organic matter consisted of dried and sifted barnyard manure mixed with one-quarter its weight of dried and pulverised flesh. The experiments marked I. were conducted in purified air; those marked II. in purified nitrogen. The mixtures were moist but not coherent. Various details to obtain purity and accuracy received due attention. The exposure to air in the first set of experiments was kept up for more than two months; the exposure to nitrogen was for a shorter period. The temperature varied from 50° to 80°, averaging 70° Fahr. The apparatus was exposed to diffused daylight, but not to direct sunshine.

Quantities and Materials Used.

No. of Experiment.	Organic Matter.	Gypsum.	Potash (KOH).	Water.	Total Nitrogen.
	Grms.	Grms.	Grms.	C.C.	Grms.
I. 1 ..	15	..	..	6	0.486
I. 2 ..	15	..	0.798	6	0.486
I. 3 ..	15	15	..	6	0.486
I. 4 ..	15	15	0.798	6	0.486
II. 1 ..	15	..	..	6	0.453
II. 2 ..	15	..	0.798	6	0.453
II. 3 ..	15	15	..	6	0.453
II. 4 ..	15	15	0.798	6	0.453

Nitrogen after Decomposition (in Grammes).

No. of experiment.	Substances.	Gain of ammonia expressed as nitrogen.	Total gain of Nitrogen.		Total loss of Nitrogen.	
			Weight	Per ct.	Weight	Per ct.
I. 1	Organic matter	0.0118	..	..	0.054	11.11
I. 2	Organic matter and potash ..	0.0301	0.074	15.22	..	..
I. 3	Organic matter and gypsum ..	0.1651	..	..	0.0302	6.21
I. 4	Organic matter, potash, and gypsum ..	0.0907	..	..	0.0636	13.09
II. 1	Organic matter	0.0614	0.00067	1.48	..	..
II. 2	Organic matter and potash ..	0.0255	0.0876	19.34	..	..
II. 3	Organic matter and gypsum ..	0.0784	..	..	0.0052	1.14
II. 4	Organic matter, potash, and gypsum ..	0.0479	..	..	0.0088	1.94

These results show a loss of nitrogen in all cases except I. 2 and II. 2, the small gain of II. 1 being within the errors of experiment. The loss is very much less in the second than in the first series of experiments. This cannot be attributed to shorter duration, since the gain of II. 2 is greater than that of I. 2. It confirms the deductions of Lawes, Gilbert, and Pugh, that the loss of nitrogen is caused by a process of oxidation. Gypsum seems to prevent in part the loss of nitrogen. The relation of the formation of ammonia to the experiments is not obvious. A considerable gain of nitrogen is effected in the experiments where potash alone is mixed with organic matter. No trace of nitric acid was found, and there is no reason to suppose it was formed during the experiments. The gain of nitrogen cannot be ascribed to nitrification. The fact of the fixation of nitrogen is demonstrated; the method is as yet open to question. The following conclusions sum up our present knowledge: 1. The loss of free nitrogen during the decomposition of nitrogenous organic matter is generally due to oxidising action. 2. An increase of combined nitrogen in soil may take place by oxidation of free nitrogen to nitric acid. 3. Some organic substances in the presence of a caustic alkali are able to fix free nitrogen without the agency of oxygen or the formation of nitric acid. (*From a paper by Professor H. P. Armsby, of Millbury, Mass., read before the Science Convention at Hartford, Conn.*).

THE WOOLHOPE CLUB.

THE GREAT FUNGUS MEETING AT HEREFORD.

The short but violent gusts of driving rain and searching wind in Downton Castle grounds at the very beginning of this year's great Hereford Fungus Meeting, strongly reminded me of the opening of Beethoven's grand and last composed overture to *Fidelio*. The very first notes of this unblemished musical introduction are, as most of our readers know, a series of wild and stirring discords, immediately followed by the most alluring and involved strains of completely finished harmony, in which one or more sweet themes are ever coming to the fore. To me the Downton Castle storm resembled the wild beginning of this grand musical prologue; the successive excursions, with their strange finds and fungological intricacies, were like the involved but harmonious music of the main body of the overture; and the prized rarities of the fungus meeting were like the sweet themes of the master's music, ever rising to the surface. The party forming the first excursion of this year at Downton, on Tuesday, September 29, will long remember that one of the very pleasantest melodies of the piece was represented by the extremely kind manner in which the said party was received by the two Messrs. Fortey, of the Abbey Villa, Ludlow. Mycophagists are not very dissimilar from other men; and when our readers are told that nearly all the members forming the first party travelled from Hereford to Ludlow (23 miles) before breakfast, it will be imagined that the travellers' inner men on arrival required some refreshment. One of the Messrs. Fortey most kindly met the excursionists at the Ludlow Railway Station, and conducted them at once to the Abbey Villa, where a huge table literally groaned under the weight of a most substantial breakfast, and where Mr. Edwin Lees, of Worcester, with a hearty, smiling face, was already ensconced. Now, although the table groaned in a most vigorous manner before breakfast, it is a matter of congratulation (as some one afterwards remarked) that no guest had reason to groan after breakfast, so excellent was the repast, so excellent was the kindness of the Messrs. Fortey, and so excellent were the fungous finds during the day.

At once leaving the ancient town of Ludlow, with its antique wooden houses, and passing the almost unique old wooden "Feathers" inn, the party—consisting of Mr. Fortey, Dr. Bull, Mr. Broom, Mr. Morris, Mr. Plowright, Mr. Phillips, Mr. Le[illegible], Renny, and some others—drove off to Downton Castle grounds, passing through Broomfield on the way. Here may be seen some notable Lombardy Poplars bordering a stream. Report says that a former clergyman had them planted in two rows to represent the twelve Apostles, eleven on one side the stream, and one only (Judas) on the other. This is as they stand at the present day, with the exception of one of the eleven, which has fallen (probably the representative of Peter, the unfaithful). When Downton Castle was at length reached, a red-faced porter was seen struggling and straining every muscle and nerve in his body in an attempt to carry a huge and heavy hamper, full of provisions, supplied by the watchful care and forethought of the hosts of Abbey Villa. This hamper having been hidden in a semi-deserted sawyer's yard for safety, the party immediately espied on a high branch of an Elm, close by the iron gate on Castle Bridge, the semi-edible Agaricus ulmarius, which no one could by any means reach till a gentleman came up with a wooden tripod, the stand of a camera-lucida. This was opened so as to make a sort of tilting spear some 9 feet long, and a member of the party mounted the great iron gate, and used it as a prod for securing the treasure for the "Green Dragon" table. The party now took the romantically beautiful walk by the Teme-side, some of the trees of which have been made familiar to our readers by the engravings recently published in the *Gardeners' Chronicle* from the sketches by Mr. Lees. Now when good fungus work was commenced in earnest the wind suddenly rose, and a pelting storm of rain came on, which for an hour nothing could withstand: one gentleman from Bath slipped a little down the rocky bank and got both his feet in the stream, and narrowly escaped (by his providential recovery of an upright position) lying on his back in the shallow stoney Teme. Coprinus picaceus, Agaricus nanus, and a few other rare fungi were soon met with, till a Wych Elm, branching into many limbs, was reached. Two sketches were made of this tree in the rain, one by Mr. Lees from a safe position on the river bank, and the other by the gentleman with the camera-lucida, who had to go a little way into the river to secure a good point of sight, Mr. Fortey all the time holding an umbrella over the wet and wind-driven locks of the sketcher. At this point the wild opening notes of the symphony (wind and rain) ceased, and harmonious fine weather permanently prevailed for the rest of the day. It was not long before the rare Cortinarius cinnabarinus was found, together with both varieties of C. cinnamomeus and Marasmius fœtidus, the latter with a horrible odour, baffling words. Amongst the notable finds of the day were Agaricus heteroclitus on Poplar, A. obscurus, A. ermineus, A. unicolor, and probably A. cohærens—the two latter being new to the British flora, with many other rare and characteristic fungi too numerous to mention, and many edible species, which were preserved for cooking. Search was made in vain for the rare Strobilomyces in its old haunts, and whilst this was hunted for in different quarters, one party went off to sketch some huge Limes. The gentleman who really sketched the Limes (not the present writer), on being remonstrated with for sketching two trees in such a position that in the drawing he made them look like one, exclaimed publicly, "What is the good of an artist if he cannot convey a false impression?" This sentiment was voted by the rest of the party as odious, and met with great disapproval from the man with the camera-lucida. On returning to Downton Castle Bridge full justice was done to the substantial viands and the abundant "sparkling Carlowitz," so amply and bountifully supplied by the Messrs. Fortey, and the party drove back once more to Ludlow—some of the gentlemen again searching for Strobilomyces, whilst others hastily visited the grand old Castle and town before taking tea at the Abbey

Fig. 92.—A, Agaricus gloiocephalus; B, Cantharellus cibarius; C, Cordiceps capitata.

Villa; and so back to Hereford, where Mr. Walker, of Tunbridge Wells, was waiting with Polyporus amorphus and other things for the exhibition.

Wednesday, Sept. 30, was a notable day, and a large party, including the Rev. Wm. Houghton and Mr. Walker, went off to the famed Dinmore Woods, whilst Dr. Bull attended to his professional duties at Hereford, and prepared for the private dinner of that evening. The fungi most worthy of record of this day were A. euchrous (three specimens), and Cordiceps alutacea in abundance—the latter always in company with Spathularia flavida. One specimen of Ascobolus viridis was met with, and whole beds of Agaricus cucumis, smelling strongly of rancid oil or stinking red herrings; it is to be hoped that the Swedish Cucumbers do not smell like this plant. A. saponaceus, too, was pretty common, smelling more of fish oil than soap; but one of the party explained that soft soap in Fries' loved Sweden is made from fish oil; hence, probably, the specific name. A. plexipes was also found, together with Peziza repanda, and many other good species. It is no secret that on the evening of this day the Bishop and Dean of Hereford, Mrs. Lloyd Wynne, of Coed Coch, Mr. Broome, the President of the Woolhope Club, and Dr. and Mrs. Bull, were entertained at dinner by Miss Guthrie; and, being to a certain extent privileged, we

are enabled to present our readers with "*le menu du repas*," with the assurance that the fungic delicacies were received and partaken of with marked approval—

Diner du Septembre 30.

Potage à la jardinière ; Tortue claire.
Poissons : Turbot et Soles.
Entrées : Potée de homard.
Salmi de Lycoperdon giganteum.
Cotelettes de Mouton à la Provençale.
Sauce : Marasmius oreades.
Salmi de Lactarius deliciosus.
Relevées : Bœuf salé.
Poulets à la Becharmel ; Langue.
Entremets : Macédoine de fruits.
Crême à la Chantilly.
Boudin doré.
Biscuits de fromage.
Glacés : Citron et Fraise.

Whilst these regal fungoid and other dainties were being done full justice to at Miss Guthrie's, certain other devoted mycophilists were busily engaged till late at night in opening packages of fungi at the "Green Dragon," and placing the specimens in proper botanical sequence with their correct names attached. One such parcel, labelled in great letters "FUNGI—POISON," caused great merriment.

Thursday, October 1, was the great Club day, and during the preceding night the rain descended in torrents, and several inches of rain were registered. Even in the early morning, when the more advanced fungists were putting the finishing touches to the arrangement and nomenclature, the rain came down in a portentous manner ; so much so, indeed, that several venerable, weather-beaten mycological veterans were fain to stay at home, and study the plants in the "Green Dragon" room.

The more weather and fungus-wise, however, knew that the night's rain was only like Olives before wine—a something to prepare the palate for and add a zest to the great forthcoming fungus foray at Stoke Edith Park, the seat of Lady Emily Foley. A large number of members met at the Barr's Court Railway Station at 9.55 A.M., and took the train to Stoke Edith, where the "foray" at once began. The party was here joined by the Rev. James Davies, of Moor Court, the excellent President ; Mr. Blashill, architect, of London ; Miss Guthrie, and Mrs. Lloyd Wynne, of Coed Coch—the latter, with basket, drawn knife, heavy boots, and undergarment of leather ready prepared for the wettest and muddiest places, and quite putting to shame the old soldiers stopping at home at the "Green Dragon." Many good species of fungi were soon found, as Hygrophorus chrysodon, an uncertain Amanita (Ag. strangulatus or some ally), and Lycoperdon echinatum, with Clavaria flaccida, and Agaricus pyriodorus in abundance, the latter resembling in odour Bergamot. The rare Lactarius glyciosmus with its potent fragrance was again met with, together with both Agaricus fragrans, A. odorus and Hygrophorus calyptræformis. About the trunks of the well-grown Beeches on the hill a profusion of A. mucidus (fig. 98, p. 467) was found ; and it was on this spot, which will ever in future be classic ground, that the fatal accident occurred to the President's "Mushroom," for on attempting the ascent of a slippery bank, and depending too much upon the support of his umbrella, the backbone of the latter broke midway and protruded in a hideous manner, to the amusement of those who ought to have known better than to smile. (See next week's *Graphic*.) A. inversus and A. mappa were several times met with, and many other species of interest both botanic and gastronomic.

On the "Green Dragon" tables many species of fungi of exceptional beauty and interest were laid out, notably an unrivalled specimen of the glorious Peziza aurantia, 8½ inches across, and some equally fine specimens of Agaricus mucidus, 6½ inches across—both obligingly sent from Shobden Court by Lord Bateman. There was a good specimen of Sparassis crispa brought by the Rev. Wm. Houghton from Chetwynd Fir plantations, the property of T. C. Burton Borough, Esq., of Chetwynd Park, Shropshire. This species has been gathered for some consecutive years on the same spot by Mr. Houghton, but it did not occur last year. Next in interest was Agaricus Junonius, and a large group of truly magnificent specimens of Agaricus (Volvaria) gloiocephalus, brought from pastures in the neighbourhood of Hereford by Dr. T. E. Chapman : no such specimens had ever been seen before by any member of the Club ; they stood 10 inches high, and the pilei were nearly 18 inches round : the odour of this species is very repulsive. The Rev. M. J. Berkeley sent Leotia circinans received from Scotland, and Dr. M'Cullough brought Lactarius controversus from Abergavenny. Radulum fagineum was also upon the table (it well deserves mention, as we believe it has only been found once before), and Lactarius vitellinus, a somewhat rare plant, and not good for victuals, as might erroneously be inferred (by non-Woolhopians) by its specific name. The Messrs. Fortey sent a curious fresh-water sponge from the Teme, and Mr. Wm. Phillips some gigantic rhizomes of the Water Lily, which lay twisted about on the floor like the viscera of a dragon.

The dinner, to which some fifty guests sat down, was, like all the other Woolhope dinners, a success. Comatus soup (Coprinus comatus—the "Agaric of civilisation" being the principal ingredient) was a piquant and tasty novelty, for which there was a great demand ; one member (we regret to record) most irreverently called it "fungus soup"—a sad exhibition of levity, which all thought it best to let pass unnoticed. A very large tureen full of "vegetable lamb's kidneys" (Lactarius deliciosus) was passed round, and judging from the halo of gastronomic and epicurean delight which flickered upon the features of the guests during its consumption, we may safely say it was hailed with general approval. We have a dim dreamy consciousness of certain other delectable fungi being passed round at the very end of the dinner, but for the life of us we cannot remember the names, Latin or English ; we can, however, call to mind the divine aroma, the luscious flavour, and the appetising appearance of the tureen or tureens as they went steaming past (Dr. Bull will tell you the names); but we were made dizzy by the kind words which were at that moment falling from the lips of the President—words so kind and so wholly unexpected that we found ourselves with eyes helplessly rivetted for five minutes on two celestial globes (Lycoperdon giganteum), unable either to answer or to understand. Of these unlooked for and unmerited kind words, and most generous action on the part of the Club we can hardly venture, even now, to properly speak ; but how much the obligation has been on our side and how much we have felt indebted to our friends at Hereford let our six years' reports in the *Gardeners' Chronicle* say for us. To enjoy "the pleasure of the plains," the woods, the hills, kindness unbounded, generosity and welcome, one must know the Woolhope Club.

Soon after dinner Mr. Edwin Lees, of Worcester, read a good paper on the "Occasional Appearance of Rare Fungi," a phenomenon with which every one

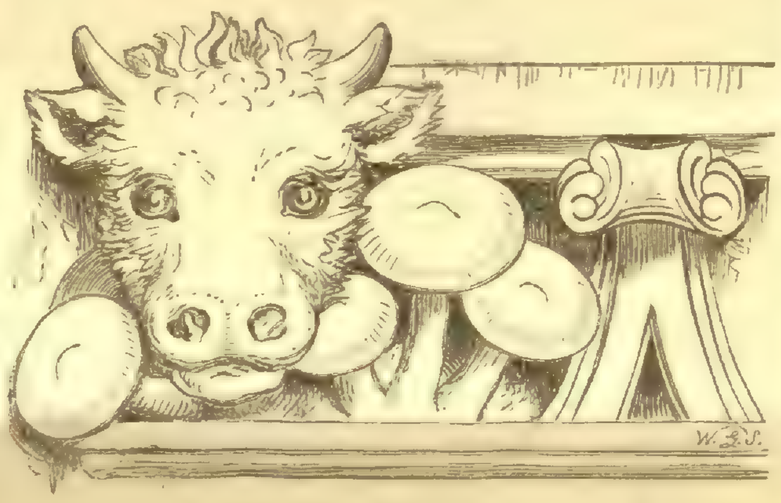


Fig. 93.—MASONIC REBUS AT HEREFORD

who has made a study of fungi must be more or less acquainted. Dr. Steele, of Abergavenny, Dr. Bull, Mr. Phillips, and Mr. Edmonds took part in the discussion which followed, and then all those members who felt so inclined withdrew to the house of Mr. Thomas Cam, where, as heretofore, a friendly *conversazione* was held, Mr. Plowright reading "Some Remarks on the Sphæria Family," and Mr. Phillips a paper on the "Structure of Three Species of Fungi New to Britain," of which Desmazierella acicola was one. The writer of the present lines brought fifty India proofs of engravings of Discomycetous fungi, recently prepared from Nature for the British Museum, and a quantity of studies of trees and landscapes and gardens made principally for this journal.

Before leaving Hereford on October 2, some of the Woolhopians strolled to see the new free library so liberally presented to the town, and endowed by Mr. James Rankin, of Bryngwyn, and which was opened on Thursday last, with a general holiday and high festivities, Mrs. Rankin being presented with a key of solid gold. At the termination of one of the handsomely carved string-courses of this building one of the masons has, in a semi-humorous spirit, happily carved a bull's head surrounded by Agarics, a representation of which we have here engraved (fig. 93). These curious "rebuses," as they are called, are very common on ancient buildings, and the old meaning of many of them is now quite lost. The one we have now engraved, and its genial architype, will long be remembered.

October 2 was the last day of the foray, when Garnstone Park was visited, by invitation from Major Peploe, the M.P. for the county of Hereford. Here, as everywhere, all were most hospitably received, and the Club spent a most happy and successful day. A good beginning was made by Dr. D. M. M'Cullough immediately lighting upon Lactarius controversus growing under Lombardy Poplars (which is something new, as this plant has always before been found under Black Poplars), and Dr. Bull soon after gathering his old, but ever new, because so seldom seen, Agaricus jubatus.

Clavaria rufa, Hygrophorus russo-coriaceus and H. Colemannianus were abundant on the lawn, and the seldom-seen Coprinus domesticus was growing in an outhouse. Agaricus carbonarius, in company with A. pyxidatus and Cantharellus radicosus, were found growing on charcoal heaps, and many species of Cortinarius, far too numerous to mention, were dotted all over the grounds. Merely to name all the rare species, and species of botanic interest found, would lengthen this report beyond all reasonable limits, we are therefore obliged to altogether omit the list, but a complete record will doubtless be published in the Club's *Proceedings*. The same with the woods, the plains, the trees, the rocks, hills, pastures, hedge-sides and rivers—they and their pleasures must be imagined, we have no room for description.

At last the coach drew up, and most of the guests returned to Hereford for the last time this year, while we were due at Moor Court.

In beginning the happy task of this report, we compared the Woolhope meeting to Beethoven's well composed and delightful overture to *Fidelio*. At the conclusion we remember that that overture, though last, was not Beethoven's best, for all who have heard the overture (to the same opera) named *Leonora* will remember that as the composer's unrivalled masterpiece. It ends with a deep, prolonged and musical roll of the drum—this roll of the drum, terminating a happy holiday, sounded in our ears as the coach drove off and my friends were carried to their various destinations. May we meet again! *Worthington G. Smith.*

LORD PALMERSTON.

We take the following extracts from the last volume of the *Life of Henry John Temple, Viscount Palmerston ; with Selections from his Correspondence*, by the late Right Hon. Sir Henry Lytton Bulwer (Lord Dalling) ; edited by the Hon. Evelyn Ashley, M.P. :—

"I have been busy reading books on agriculture and horticulture, and trying to acquire some knowledge on these matters, which are now become sciences. If one does not know something of them oneself, one can never hope to get one's estate or garden well managed. I have let all my farms at Broadlands that were out of lease, and tolerably well, in spite of the badness of the times. I had a shocking set of bad tenants, but have got rid of most of them, and have brought in people with skill and capital. Our new gardener does pretty well, and understands the theory of his department, but he is a Methodist, and goes preaching about the country every Sunday, and I fear he thinks too much of his sermons to be very successful in his garden. I must try to put a stop to his preaching."

* * * * *

"Lord Palmerston was not a Democrat. He did not think a democracy the best government for a people, and he wished to maintain an aristocracy as a part of our. But all his feelings and sympathies were of a broad popular kind. I find instances, in looking through his correspondence when Secretary of War, of his interest in the private soldier's comfort and moral improvement. As a landlord he showed a constant attention to the comfort, education, and improvement of the peasantry. But I do not know that I could find anywhere a more complete exemplification of his feelings as to the happiness and enjoyment of the great masses of the population than in two letters to Sir Benjamin Hall, at the time First Commissioner of Works, with respect to the management of the parks.

"'94, Piccadilly, Oct. 31, 185-.

"'My Dear Hall,—I cannot agree with you as to the principle on which the grass in the park should be treated. You seem to think it a thing to be looked at by people who are to be confined to the gravel walks. I regard it as a thing to be walked upon freely and without restraint by the people, old and young, for whose enjoyment the parks are maintained ; and your iron hurdles would turn the parks into so many Smithfields and entirely prevent that enjoyment. As to people making paths across the grass, what does that signify? If the parks were to be deemed hayfields, it might be necessary to prevent people from stopping the growth of the hay by walking over the grass ; but as the parks must be deemed places for public enjoyment the purpose for which the parks are kept up is marred and defeated when the use of them is confined to a number of straight gravel walks. When I see the grass worn by foot traffic I look on it as a proof that the park has answered its purpose, and has done its duty by the health, amusement, and enjoyment of the people. In the Colleges courts of Cambridge a man is fined half-a-crown who walks over the grass plots, but that it is not a precedent to be followed. "'Yours sincerely,

"'Rt. Hon. Sir B. Hall.'" "'PALMERSTON.

"'94, Piccadilly, Nov. 12, 185-.

"'My dear Hall,—I have been much surprised this morning at seeing a party of labourers employed in trenching a large piece of the Green Park. As head of the Government, I have a right to expect that essential alterations should not be made in the spaces allotted for the enjoyment and recreation of the public without my previous sanction and concurrence, and I entirely disapprove of the restrictions which you are imposing upon the free enjoyment of the Green Park and Hyde Park by the public. Your iron hurdles are an intolerable nuisance, and I trust that you mean shortly to remove them. To cut up the Green Park into enclosed shrubberies and plantations would be materially to interfere with the

Fig. 94.—D, Lycoperdon Giganteum; E, Fistulina Hepatica; F, Peziza Onotica.

enjoyment and free recreation of the public; and I must positively forbid the prosecution of any such scheme. As head of the Government, I should be held by the public to have authorised these arrangements, and I do not choose to be responsible for things which I disapprove. Yours sincerely, "'Palmerston.

"'Rt. Hon. Sir Benjamin Hall, Bart."

What a pity it is, says the *Athenæum*—from whose review of the above-mentioned book we cite the above—that Lord Palmerston did not live long enough to be Premier when Mr. Ayrton was at the Board of Works!

Foreign Correspondence.

Tea-planting in the Himalayas.—The following brief sketch of how Tea plantations are got up and managed in India may not be uninteresting to many of your readers:—

I may premise that my remarks will apply to the customs of the Darjeeling district, being unacquainted with any of the other Tea districts of this country. The principles are, however, the same in all the districts, though varied in the minor details under different circumstances. The whole of British Sikkim is generally known as Darjeeling, though in reality Darjeeling is merely the small spur on which the sanitarium of that name is built, and from which many of the plantations are 15 to 40 miles distant. The Tea plantations may be divided into two classes, those on the hills at elevations of 1000 to 6000 feet above the sea, and those in the Terai, or level lands along the foot of the hills, at 400 to 800 feet. In the hill division the greater part of the land suitable for Tea cultivation is already taken up for that purpose, and a considerable proportion of it planted, and, not-

withstanding the unhealthiness of the Terai, the greater part of the best land there is also taken up, and several thousand acres put under Tea. Formerly, if a European slept a single night in the Terai he was considered either to be very foolhardy or tired of his life. It is still a most malarious place, and the rate of mortality in it, both among Europeans and natives, is appalling, but, owing to the large clearances for Tea plantations, it is steadily improving.

In the Terai the Tea plants grow much faster than in the hills, and were sufficient labour available the plantations in it, from a commercial point of view, would be much the best, but, unfortunately, the pestilential climate keeps the coolies away, and too often the European managers are down with malarious fever in the height of the manufacturing season and unable to look after the little labour they have. Of the hill plantations a few of the lower are at times unhealthy, but as a rule they are exceedingly healthy and well supplied with labour.

The Lepcha Labourers.

At least nine-tenths of the coolies are Nepaulese, and capital fellows they are. Like all hill tribes they have an independent way with them which is most refreshing after the cringing habits of the natives of the plains of Bengal. They are very quick and intelligent, and in an incredibly short time can be trained to almost any kind of labour. They detest "day-work," preferring to do "task-work," even though they know that by doing day-work little more than half the quantity given as task would be done. For every operation there is a certain recognised task, and as soon as that task is completed the coolie goes to his home. The Nepaulese go to their work cheerfully, and in the hot weather strip to a degree that would rather astonish people who had never been out of England. The Lepchas are the aborigines of Sikkim, but scarcely any are to be found at work on the Tea plantations. They are very childish in their habit of flocking to any new kind of employment that may be started in the district, but only remain so long as the novelty lasts. When the work settles down to a steady routine they go elsewhere for employment, or hunt the jungles for roots and other things to keep body and soul together. Such work as that of collecting india-rubber in places accessible only to monkeys and Lepchas they delight in, or, if a Lepcha of any influence among his fellows can get a contract for making roads or felling jungle, he will gladly take the job, and, by some plausible story, get other Lepchas to work for him, but rarely pays them more than one-half they have bargained for. As an instance: some time ago a Lepcha of the priestly profession took a contract from me to make a few miles of bridle-path, and sub-let the job to several other Lepchas. The priest got an advance of money from me to carry on the work, which he divided fairly enough among the sub-contractors, but on the completion of the work stuck to the balance, saying he had not been paid up. The suspicions of the sub-contractors were roused, and they came to me for information, and on finding how matters stood, went to demand their arrears, but the priest was equal to the occasion. He held up his hands as they approached him, saying, "Hush! hush! I am now engaged in holy work, and must not be spoken to on worldly matters;" and with that they were obliged to go away. I suspect the priest would have found it convenient, as far as the payment of money was concerned, to have been so engaged till the end of time; but fortunately, I soon after owed him money on another account, out of which I deducted and paid the arrears of the poor subs, who seemed to be quite as much pleased to see the priest checkmated as to pocket their arrears. A few Bengalese and Hindustanees are also employed about the plantations, but chiefly as factory hands, and to act as messengers, as they are inferior hand for cultivation work. As I have already mentioned, nine-tenths of the plantation hands are Nepaulese.

Management of the Plantations.

In forming a plantation the first operation is clearing the land, and this is done by simply felling the jungle and burning when dry. The next consideration is road-making, and in the hills, where the land is so very rugged and broken up into ridges, roads must be lined out as the nature of the land will admit. The general way is to have several lines of zig-zags running from top to bottom of the plantation, with cross roads here and there joining these ziz-zags. The gradient of the zig-zags is about 1 foot in 8 or 10, which is a tolerably easy one for a hill-pony to carry a rider up. In the Terai the roads are laid out on the same principle, only, the land being level, they are straight instead of zig-zaging.

The next operation is planting, and here a considerable diversity of opinion exists both as to method of planting and extent of interspaces. Some ten years ago, when seed was expensive, and limited liability Tea companies could be got up on the most flimsy representations, the custom was to plant at 6 by 6 feet apart, and represent the plantation as being well filled with Tea plants. Had all the plants lived, even at 6 by 6 feet, the gardens would have ultimately paid a fair return, but the great end in view was "area," and planting was pushed on without any consideration as to whether there was either labour or money to keep the land clean after it was planted, and the consequences were that the plantations got covered with rank weeds, which killed a large proportion of the plants, and the survivors scarcely grew at all. When the money was nearly exhausted, the worst parts had to be abandoned, and the better parts got superior cultivation; from that time Tea prospects began to improve. In 1866 I saw a plantation, in the better pieces of which there were larger patches, with not more than a hundred surviving plants to the acre; but all this is altered now, and plantation after plantation may be inspected and scarcely a single "vacancy" be found.

There are two methods in general adoption of planting up a plantation: one is to put the seeds at once where they are to remain permanently, and the other to sow the seeds in nursery beds and transplant the next, or following, rains. Transplanting from nurseries within two or three months after the germination of the seed is, perhaps, the favourite and best method of planting. When the seeds are at once put where they are to remain, the plants make rather more growth during the first season than do the nursery-raised plants, but as it is seldom that much of the plantation can be prepared in time to receive the seed, transplanting is most resorted to. In preparing the slopes for planting, it has been the practice of late years to lay out the whole plantation in terraces of about 3 feet in width, and this is an excellent plan, admitting of the land being frequently stirred during the growing season without the risk of losing the surface-soil by the wash of the heavy rains. In former years in the hills—as now in the Terai—pegs were stuck in the ground, in straight rows, at the distances apart the Tea plants were to be planted, and a pit dug at each peg. When the weather was suitable, the plants were transferred from the nurseries to these pits, and the weeds kept down by the sickle during the rainy season. In the dry season the ground usually got a shallow digging, but not in all cases. Now-a-days a good deal more pains and labour are expended on the preparation of the land, and it is found that the extra growth of the plants amply repays the extra expense.

To facilitate the after-measurements of "tasks," it is of the utmost importance that the rows of Tea should be as straight and continuous as possible. If a plantation is planted in continuous rows from top to bottom, there is really very little trouble in checking the work of hundreds of coolies, for the mere counting of the number of rows and measurement of one row are sufficient. If the plants, by the end of the first cold season after planting, have made a fair length of growth, they are cut well back to make them branch, and every succeeding cold season more or less pruned, according to circumstances.

Gathering the Tea.

Leaf-picking is usually commenced the third year after planting, but the bush cannot be considered to have arrived at maturity till the seventh or eighth year. The first growth, or "flush" as it is called by planters, comes on towards the end of March, and picking is carried on from that time till the end of October. When it is seen that the flush has expanded as many leaves as it is likely to do, and before the upper leaves of the new shoots harden, the leaf-pickers are set to work. Each individual has a basket slung at the back, and with both hands speedily strips the shoots of their tips and soft leaves, taking care not to injure the axillary buds, as they have to yield the next flush. The leaves are thrown over the shoulder, as collected, into the basket. While the first flush is on it sometimes happens that there are one or two cold nights, which harden the leaves before they can be collected, and which are thereby rendered useless for manufacturing purposes. In such cases there may be a double loss, for as well as losing that crop of leaves, it is found that where the leaves have been left on the shoots the buds are much later in starting than where the leaves have been stripped off, and if the rainy season closes rather early there may be another flush short for the year. When "dividend" time comes round it is difficult to make rapacious shareholders at a distance understand these circumstances, and the unfortunate manager gets blamed.

In the evening each picker's basket is weighed separately, and should any have collected more than the allotted quantity they are paid accordingly. A good picker will sometimes collect as much as 50 lb. or 60 lb. of green leaf a day, but the average will be less than half that quantity. Four pounds of green leaf make about 1 lb. of manufactured tea. After weighing, the leaves are spread thinly on floors to wither for the night, and when quite flaccid the process of manufacture is commenced by a number of men taking each a good heap of leaves before them on the matted floor, and, sitting cross-legged, rolling the leaves about with their hands, using as much pressure as possible. When the leaves have been got into a wet state, from the juices being partly squeezed out, a good handful is taken from the heap, and rolled about under the hands with a sweeping sort of motion, still using pressure. The ball is several times broken up, and the outer and inner leaves well intermixed, so that they may get uniformly twisted. When it is seen that the leaves have been sufficiently twisted for this rolling, and the juices brought well out, the ball is put, unbroken, to one side, and when a sufficient number of these balls have been made, they are put in a heap (still unbroken) and covered over, in order that the leaves may ferment a little—usually half-an-hour is sufficient, but the colour of the leaves is the guide. A nice liver colour is what they should be, and when they have attained that colour the balls are thoroughly broken up and the leaves again rolled until sufficiently twisted to satisfy the prejudices of the home markets.

If fermentation is allowed to go on too long the teas turn out weak; if too short a time, astringent. In most of the large plantations rolling is now done by machinery, driven either by steam or water power, but the principle is substantially the same as that of hand manufacture. Formerly, in the course of manufacture, the leaves were put into hot pans and roasted, but this process has now gone quite out of use, as it was found to be an altogether superfluous operation, and professional tea-tasters could not, on testing the manufactured article, tell whether the teas had been roasted or not. After the rolling last described, the leaves are thoroughly separated and put in sieves over bright charcoal fires to dry. The sieves are at intervals transferred to adjoining mats, and the tea turned over to make it dry uniformly. If the tea is touched while the sieves are over the fire, the smaller pieces are liable to fall through, and, in burning, send up a smoke that would spoil the flavour. When quite dry and crisp it is stored away in zinc-lined bins until there is time to sort and pack it.

In sorting, the different qualities are separated by means of a machine containing a revolving fan and sieves of different sized meshes. The revolving fan blows out the light untwisted leaves behind, and the different sized sieves catch the corresponding descriptions of tea. When sorted, it is again placed over charcoal fires and allowed to remain there for some time before weighing, and packing in lead-lined boxes. After being soldered down the boxes are numbered, branded, and the quantity and quality marked on the box, when it is ready for market. Certainly a purer article than the Darjeeling teas could not be sent to market, and I have every reason to believe that all the other Indian teas are equally pure. They are also much stronger and, to my taste, infinitely finer flavoured that the Chinese article. I have never yet known a single individual once accustomed to the use of Indian teas afterwards take kindly to China tea.

Varieties of Tea.

I imagine that the idea that black and green teas are produced by different species of Thea is quite exploded, as also that plants of different ages yield the different qualities. It appears marvellous that such apparent fallacies could have ever been seriously entertained. Pekoe, which is the finest quality, is composed of the buds and half-expanded leaves, while the number of days the lower leaves have been expanded determines the class in which they are placed. The older the leaves the more inferior the teas. There are three distinct species, or at least varieties, cultivated, and are named by planters, "Assam indigenous," "hybrid," and "China." The Assam indigenous is by far the largest growing kind, and is in fact a small tree, but is only suited for low elevations such as Assam and the Darjeeling Terai. The leaves are large and yield tea of a strong, rank flavour, not at all nice to drink by itself, but extremely serviceable for mixing with the weak, insipid teas from China, for which purpose it is said to be almost all bought up by the London dealers.

The hybrid is the next strongest growing variety, and yields tea of less strength, but of superior flavour, and is extensively cultivated at elevations up to 4000 feet; higher, it does not succeed well. Like the Assam indigenous, it has the tree-like habit of forming a short single stem instead of throwing out a number of stems from the collar, as the China bush does. The tea made from the China variety is, to my taste, the pleasantest to drink, and the plant is the hardiest, enduring the heat of the plains or the cold of the higher elevations equally well. It also stands closer picking and harder pruning than the other two varieties; so that under many circumstances it is the most useful kind. There are several varieties of the China, a few of them being free growing, and producing largish leaves, which keep soft for a good many days; while others are slow growers, yielding small leaves that harden immediately after expansion, and become useless for manufacturing purposes. Some also "flush" earlier than others.

By careful selection a great deal might be done with the China bush, but no one appears to have given any attention to the subject, and the seed for extensive use generally collected quite indiscriminately. From the

fact of one or more varieties flushing earlier than the others, it appears to me that, by judicious selection, fixed varieties could be brought together that would flush in rotation, instead of the flush over the whole plantation coming on in an irregular sort of way at the same time; the consequence of which is that, as the leaves of the flush remain soft for a limited time only, a considerable proportion of them get too hard before they can be collected, and make inferior tea. The hybrid is popularly believed to be a cross between the Assam indigenous and China variety; but there is no good foundation for that belief, and I much doubt its having had such an origin. One planter, some years ago, attempted to convert his China bushes into hybrids by pruning them into single-stemmed plants! But he was a born genius. A few months ago an outsider was expatiating very learnedly to a friend of mine on the stupidity of planters persisting in cultivating the China variety, when, according to his opinion, the hybrid was so very much superior. My friend, who was himself one of those stupid planters, suggested the difficulty and expense of replanting established gardens with hybrids, but was told that replanting was quite unnecessary, as pruning to a single stem did the trick. To take a rise out of him, my friend said he had always under-understood that sowing together alternate seeds of China and Assam indigenous was the proper way to get hybrid plants. "Oh yes!" the outsider said, "everybody knows that plan, but it is not nearly so expeditious as the pruning one, and not so generally known." My friend modestly admitted that the information was quite new to him, and expressed his deepest gratitude for it, but thought he would defer the conversion of his bushes for the present.

In the earlier days of Indian Tea cultivation any one was considered capable of mananging a plantation, and the plantations were mismanaged accordingly. Now nine-tenths of the managers thoroughly understand their business, and take the greatest interest in the plantations under their charge, to the benefit of the shareholders and development of the Indian tea trade. A more hospitable class of men than the Tea planters is nowhere to be found, and any respectable visitor is always certain of a hearty welcome from them. A magnificent future is, undoubtedly, in store for the Indian tea trade. Old plantations are being steadily enlarged, and new ones opened out without any fuss, which are sure signs of the success and stability of the undertaking. *James A. Gammie, Darjeeling, September* 5, 1874.

Forestry.

The Pine Woods of Pennsylvania.—The reports that reach us almost daily from various lumbering sections in the United States and our own provinces, all tend to show the growing importance of this question of lumber supply, as evidenced by the general inclination and determination to reduce the annual production of the fast disappearing Pine. The question is one that has grown upon us by investigation, and we have not hesitated to set plain information before the public. In the remarks made by Mr. Little of this city, at the recent convention of lumbermen in Ottawa,—a report of which was presented in our columns—it will be remembered that he referred to the unsatisfactory condition of the resources in Pennsylvania, quoting from an official circular the opinion "that three years stocking at five hundred millions of feet per year, would entirely exhaust their Pine timber now standing." We now find the following from a *New York Tribune* correspondent in the *Boston Lumber Trade*, which fully sustains the opinions above referred to. When it is considered that their present consumption amounts to as much as all the sawed lumber and timber produced in the whole Ottawa region, and also equals the quantity of all kinds reaching the Albany market for distribution, one may in some measure realise what the value of our timber will be in a few years hence, when we find ourselves called upon to supply all and more than that vast amount of five hundred millions of feet. Everything relating to the lumber question goes to show that, whether there be or not Reciprocity, our American neighbours will soon be forced by circumstances to look to our forests for supplies—and this teaches the additional lesson of the necessity of husbanding these resources of ours in every possible way. The article reads as follows:—

Lumber operators and consumers in this State are awakening to a knowledge of the important fact that the Pine timber resources of Pennsylvania are not inexhaustible, as they have apparently long been considered. The State was once one of the leading Pine producers in the Union. The dense forests bordering the Susquehanna, and traversed by its many tributaries; the mountains of the Monongahela Valley, and in fact the tall, majestic trees that covered thickly much of the area of whole counties in the State, were a few years ago thought to contain Pine enough to amply comply with the law of supply and demand for the present, and to furnish timber for a future, however distant. That impression the march of events has thoroughly dispelled. The forests of the Delaware Valley have yielded no Pine for years, and the resources of the timber regions of the Alleghany and Monongahela have been drawn upon so largely to supply the markets of the Ohio Valley, that in a comparatively short time their Pine forests will be exhausted. Eastern markets must, therefore, look to the counties of the northern part of the State for their supplies of Pennsylvania Pine. Philadelphia and Baltimore have been amply furnished with this timber from the latter region for years, but an increasing demand by interior markets, and the inadequacy of the Monongahela and Alleghany countries to respond to it, has awakened much alarm among the operators of the Susquehanna Valley, and they are earnestly considering means by which the recklessness of management and waste of timber, so notorious in the past, may be stopped, and the inevitable day, that is at the best not distant, when Pine lumbering will no longer be one of the great interests of Pennsylvania, postponed as long as possible.

A significant and alarming fact is that the coal regions, once famous Pine-producing counties, cannot now supply enough to furnish timber for props for the mines. From supplying all home demands and exporting large quantities of Pine, these counties have become importers, paying more per thousand for what they purchase than they obtained when selling the same product. The northern counties of the State are now the only hope, for the lumber operators of this State supply Eastern and interior markets. They are drained by the Susquehanna River and its tributaries. By "Eastern markets," operators do not speak of New York, as comparatively little Pennsylvania Pine gets into that market. This is manufactured at mills in counties where the Erie Railway can transport the products to New York and intermediate markets, cheaper and safer than the lumber can be rafted on the Susquehanna. These mills, however, do not ship lumber to find a market, but only to fill orders. Much of the Pine manufactured at these mills is contracted for by the Erie Railway Company, which consumes between 15,000,000 and 20,000,000 feet of lumber annually, much of it Pine. But the markets which demand the products of the forests of the Susquehanna counties are principally those of Philadelphia and Baltimore, and the important intermediate ports.

The principal Pine-producing counties of Pennsylvania now are Lycoming, Potter, Cameron, Tioga, Elk, Clinton, Centre, and Clearfield. The amount annually cut in these counties, on the Susquehanna River and tributaries, for the past five years, has exceeded 500,000,000 feet. A calculation, taken from estimates as nearly official as they can be obtained, will clearly demonstrate how nearly the Pine in that region is exhausted. It is admitted that the annual demand will continue to be as great as that of the past five years. This will amount to 2,500,000,000 feet. The great question now agitating the minds of operators is—How long will our forests yield that amount? It is estimated (and it is a liberal estimate) that every acre of Pine land in the above counties will yield at present 10,000 feet of Pine. This would require 250,000 acres to produce the desired amount. The following is a careful compilation, made by competent persons, of the number of acres of land in those portions of the counties named, the Pine produced from which would naturally follow the Susquehanna River to market. It includes timber, farm and barren land:—

Lycoming	800,000
Potter	338,400
Cameron	188,680
Tioga	400,000
Elk	276,480
Clinton	512,000
Centre	400,000
Clearfield	784,000
Total	3,719,560

To produce 2,500,000,000 feet of Pine will require nearly one-fifteenth of this land. This amount does not exist, the most liberal estimate placing the number of actual Pine-producing acres at one twenty-fifth of the above total amount. Some operators go so far as to declare that not one acre in fifty will produce 10,000 feet of Pine. Taking the liberal estimate, then, less than four years will exhaust the Pine supply of the Susquehanna Valley, and the now comparatively neglected Hemlock will become the staple in the lumber trade of that section, as it has been for years in the Delaware region.

In a few years the great lumber marts of the East must necessarily depend entirely on the great forests of the West and the rapidly decreasing Pine woods of the South for their Pine. Are these inexhaustible? Is not the fact that the once mighty Pine-producing State of Pennsylvania is so nearly bereft of this great source of wealth that the date of its exhaustion is so easy of certain computation—sufficient evidence that there is no warrant for the statement that the resources of the available Western forests are endless? There is ample food for reflection on the importance of timber culture in this country contained in these facts. There is no alarm for the present, it is true, but what of the future? *Montreal Gazette.*

Apiary.

During this month, and as early as possible, the bee-keeper should take every possible precaution, and adopt every known means, to ensure the safe disposition of his stocks for the winter. The exact condition of every stock should be carefully ascertained, and if any show the slightest symptoms of foul brood they should be deprived of their queens, which may be given (unattended by workers) to queenless stocks. This is a safe proceeding, as it is well known that bees do not convey the infection, except by means of the honey they carry with them and deposit in the cells of the hive into which they may be introduced, and as the queen does not deposit honey, her introduction (alone) is unattended with danger to the stock to which she may be given. Bee-forage may now be considered exhausted, and it will therefore be evident that where stocks are weak in stores, feeding should be proceeded with without further delay. This should take place only at night, to prevent the danger of robbing, which the scent of bee-food, and the excitement occasioned by day feeding, are likely to occasion. Those who have adopted the gentle system of feeding, which we have all along most strenuously recommended, in preference to the rapid system which previously obtained, through the advocacy of former bee-masters, Langstroth included, ought now to have their stocks in perfect condition for wintering, with plenty of (sealed) food, brood, and young bees. Stocks that, through neglect or queenlessness, are weak in bees, should be united. Uniting bees at this time of year, by means of scented syrup, is often provocative of robbery, and sometimes causes the destruction of the united stocks; it will therefore be prudent to avoid its use, and adopt the measures suggested in a recent number of the *British Bee Journal.*

Taking a hint from bees themselves is sometimes good practice: we lately found a hive the entrance of which was almost entirely closed by a curtain or wall of propolis; the bees had evidently fortified themselves against the ingress of both cold weather and insect enemies, leaving only two small holes, nearly an inch apart, for their own convenience. Neither of these holes would permit of more than one bee passing at a time, which we consider a mistake on the part of these wonderful architects, for sometimes it may be necessary for two to pass one way, as when a live bee carries out a dead one. When practicable all hives should be lifted from the floor-boards, and the under edges of the hives cleared from the vestiges of wax-moth which may be found there, the floor-boards should be thoroughly scraped, and where so contrived as to be capable of reversal, they should be turned bottom upwards, that the bees may have the comfort of a clean floor and no vermin in their winter quarters.

Destroying wasps' nests now will prevent the formation of many hundreds of them next year. It is a pity that these pests, which are at their strongest now, should be allowed to exist until their queens for next year have hybernated, as then the nests can only be accidentally discovered, while the queens may live to establish each a new colony next year. A vigorous raid upon the wasps now that their nests may be easily discovered, might lead to their extermination. The latest method of destroying them is by the introduction of a strong solution of cyanide of potassium, which may be injected into their nests, or laid upon lint at their entrance. Cyanide of potassium is a deadly poison, and its fumes should not be inhaled. Spirits of turpentine injected into a nest will destroy all the wasps: it is less dangerous, more easily procurable, and is a very inexpensive material; and being so, every bee-keeper should, by its means, endeavour to rid his neighbourhood of these persevering pests. *British Bee Journal.*

Notices of Books.

With commendable rapidity the seventh, eighth, and ninth parts of the twentieth volume of the *Flore des Serres* have just been issued by M. Van Houtte. The numbers are of the usual excellence; their chief fault—if fault it can be called—consisting in the great number of plates, directly copied from the *Botanical Magazine* (with due acknowledgment, *bien entendu*). As in this country, at any rate, most of the readers of the *Flore* are also purchasers of the magazine, they experience the disadvantage attaching to *crambe bis cocta.* Omitting reference to plants already noted by us, we may cite, as newly figured in the *Flore*, Cypripedium arietinum, a hardy North American Orchid, which will be cherished by the plant-lover; Masdevallia Houtteana, a very singular species, with whitish flowers, spotted with red, and with long, slender, red tails; Seaforthia elegans; Odontoglossum Rossii majus; Stanhopea Martiana; Erythronium grandiflorum, and Cycas circinalis. Two or three coloured plates in continuation of the series devoted to Pears are also given, and are, for the most part, admirable representations. We presume this splendid series will ultimately be published separately.

—— The new edition of the *Micrographic Dictionary* (Van Voorst) is progressing rapidly to its termination, the last issued part bringing the work up to the article Teeth. It will be remembered that the botanical articles, originally written by the late Prof. Henfrey, are now revised and extended by Mr. Berkeley.

—— The sixth part of *British Wild Flowers* (Van Voorst), of which we have spoken on many occasions, contains the Roses, Onagrads, Cucurbits, Sedums, &c.

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. JAMES FRASER, HORTICULTURAL and AGRICULTURAL VALUER and AUCTIONEER, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

SIMPSON'S RED SPIDER and THRIPS, &c., ANTIDOTE.—*Bonâ fide.* See former advertisements. Prepared by JOHN KILNER, Wortley, Sheffield.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

To Nurserymen.

TO BE DISPOSED OF, the long LEASE of an Eight-roomed Residence, with 1½ Acre of Land, stocked with Fruit Trees, two old Vineries, Shop, &c., in the residential part of the town of Woolwich. A good opening for a Florist.
Apply on the Premises, 18, Bowater Crescent, Woolwich, S.E.

SEED BUSINESS, Well Established, for DISPOSAL. Situated in the South of England. Present Owner retiring. For full particulars, &c., apply to X. Y., Messrs. Hurst and Son, 6, Leadenhall Street, London, E.C.

To Nurserymen, Florists, Seedsmen, and Others.

TO BE DISPOSED OF IMMEDIATELY, in consequence of the death of the Proprietor, a NURSERY, FLORIST, and SEED BUSINESS, in a good Market Town in South Hants, and within easy reach of Portsmouth, Southsea, &c., *via* the London and South-Western Railway. There are Nursery Grounds of about 2 acres stocked with Coniferæ, Deciduous and other Trees, Shrubs, &c.; one Greenhouse, 36 feet long by 14 feet wide; one Stove-house, about 24 feet long by about 8 feet wide; Frames, and an excellent Shop in the principal street and near to the railway station.

For further particulars, and to treat for the purchase, apply to Mr. NICHOLAS DONNITHORNE, Solicitor, Fareham, Hants.

TO BE SOLD, a SEED and PLANT BUSINESS, in one of the most fashionable main thoroughfares at the West End of London. House and fine double-fronted Shop, with every convenience. Rent only £90. Premium for Goodwill, Fixtures, and long Lease, £210.
S. S., *Gardeners' Chronicle* Office, W.C.

TO BE LET, about an Acre of GROUND, within 9 miles of Covent Garden Market, well stocked, principally with Roses and Flower Roots grown for the Market. Ground rent £25 a year. Stock at a valuation, and immediate possession. Address
A. B. C., Angel Hotel, Edmonton, N.

SALES BY AUCTION.

Spring Flowering Bulbs for present Planting, just received direct from well-known Farms in Holland, consisting of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, GLADIOLI, LILIUM, &c., in lots to suit large and small growers.

MR. J. C. STEVENS begs to announce that he will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY during October, at half-past 12 o'Clock precisely each day.
Catalogues forwarded on receipt of a stamped envelope.

Dutch Bulbs, Specimen Camellias, Herbaceous PLANTS, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, October 14, at half-past 12 o'Clock precisely, a Consignment of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, GLADIOLI, &c., just arrived from well-known Bulb Farms in Holland; also some Specimen CAMELLIAS, HERBACEOUS PLANTS, &c.
On view the morning of Sale, and Catalogues had.

New Wandsworth, S.W.

CLEARANCE SALE of GLASS ERECTIONS, consisting of a large Lean-to Show House, 24 feet by 10 feet; a Span-roof House, 37 feet by 10 feet; a large do., 43 feet 6 inches by 11 feet 3 inches; Brick Pits, each 45 feet long, all with glazed lights; several Light Boxes, Hot-Water Piping, a quantity of Bricks, a well-built Wooden House, 26 feet by 27 feet, with handsome Shop, easily removable, and with Plate-glass Front, Mahogany Counter, &c. Also the whole of the valuable NURSERY STOCK, consisting of a variety of Evergreen, Coniferæ, and Deciduous Shrubs, which, with the usual assortment, will include 2500 Aucubas, 6 inches to 3½ feet; 2000 Laurels, Green and Variegated Hollies, Laurustinus, &c.; 3000 Ornamental Trees, 2000 Fruit Trees, 7000 strong Seakale, 1200 large 4-yr. old Asparagus, 700 Cabbage, Provence, and other Roses, 500 strong clumps of Lily of the Valley, Herbaceous Plants, Hardy Climbers, and numerous other effects.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Wm. Hooper to SELL by AUCTION, on the Premises, St. John's Hill Nursery, New Wandsworth, S.W., five minutes' walk from Clapham Junction Station, the above, on MONDAY and TUESDAY, October 12 and 13, at 11 for 12 o'Clock precisely each day, without reserve, the Land being required immediately for building purposes.

May be viewed prior to the Sale. Catalogues had on the Premises; of Mr. HOOPER, Florist, 88, Oxford Street, W.; and of the Auctioneers and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Clearance Sale.

A WELL-BUILT WOODEN HOUSE, easily removable, 26 feet by 27 feet, with handsome SHOP of good elevation, Mahogany Counter, Nests of Seed Drawers, and other FITTINGS, the whole as good as new.

GREENHOUSES and PITS, well built, with Lights in excellent preservation; Large LEAN-TO SHOWHOUSE, 24 feet by 10 feet; SPAN-ROOF HOUSE, 37 feet by 10 feet; ditto, 43 feet 6 inches by 11 feet; Three BRICK PITS, 45 feet long; BOXES with Lights, HEATING APPARATUS, and a quantity of BRICKS.

Beautifully grown EVERGREENS and CONIFERÆ SHRUBS in great variety; 1000 Large Common LAURELS, EUONYMUS; 2500 AUCUBAS; 500 Green and Variegated HOLLIES, LAURUSTINUS, CUPRESSUS, ARBOR-VITÆS, &c.; and 2000 FRUIT TREES, many of them in fine bearing condition.

Fine, Large, ORNAMENTAL TREES, 10 feet to 14 feet high, in good condition for removal.

Eight thousand magnificent SEAKALE and ASPARAGUS ROOTS, extra strong, for immediate forcing; Cabbage ROSES, LILIES of the VALLEY, AZALEAS, and CAMELLIAS, FERNS, FLOWER POTS, TOOLS, BARROWS, and other Effects.

The whole of William Hooper's extensive Stock of the above will be SOLD by AUCTION, without reserve, by Messrs. PROTHEROE AND MORRIS, on MONDAY and TUESDAY, October 12 and 13, at 11 for 12 o'Clock precisely, on the Premises, New Wandsworth, S.W., five minutes' walk from Clapham Junction Station, the Land being immediately required for Building.
Catalogues on application.

Sussex—Maresfield, near Uckfield.

To the NOBILITY, GENTRY, NURSERYMEN, and others engaged in Planting.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Wood & Son, to SELL, without reserve, on the Premises as above, on WEDNESDAY, October 14, and two following days, at 11 for 12 o'Clock precisely each day, an enormous quantity of clean and well-grown ORNAMENTAL, FOREST, and FRUIT TREES, comprising Acacias of sorts, Cornish, English, and other Elms, Cut-leaved Birch, Alder, Scarlet and Common Horse Chestnut, Hornbean, Scarlet American Oaks, Poplars, Sycamores; Ornamental, Scarlet and other Thorns, Limes, Planes, Maples, Ailantus, Catalpas, Larch; choice Fruit Trees, including Apples, Pears, Plums; also a very choice collection of specimen and other CONIFERS, comprising Abies canadensis, Biotas of sorts, Cedrus Deodara, Cupressus Lawsoniana, C. macrocarpa, Junipers of sorts, Pinus abchasica, austriaca, Benthamiana, Halepensis, Hamiltoni, insignis, Jeffreyi, Laricio, Massoniana, Monspeliensis, Mughus, muricata, Pinaster, ponderosa, and Sabiniana; Retinosporas of sorts, Thuja Lobbii, orientalis, &c. Strong Scotch Firs and Black Austrian Pines, four times transplanted, from 4 to 7 feet high, and finely feathered. Also a quantity of Evergreen Privet and Thorns adapted for hedges, Mahonias, Sweet Briars, Berberis, &c., a quantity of well-grown HARDY CLIMBERS in pots, comprising the finest varieties of Clematis, Ivy, Jasminum, Honeysuckles, Escallonias, Cotoneasters, Aristolochia, Bignonias, Ampelopsis Veitchii, Virginian Creepers, Ceanothus of sorts, a beautiful assortment of EVERGREEN and DECIDUOUS SHRUBS, consisting of a large quantity of Common Laurels, Aucubas, Laurustinus, Portugal Laurels, Arbor-vitæ, Sweet Bays, Yellow and White Brooms, Junipers, Yews, Ribes, Spiræas, Syringas, Philadelphus, Weigelas of sorts, Lilacs, Berberis, Deutzias, Cytisus, &c., together with fine Tea-scented and other Roses, &c.

May be viewed any day (Sunday excepted) prior to the Sale. Catalogues may be had on the Premises; of Mr. Charlton, Summervale Nursery, Tunbridge Wells; at the King's Head Hotel, Uckfield; and of the Auctioneers and Valuers, 98, Gracechurch Street, City, E.C., and Leystonstone, Essex.

The Woodlands Nursery is situate three miles from Uckfield Station on the London, Brighton and South Coast Railway, from whence there is a direct communication to all parts of the Kingdom. A conveyance will be at the Station to convey Purchasers to the Sale.

Messrs. Wood & Son will undertake to remove and deliver any lots which may be purchased at a price to be agreed upon.

N.B.—To Gentlemen about forming new places this Sale offers a grand opportunity of obtaining trees of large size, capable of producing an immediate effect.

The specimens are young, beautifully grown, and will remove with safety.

Chigwell, Essex.

CLEARANCE SALE, a portion of the Ground being required to be cleared immediately for other purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Joseph Protheroe to SELL by AUCTION, on the Premises, The Nursery, Grange Hill, Chigwell, E., on SATURDAY, October 17, at 11 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, including some thousands of remarkably well-grown Aucuba japonica, 1 to 4 feet, particularly worthy the attention of the trade and private buyers; also a rich assortment of other Evergreen and Coniferæ Shrubs, 800 clean-grown Limes, 9 to 12 feet, and other Ornamental Fruit and Forest Trees, beautiful Standard Roses, &c.

May be viewed prior to the Sale. Catalogues may be had on the Premises; of the Proprietor, Roll's Park, Chigwell, E.; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Tunbridge Wells.—Nov. 2 and 3.

Without Reserve. Thirty Acres of Land must be Cleared.
GOLDSMITH'S PARK NURSERIES, GROOMBRIDGE, TUNBRIDGE WELLS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Edwin Hollamby to SELL by AUCTION, without reserve, on the Premises, as above, many thousands of beautifully grown specimens of WELLINGTONIA GIGANTEA, THUJOPSIS BOREALIS, THUJA GIGANTEA, CUPRESSUS LAWSONIANA, THUJA AUREA, RHODODENDRONS, 3 to 5 feet, well set with bloom; Hardy Ornamental TREES and SHRUBS, Standard and Dwarf ROSES (the whole having been recently transplanted would produce an immediate effect), &c., too numerous to name. The Nurseries are situate within five minutes' walk of Groombridge Station.

Plants carefully packed and forwarded to all parts of the world.

Descriptive Catalogues may be had by post, or at the Nurseries, and at the Parade, Tunbridge Wells.

Sunningdale, Surrey.

HIGHLY IMPORTANT and EXTENSIVE SALE of NURSERY STOCK, beautifully grown, and in the finest condition for transplanting.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. Charles Noble to SELL by AUCTION, on the Premises, the Sunningdale Nursery, close to the Sunningdale Railway Station, South-Western Railway, on MONDAY, October 19, and eight following days, at 11 for 12 o'Clock each day, without reserve, the Lease of a great portion of the Nursery having expired, necessitating an immediate clearance of an immense quantity of beautifully grown NURSERY STOCK, including a great number of magnificent Specimen Coniferæ and Evergreens, such as Cupressus Lawsoniana, Green and Variegated Hollies, Thujas, Retinosporas, Junipers, Piceas, Wellingtonias, Thujopsis, 100,000 Cupressus Lawsoniana, 1 to 10 feet; 75,000 Cupressus Lawsoniana nana, 6 to 24 inches; 20,000 Pinus austriaca and Laricio, 1½ to 8 feet; 10,000 Picea Nordmanniana, 1 to 10 feet; 10,000 Arbor-vitæ, americana, and Warreana, 2 to 8 feet; 5000 Juniperus chinensis, 1 to 2½ feet; 10,000 Retinospora ericoides, 1 to 4 feet; 10,000 R. pisifera and obtusa, 2 to 8 feet; 5000 R. aurea and plumosa, 6 to 18 inches; 5000 Cupressus Lawsoniana viridis, 3000 Picea nobilis, 3000 Wellingtonia gigantea, 1 to 2½ feet; 5000 Thujopsis borealis, 1 to 6 feet; 5000 Picea Pinsapo, 1 to 4 feet; 3000 Cryptomeria elegans, 1 to 2½ feet; 75,000 Thujopsis dolabrata, 6 to 24 inches; 50,000 Retinospora leptoclada, 10,000 Thuja Lobbii, 2 to 10 feet; 100,000 Laurels, 1 to 4 feet, fine bushy plants, consisting of the Colchic and common varieties; 100,000 Mahonia Aquifolia, 9 to 24 inches; 50,000 common Hollies, 1 to 2 feet; 10,000 Privet, oval-leaved and common; 10,000 White Broom, 1 to 6 feet; 5000 Skimmia japonica, 9 to 18 inches; 3000 Yucca filamentosa; 50,000 Portugal Laurels, 1 to 2½ feet; 20,000 Berberis Darwinii, 1 to 4 feet; 10,000 Spruce Firs, 2 to 8 feet; 5000 fancy variegated Hollies, 1 to 6 feet; 3000 Aucuba japonica vera, 18 inches; 75,000 Rhododendrons, 1 to 4 feet, consisting of hybrid seedling Catawbiense, californicum, pontica, and other named varieties, and numerous other American Plants; also Deciduous Flowering Shrubs, 2 to 6 feet; 30,000 Spiræa japonica, 5000 Deutzia crenata flore-pleno, 3 to 6 feet; 5000 Sweet Briar, 50,000 Ornamental Trees, including 3000 Common and Purple Beech, 6 to 8 feet; 10,000 Birch, 6 to 12 feet; 20,000 Spanish Chestnuts, 1 to 8 feet; 10,000 Horse Chestnuts, 2 to 8 feet; 10,000 Clematis of sorts; 5000 Green and Variegated Ivies, 10,000 Fruit Trees, including Standard and Pyramid Apples, Plums, and Pears of the finest known kinds; 150,000 3-yr. Quick.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, Valuers, and Estate Agents, 98, Gracechurch Street, City, E.C., and at Leytonstone, Essex, E.

N.B.—The Railway communication is so complete that goods may be transmitted from Sunningdale Station to any part of England, Scotland, and Wales without change of truck.

Dorchester.

HIGHLY IMPORTANT CLEARANCE of the WOLVERTON GARDENS' COLLECTION of SPECIMEN and HALF-SPECIMEN PLANTS, together with SEVEN GREENHOUSES, HOT-WATER PIPING, BOILERS, &c.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from W. H. P. Weston, Esq., to SELL by AUCTION, without reserve, on the Premises, the Wolverton Gardens, near Dorchester, Dorset, on THURSDAY and FRIDAY, October 22 and 23, at 11 for 12 o'Clock precisely each day, the whole of the beautiful COLLECTION of STOVE and GREENHOUSE PLANTS, containing a great number of particularly well-grown Exhibition Specimens and numerous Half-Specimens in the highest state of cultivation, including Alocasia Lowii, 4 feet by 4 feet; Anthurium Scherzerianum, Allamandas, Lasiandra floribunda, 3 feet by 2 feet; Musas, Dracænas, Crotons, Stephanotis, Eucharis, Agaves, Beaucarnea, Araucaria, Yuccas, Acacias, and others; also a large quantity of handsome PALMS, including Areca Verschaffeltii, 6 feet by 6 feet; A. lutescens, 5 feet; Chamædorea elegans, 6 feet; C. angusta, 4 feet by 4 feet; Calamus Vershafieltii, 4 feet by 4 feet, &c.; likewise a choice assortment of Specimen EXOTIC FERNS, among which will be found a magnificent pair of Davallia elegans, 5 feet high; Adiantum Farleyense, A. scutum, 4 feet through; Gymnogrammas of sorts, and others; 200 matchless Specimen ROSES in pots, 2½ by 5 feet high, by 2½ by 5 feet through, skilfully trained, and comprising the best varieties in cultivation; also a large number of Half-specimen do.; together with Seven well-built GREENHOUSES, measuring 90 feet, 72 feet, 60 feet, 47 feet, 46 feet, 25 feet, and 22 feet respectively in length, and varying from 11 feet to 23 feet in width; also several thousand feet of HOT-WATER PIPING, Two Weeks' large-sized TUBULAR BOILERS, with fittings complete; Garden Pumps, Rustic Chairs, Vases and Implements, Hay Ricks, Carts, and numerous other effects.

May be viewed two days prior to the Sale. Catalogues may be had on the Premises, of Mr. THOMAS EAST; and of the Auctioneers, Estate Agents, and Valuers, 98, Gracechurch Street, London, E.C., and Leytonstone, Essex, E.

N.B.—The Glass Erections will be included in the Second Day's Sale.

(For Continuation of Sales by Auction see p. 474.)

ROYAL HORTICULTURAL SOCIETY.—SHOW of FUNGI, OCTOBER 7, 1874.

AWARDS of the JUDGES.

CLASS 1.—COLLECTION of FUNGI, arranged according to their botanical affinities. (Open.)
1st prize, Mr. B. J. Austin, 6, Russell Street, Reading, £5.
Equal, Mr. J. English, Epping, £5.

CLASS 2.—COLLECTION of EDIBLE FUNGI. (Open.)
1st, Mr. B. J. Austin, £3. | 2d, Mr. J. English, £2.

CLASS 3.—COLLECTION of NEW or RARE FUNGI. (Open.)
1st, Mr. J. English, £3.

The Gardeners' Royal Benevolent Institution.

NOTICE IS HEREBY GIVEN that an ADDITION to the LIST of PENSIONERS will be made in JANUARY NEXT. All persons desirous of becoming Candidates are required to send in their Certificates and Testimonials to the Committee on or before NOVEMBER 7 NEXT, after which day they will not be received. Preference will be given to those applicants, or their Widows, who have been Subscribers for fifteen years and upwards; should there not be enough of that class, then the claims of those who have not so subscribed will be considered.

By Order, EDW. R. CUTLER, Sec.

14, Tavistock Row, London, W.C.—October 7.

Printed Forms may be obtained upon application to the Secretary.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6d. each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.	JAMES BATEMAN, F.R.S.
W. WILSON SAUNDERS, F.R.S.	BERTHOLD SEEMANN, Ph.D.
Rev. M. J. BERKELEY, F.L.S.	ARCHIBALD F. BARRON.
M. DECAISNE.	Hon. MARSHALL P. WILDER.
G. F. WILSON, F.R.S.	JOHN GIBSON.
Dr. MOORE, of Glasnevin.	Professor ASA GRAY.
Professor REICHENBACH.	I. ANDERSON-HENRY.
Rev. S. R. HOLE, M.A.	Professor KARL KOCH.
E. J. LOWE, F.R.S.	Baron VON MUELLER.
JAMES MCNAB.	JOHN SMITH (Kew).
ROBERT HOGG, LL.D.	Professor WESTWOOD.
Dr. REGEL.	Dr. THWAITES.
	Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W.C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. for 12 months, including postage to—

AUSTRALIA	CANADA	JAMAICA	WEST INDIES
BELGIUM	FRANCE	NEW ZEALAND	UNITED STATES

£1 10s. 4d. for 12 months, including postage to—

AUSTRIA	HOLLAND	PORTUGAL	SPAIN
CHINA	INDIA	PRUSSIA	SWITZERLAND

£1 14s. 8d. for 12 months, including postage to—

RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 10, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Oct. 12	Sale of 800 lots of Dutch Bulbs, at Stevens Rooms.
WEDNESDAY,	Oct. 14	Royal Jersey Horticultural Society's Show. Sale of Specimen Camellias, Herbaceous Plants, Dutch Bulbs, &c., at Stevens' Rooms.
SATURDAY,	Oct. 17	Sale of Dutch Bulbs, at Stevens' Rooms.

THE reproach that botany is a mere science of names, conveys one of those dangerous half-truths which are more mischievous than absolute falseholds. The fathers of botany did, indeed, occupy themselves more with the discrimination and nomenclature of plants than with their habits and modes of life. But we must not forget that LINNÆUS, the great census-taker and registrar, left behind him several volumes of *Amœnitates Academicæ*, devoted in large measure to the habits of plants and of other living beings, and which constitute, even now, delightful and instructive reading to those who have a taste for natural history. In more modern times plant-physiology has become more and more an affair of chemistry and physics—a problem to be worked out in the laboratory of the chemist, and the experimental rooms of the physicist.

But there is another department of plant-life which requires little or no special knowledge of chemistry or physics, and few or none of the instruments and apparatus indispensable to the students of the last-named sciences—we allude to the study of the MANNERS AND QUSTOMS OF PLANTS. We are far from asserting that these can be fully investigated without the aid of chemistry and physics; but a great deal may be done, and a large amount of useful information can be obtained, by simple careful observation such as any person of ordinary intelligence can give. We have had abundant illustrations of this during the last few years in the many observations on the hybridisation and fertilisation of plants, the mechanism employed in that process and its mode of action. So, too, the recent researches into the movements of plants, and the observations on the flesh and cartilage-dissolving properties of certain plants, such as Drosera, Dionæa, Nepenthes, &c., will undoubtedly stimulate a host of observers who, without considering themselves as botanists, will, nevertheless, advance botanical science in no small degree.

Quite apart from what may be thought of the Darwinian theories, the astonishing influence they have had in interesting the public in scientific matters, and the powerful stimulus they have given to research and observation, will be admitted by all. To our thinking, indeed, this is one of the strongest evidences of the inherent truth of the doctrines in question. If there were not a very large infusion of truth in them, they would not manifest so much vitality, and act so powerfully in increasing the aggregate of our knowledge on physiological matters. If they contained less truth, we might, indeed, have endless discussions, but they would be relatively barren in results.

We have no wish to dwell on these points, our object now is simply to call attention once again to the circumstance that there is a department of botanical science which anybody with a pair of eyes and average intelligence may work at with pleasure to himself, and profit to the science, even though he be destitute of botanical lore, as it is usually understood. We have endeavoured to keep our readers *au courant* in these matters, not only on account of their own intrinsic importance, but by reason of their direct practical value. The next generation, if not the present, must consciously or unconsciously modify their practice according to the principles now brought to light.

Influenced by these motives we now venture to call attention to some observations of M. HECKEL, communicated to the Botanical Society of France, and recorded in a recent number of its *Bulletin*. These observations relate to the MOVEMENTS of the STAMENS in Berberis and Mahonia. All of us must have seen this abrupt hinge-like movement of the stamens from the circumference to the centre of the flower in these plants, which is so striking as to attract the attention of the most careless onlooker. M. HECKEL, in thinking over the subject, thought that the movement must be due to the alternate changes of form, now long, now short, in the constituent cells of the stamens. In order to verify this M. HECKEL availed himself of anæsthetics. He does not say what he did, but the probability is that he placed the flower under the influence of chloroform. The necessity for doing this arises from the fact that immediately you cut the stamens in order to take from them a slice to examine under the microscope, you cause contraction; but by, so to speak, paralysing the cells, a section may be taken, and the normal unirritated condition of the cells ascertained. So treated, longitudinal slices of the irritable part of the stamen (the concave inner surface in this instance) are seen, according to M. HECKEL, to be arranged in parallel rows, and each cell to be longer than it is wide, its yellow contents being diffused throughout the cavity and applied to the walls. An examination of the same cells in the excited or irritable state shows that they become shortened, contracted, and gathered together till they only occupy two-thirds of their original space; the contents of each individual cell are collected together in the centre of the cavity, and the outer cell-wall or envelope is thrown into transverse ridges. So, then, in the one case the cell is at rest, in the other it is tense and contracted, the seat of contraction being, doubtless, in the protoplasm lining the interior of the cell-walls, rather than in the cell-wall itself.

So far M. HECKEL has been alluding to the inner concave face of the Berberis stamen, by touching which with a pin, or other convenient thing, we may excite the movements already alluded to, and which are excited, as we know, by contact with insects visiting the flowers for honey. But the opposite convex surface of the same stamen, with which the insect does not come in contact, is not sensitive to external impressions of this character, though it also shows contractile power arising from internal causes. The curious thing is that this contraction is exercised in a manner directly contrary to that manifested by the cells on the inner surface, that is to say, that when in a state of rest, under the influence of the chloroform, they are contracted, while after irritation they are distended. They would thus have the effect of pulling the stamen back into its old position after irritation.

The contractile property possessed by plants is quite analogous with that shown by animals, and is one more link in the chain that ties the two sets of creatures together.

TESTIMONIALS have, from various reasons, become so distasteful to most of us that the mere mention of them is enough to create a prejudice against them. Let the following history, however, stand as a record of valuable services cheerfully and disinterestedly rendered, and as judiciously and gracefully acknowledged. The Woolhope Club has done honour to itself in paying this well-merited tribute to Mr. WORTHINGTON SMITH, and our readers, who have been so much indebted to his skill and talent, will sympathise with the remarks of the President of the Club. At the recent "Fungus-feast" of the Club, held at Hereford, the President, the Rev. JAMES DAVIES, of Moor Court, after the usual formal toasts had been duly honoured, rose and said that—

The next business of the evening would, he trusted, be a surprise to no individual save one in that room. They had all seen so much of his handwriting during the last fortnight that he might at once dash *in medias res*. Some three weeks ago an idea had been suggested to him by Dr. BULL—an idea all Dr. BULL's own, though the Doctor did all he could, with his usual kindness, to associate him (the President) in the happy thought—that the Club ought no longer to suffer to go unrecognised and unacknowledged the gratuitous and valuable services rendered them for the last six years by Mr. WORTHINGTON SMITH, with his pen, his pencil, and his head. He had, in fact, been their honorary Professor of Mycology, and worked as hard and unselfishly for them as if he were retained at a goodly salary. In his experience of literary and scientific men he (the President) had come across two prominent types—the men who hoarded and held back their knowledge, and lived in constant dread of "a chiel" near them "taking notes," and the men who never seemed so happy as when they were communicating and diffusing their own stores of information and without one single thought of self. One example of this type he could gratefully testify was the late Sir GEORGE LEWIS; another, in his own walk of life, and in his special pursuits, was Mr. WORTHINGTON SMITH. There was no Woolhopian but knew that, in beginning or going on with the study of mycology, he could command the stores of Mr. W. G. SMITH's experience, and avail himself of his extensive and accurate information. Having realised this during a presidency of two years he (Mr. DAVIES) readily undertook to co-operate with Dr. BULL in sounding the members of the Club with reference to a testimonial (in the useful form of silver spoons and forks), by which to mark their sense of respect and obligation; and the result of both the letters they had written and the personal applications they had made had been an unalloyed success. If there was the ghost of an alloy it was in two replies only, and in both the ghost was easily laid. One gentleman, after devoting a page of his letter to deprecating testimonials generally, and that in the very strongest terms, went on to say that, were his objections multiplied a hundredfold, he should still feel deeply indebted to the President for giving him an opportunity of marking his respect for Mr. WORTHINGTON SMITH by a contribution to the pro-

posed present. Another sent a subscription with many expressions of satisfaction at the opportunity afforded of thus evincing a sense of high desert, but wound up his letter with a hope that neither the spoons nor forks might ever assist in conveying to Mr. Smith's mouth any poisonous funguses which might prematurely terminate his career of usefulness. A moment's thought was sufficient to reassure him (the President) that this dark shadow of a suspicion was the merest ghost, for if any man in England or Europe knew the difference between edible and noxious fungi it was Worthington Smith. In token of his helpfulness in enlightening them on the same subject the Club had requested him on this occasion to present Mr. Smith with the oaken case which he held in his hands, with the plate which it contained, and he would but add that, to quote the words of the inscription engraven on silver on the case, it was given "in pleasant memory of fungus forays assisted by his experience, illustrated by his pencil, and chronicled by his pen."

Dr. Bull then rose and said that as in the case of the Franco-German war it would ever be a question who was the originator, so with this testimonial, the first idea of which the President had so kindly ascribed to himself. Whatever title he might have to the happy thought, the President's energy, kindness, and geniality had made the undertaking easy and pleasant, and it must have been a great satisfaction to him to notice the unanimous tenor of the numerous letters which had flocked in, in reply to his circular. The pleasure of that correspondence had been shared by himself (Dr. Bull), for he had had nothing but kind answers to the letters he had written; and when the President's lithographed letter was issued, every post might be said to have brought in a fork or spoon, until the friendly gift, originally small in conception, grew into a really valuable one. All felt that it was a present really deserved from the Club, and this feeling would find an echo far and wide. The Club had done itself honour in giving such kindly expression to its obligation; but all who, from any part of the country, have ever written to Mr. W. G. Smith for information as to the names or characteristics of fungus, would equally feel how worthy he was of such an expression. Not to speak of the time and patience he had devoted to correspondents, strangers as well as friends, it must have cost him a mint of postage-stamps to reply to them. The President had not told them how useful in this testimonial that mystical individual, "our own commissioner," had proved. He set to work at once, ornamented the inscription plate with Funguses, and sketched a design for engraving on the lid of the box. There was not time for carrying out all this; but he (Dr. Bull) cordially agreed with him that every fork or spoon, in place of crest, should bear a Fungus on its handle, each different, and all copied from the plates in the *Woolhope Transactions*, or representing fungi new to Britain, and discovered by the Woolhope Club. So might the friendly, pleasant days Mr. W. G. Smith had spent in Herefordshire rise to his mind when his eye fell on a "deliciosus" spoon, or a "procerus" fork, and so might a kindly feeling toward his Woolhope club-mates pervade and cheer his everyday life.

Mr. W. G. Smith—in a brief reply, and with characteristic modesty—disclaimed the idea of any services on his part which could call forth from the Woolhope Club so handsome a testimonial. All the indebtedness was, he said, on his side; and it was only that day, as he walked, alone, in Stoke Edith Woods, that he was thinking within himself how he could ever requite the kindness of the Herefordians in associating him with these forays and feasts, and making his stay at Hereford every autumn so pleasant and instructive.

In the course of the evening several of the eminent mycologists who have for the last two or three years attended the fungus forays as guests, were unanimously elected honorary members. First on the list was the Rev. Miles J. Berkeley (unfortunately absent on this occasion), and the other names are those of C. E. Broome, Esq., J. Rennie, Esq., W. Plowright, Esq., W. Phillips, Esq., and the Rev. W. Houghton.

From forty to fifty sat down to the dinner, at which were served several triumphs of mycological cookery, and amongst the number of guests were Mrs. Lloyd Wynne, Mrs. Cooper Key, and Miss Guthrie.

—— Some time since one of our special correspondents in Belgium noted the invention of a small photographic apparatus which promised to be of great service to amateurs. The *Belgique Horticole* gives further particulars of the Scenograph, as it is called by its inventor, Dr. Candèze. The apparatus consists simply of a stick and of a camera of the size of an opera-glass. The negatives are prepared beforehand. If a representation of a plant or other object be desired, it is sufficient to place it in the focus of the scenograph for a minute or two. The apparatus is made in Paris by M. E. Deyrolle, 23, Rue de la Monnaie, or of M. Ch. Jonniaux, Rue St. Denis a Liège, for fifty francs. We hope some enterprising optician will speedily introduce this instrument to this country.

—— The Horticultural Society of Liverpool has recently issued a schedule of prizes for the twelfth exhibition of Chrysanthemums and fruit, to be held in St. George's Hall, Liverpool, on Tuesday and Wednesday, Nov. 17 and 18, unless prevented by the cleaning of St. George's Hall. The committee state that the following prizes have been generously placed at their disposal, to be competed for at the spring show, 1875, by Messrs. R. P. Ker & Son, of Basnett Street, and Aigburth, Liverpool:—A silver cup, value £6 6*s*., for a group of twenty-four bulbous plants in flower, comprising Hyacinths, Tulips, Narcissi, &c., but not more than twelve Hyacinths; also a silver cup, value £6 6s., for a group of twelve flowering and foliage plants, not more than seven of either, pots not exceeding 10 inches in diameter. In both groups beauty of arrangement to be considered in awarding the prize. Nurserymen excluded. Open to Lancashire and Cheshire only. W. S. Caine, Esq., has also placed £10 per annum at the service of the committee for prizes. It is earnestly to be hoped that these liberal gifts will be the commencement of a revived interest in horticulture in this district.

—— Parrotia persica, on one of the walls at Kew (see p. 271), is commencing to assume those beautiful autumn leaf-tints which render it then so beautiful. It was figured for the first time in the *Botanical Magazine* of 1868, and is a tree, "one of the rarest in cultivation." The foliage turns reddish-brown, scarlet, orange, and yellow, but the brilliancy of colour varies in different seasons. Dr. Hooker says:—"The genus was named in honour of the Russian, Professor Parrot, who made the first ascent of Mount Ararat in 1829. The wood of Parrotia is stated to be excessively hard and durable, whence the tree is called in Persia Temir-Agatsch, or Iron Tree. There is but one other species of the genus, P. Jacquemontiana, Decne.; a native of Kashmir, Himalaya." The subject of our notice should be planted against a wall, as there alone will the leaves become well coloured, and remain on the tree a considerable time. In the open ground defoliation is rapidly accomplished. It is increased by means of layers. The lower branches are easily managed, root well, and make handsome plants, retaining no trace of their lateral origin. It belongs to the Hamamelideæ, and is a native of Transcaucasian provinces of Russia and Northern Persia.

—— The opening of the School of Horticulture at Versailles, which was to have taken place on October 1, is postponed till December 1.

—— Dr. W. R. McNab has recently published in the *Transactions of the Royal Irish Academy* a record of some further experiments on the movements of water in plants, to which we shall probably refer at greater length at another time. In the meantime we rejoice to find that Dr. McNab continues to devote himself to vegetable physiology—a department which so sorely stands in need of workers in this country.

—— The *Belgique Horticole* cites from a Brabant journal the following remarks on the Influence of Forests on Climate, as studied for several years at Berne. It appears from these observations:—1. That the mean humidity of the atmosphere in forests is, according to the direction of the wind, 10—20 per cent. greater than in the open country. 2. That the mean temperature of the air of the forest is lower than that of the open country. 3. That the temperature of the trees is lower at the height of a man than in the crown of the tree. 4. That the mean temperature of the soil of the forest is considerably lower than that of the fields. 5. That the depth of rain and of snow was greater in the open country than in the forest. 6. That in the forest a much larger quantity of rain permeated into the soil than in the open country.

—— The late Mr. W. Barnes, of Camberwell, was so much esteemed for his sterling qualities, that we doubt not many of his old friends will be glad to show their feelings of respect by affording substantial aid under the melancholy circumstances detailed in the following note, which has just reached us:—

"It is with feelings of deep regret that we inform you that the eldest son of our old and esteemed friend, the late Mr. William Barnes, of Camberwell, has become an incurable lunatic, and is at present an inmate of the Surrey County Lunatic Asylum at Tooting The doctors state positively there is no likelihood of his being restored to either health of body or mind. From this cause his—you may say widowed—wife and four young children are left quite unprovided for; and, unfortunately, these painful difficulties are seriously augmented by the fact that the birth of another child is shortly expected.

"The widow of our old friend has impoverished herself in assisting her son for the last three years in his attempts to carry on a business which totally failed; she is still rendering such assistance as her means will permit, but her income has become so diminished that it is now barely sufficient for her maintenance. Under these circumstances we appeal to you for help to enable us to carry out the object we have in view, viz., to collect a sufficient sum—say between £50 and £100—to start this young woman as a milliner, of which business she has a good knowledge. At present her prospects are blank and dreary in the extreme; and we earnestly hope that, out of respect to the memory of old Mr. Barnes, and from the pressing nature of the case, you will be induced to subscribe to the fund.

"Robert Parker, The Nursery, Tooting.
John Fraser, The Nursery, Lea Bridge Road.
Benjamin Maller, The Nursery, Lewisham.
F. R. Kinghorn, Sheen Nursery, Richmond."

By either of whom contributions will be thankfully received.

—— Ipomœa (Exogonium) Purga, the true Jalap plant, is flowering freely on a wall of the new range at Kew, and in similar situations is quite hardy. The drug Jalap has been in the European *Materia Medica* for the last two and a-half centuries, but the plant yielding it was not known up to 1827. Two plants at least had before that time received the credit. The flowers are rosy purple, from which the plant is very attractive, trailing over a few leafless twiggy branches. The method of propagation recommended is to insert cuttings of the short side-shoots; a far better one is to cut the roots in pieces, by which a large stock may quickly be obtained. It is doing well in Jamaica, has been introduced into India, and is adapted for cultivation in many parts of the globe. It is a native of Mexico.

—— Mr. Masters, whose death we recorded in our last issue, was, we are informed, at the time of his decease, the oldest Fellow of the Horticultural Society, having been elected in 1818.

—— According to the *Illustration Horticole*, the Florence Exhibition, fully reported on at the time in our columns, was a financial success, the nett profit being £1000. The disposal of this sum to the best advantage for horticulture is under consideration.

—— Sonchus laciniatus is extremely handsome for dinner-table decoration. Several plants may be seen in the Cape-house at Kew. It is best grown with a single stem, and may be had in perfection for winter use. The leaves are pectinate, and arch gracefully; the midrib is pale green, almost white. Old plants cut back will furnish suitable cuttings. It is a native of the Cape de Verd Islands.

—— Amongst the many places selected some years since for Experimental Trials in the Cultivation of Cinchonas, was the Island of St. Helena, where upon Dr. Hooker's recommendation plantations were established, a skilled gardener from Kew appointed, and the cultivation subsequently proved very successful. This was done in Sir Charles Elliott's time, but when Sir Charles was succeeded in the Governorship by Admiral Patey, the Cinchonas were completely abandoned and have been neglected until quite lately, when the subject has been again revived between the authorities and Dr. Hooker. It is with satisfaction that we are able to quote the following facts, from an article on the subject in a recent issue of a St. Helena paper. The writer says:—

"We understand that measures are being adopted in earnest to increase the plantations, and advantage taken of the present favourable season to strike cuttings and plant out all available young plants. We are also happy to hear that the plantation is not to be, as before, strictly confined to one locality, but that the trees are to be tried in various situations and that no difficulty will be made in allowing private individuals to procure cuttings or plants whenever they can be spared. A good quantity of the bark has been collected, to be forwarded to England for examination and analysis. So far as appearance and taste go, this is precisely similar to the Peruvian Bark of commerce. . . . . It is very satisfactory to find that our present Governor is alive to the importance of this Cinchona business, which we may now fairly consider to have got beyond the stage of experiment, since it appears there are now on the spot, neglected for three years, some 300 trees all in full vigour of leaf and blossom, from 6 to 12 feet high, and with stems 3 or 4 inches inches in diameter, and bark a quarter of an inch thick. Let us hope that Governor Janisch will continue vigorously to propagate these valuable trees on all the Government lands which are found suitable. Then when his term of office shall expire, he may have the satisfaction of knowing that he has earned the same title to public gratitude as is said to be due to the man who makes two blades of grass to grow where only one grew before. And as it may be hoped that Mr. Janisch's government may endure for a considerable period, it is most important that he should have taken up so warmly this question of Cinchona trees; it being a well-known fact that every new Governor takes up a new hobby, and no one was ever yet known to carry out the plans of his predecessor. The only exception is our present Governor, who is now

carrying out the plan of clothing the central ridge of our island with the trees that yield quinine, after the plans of his predecessor, Sir CHARLES ELLIOTT. But even this exception is qualified by the fact that Sir CHARLES immediate successor reversed all his arrangements, and allowed the plantations to go to waste, and, besides, Mr. JANISCH was Sir CHARLES' Colonial Secretary."

—— When monographing the TACSONIAS we fell in with one species which, even in the dried state, appeared to be of unusual beauty. This we named T. Jamesoni, in honour of the late Dr. JAMESON, of Quito, by whom the plant was found. Lately we have received information that this fine plant has been introduced into this country by one of our leading nurserymen, and in due time we hope to be able to speak more at length concerning it.

—— The plates in the last number of the *Illustration Horticole* (English edition) are devoted to the following subjects :—Azalea Marquis Corsi, a double-flowered variety with rosy carmine petals spotted with black ; Livistona Hoogendorpii, a handsome Fan Palm, with spiny petioles. Concerning the introduction of an allied species, L. australis, M. ANDRÉ relates the following narrative :—"When ALLAN CUNNINGHAM was acting as Government Botanist in Australia he sent some cases of plants to Kew, in which his assistants, to save themselves the trouble of seeking or preparing other means of drainage, placed a quantity of Palm seeds. When the cases were unpacked these seeds were found to be in course of germination, and one of those seedlings has now become one of the noblest ornaments of the Palm-house at Kew. Another specimen from the same source is, or rather was—for we believe it perished, with many other grand plants, in the unfortunate conflagration which laid a portion of the building in ruins—at the Crystal Palace ; and a third adorns the large house at Herrenhausen, where Mr. WENDLAND has been obliged to lower the tub from time to time, according as the crown rose and threatened to break through the glass. This lesson was not lost. Mr. SMITH, the Curator of Kew Gardens, made the fact known, and it has been the means of hundreds of thousands of different Palm seeds reaching this country in a satisfactory condition. Dr. SEEMANN, who published the foregoing details, frequently made use of this plan in the course of his long travels, and thereby succeeded in introducing a number of beautiful species of this large family." Azalea Maréchal MacMahon bears "enormous clusters of gorgeous flowers, frequently exceeding 4 inches in diameter, and of a fiery red colour. It is certainly one of the finest varieties hitherto produced." Galeandra Devoniana is a Phaius-like Orchid from the Amazons. Ronnbergia Morreniana is a Bromeliaceous plant, forming a new genus. Its leaves are of a light green colour, barred with irregular transverse stripes of a deeper hue. The flowers are blue, in close terminal heads. Tillandsia tessellata is now well known in this country as one of the most beautiful of recently introduced foliage plants.

—— APONOGETON DISTACHYON is diffusing its delicious perfume in the Cape-house at Kew, where it is growing in a large bell-glass of water. Apart from its pleasing odour, the pure white bracts of its curious inflorescence are universally admired. Though it grows well in any pond or slow stream of pure water, it is well worth the honour of an indoor aquarium. It is said to flower the most profusely if allowed to rest quite dry, as it often does in a wild state at the Cape of Good Hope. It is there sometimes used as a pickle, and substitute for Asparagus.

—— The following cutting from a New Zealand paper has been sent to us by a correspondent :—

"A most beautiful Tree Fern, of an entirely new species, has been discovered (says the *West Coast Times*) by Mr. JAMES TAIT, of Sale Street, the well-known horticulturist and botanist, and we had the pleasure last evening of inspecting two of its magnificent fronds. The largest is 18 feet in length, and from 5 feet to 6 feet in breadth. They droop far more than the ordinary species, forming a complete and graceful canopy, as it were. The locality in which the treasure was discovered Mr. TAIT very wisely keeps a secret, but it is in this district. The stem of the tree is about 3 feet in length ; as he describes it, 'immensely rich, and of a dark velvety colour.' In its centre, young fronds are being developed in the form of a scroll. The tree is growing about 6 feet off the ground, on a kind of mound of roots of Black Birch and clay. The midribs of the fronds average 2 inches at their thickest part, gradually tapering to extreme fineness. There were only six fronds on the plant, of which Mr. TAIT brought in two as samples, and without exception they are the most beautiful specimens of the Fern tribe that we have ever seen. Could such a growth be transferred to England, money would be no object in its purchase to adorn the lawns of country gentlemen. Mr. TAIT, as many know, is a skilled judge ; he assures us that the tree he has found is entirely new and unknown, and it is well worth the while of those who take an interest in this beautiful class of vegetable life to pay him a visit before the specimens are submitted to the drying and pressing process."

BRITISH GARDENERS.—III.

WILLIAM TILLERY.

THE subject of the annexed portrait was born in the town of Kilmarnock, in Ayrshire, in 1808, his father being manager to Mr. Gemmell, a nurseryman of that town. The elder Tillery was afterwards appointed gardener and forester to the late Duke of Portland, at Fullerton House, near Ayr ; and here, writes the subject of our memoir, "I commenced my gardening career under my father, and afterwards was two years at Eglinton Castle under Mr. Rose, who was then gardener at that place. Eglinton Castle garden was at that time one of the most extensive in Scotland, and an excellent school for young gardeners. I afterwards crossed the border southwards, and got employment in Malcolm's Nursery, Kensington. At that time Kensington and its neighbourhood had a different appearance from what they have now, for green fields predominated about it and Brompton, and several nurseries were seen on the way to Knightsbridge. The best place for plants was at that time the Comte de Vande's garden at Bayswater, and we young gardeners often had a stroll across the Park on Sundays to see them, for Mr. Campbell, the gardener there, kindly allowed us to see them on that day. All across from Bayswater to the Edgware Road was then taken up by brickfields, gravel-pits, and a few tea-gardens. After leaving Malcolm's Nursery, I got into Caenwood, the then refuge for destitute young gardeners, and had Mr. Philip Frost, of Dropmore, for

my foreman, and a friendship arose between us that has never yet been severed. Mr. Frost came from Dropmore, where the bedding system had just commenced under Mr. Baillie. The flower garden at Caenwood was one of the finest in the neighbourhood on the mixed system, principally of herbaceous plants, but it soon got into the transition state of massing the colours, through Mr. Frost's practice under Mr. Cockburn. After leaving Caenwood I was in Miss Longman's garden at Highgate for a short time, and often used to meet Coleridge the poet walking like a half-dead man on the arm of Mr. Gillman, a doctor, in whose house he was an inmate. From Highgate I went to Oakhill, to be under Mr. Dowding, who was then growing some of the finest Grapes in the kingdom. He was a very worthy and strict old gentleman, giving us young gardeners every information as regards the formation of his Vine borders for growing his famous Grapes. Pine-apples and other fruits were likewise cultivated at Oakhill with great success.

"In 1832 I succeeded my father as gardener and forester at Fullerton House, in Ayrshire, just at the time when the late Duke of Portland had introduced tile-draining on his estates there. Well might his Grace be called a national benefactor, for fields which only grew Rushes form now, when drained, the finest Wheat land in the damp climate of the West of Scotland, where the annual average rainfall is about 44 inches. In 1837 I was placed at Welbeck, as gardener and successor to the late Mr. Mearns. At Welbeck I had every opportunity of growing fruits, vegetables, and plants to supply the wants of a very large establishment. The late Sir J. Paxton was then making Chatsworth famous for its gardening, and I had frequent opportunities of visiting him, and his then foreman, Mr. Gibson, of subtropical celebrity.

"In 1859 the present Duke of Portland determined to do away with the old kitchen garden at the Abbey, and form a new one, near some magnificent stables and other buildings erected about a mile off. The site was bleak, and the soil of the most stubborn and unfertile nature, but no expense was spared in drainage, and in bringing better soil for the borders, and good crops of fruits and vegetables are now secured. The last improvement which I have been enabled to make is that of having nearly 4000 feet of 4-inch iron piping sunk deep enough to be out of the reach of frost and placed along the sides of the borders, with the hydrants every 24 yards, so that with the hose attached to them we can water every quarter of the garden. The force of water is by gravitation from a small lake about a mile distant, and with the force at command we can likewise syringe all the fruit trees on the walls. No kitchen garden can be said to be complete without a command of water like this, in dry warm summers such as that we have just passed through ; and although the system here was not completed until the beginning of July, I found the advantage in getting Broccoli, Cauliflower, and other things planted out, and keeping Peas and Turnips growing during the hot weather.

"The ranges of hothouses in this garden are very extensive and complete as regards heating and ventilation ; and some new features which I have planned in glass casing walls, and growing fruit trees on wired arcades are, I believe, worthy of notice. The Duke of Portland is quite an enthusiast in fruit-growing, and spares no expense in growing all the new kinds which can be procured."

AZALEAS AT LAKE COMO.

THESE charming Indian, or rather Chinese, shrubs, are tender in our northern climes, and we scarcely know them otherwise than as the inmates of a greenhouse. Art has supplemented Nature in her task, and the degree of perfection attained by the gardeners of Ghent in the culture of Azaleas is notorious, whereof exhibitions both at home and abroad are permanent witnesses. At Florence, again, we were shown collections that came from Belgium, and carried off all the prizes. But what is far less known is the beauty they acquire in the open ground in localities where the climate and soil are favourable to their proper development. In Belgium and France one species, A. liliiflora, grows and resists our winters with little protection, and there are doubtless other varieties that will flourish and flower freely on the South-west coast of England, as a great many do well at Cherbourg, Brest, and Nantes. But he who has not had the opportunity of seeing them in Northern Italy, and especially those on Lake Como, has seen nothing. Messrs. Rovelli, of Pallanza, Lake Maggiore, cultivate nearly all the Belgian and English varieties. They form dwarf bushes, and flower with surprising profusion. And on an eastern slope they succeed best, as they are not exposed to the fierce rays of a scorching sun. Nevertheless, the results obtained about Lake Como are still more remarkable. Above all, the Azaleas at the Villa Carlotta should be seen. This estate is at Cadenabbia, opposite Bellagio, and was formerly known as the Villa Sommariva. Here also are some valuable works of art, amongst others some bas-reliefs by Thorwaldsen, the Danish sculptor, and the famous statues by Canova, as Love and Psyche, the Magdalene, &c.

The newer parts of the gardens, near the village of Cadenabbia, have recently been improved and embellished under the superintendence of the gardener, M. Guiseppe Morganti. A bank of Azaleas particularly attracted our attention, and we intended saying something about them, but our pen is too feeble to describe their splendour when in full bloom. These repeated clumps of shrubs, clothed with innumerable flowers, like a mantle of gauze of a thousand tints, had a most charming effect. All of the varieties flourish equally well. They naturally assume a roundish outline, but without the stiff uniformity and regularity of our greenhouse specimens.

We have only one word to add ; let every one go and see this forest of Azaleas, for no description can give an idea of its splendour in the month of April. *E. A. in "Illustration Horticole."*

THE PICTURESQUE IN GARDEN ARRANGEMENTS.

LOOKING at various arrangements of garden ground, whether on a large or small scale, the idea is frequently suggested of how much more pleasure might be received if greater consideration was given to the necessary results according to known rules of perspective and colouring, of the various dispositions of available material.

Few gardens, comparatively speaking, are laid out with a view to scientific study of the contained growths, so that attention may in general be entirely devoted to the primary object which, independently of the pleasure of cultivation, is commonly either

merely to obtain a cheerful variety of colour immediately in view, or, where a larger scope is attainable, a more diversified arrangement, including grass, which may rest the eye in its cool green expanse, and trees and shrubs so disposed as to convey the idea of seclusion from external intrusion, or the existence of the glades and dells which are the charm of what is known as park-like scenery, and which, if non-existent, may at least be suggested by a little care and reflection far more than is usually the case.

From this particular point of view one or more trees near the house are of great importance, even a single tree gives a variety of light and shade through the day, and a centre from which to group surroundings with the more distant details, so as to remove the feeling of confinement often suggested by a small piece of garden ground. A good example of this might be seen some years ago in a completely rural parish. Two houses had their gardens stretching side by side up a slope, in one case the space was merely bounded by a hedge on each side, and dotted with flower-beds, in the other a single old Oak was left in the foreground, untrimmed and undisturbed as in some woodland glade; and the results were in the first case a feeling of being in a strip of some town row of parallel villa gardens, in the other of the usual country existences, fields, park, or what not—a freedom, in fact, suggested by the blending of the natural form in the foreground with those more distant, the artificial arrangements being entirely subsidiary.

Sometimes even where a number of villas stand fairly in a row, on flat ground, with gardens stretching in almost parallel lines behind each, and the subject of picturesque arrangement appears about as unpromising as possible, a line of fine trees crossing the garden ground at right angles may be turned to excellent account.

Thus, taking an example partly from real life, the view may have in the immediate foreground a couple of fine Elms. Here the inevitable skirting walls of the garden may be masked between the house and the trees by a good growth of Ivy, with bushes near the house, set close to the wall, and Ferns, and Foxgloves (which even in winter are effective from their handsome foliage) carrying on the wild effect to the tree on one side; the opposite border might similarly blend at the house and tree end into bushes, with a portion of the intervening border and wall left free for brilliant flowers to attract the eye and give variety. In some such disposition, with other trees near, and the ordinary garden arrangements seen through the vista, with trees and fields in the distance, a thoroughly country-like effect may be given even in the centre of some of the villa towns which hang round the borders of the metropolis.

In these arrangements much depends on so disposng the various heights and colours that the perspective and effects of distance may be so exaggerated as to increase the apparent space. Thus tall trees in the foreground, shorter growths, and still shorter succeeding in the distance, give the idea of the diminution of space, and consequently that the bounding lines are much more distant than is really the case; and without carrying what is, in point of fact, a species of picturesque fiction to the length of the arrangement of the avenues at the Leasowes, which so much attracted Hugh Miller's attention during his English tour, yet the fact that "the square of the distance diminishes as it recedes," should always be borne in mind in landscape gardening. If this principle is acted against, and the larger growths put in the more distant parts these will (as it is phrased) "come forward;" the eye considers them according to ordinary principles, and requires special information to correct its inference.

In landscape gardening near a house there is not the difficulty accompanying the inversion of this kind of view in an avenue. In the long straight lines of trees it may be pleasing to the owner to have the imaginary addition from one end, but the diminution of course corresponds when seen from the other extremity; but near a house in the kind of garden under observation there will probably be little of this, for on turning round the spectator will usually see the building, which will give a scale irrespective of surroundings.

Similarly with the effects of colour, whether in masses of flowers, rockery, or ornamental buildings and statuary. The effect of colour softens with distance, consequently a brilliant tint, like scarlet, or a clear white, which forces itself on the eye, at once conveys the idea of much less intervening space than if some half tint had been chosen, which, from its natural indistinctness, would convey the suggestion of distance.

In rockery there is a wide scope for thought in the picturesque arrangement. Where the possessor is fortunate enough to have command of the large masses of yellowish grey tufa, sometimes attainable from the drip of limestone water over moss and sticks, the great rugged blocks, intermixed with the Ferns which thrive so perfectly in the damp shelter, group excellently of themselves; but where the materials are of dark slag, or light water-worn stones, their respective blackness and whiteness is very difficult to deal with. In this case, if both materials are used together, a little wood may be introduced with great advantage; the grey or brown makes a middle tint between the extremes of the other parts, and some pieces of useless riven logs, or short lengths of arms of trees, may be disposed with ferns so as exactly to imitate the overhanging wooded banks of many a sunken lane of the west or south of England, where the Hartstongues and Polypody cluster in green masses through the larger portion of the year.

Where it can be managed, the blending of cultivated and admitted garden flowers with some accidental natural disposition often produces the best effect. There is a freshness about the arrangement which at once gives it a charm. Take, for instance, some neglected garden where a bed of Foxgloves is self-sown on a raised border with a kind of low rough stone frontage. Here a row of white Verbenas placed along the front edge so as to droop over the stones would group well in contrast with the towering purple spikes above them, whilst the deep evergreen of some permanent protecting hedge behind would throw forward the whole as a complete picture.

It is difficult for those with limited means and limited extent of ground to compete in what are the mere passing arrangements of horticultural fashion with their richer neighbours, but a study of the methods of growth and natural grouping of plants in their various localities of wood or rock, Fern grown glade or broken bank, carried out in the spirit of the garden arrangements, must always be pleasing from its truth and freshness; and if not admissible throughout will at least give an additional charm by its contrast to the more formal dispositions of the flower garden. *O.*

THE JARRAH WOOD.

The Government of India, we are glad to learn, intend, if possible, to introduce the Mahogany tree into that country. The following is given as the results of recent experiments in Madras:—The last supply of Mahogany seed was distributed between the Madras Gardens and the North Arcot, Cuddapah, and Nelumbur plantations. In the North Arcot plantations only one seed has as yet germinated, and that seedling is reported as yellow and sickly; but the whole of the seed is said to have arrived looking mouldy and useless. In Cuddapah germination commenced at from twenty-two or twenty-eight days, but only seven seeds germinated, and out of these two seedlings afterwards died: the remaining five are still very small, but tolerably healthy. At Nelumbur nine-tenths of the seeds are reported to have arrived quite bad; only one seed germinated, but the growth of this is reported as promising to surpass that of Teak. The best seeds were selected for trial in the Madras gardens, and they appear to have germinated freely, but many died off; the growth, however, of a few which survive has been rapid and good. Further supplies should be procured from the Honduras for our Nelumbur plantations. They should, in all instances, be taken out of their seed vessels and packed in dry silver sand. Thus far the experiments have not turned out well, but the failures do not afford a criterion that the introduction of the tree into India will not, by more careful selection and by better culture, eventually succeed.

Valuable as Mahogany undoubtedly is, we cannot help thinking that a far more valuable wood might be introduced into this country, and one again so unique in its characteristics as to eclipse all other timber yet known. We allude to the Jarrah wood, or, as it is sometimes called, the Swan River Mahogany. In the Madras Presidency it is partially employed for railway works, and in Ceylon it is extensively patronised by the local Government, and is largely used in the construction of military barracks.

We have said that the characteristics of this timber are simply incomparable, and when we further state that its market value is just one-half that of the much-vaunted and prized Teak, we think we have said enough to enhance its importance and to justify our drawing attention to it. The Jarrah, or Djaryl, is the aboriginal name, and, according to a scientific journal before us, is applicable for furniture and for every purpose for which ornamental wood can be required; some of it being of the very finest grain, and showing much figure, mottled curls, feathers and excrescences—a feature, it is added, peculiar to colonial wood, and highly effective in point of ornament. We further read that some years ago Admiral Sir John Stirling, before a committee of the House of Commons, stated that this wood grows to an immense size, and is so plentiful that there is sufficient to build twenty British navies! In none of the neighbouring colonies do we find timber of similar character or endowed with equally valuable properties, the latter being its great strength, hardness, and closeness of grain, combined with durability under exposure to salt or fresh water. It is never attacked by white ants, or by the Teredo navalis—the sea-worms which abound in tropical and semi-tropical seas. It resembles the Eucalyptus rostrata, or the Red Gum of Australia, but the latter—a valuable timber also—is inferior to it since the grain of the Jarrah is darker, finer and closer, and is susceptible of a very high polish, which brings out a rich dark hue. In its habitat, Australia, the timber is used for shipbuilding, pier and railway construction, as well as for the interior of buildings and for furniture. We are told that if cut at the proper season, *i.e.*, when the sap is down, it will be found to be the most enduring of all timber. It will then defy decay, time, water, the white ants, and no worm, whether of salt or fresh water, will have any effect upon it. In fact, vessels of considerable burthen are built entirely of this wood, and copper sheathing for such vessels is rendered unnecessary. Can the advocates for the more extensive use of the Sal for our Indian railways say the same for their *protégé?*

We are glad to learn that this valuable wood is coming into more general use, and that two companies have been formed for supplying the market on a large scale, one Indian and the other colonial. The latter expects to supply Jarrah at the same price as the Red Gum. The factory is at Ballarat, and there they have a good stock of the Jarrah, and another timber called the Tooart. This is a species of White Gum, and has a close grain, is extremely hard, cannot be split, and is capable of enduring great heat without rending. For gun-carriages it is invaluable, and, like the Jarrah, defies the attacks of all worms and termites. In these respects the Red Gum tree also shares.

Such are the peculiar properties of these Australian trees—the Jarrah, the Tooart and the Red Gum, and, as instances of the durability of the latter (a wood we have said inferior to the Jarrah) the following instances are given:—A jetty at Swan River, which had been built in the early days of the colony of Oak procured from a wreck, was completely destroyed by the teredo, whereas the Red Gum Mahogany similarly exposed had not been touched by it. Three logs were recently sent to Victoria which had for the last thirty years formed a portion of the Causeway Bridge at Perth, over the Swan River. They were found to be in every way as sound as the day they were driven in, and by way of contrast we are told that some logs of Baltic timber belonging to the same bridge were found completely riddled in the course of ten months.

These are some of the instances, among others given, to show the surprising and invaluable peculiarities of the timbers above-mentioned. That they are invaluable for India—the land of the termite—is a fact that cannot be gainsaid, and hence we do right, we think, by advocating their introduction into India, and their utilisation in all our railway and building works. *Delhi Gazette.*

Home Correspondence.

Vicomtesse Hericart de Thury Strawberry.—Allow me to recommend to your readers this excellent Strawberry as being a most prolific bearer; either forced or in the open ground. I am surprised it is not more extensively grown. I have tried a great many sorts with more or less success, but have found none equal to this one as a general good cropper; it remains longer in bearing than many other sorts, will also keep longer when ripe; and, as the flesh is firm, it is well adapted for travelling. The flavour is most refreshing, having a slight acidity. As a forcing Strawberry it cannot be too highly recommended. It is a sure setter, and that in a temperature which would prove fatal to Keens' Seedling, and many others which I have tried. I generally use the plants after forcing for making fresh plantations in the open, where they bear a second crop (not a usual thing in this cold neighbourhood). I have some ripe at the present time. I had a good crop this season from plants forced last, when from Keens' Seedling and Sir C. Napier, growing in the same quarter, I could hardly gather a dish (Strawberries in this neighbourhood being very poor this season). Perhaps some of your readers may have something to say about it. *Edward Holliday, Preshute House, Marlborough.*

Dionæa muscipula.—There has been a good deal written lately about the organisation and habits of the Dionæa and its allies, the Droseraceæ, but nothing has been said of its cultivation in this country. Perhaps it would interest some of your readers if I give the details of my treatment, as I have been somewhat successful with it. First of all, then, the plants must be well-drained; I consider this to be the secret of success. I fill my pans up to the brim with clean crocks, putting a nice layer of Sphagnum moss over them to keep the drainage perfect. I then put on the soil, which is composed of good fibrous peat, Sphagnum moss, and lumps of charcoal about the size of Peas. The plant is then put in, and packed all round nicely with live Sphagnum moss, and the whole surface of the soil covered in the same way. The plant will now be seen to be well elevated, much the same as some of the Orchid

tribe, and after having given it a gentle syringe, I give it a nice open position in the stove. I do not mean to say it would not grow in a greenhouse temperature, but it grows better in the stove; yet those who possess a greenhouse, and can keep out frost, should by all means try their skill with this singularly interesting little plant. I have a beautiful pan of it now some 16 inches in diameter, growing just in the way I have described, and nothing gives more interest to a collection of plants than this, either at home or for exhibition purposes; and I feel sure any one who will follow my treatment, and attend regularly to their plants with the syringe, will in time be rewarded with a good share of success. *Edward Payne, Brook House Gardens, Fulwood, Preston.*

A Large Gourd.—My gardener has just called my attention to a fine specimen of the American Gourd. He thinks it is larger than any he has seen or read of. It weighs 119 lb., and measures in circumference 6 feet; depth through, 17 to 18 inches. It is grown from seed of his own, produced by crossing several varieties, and on the spent manure from a hot-bed. On less than 2 perches of land he has five or six of these Gourds, but this one is considerably the largest. *J. F., The Chantry, Frome.*

Hoya carnosa Fruiting.—Has Hoya carnosa been known to bear fruit in this country? I have been informed, by a good authority, that its fruiting is of rare occurrence, but shall be glad of your opinion on the subject. I have a plant bearing a capsule (thoroughly ripe) containing eighteen or twenty seeds. The plant has stood in a cool conservatory for the past two years. *E. Crump, Woodside, Wootton, Isle of Wight.* [Very rare. Eds.]

The Pampas Grass.—Out of the numbers of plants which were planted some few years ago, there are now comparatively but few that have made gigantic plants. The absurd notion which at that time prevailed concerning its requiring protection from frost, and the material which was employed for the purpose, did much injury, and destroyed numbers of the plants entirely. Although this highly ornamental grass will grow in almost any soil or situation, still it is one of those subjects which does amply compensate for liberal treatment, as will be seen by the dimensions of some plants which were planted here about ten years ago into prepared beds of rich compost, and never had the slightest protection. No. 1 is 40 feet round the outside of the blades, the same being 8 feet in height, in which are ninety-two spikes, some of which are 12 feet 6 inches high; the flowers on this plant assume the pendulous form. No. 2 is rather less in size, having 125 spikes, the tufts of flowers of large size, and perfectly erect, some being 10 feet 6 inches high. At the present time these plants, with their feathery plumes of snowy whiteness, combined with the magnificent blades of symmetrical proportions, renders them objects of admiration, and worthy of a place, in my estimation, more conspicuously situated than that which I selected in the vegetable garden. *G. T. Miles, Wycombe Abbey.*

Pelargoniums v. Geraniums. — Some of the nurserymen's catalogues just issued still contain the word Geraniums, then Zonal Pelargoniums. How is this? They are in general correct in regard to such prominent headings. Can it be that so little distinction exists between the Crane's-bill and the Stork's-bill as to be really undistinguishable? *Opus.*

A Heavy Crop of Potatos.—I think it might be interesting to you to know that an individual not far from Kew, on a piece of freshly broken-up ground of 30 feet by 18 feet, has lifted a crop at the rate of 1760 bushels, *i.e.*, in a row of 18 feet he pulled up upwards of 56 lb. One plant had haulms some 5 feet long, and bore 5 lb. of tubers some 16 oz. in weight. It strikes me that is rather a large yield. The kind was the Regent, and all were excellent. I was informed that the soil was loose. They were planted some 9 inches deep, and the mass of tubers heaved up the surface. The fact would seem to indicate that they do not like too rich a soil, such as market gardens have. *W. H. Fitch, Kew.*

The Hardiness of Passiflora cœrulea.—I have a plant here on a south-east wall occupying a space of from 8 to 10 feet square, and which has been in bloom for some weeks and still continues. It is really hardy in this cold part of Hampshire, and I may mention at another place near Brighton I planted one there on a south wall, and it stood the test of all winters and commenced blooming generally about August and lasting for some weeks with no protection whatever, neither summer nor winter; and I really believe it is hardy anywhere, but it glories on a south wall and seems to be quite at home in its growing season. *Thomas Wood, The Gardens, Normandy House, Alton, Hants.*

The Rose Controversy.—The "argument" of this subject seems to be drawing into a very narrow compass. I formerly expressed the opinion "that Rose plants grown for prize blooms, however fine the plants might be, are not intrinsically so valuable as plants grown otherwise." I have met with nothing in the controversy to shake this opinion. In the attempt to controvert it in last week's *Gardeners' Chronicle*, new ground is taken up by starting from the point of "fine blooms" instead of "prize blooms." The case there assumed as the "negatives" in which "the worst possible soil is selected"—"dug not deeply"—"as manure is injurious none is given either directly or indirectly"—"water, however much needed, is withheld"—"and especially the grosser feeding sorts are encouraged," throws no new or valuable light on the subject, because it is only an imaginary case opposed to actual facts. If these are "the negatives of the practices of exhibiting firms," they are only imaginary negatives, have no existence, in fact, are things *in posse* rather than *in esse*. Starving is not met with in any Rose nurseries, whereas "cubbing" for prize blooms is commonly practised. Now facts cannot be successfully assailed by imaginary statements but only by facts. The treatment here assumed is not practised or advocated and no sane man is likely to practise or advocate it. Although the grower for prize blooms selects the best soil, digs it deeply, fills it with manure, deluges it at times with water, and adopts various practices to get the strong growth necessary to produce large blooms, it by no means follows that the grower who does not compete for prizes selects "the worst possible soil," and in other matters rushes to the opposite extremes. Is there no standing ground between the system of cultivation which produces gorged plants with more sap and pith than wood and fibre and that which produces starved plants? No one who reasons can doubt that the health and constitution of a plant, as of an individual, may be injured by starvation as well as by gluttony; but this is a curious argument to advance against healthy and moderate feeding. Some men and the lower animals suffer from gluttony, but would it be fair in argument to accuse those who condemn over-feeding of advocating starvation? The sentence, "I also fail to see the justice of the simile between a well-cultivated plant, with all its parts in healthy, fine condition, and a Dives removed from luxury to penury," is open to question. No such simile exists. A gorged plant in which the natural equilibrium of wood, pith, sap, fibre, &c., is disturbed cannot be called "a well-cultivated plant, with all its parts in healthy, fine con-

Fig. 96.—Amanita muscaria.

dition," although it is a Dives removed (and too often harshly removed) from luxury to comparative penury. I do not contend for starvation or repletion, neither is, in my judgment, good cultivation. The best cultivation in relation to maiden plants of Roses (and it is mostly maiden plants that are sold by the nurseryman, and it is from them for the most part that the prize blooms are derived) is that which ignores too much fat and produces moderate solid wood, no stronger than our climate will thoroughly ripen, and roots no coarser than can be withdrawn from the ground without doing violence to the plants. *W. Paul, Paul's Nurseries, Waltham Cross, Herts.*

The Tuberose (p. 434).—In connection with Mandon's specimens of this plant, I may observe that those in the British Museum herbarium are labelled as collected, "in pratis subfrigidis," from which it appears pretty certain that they are truly wild examples. *James Britten.*

Horse Lawn Mowing Machines.—I find Shanks' 48-inch machine a perfect cutter alike in wet and dry weather. This is a new machine, and the improvements are admirably adapted so as to facilitate draught to the horse and handling to the man. Owing to our increase of grass-cutting, I purchased this one this spring in addition to our other two 42-inch ones, and my men prefer the new one to either of the others; and although it is 6 inches larger, they say it is less fatiguing to the horses, which I quite believe. My opinion is there are no better horse machines than Shanks'. In fact, from experience with others, I think, on the whole, it is the best one. *Henry Knight, Floors.*

—— I would strongly advise your correspondent, "G. B.," to get one of Ransome's machines for mowing short grass, as they are by far the best and most durable—machines in constant use here since 1866 showing no perceptible wear as yet in any of the bearings. *J. Sheppard, Wolverstone Park.*

Killing and Colouring Rye-grass Seed.—The resolution passed by the Belfast grass seed merchants on the 22d ult. in reference to my letter which appeared in your paper on the 19th ult., is, although exonerating themselves from the practices I referred to, no refutation of my statement. The Belfast merchants, although large dealers, hold but a small portion of the Irish grass seed trade in their hands. They undoubtedly are justly anxious to proclaim aloud that they know of no firm in Belfast that kills and colours seed, but can they state that they heard the matter for the first time through my letter of the 19th ult.? They resolve in their meeting that I should name the town or place where such is done. If I complied with their wishes, I might be called upon by the merchants of that place to name the firm or firms, and there is no knowing where the matter might end. I said, and I repeat, that such practices are carried on in the North of Ireland, and my letter of the 19th ult. pointed out an easy way of detecting coloured seed. I do not aim at injuring the great trade in grass seed in the North of Ireland, but I certainly aim at putting down the artificial drying and colouring of perennial Rye-grass seed, and I believe by so doing I shall be conferring a benefit to the Irish trade in general. The substance of my letter is no secret in the trade, as several extensive dealers have spoken of it, and deplore the existence of such a state of things. If seedsmen will only be on the alert, and carefully examine Rye-grass seed before purchasing, the matter will right itself. *Ventilation.*

Passiflora racemosa.—This is a splendid creeper when grown to full development, such as is seen at Sir Hugh Hume Campbell's, Marchmont, in Berwickshire. The roof of a warm house there, some 30 feet square, is entirely covered with this creeper in all its beauty and luxuriance. It is planted out, of course, and its branches trained to the rafters and from the rafters in a horizontal way again, interlacing the whole roof, from which hang thousands of racemes of gorgeous rose-coloured flowers, which are quite a sight to behold. *H. Knight, Floors.*

Autumn-bearing Raspberry.—We have been gathering here during the past fortnight very large and good-flavoured Raspberries from a sort kindly sent me by Mr. Ingram, of Belvoir. It is very prolific and hardy, growing about 3 feet high, and extending itself laterally by suckers; the fruit, which has the true Raspberry flavour, is borne in large clusters, those on each cluster ripening nearly together. The canes are still flowering, and during the late mild weather have been a constant source of attraction to the bees. I have been informed it is the result of a cross between Rubus cæsius and R. idæus; if so, there is but a very slight resemblance to the former. It has certainly been an acquisition here the past two seasons, and this year we are gathering more fruit from it than we got from the taller summer variety. The autumn bearer seems to require but slight attention beyond thinning out. *T. Laxton, Stamford.*

Reports of Societies.

Royal Horticultural: *October* 7.—Henry Little, Esq., in the chair. The Rev. M. J. Berkeley announced the awards made by the two committees, and alluding to several of the objects brought before them remarked, in connection with the handsome Pines from the Royal Gardens, that he had never seen Pines grown anywhere with such great success, or with greater simplicity, than at Frogmore, where they were planted out in ridges on a bed about 6 feet deep of Oak leaves, which furnished all the bottom-heat required. The new Pyrus Maulei was closely related to Cydonia japonica, and though the marmalade made from its fruits was too acid for his taste, the plant was extremely pretty; and if it was as hardy as the Cydonia it would no doubt be largely grown in this country. The exceedingly pretty Vitis heterophylla, var. humulifolia (the Hop-leaved Vine), shown by Mr. Woodbridge, gr. to the Duke of Northumberland, Syon House, was, he believed, only to be found at Kew and Syon, but it was a plant that must become widely diffused when better known. It was figured in the *Botanical Magazine* in 1867, tab. 5682, when the following particulars respecting it were given:—

"Japan contains many species of Vine, of which several are now growing freely in the open air at Kew against the walls of plant-houses. Amongst these that figured here was conspicuous this autumn for the peculiar colour of its lovely pale blue berries, its bright red stems, and hop-like foliage, which latter character suggested to Dr. Bunge, its discoverer in North China, the very appropriate name of humulifolia. It has since been found in Corea, whence dried specimens and seeds have been received from Mr. C. Wilford, collector for the Royal Gardens, and in Japan, where it was found by the celebrated Japanese traveller Siebold.

"The V. humulifolia was reduced, by Siebold and Zuccarini, to a variety of the old V. heterophylla of Thunberg—a plant that we have growing close by this variety at Kew, and which differs both in appearance and in the scarcely-lobed leaves. By these authors V. heterophylla comprises an entire-leaved variety and a cut-leaved variety, to the former of which Bunge's humulifolia is referred by them. Our own specimens, however, of Bunge's plant, received from himself, have deeply lobed leaves, exactly as in our figure. Bunge, indeed, describes his humulifolia as having the lower leaves lobed, and the upper entire; but in our live plant the lobed foliage is pretty constant throughout, whilst the leaves of our living Japanese specimens of V. heterophylla are uniformly entire, or only obscurely lobed throughout."

Fig. 97.—Coprinus comatus.

Mr. Berkeley next gave a short but excellent *resumé* of the mycological work of the year. He first referred to Schwendener and Bornet's theory as to the parasitic nature of Lichens, and though Mr. Berkeley declared himself still a sceptic he felt bound to state what had been recently done. He then reported on a number of curious experiments made by Rees and others with Collema nostoc and Lecanora. Mr. Berkeley next referred to the bodies frequently found on Vaccinium Vitis-idæa, and usually classed with galls. These bodies had been examined and reported on by Woronin and also been laid before the Scientific Committee of the Royal Horticultural Society, and consisted of a hypertrophy of the cellular tissue of the Vaccinium covered by a thin coat of fungoid growth, not the

same with that which causes the blister of the Peach but much nearer the Hymenomycetes. This led to a consideration of the so-called Clavaria Lauri and Geyler's opinion thereon; this body Mr. Berkeley stated was an extrusion from the trunk of the Laurel, covered with some fungus, after the manner and habit of the analogous growth in Vaccinium. The genus Saprolegnia was next adverted to, and the two new and curious species described by Sorokin were mentioned, Mr. Berkeley agreeing with this author in referring Saprolegnia to the fungi. Reference was next made to certain fungi observed by Woronin and Winter, which turn to and follow (like some flowering plants) the direction of the sun; this is called heliotropism, and the observations reported were principally made with a species of Peziza and Sordaria fimicola. The genus Protomyces was then adverted to, with De Bary's description of its germination. P. macrosporus has been found in England in Ægopodium, and Mr. Berkeley compared it with Polycystis and Urocystis, and mentioned Wolff's description of the act of germination in these plants, and which he said was the same with Tilletia in all.

In the concluding portion of Mr. Berkeley's address he referred to the diseases of plants, and first mentioned one which attacks Conifers. Here a so-called Rhizomorpha is found between the bark and the wood, which causes the wood to decay. Mr. Berkeley explained that Rhizomorpha is a mere mycelium, and not an autonomous fungus. He stated that Hartig had asserted that this mycelium belonged to Agaricus melleus, which Mr. Berkeley very reasonably considered "not proven;" he then mentioned how the latter plant is considered edible, and eaten in Germany, but how sorry he should be to recommend it here, mentioning its effect when raw in constricting the throat, the correctness of which character we are able to confirm. The "clubbing" of Cabbages was next passed in review, together with the "clubbing" of Melons and Cucumbers, and the cysts and vibrios present in the disease were described. The disease known as "The Burning of the Grape Vine" was next adverted to, with De Bary's examination of the disease, and the discovery of a fungus. Mr. Berkeley considered this disease to be probably the same with that known as the "Black Spot" and the "Black Rot." The fungus known as Erineum vitis was next spoken of, and Kaltenbach's opinion of it with reference to the presence of mites, Mr. Berkeley stating that he also had met with the mites. Cronartium ribicola was then mentioned, and its connection with Ribes aureum and R. nigra, Rostrup considering that it was originally introduced from America. This led in conclusion to a consideration of the disease which affects the Hollyhock and Potato, both of which are believed on good authority to have been introduced originally from America.

Fig. 98.—Agaricus mucidus.

Floral Committee.—R. B. Postans, Esq., in the chair. There was a good attendance of the committee, but the subjects brought before them were few in number. First-class Certificates were awarded to × Cattleya fausta, an interesting hybrid between C. Loddigesii and C. exoniensis, which was described by Prof. Reichenbach at p. 290, 1873. The plant had two spikes, three flowers on each, and was shown by Messrs. Veitch & Sons; to Mr. Woodbridge, gr. to the Duke of Northumberland, Syon House, for Vitis heterophylla, var. humulifolia—the Hop-leaved Vine—a most charming wall or pillar plant, with small azure-blue flowers; to Mr. C. Green, Holmesdale Road, Reigate, for Kniphofia (Tritoma) McOwanii, a very pretty, hardy species, from the Cape, growing only to the height of about 18 inches, and of a much paler colour than the "Red-hot Poker Plant"—Tritoma Uvaria—which is now such an object of beauty in our gardens; to Mr. J. Chambers, Westlake Nursery, Isleworth, for Begonia Royalty, one of the finest varieties of the new bulbous-rooted form yet introduced. Its flowers are very large, of good open form, and of a pale salmon-red colour; and to Mr. G. Rawlings, nurseryman, Romford, for Dahlia Sarah McMillan, a large full deep rosy pink flower. Votes of thanks were awarded to Messrs. Veitch & Sons for a very interesting group of Orchids, without which the room would have looked naked—and which included such fine things as Cypripedium Dominianum, C. Maulei, C. Sedeni; Cattleya hybrida picta × C. exoniensis, C. superba, C. Dominiana, C. Devoniensis; Odontoglossum grande, very fine; O. Roezlii, Calanthe Veitchii, the new Galeandra minax described at p. 786, vol. i., 1874, Vanda cœrulea, and Cattleya Pinellii; also a good specimen of the Dove Plant—Peristeria elata, and a dozen very fine flowers of Japanese Chrysanthemums, amongst which the white variety, Elaine, was most conspicuous for its fine size and pure colour. To Messrs. Maule & Son, Bristol, for several cut spikes of Orchids; to Mr. William Paul for six boxes of cut Roses, very fine for the season; to Mr. G. Rawlings for a good stand of Dahlias; to Mr. J. C. Crussel, Fairy Croft Nursery, Saffron Walden, for remarkably fine blooms of African and French Marigolds; to Mr. G. Toll, Hullard Hall Nursery, Manchester, for a very large branched spike of a poor variety of Odontoglossum Bluntii; and to Mr. Marchant, gr. to General Hankey, Sandgate, for fruit-bearing sprays of the Sweet Bay and flowering shoots of the Tamarisk. Messrs. Jackman & Son showed Rhododendron aureo limbatum, the leaves of which have a margin of golden-yellow; and Messrs. E. G. Henderson & Son contributed some small plants of Cratægus Pyracantha, under the name of C. japonica, laden with large clusters of its fine scarlet berries.

Fruit Committee.—A. Smee, Esq., F.R.S., in the chair. This was a more than usually interesting meeting, considering the lateness of the season. From the Royal Gardens, Frogmore, Mr. Jones sent two remarkably handsome Smooth Cayenne Pines, weighing 19¼ lb. Another very fine fruit, with an oversized crown, was sent under the name of Charlotte Rothschild, by Mr. Chamberlain, gr., The Warren, Bushy, Herts. A seedling round-berried black Grape, of a sharp pleasant flavour, and named "The Artist," came from Mr. Harrison Weir, Weirleigh, Brenchley, Kent. It was grown in an ordinary ground vinery, and is said to be an early ripener, on which account it may be considered a useful variety. A vote of thanks was accorded. Mr. William Paul, Waltham Cross, showed his new "Waltham Cross" white Grape in very good condition, and furnishing confirmatory evidence of its value as an autumn Grape. Mr. Paul also sent a new white roundish oval-berried variety, called the Winter Muscadine. It produces large bunches, the quality is first-rate, and it has the merit of hanging well. Examples of Read's Scarlet-fleshed Melon, a variety named Superior, and a scarlet-fleshed hybrid, were shown by Mr. Bennett, Hatfield; and some very good specimens of the Salway Peach came from R. B. Blyth, Esq., Woolhampton. A seedling black Grape, with large elongated berries, of the Black Monukka type, and specimens of the Lucy Grieve Pear, which were not quite ripe enough for proper adjudication, came from Mr. Grieve, Culford. Messrs. Maule & Son, nurserymen, Bristol, exhibited several heavily fruit-laden branches of the new Pyrus Maulei, figured at p. 757, vol. i. 1874, together with some marmalade made with the fruit. A good sample of Shallots, said to be like those imported from Russia, was contributed by Mr. Garland, gr., Killerton, Devon; and from Mr. Webster, gr. to the Duke of Richmond, came very fine examples of the Norfolk Dumpling and other Apples, for which a vote of thanks was passed. Fine specimens of Beurré Superfin Pear were sent from the Society's garden at Chiswick; and the Rev. G. Kemp brought some very fine fruit of the Pitmaston Duchesse d'Angoulême Pear. Mr. Horley, Toddington, Beds, sent a seedling Damson, which came up by chance with others in 1871; and some particularly fine fruits of the Quince were furnished by J. Baker, Esq., Shirley Road, Southampton.

Exhibition of Fungi.—Only two competitors entered for prizes at this exhibition of "Fungies," as called on the official musical programme of the day—Mr. Austin, of Reading, and Mr. English, of Epping. As regards interest and the number of species shown both exhibitors were as nearly as possible alike. After the Hereford show this display in London looked very poor and flat; in the first place there was not one-tenth of the number of the Hereford plants, and in the second place the London fungi were in no sort of sequence. An advance was certainly made in correct naming, but doubtless this was more or less owing to the presence of Mr. Berkeley during the morning. Amongst Mr. Austin's plants was Sparassis crispa, and a fine group of Agaricus adiposus (erroneously labelled Flammula instead of Pholiota), and a curious Helvella like H. lacunosa in general aspect, but probably a different plant. Mr. English had Radulum fagineum, a plant first found by us in company with Mr. Broome (and recently met with at Hereford); Agaricus clavipes, also a plant recently determined by us; and A. gummosus, a rarity we have not at present met with. We were glad to see Lactarius controversus in Mr. English's collection, together with Polyporus cuticularis and P. Schweinitzii. Thelephora multizonata, first found by Mr. Berkeley, in Northamptonshire, and last year by the Woolhopians, at Hereford, is generally met with by Mr. English at Epping; and the plant exhibited this week was one of the finest we have ever seen. Boletus Satanus was a noble specimen, and Cortinarius decoloratus is new to our lists. Mr. English also had beautiful specimens of Agaricus alnicola, and several plants of Cordiceps capitata (see p. 458); so that his display at least possessed considerable botanic interest. Under cover to the writer of this notice Miss Sinclair, of Pulborough Rectory, Sussex, sent twenty-seven species of fungi, capitally packed, and in excellent order. Amongst these were some fine specimens of Peziza onotica (p. 457), Tramates gibbosa, and (probably) Cortinarius cyanites. The other plants in this collection, like the remainder of those in the collections of Messrs. Austin and English, were the common plants one usually finds in woods and fields, and interesting from their very commonness or for their value for the table. The rare and handsome Clavaria botrytis again put in an appearance. Mrs. Lloyd Wynne sent Craterellus sinuosus, Dr. Bull Agaricus lixivius (suffering under a postal mycoclysm), and the Rev. J. Stevenson Leotia circinans. A vote of thanks was unanimously passed in favour of those ladies and gentlemen who had so greatly added to the interest of the exhibition by the fungi they had sent; this included the name of Mrs. Chapman, of 36, Lancaster Gate, who contributed a capital series of water-colour drawings of the higher fungi as found in England, and at Pontresina in the Engadine, Switzerland. A painting of the Crimson Guepinia was especially interesting. Mr. English also exhibited a glass case full of preserved fungi, which were greatly admired, although we think he gets his colours too opaque and heavy; this however, probably, cannot at present be avoided, as we well know how extremely difficult it is to get the transparency of Nature. *W. G. S.*

The Farm.

The Management of Roots.—The present season is so very exceptional as regards the root crop that a few remarks upon its economy and management can hardly fail to be useful. During the present season it may be stated generally that the Swede crop, if not a failure, is by no means up to an average. Much of the land designed for Swedes could not be sown until it was too late to secure a good crop, and of the crops planted many failed utterly, while others are patchy and imperfect. Some of the later-sown, with the fine autumn we are experiencing, are getting on well, but withal this crop is much below our usual requirements.

Seeing, then, that this is so, a greater space than usual has been cropped with different kinds of common Turnips. These, it must be admitted, are grow-

ing well, so that, while the Swedish Turnips are a very poor crop, the common Turnips are as good, if not better, than usual.

Now, as it is well known that the Swede is more relied upon for its "proof," that is, feeding qualities, than the common Turnip, and is, as a rule, more largely and more carefully cultivated in consequence than it otherwise would be, a partial failure in the Swede crop must necessitate considerable thought as to how we shall deal with the Turnip crop as a whole. According to Professor Voelcker's analyses, confirmed by others, we find that the Swedes differ greatly from common Turnips, first in the amount of water they contain, and next in their different proportions of nutrient matter; hence the following table, taken from Dr. Voelcker's analyses of White Globe and Norfolk Bell Turnips, and the Swedish Turnip may serve to illustrate this matter:—

(a) Composition in 100 parts.

	In Natural State.		
	White Globe.	Norfolk Bell.	Swede.
Water	90.430	92.280	89.460
Sugar, gum, pectin, &c.	4.697	2.137	4.637
Albuminous compounds	1.143	1.737	1.443
Vegetable fibre	3.102	2.825	3.837
Inorganic substances (ash)	.628	1.021	.623
	100.000	100.000	100.000

These substances are arranged by this author as follows:—

(b) Composition Arranged according to the two great Classes of Alimentary Substances.

	In Natural State.		
	White Globe.	Norfolk Bell.	Swede.
Water	90.430	92.280	89.260
Nitrogenised matters capable of producing flesh	1.143	1.737	1.443
Non-nitrogenised substances fitted to support respiration and to lay on fat	7.799	4.962	8.474
Inorganic substances (ash)	.628	1.021	.623
	100.000	100.000	100.000

Now it will be seen from these tables that, setting aside the matter of water, which is greatly in excess in common Turnips—and, therefore, other matters being equal, would render Swedes weight for weight of greater value when compared with common Turnips—but when we consider that as a rule the place of this water in the latter is occupied with a greater amount of both flesh and fat-forming substances in the Swede, we at once get at the reason why Swedes have greater "proof." But besides this there is another quality in the Swede that must not be overlooked, and it is its greater power to resist the action of cold and wet; in fact, it "keeps" better than the common Turnip.

In a great part of England the climate is sufficiently mild to allow of the Swedes being left in the fields all the winter, and so be folded off in spring, though, as a rule, we should advise their being drawn and heaped on the approach of winter. Few Turnips, indeed, will withstand much frost, and besides, their bulbs soon get woolly and hollow after ripeness has been arrived at; in all which respects the Swede is remarkable for quite opposite or better keeping qualities.

Under these circumstances then, it behoves us this year to be especially particular in husbanding our Swedes. They are best adapted for the breeding flock, and so, in as far as sheep are concerned, we shall do well to keep the ewes from roots as long as possible; but as winter approaches a few Swedes and good hay will be necessary, and the common Turnips may be used by the lambs and going off sheep, with a liberal allowance of hay and a little cake.

Thus, by looking well at the nature and quality of such produce as we can command, we may be able to tide over the winter without much inconvenience to our stock. Meanwhile, with the usual pluck of English farmers, all is getting in order for a renewed trial at root cultivation in a future year.

The Villa Garden.

The shortening days, with a fall in the temperature, cold at nights, damp and foggy in the mornings, dull and heavy by day, are the sure precursors of the coming autumn, and indicating that for this season summer has done with our gardens. The recent heavy rains have given the flower-beds a spent and stale appearance, blossoms put on a woe-begone aspect in the absence of solar light, the leaves are falling thickly in woodland ways, and a general decay has set in. As the autumn days close in around us we instinctively feel that we must now begin to turn our attention indoors, if we would prolong the companionship of the bright and glowing flowers.

The greenhouse is yet gay, and the waning days appear to bring out with a most distinct expression the tints of the flowers. There is the lovely pale grey-blue of Plumbago capensis, that even now bloom freely from the extremities of the growth made in early summer. This is a glorious pot plant for a conservatory: better still if it can be planted out in a bed or tub and trained up over the roof. The plants cut back a little hard last autumn after they had gone out of flower made a fine growth after they had been repotted in early spring; and now that the pots are full of roots, a constant succession of charming flowers has resulted. Fuchsia fulgens, that during July and August flowered freely from the points of the shoots, has made a fresh growth from the sides of the flower-stems, which in their turn are beginning to bloom nicely. It is a plant that should be in every Villa Garden greenhouse and conservatory during the summer months. It is so altogether distinct in leaf and flower from any of the ordinary Fuchsias in cultivation, that it is much to be wondered at that it so seldom finds a place in a select collection. As soon as the first crop of flower was over the surface soil in the pot was reduced to the depth of an inch or so, and some fresh added; the young roots came upwards to feed on it, and charming terminal clusters of flowers have appeared. Fuchsia corymbiflora is now strikingly handsome—a splendid species with very large bold leaves, giving it the appearance of a foliaged plant, and with a long corymb of flowers which comes out of the stem at the axil formed by a shoot. The plant in question grew vigorously for about 3½ feet, then what appeared to be the leader of the main shoot developed into a corymb of beautiful blossoms, from the sides of which three more shoots have grown; and were the plant in a house sufficiently warm to give the requisite assistance, there is no doubt these would flower during the winter. It is a grand conservatory plant, and, in comparison with it, the best of the ordinary varieties of Fuchsias—Avalanche, Lustre, Alexandrine, Arabella Improved, look quite puny. What is so striking in F. corymbiflora is the long, pale, tubed flowers, the rosy pink sepals, and the vermilion corolla. There is × Fuchsia Dominiana, also a fine hybrid, raised at Chelsea some years ago, with large, leathery leaves, olive-green on top, and claret-coloured beneath, and which throws out large, long, tube-shaped flowers from the leaf-axils near the tops of the shoots. The flowers are red in colour, and singularly fine and beautiful. These three Fuchsias should occupy a place in every Villa Garden conservatory, for they are so striking in character, and yet so easily cultivated. A large number of the present generation of amateur gardener knows nothing about them. A month hence, when the plants have done blooming and are showing signs of resting, water will be withheld, and they will be placed in the warmest part of the greenhouse, and, if the winter should prove severe, the plants should be removed to a dry spare room where frost cannot penetrate, and where they can be kept from harm. Next spring, as soon as signs of a new growth appear, the plants will have a good deal of the old soil shaken from the roots, any long, straggling roots must be cut away, and the plants repotted in a size larger pots, kept in the greenhouse till the summer has set in, and then stood out-of-doors for a time in a shady place, and kept well watered. In August they are again brought into the conservatory, when they flower as long as the weather keeps fine and open, and there is sufficient sun to afford solar light. In a warm conservatory F. corymbiflora would flower all the winter through, and, in fact, would bloom almost all the year round. Let it not be thought that these fine plants are beyond the cultural skill of ordinary villa gardeners, they are not, and when once their cultivation is taken in hand, they will not speedily be given up.

Of the ordinary Fushsias, those that have been growing in the greenhouse have well nigh done flowering, and are being stood out-of-doors in a cool shady spot, to ripen their growth, but their place is taken by others in the very height of their floral beauty. Some old plants, kept over from last year, did badly after being repotted, and were some time breaking into growth. Being unsightly objects in the greenhouse, they were stood out-of-doors on the north side of the house, kept well watered in dry weather, but with small hope of their being of any service. About the end of July a vigorous root-action set in, accompanied by corresponding activity in the branches; they rapidly grew into size, and are now literally clothed with flowers. Arabella Improved and Lustre especially never looked so bright and glowing in flower and hue under the best cultivation at midsummer, as they do now under the shelter of a porch fully exposed to the north and to north-westerly winds and rain. The latter scarcely affects their lustre; and as soon as frost is imminent, the plants will be taken into the greenhouse to have the beauty of their flowers for weeks yet. If villa gardeners would give their Fuchsias less of house and more of outdoor culture in the early part of the summer, when the weather is favourable, they would be much struck with the results of the treatment.

Sedum Sieboldi variegatum, with its elegant prostrate growth and its terminal clusters of small rose-coloured flowers, is now a pleasing object in pots in the greenhouse. Its proper place is a sunny position on rockwork in the open air; but it is yet a very desirable plant for growing in pots in a cool house. It wants potting in a free soil in which there is a mixture of mortar-rubbish, and our plan is to allow the plant to occupy the same pot for three or four years, to put it on a window-sill facing the north to make its growth during summer, and then take it into the greenhouse in flower, where it charms every one with its simple yet striking clusters of flowers. By its side is Nierembergia gracilis, growing in a 48-pot, and flowering with a profusion that may truly be denominated wonderful. A small plant in 1873, it was wintered in a 60-pot and kept nearly dry. It was cut back hard in early spring, and as soon as it began to break into growth was repotted in a 48-pot, and allowed to grow as it pleased. It made a dense growth, which gradually bent downwards until it covered the sides of the pot, and flowered with remarkable freedom. Meanwhile, another batch of shoots were sent out from the centre of the plant, which began to flower also, and as soon as the first growth became spent it was cut away, and the centre growth took its place. It is so pretty, so distinct in character, and so generously free, as to be the very plant for a cool greenhouse during summer. × Begonia Weltoniensis is a fitting companion, a true amateur's plant, because so easily managed, and blooms so freely throughout the summer.

The potting of some Hyacinths, Tulips, and Crocuses, must now be done. The second and third weeks in October is the best time to attend to this, unless the bulbs are to be forced hard to get them into flower, then they can be potted almost as soon as they are received from the Continent. It is a good plan to mix the soil for these bulbs a few days before using it, and give it occasional turnings. Some good yellow loam, plenty of leaf-soil, a fair quantity of silver sand, and some decayed manure, sufficiently decomposed to crumble readily to pieces in the hand, will make an excellent soil. Some cultivators are apt to use rank fresh dung, and do a great deal of injury to the bulbs in consequence. Look out a number of 48-pots—wash them if dirty. Get some crocks broken for drainage, and the names of the bulbs written neatly on labels, and thus the work of potting can be proceeded with uninterruptedly.

Echeveria secunda, and its variety glauca, are so much used for summer bedding purposes, that attention should at once be directed to providing a supply of plants for next year. The old ones cannot be depended on to stand the winter; but they have during the summer put forth a number of offshoots, that should be pulled away, and these can be wintered safely, and without any trouble, by forming a steep sloping bank of earth against the wall of a greenhouse, or any suitable place, and planting the offsets thickly, sideways, and so form a lean-to pyramid. Damage is done to the Echeverias when left out-of-doors all the winter by rain falling on them, completely saturating the plants, followed by frost. By planting these pyramidal banks the rain falls away from the plants, the roots are dry, and hundreds can be wintered in this way without injury.

Law Notes.

Disputed Salesman's Account.—The Custom of the Trade.—*Chapman* v. *Boodle*.—At the Westminster County Court on the 5th inst. this case was heard before the presiding judge, F. Bayley, Esq., in which the plaintiff, a salesman in Covent Garden, sought to recover from the defendant, a salesman at Manchester, the sum of £9 8*s*., being the balance of

an account between them. Mr. H. T. Roberts appeared for the plaintiff, and Mr. Robert Willis for the defence. From Mr. Roberts' opening, it appeared that the account between the parties had been reduced by payments of £21 to the amount claimed, of which amount £2 5*s.* was for empties, which had not been returned within fourteen days, the time in which it was the custom of the trade to return them; and the defendant not having done so, was charged with them; and further, that the plaintiff having bought for the defendant sundry goods on commission, had made the usual charge for doing so customary among the trade, which also the defendant refused to pay.

The plaintiff, in proving his case, stated that he, on May 22 last, sent ninety-two sieves of Gooseberries to the defendant. They were not opened, but bought from sample, and, being perishable articles, salesmen were not liable for any deterioration from transit on the road. He had received part payment from the defendant, against whom, as he refused to pay the balance, the present action was brought.

Mr. R. Willis for the defence proved the return of part of the sieves, and stated that he opposed the plaintiff's claim on the ground that the goods, when arrived at their destination, were in an almost useless condition and had to be sold for what they would fetch —a sum considerably below the amount charged for them. The defendant had paid £4 9*s.* 6*d.* into court, and denied further liability.

The defendant said he had paid the plaintiff the amount he realised by the sale of the goods and never agreed to pay any expenses by way of commission, and said he had returned by rail all the plaintiff's sieves, amounting to ninety-one in all. The "berries" had to be made up with others in order to get rid of them at all.

In cross-examination by Mr. Roberts, the defendant could not produce the railway receipts for the transit of the empties. He contended that the defendant was liable for them, and as the goods were bought on commission (which was always allowed by the trade); and further, that the goods were perfect when sent, and although they might have deteriorated on their arrival in transit, the plaintiff was in no way liable for that. The learned judge having reviewed the whole facts of the case, gave judgment in favour of the plaintiff for £3 10*s.* 6*d.* over and above the amount paid into court, with the costs of attorney and witnesses.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, October 7, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
Oct.	In.	In.	°	°	°	°	°	°			In.
1	29.33	−0.37	69.6	51.0	18.6	58.9	+ 5.0	53.9	84	S: N.	0.29
2	29.16	−0.53	59.6	45.0	14.6	51.2	− 2.6	49.8	95	W.: S.W.	0.25
3	29.23	−0.46	58.8	42.7	16.1	49.6	− 4.1	42.9	78	WSW: W.	0.00
4	29.28	−0.41	53.3	42.0	11.3	46.6	− 6.9	44.9	94	WSW: N.W.	0.45
5	29.82	+0.13	57.1	38.3	18.8	45.5	− 7.8	41.4	86	W: SW	0.00
6	29.63	−0.06	56.7	38.1	18.6	49.4	− 3.5	43.3	79	S.W.	0.00
7	29.23	−0.46	58.6	44.0	14.6	50.2	− 2.3	49.9	99	SSW: WSW	0.61

Oct. 1.—In the early morning hours rain fell accompanied by thunder and lightning; fine, and partially cloudy till afternoon; overcast afterwards, and rain fell frequently. Lightning seen at night.
— 2.—Overcast and rain fell frequently till 2 P.M.; fine, but cloudy till after sunset; generally cloudless afterwards. Lightning seen at night.
— 3.—A fine day; partially cloudy.
— 4.—Overcast till 3 P.M. Heavy rain between 9 A.M. and 2 P.M.; fine afterwards.
— 5.—A fine day; partially cloudy till evening; then cloudless.
— 6.—Generally overcast. A few drops of rain fell occasionally.
— 7.—Heavy rain between 1 A.M. and 11 A.M., partially cloudy till evening; then cloudless.

—— In London and its vicinity the reading of the barometer at the level of the sea decreased from 30.13 inches at the beginning of the week to 29.73 inches by noon on the 29th, increased to 29.84 inches by the morning of September 30, decreased to 29.29 inches by the afternoon of October 2, and then increased to 20.49 inches by the end of the week.

The mean reading for the week was 29.66 inches, being 0.35 inch lower than that of the preceding week, and 0.23 inch below that of the corresponding period, as deduced from observations extending over eighteen years; the values on October 2 and 3 were respectively 0.53 inch and 0.46 inch in defect of their averages.

The highest temperatures by day at 4 feet above the ground ranged from 77° on September 27 to 58¾° on October 3, the mean for the week being 67°. The lowest temperatures at night varied from 54½° on September 28 to 42¾° on October 3, with a mean value of 49½°. The mean daily range of temperature was 17°.6, the greatest being 27½°, on September 27, and the least, 14½°, on October 2.

The mean daily temperatures of the air, with departures from their respective averages, were as follows:—September 27, 60°.9, +6°.5; 28th, 61°, +6°.8; 29th, 58°.4, +4°.3; 30th, 57°.3, +3°.3; October 1, 58°.9, +5°; 2d, 51°.2, −2°.6; 3d, 49°.6, −4°.1; showing that the weather was much warmer on the first five days of the week than on the last two.

The maximum readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 126° on September 27, and 125° on October 1, and the mean of the highest daily readings of this instrument was 112°. The lowest readings at night of a thermometer on grass with its bulb fully exposed to the sky were 39° and 35° on October 2d and 3d respectively.

The general direction of the wind was S.W.; the strength of it was brisk on September 29 and October 2, the greatest pressures on these days being respectively 7.1lb. and 11.5lb. on the square foot; at other times light winds prevailed.

The sky was generally clouded and rain fell frequently, the amount collected was 1.14 inch.

A thunderstorm occurred between 11 P.M. and midnight on October 1, and lightning was also seen on the nights of September 28 and October 2 and 3.

The mean reading of the barometer at the level of the sea for September was 29.93 inches, being 0.6 inch lower than that of the average of the preceding 33 years.

The highest temperature of the air in the month was 78.1°, and the lowest was 43.4°. It is not often that the month of September passes without frost on the ground at night, and that the temperature of the air does not descend below 40°, and at times, as in the years 1847 and 1848, it falls as low as 32°. In the year 1862 the mimimum temperature was nearly the same, and there is no other instance back for many years.

The average temperature of the air for the month of September was 57.9° being 0.7° higher than that of 33 years.

Rain fell on sixteen days, and the amount collected was 2¼ inches, being a quarter of an inch less than the average.

In England the extreme high day temperatures ranged from 78¼° at Eccles to 71° at Hull, the general average over the country being 74°. The extreme low night temperatures varied from 44¾° at Bradford to 37½° at Nottingham, the general average being 41¼°. The mean range of temperature in the week was 32¾°. The mean high day temperatures ranged between 67° at Blackheath and 60° at Liverpool, with a general average of 62¾°. The mean low night temperatures varied from 49½° at Blackheath to 46½° at Eccles, with an average value of 47¾°. The mean daily range of temperature in the week was 15°; the highest, 18½°, occurred at Nottingham, and the lowest, 12¾°, at Liverpool and Bradford. The mean temperature for the week was 54°, the highest being at Blackheath, 56¾°, and the lowest at Liverpool and Eccles, 52¾°. Rain fell on five or six days in the week at all stations, the amounts collected varying from 1 5/10 inch at Portsmouth to four-tenths of an inch at Leicester and Nottingham; the average fall over the country was 1 2/10 inch.

The weather was fine on September 27 and 28, but cold, cloudy, and showery during the remainder of the week.

In Scotland, the highest temperatures ranged between 65½° at Leith, and 62° at Greenock and Paisley; the lowest temperatures varied from 43¾° at Leith to 42° at Paisley, the averages being 63¼° and 43° respectively. The mean range of temperature in the week was 20½°. The mean temperature for the week was 52°, the highest being at Paisley, 53°, and the lowest at Glasgow, 50¾°. The fall of rain during the week ranged between 2½ inches at Paisley, and half an inch nearly at Aberdeen and Leith, the average fall over the country being 1¼ inch.

At Dublin, the highest temperature was 65¼°, the lowest, 34¼°; the mean, 50½°; and the rainfall, 0.47 inch.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Large plants of *Ixora* that have attained considerable height should now be well cut back into the old wood, and if any insects in the shape of mealy-bug or scale infest them, they should, for the former, be washed with "Abyssinian Mixture," at 6 or 8 oz. to the gallon, repeating the operation three times in the course of ten days; later than this after cutting in it will not be safe to apply the mixture, as they will in heat push their eyes and break into growth in little more than that time, which growth would be injured. This is the best time in the year to make an effort to thoroughly eradicate this, the scourge of indoor gardening—for it is nothing less, either in the fruit or plant department. Where stove plants are grown indifferently in a comparatively low temperature, and consequently do not attain their wonted size, it is more easily dealt with, neither does it under such conditions increase so fast, but where they are grown in quantity, and sufficient heat is used to bring them to anything like their natural form, the size of the plants and the rate of increase of the insect renders it a simple matter of impossibility to cope with it in any way, but at an extravagant expense of labour such as few gardeners can command, and injury to the plants through the continued operation of cleaning, that disfigures the foliage and destroys the possibility of ever seeing them in a condition equal to such as are free from this worst of indoor insects. Many are under the impression that when once it gets possession of a collection of stove plants it cannot be eradicated, yet such is by no means the case; it requires, however, determined and continuous perseverance, with a considerable expenditure of labour, which, in the case of this insect, is about the most economical proceeding possible, and it is only at this time of the year, during the next eight or ten weeks, that a successful onslaught can be made upon it, since its increase is now at the slowest, while the plants are also more at rest, and better able to bear a strong application of the mixture wherewith to destroy it. Where it has possession of any considerable number of stove plants, all that are affected, or are at all doubtful, should be freely cut back, such as *Dipladenias*, *Combretums*, *Gardenias*, *Clerodendrons*, *Cyrtoceras*, *Francisceas*, *Hoyas*, *Stephanotis*, *Aphelandras*, *Medinillas*, *Mussændas*, or anything of similar habit that the insect will live upon, should receive a free application of the knife even if some sacrifice is made in respect to the coming season's flowers. All such as the above, and any plant that it may simply lodge upon through being accidentally in contact with those it will actually breed and thrive on, should be thoroughly washed with the mixture, making certain that every crack and inequality, from the very point of the shoots to the collar of the plant in junction with the soil is reached; in fact, every plant in the houses affected with it should be systematically washed, from end to end. Keep repeating the washings five or six times over, so that none may escape, removing also all old tan, plastering up every crack in the brickwork, thoroughly lime-washing the walls, &c., twice over, and stopping and painting all the woodwork. If this is done, and the whole carried out with a will and fixed resolve to conquer the enemy, it can be done, but no half measures will suffice; they will only check the nuisance without eradicating it; and when the spring, with its increased warmth and extra demands upon labour arrives, the same protracted and profitless battle will have to be fought over again. As has before been urged, nothing but thorough immersion, or complete wetting of every part of the plant above the soil, can be expected to be effectual. Where a number of plants that have attained any size are infested it is a hopeless and never-ending task to thoroughly extirpate the insects by painting the affected parts with a small brush, as is sometimes attempted. When once a collection of plants are got thoroughly clean, care must be taken that those newly bought in are kept in quarantine until they are quite free from the insect, as the carelessness of an hour might again infect the whole. Brown scale is troublesome enough, yet not nearly so bad as mealy-bug; it can best be combated at the present season, treating it in the same way. "Fowler's Insecticide," which is cheaper than the "Abyssinian Mixture," will destroy this insect at 6 oz. to the gallon, used similarly, and alike persevered with.

Allamandas that are intended for early flowering, and consequently are to be cut back at the commencement of the new year, should now receive no more water than will keep them from flagging too long at a time; but to check growth sufficiently to insure good ripened wood, and a consequent early disposition to flower, water should only be given when the leaves flag, keeping the plants well up to the glass, with a warm, dry atmosphere, giving a little more air, but not so as to dry up the house too much, which would have a most injurious effect upon such things as *Ixoras*. The system of ripening up stove plants by plenty of light, with a moderately dry atmosphere, is much more satisfactory and conducive to their well-being than the low temperature sometimes resorted to. Where climbing plants of a soft description are grown up the rafters—such kinds as *Aristolochias*, *Passifloras*, *Thunbergias*, &c., that are summer flowerers should now be cut back freely to allow plenty of light to reach the plants that stand under them. *Combretums*, *Ipomœa Horsfalliæ*, and anything of similar habit that flowers through the winter, must not be much reduced with the knife, or whatever is cut away will correspondingly lessen the blooming

capabilities. *Stephanotis floribunda* should not be touched with the knife at this season, or its flowering may be much injured. With this plant, the best system for insuring bloom is to leave it on the roof through the winter, and unless it is required to form a specimen that must be moved, to let it flower on the roof, after which, if too large, to cut it well in, and afterwards encourage fresh growth for the ensuing year.

Of *Richardia æthiopica* a few plants should now be placed in heat for early flowering. A night temperature of 55° will be enough, if kept too warm they become drawn both in leaf and flower, from which cause they have not nearly so good an appearance, and do not so well bear moving to the conservatory, or elsewhere, where a lower temperature is kept up; to secure this desirable dwarf condition, they should also, whilst in heat, be kept near the glass and receive moderate supplies of air. Where large quantities of forced flowers are required for winter, there should always be a house or roomy pit especially used for the purpose; if the winter-flowering stuff has to be brought out in the ordinary stove, the necessary conditions as to heat, moisture, light, and air, cannot be given to these winter-forced plants without interfering with the general stock, and the flowers thus produced are generally of a weakly and drawn-up description, and anything but calculated to stand removal to dwelling rooms, where, at the season they are required, the temperature is low, and the atmosphere too dry for them to last half the time they would if brought into flower where they could receive cooler treatment The complaints so commonly heard, that forced winter flowers do not last, arises in most cases from the manner in which the plants have been treated, more than through their natural inability to stand if treated in a way to induce this property. A few pots of *Lily of the Valley* should now be put in; it is always acceptable, and at no time more so than the end of the year; but to force this plant thus early, it requires careful treatment—it must not be hurried too fast to commence with, or the flowers will go blind, and nothing but a crop of leaves will be the result. A gentle bottom-heat, with the tops comparatively cool, so as to give the roots a start in advance, is best calculated to insure success, with all the light that can be given them. A few more of the small *Roman Hyacinths* should be introduced to the forcing house—it is better at this season to bring on only a few at a time—and this variety is better adapted for the earliest flowering than the larger sorts. *Medinilla magnifica* is a plant that requires drier treatment, to insure its free flowering, than some inhabitants of the stove; to do it full justice the atmosphere should never during its season of growth be so humid as necessary for many things. A succession Pine stove suits it admirably, but where it cannot have during the growing season the treatment most genial to its nature, an effort should be made at this time to supply the deficiency; this can be done by elevating it as near the glass as possible at the driest end of the house, and giving no more water than will just keep the leaves from suffering. If this is continued through the remainder of the season this fine plant may be expected to flower more regularly and profusely than it is often met with. *Stove Begonias* of the blooming section should now receive every attention, so as to induce them to flower strong; give these also all the light possible, with no more heat than requisite to induce their flowers to open freely. So treated they will last in a cut state for a week, instead of, as often seen, looking miserable in a few hours when severed from the plant. *T. Baines, Southgate, N.*

Soft-wooded Greenhouse Plants. — Any *Pelargoniums* of the show varieties that have not been yet shaken out and repotted, should at once be seen to, placing them in pots a size smaller than such as they flowered in, and putting them along with the earlier potted plants, in their winter quarters, which should be in a good light house near the glass, so as to keep their growth as short and stout as possible; only give water enough to keep the soil a little moist, for if too wet they become elongated in branch and leaf, with little disposition to root freely—a condition that must by all means be avoided where there is a desire to grow these plants well. *Salvias.*—These useful autumn blooming subjects must be encouraged with a little extra warmth, which will greatly assist the development of their flowers. Give them as much light as possible, to keep them dwarf, and feed with clear manure-water. *Primulas* should now be removed from pits, unless such are very dry, airy, and light, as these plants are so subject to damp in such situations; place them in a good house on a shelf—near the front glass is the best position. *Cinerarias*, in the matter of moisture in the atmosphere just require the opposite to *Primulas*, for if it is too dry they always lose their bottom leaves, and are correspondingly weakly; they should be kept for the present in a light shallow pit where they can stand on a bottom, composed of fine ashes, which will hold enough moisture to keep the atmosphere sufficiently humid. *Lilies.*—The different varieties of these plants, cultivated in pots, are mostly of easy growth, yet, although such is the case, they are much oftener met with indifferently grown than otherwise; even the common Lilium speciosum, which is proverbially free in growth and flower, is seldom seen in the condition which it can with ordinary care be brought to. These plants will produce from fifteen to twenty-four flowers on a strong stem, yet they are more frequently seen with less than half the number. The principal cause of their often indifferent condition is traceable in many cases to their being potted at an unsuitable time. There are no plants that have a greater objection to their roots being interfered with when active, than the whole family of *Lilies*. After flowering, as their leaves and stems die down, a considerable portion of their roots annually die, those remaining alive being at the same time inactive. This is the time they should be potted—as soon as their tops die down, removing all the small bulbs that are formed up the stem underground and above the principal flowering bulbs, and potting them several together in small pots. If they are not removed, they crowd the plants too much, and the pots, unless very large, have not the capacity to hold enough soil to support them. This is one source of weakness; the large flowering bulbs also increase by division—the flower-stem, which a strong bulb throws up, generally splitting it in two. In repotting, remove as much of the old soil as possible without disturbing the mass of bulbs, which will adhere together in a ball. These should be replaced in their pots with new soil. When the pots become too crowded in proportion to their size, turn them out, and simply divide the mass without separating them individually more than can be avoided. A 15-inch pot will grow eight or nine bulbs well. Drain, so that the liberal applications of both clear and manure water, which they require when in full growth, may pass freely through the soil, which should consist of good yellow loam, with about one-tenth of sand added. *Lilies* do not like the soil made too light by the use of so much sand as the majority of plants require; one-eighth of good rotten dung may also be added, but this should have been previously well dried, so as to destroy worms. These, like other plants, never do so well if the soil is infested with them. Place the mass of bulbs sufficiently deep in the pots to admit of their being covered 3 inches; make the soil firm and place them, during the winter, in a pit or greenhouse where they will not be the least excited. The cooler they are kept the better, if frost is excluded; give no more water until after the shoots are pushed above the soil than will just keep them from getting quite dry. The over-moist condition so often met with when there is no leaf-surface to absorb it is fatal to the formation of the requisite amount of roots, without which it is impossible to secure a fine healthy head of flowers.

FRUIT HOUSES.

Pines.—All young growing plants which are to be subjected to ordinary treatment should now be arranged so as to obtain the fullest benefit arising from the force of natural agencies. As these means diminish in effect during the day-time, so also should a corresponding diminution of temperature take place at night until it reaches the artificial winter standard, namely, 55° to 60° at night and 5° more in the day-time. Continue as before advised to ventilate freely whenever circumstances are favourable, and pay particular attention to watering at the roots. In most places where Pine-apples are cultivated part of the stock is plunged and grown in fermenting beds; such materials naturally afford a certain degree of moisture at the roots which is not the case with shallow beds of plunging material heated by hot-water pipes. Under such complex circumstances, and others also which exist in cultivation, no definite time can be propounded for the performance of that important operation, watering, especially with reference to pot cultivation; but a safe rule under any conditions can be applied by making a weekly inspection, and whenever a plant needs water, supplying it copiously at about the same temperature as that of the house. If former advice respecting fruiting plants has been carried out, these will now be altogether in a suitable structure for the purpose, where proper treatment can be supplied. Complaints are frequently heard through midwinter and the spring months of Pine-apples cutting black at the centre; this undoubtedly is owing to an insufficient supply of heat and too much moisture at the roots. As this defect does not usually occur in those fruits which swell and ripen under a higher degree of temperature, this fact fully indicates the necessity for maintaining a plentiful supply of heat both at the roots and the surface of such plants. Continue 70° as the minimum here at night, with 5° more in temperate weather, 75° artificially in the day-time, and ranging from 83° to 90°—otherwise shut up the house at 85°, and apply the means to produce a growing atmospheric condition in the house by sprinkling it when the surfaces of the pathways are become dry, with an occasional syringing over the plants on fine sunny afternoons; keep the bottom regularly at 85° or 90°. *G. T. Miles, Wycombe Abbey.*

Peaches and Nectarines.—In the earliest forced house the trees will now be entirely devoid of leaves, and the inside borders may be forked over as soon as the trees are pruned and tied to the trellises. If the borders are found to be in want of some stimulant, a dressing of rotten manure and fresh loam may be forked into them. As the cold autumn rains will most likely prevail very soon, the outside border should be protected from wet by laying some litter on it, or, better still, tarpaulins or wooden shutters. In the late succession houses the trees may be frequently brushed over with a soft broom to dislodge all the leaves well-ripened. If there is any shifting the trees or transplanting new ones from the walls, now is a good time to get a stock of turfy loam ready for the purpose. If there is too much fibre or any vegetable matter in the soil employed, and likely to generate fungus, it ought to be discarded. The danger of introducing fungi in Peach borders is pointed out by your correspondent, Mr. Sheppard (p. 435). I once had a Peach-house where the trees suffered from the same cause; but some leaf-mould in the soil was the beginning of the mischief in my case. *William Tillery, Welbeck.*

Vines.—Late houses that were judiciously hastened in the spring by the aid of fire-heat will now be finishing crops of ripe, well-coloured fruit, which may be expected to winter much better than Grapes that still require forcing, and the wood and foliage being thoroughly matured all spray and laterals may be removed down to the main buds. The houses will require liberal ventilation on all favourable occasions, and as the foliage ripens off the temperature may be allowed to fall to a minimum of 50°. Ripe Grapes will require looking over twice a week. All laterals must be stopped, the house kept dry and cool, and to prevent dust from settling on the berries, sweeping and raking must be avoided as much as possible. Former directions having been followed, the earliest house will have been pruned, dressed, and cleansed, ready for closing when the proper time arrives; a good supply of fermenting material should also be ready for laying on the borders at least three weeks before fire-heat is applied to the Vines, and a supply of Fern—where the common Bracken is plentiful—should be got in for covering up late borders before the shutters are placed over them for the winter. Favoured by the fine autumnal rains, yearling Vines planted in newly-made borders will show a disposition to break into another growth, but this must be checked by moderate stopping, and the ripening of the wood may be facilitated by keeping a high and dry temperature through the day, and by shutting off the heat and opening the ventilators by night. *W. Coleman, Eastnor.*

KITCHEN GARDEN.

Continue to clear off all exhausted crops so as to have the ground in readiness for digging or trenching if required, but where large fruit or other trees are growing in or near the garden, it is well to defer turning up the soil until the leaves have fallen, otherwise these remain an unsightly object during winter, or the ground is unnecessarily trodden in cleaning them off. When the soil is of a wet or retentive nature, it is beneficial to turn up in ridges of 2 to 3 feet wide at the base so as to expose a larger portion to the action of the atmosphere during winter. In all cases of digging or trenching ground at this season, if intended for spring planting, it should be left as rough as possible on the surface. Where manure is required, take a favourable opportunity to get it on the ground before heavy rains set in. The main crops of *Carrots, Beet, Salsify, Scorzonera*, &c., should now be taken up on a dry day and placed in a dry, airy shed or outhouse for a few days to get moderately dry before storing. In taking up *Beet* considerable care is requisite not to break or cut any of the fibrous or tap roots, as in this case the colour is much injured when the root is cooked. *Tomatos* also should be cut in clusters and hung up in a dry vinery or other suitable place, where the fruit will have a little warmth to bring such as are not yet ripe to maturity. *Cauliflowers* will now require considerable attention to protect the heads, in case of sudden frosts; we find it sufficient at present to break down a leaf or two over those more advanced; this also assists in keeping the heads clean and white. The principal crop of *Cabbage* should now be planted out for spring use, and if plants are abundant and strong it is well to plant a warm border thickly, say 1 foot apart; these in a mild winter often come into use very early as *Coleworts*. The planting out of *Lettuce* to stand the winter should also be attended to; the best and hardest varieties are *Bath Cos* (black-seeded) *Hicks' Hardy Green Cos* and *Lee's Immense Hardy Green Cabbage*. The latter is one of the most useful, coming in very early, good size and flavour. *William Cox, Madresfield.*

Variorum.

CALIFORNIAN FRUITS.

Any intelligent observer who will take the trouble to walk through the fruit market at this season of the year, cannot fail to be favourably impressed with the great resources of California in this respect, and her claim to be considered foremost among the fruit-growing countries of the world. For size and beauty of colouring her fruit bears away the palm, not only for that which is grown in temperate regions, but for many products of the tropics as well. In Grapes, for instance, he will find the Purple Isabella, the White Muscatel, the firm-meat Hamburg, and the rosy Tokay and Catawba. To an artistic eye, æsthetically cultivated, these are among the most beautiful productions of Nature. The rich glow seems as if just transferred from the sunset sky to the glossy skin of these delicious fruits, which appear to be bursting with the imprisoned sweets within—just as if a miniature summer, with rosy-tinted clouds, was incorporated into the ripened seed-bearer, giving it a soul of priceless and inimitable colours. The display of Raspberries, Strawberries, Plums, and Cherries, is very tempting, the latter especially being of large size, and in flavour far superior to those of the Eastern and Southern States.

Small Fruits.—Up to June 16, 1,120,000 lb. of Strawberries were shipped to this city—a very large consignment. At present they are very scarce. It has been remarked that the Raspberries of this year have a richer flavour than usual; but no increase in the yield has been noticed. This circumstance may arise from the fact that in 1871 this fruit was much injured by the ravages of a small bug about the size of two lines, which can only be detected by careful scrutiny. When the existence of this diminutive animal was made known to the Raspberry-eating public, many persons conceived a violent prejudice against the fruit, and looked upon it ever after with distrustful and suspicious glances. The objection has not been removed this season, in spite of all assertions to the contrary: for the writer of this article, after having eaten half a pound last week, displayed considerable chagrin and stomachic anxiety upon discovering a dozen of the little bugs trotting a race against time up the sides of the saucer. They can do no harm, however, when taken into the stomach, because the chemical juices of the body instantly deprive them of life, and no alarm need be felt should any one swallow them and ascertain the disagreeable fact afterward. They are selling (the Raspberries—not the bugs), wholesale, at 5 cents to 6 cents per pound, and, when properly cleansed, make a palatable addition to the dessert.

The number of Strawberry-vines and Blackberry, Raspberry, Currant, and Gooseberry bushes, has been estimated at 40,000,000, and the value of the yearly crop at nearly 2,000,000 dols.

The Gooseberries are considered inferior to those of other countries, but they are rapidly improving. Mr. W. N. Steuben, of Gilroy, has grown some of the English variety this season, which measure 3 inches in circumference and 1½ inch long.

Larger Fruits.—The Apricot is a healthier tree than the Peach, and has an advantage over it in the fact that the fruit of some varieties ripens earlier. The Apricot looks well this year, and is slightly improved in flavour. There are about 100,000 trees in the State in good condition; but few Peaches are in market. Hale's Early variety, from Briggs' orchard, Marysville, may be seen for sale. They are about three times the ordinary size, and weigh about 14 oz. each. The Nectarine ripens later than the Apricot, but has not so sweet a flavour. It labours, also, under the disadvantage of not being so prolific, although it is a hardy fruit. There are about 60,000 trees in the State, and they appear to be thriving. There are about the same number of Quince trees. The Quince is hardy and prolific—not so much esteemed here as in the Eastern States, because the supply of fresh fruit is more varied and abundant here throughout the greater part of the year, and also for the reason that Quince jelly is not so much in demand as it is in colder climates, where the snows lie upon the ground for three or four months every winter. Cutting & Co., C. James King of William & Co., and other firms, are putting up large quantities of this jelly and fruit in hermetically-sealed cans and boxes, and thus far have found it to be a very profitable branch of business.

Plums and Cherries.—The different varieties of the Plum are represented by about 530,000 trees, of which number Santa Clara claims 120,000. The fruit, as far as can be ascertained, has never been troubled by the curculio or Plum weevil, so destructive to this fruit in the Eastern States and in Europe. Lately vast quantities of this excellent fruit have been pitted and dried by the Alden process, in which shape they are sold in bulk at 25 cents per pound, and in caddies at 40 cents. The California Cherries are unquestionably the finest in the world, as regards size and flavour. A great deal of damage is done to them by the birds, who appreciate very much this luscious globule; but the loss is much less than would be sustained by the depredations of the curculio and other pests to vegetation which are destroyed by the winged messengers of the air. The crop this season is large and excellent. In Nevada County 2 tons of Cherries will be sent this year to Colfax Station, at 10 cents per pound. The Cherry culture is a very profitable one. One hundred trees will stand on an acre of ground, at 21 feet apart, and an acre of the red land of the foot-hills will yield a crop worth 1000 dols. The German Prune is represented by 7000 trees. Several companies have gone into the business of drying this popular article of dessert, with great success, the dried fruit being equal to the best imported, and, in fact, some of it is palmed off and sold as the German Prune. *S. F. Call, in "California Horticulturist."*

Clothes Worn by the Fijians.—The most simple form of an article of dress, and one much worn in Fiji, is called "liku," consisting of a number of pieces simply attached to a waist-band. It is made of many different plants, that most esteemed being a black creeper (Rhizomorpha) which grows in swamps. Those worn by the women are from the fibrous bark of several Paritiums. Dyed mats, with which the floors of houses and sleeping places are thickly covered, are made of the leaves of Pandanus odoratissimus and P. caricosus. Fans, baskets, and the finest mats are made of bleached leaves of the latter. Occasionally neat patterns are worked in by introducing portions of the materials dyed black, whilst the borders of highly finished mats are tastefully ornamented with the bright red feathers of the kula (a parroquet). The clubs are very heavy weapons, about 5 feet long. The spears are long, and pointed with the sting of the ray-fish. Girdles of Hibiscus fibres, 6 inches wide and dyed black, brown, and yellow, are worn by the women. *P. L. Simmonds, in the "Society of Arts Journal."*

Enquiries.

He that questioneth much shall learn much.—Bacon.

[Many enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. Eds.]

12. New Zealand for Gardeners.—*A. B. C.*, a young married gardener, thinking of going next spring to New Zealand, wishes to know what are the prospects in that country of his doing well. He also wishes to know where he can procure a book that will give him any information on the state of that country at the present time. Can any of our correspondents help him?

13. Rush-lights.—I remember, forty years ago, when Rush-lights were more common than they are now, that we used to gather the Rushes for that purpose at, or near, the full of the moon, as the pith at that time was supposed to be much firmer than at other times. Will any one living among Rushes say whether this is so or not? *R. A.*

14. Moles as Vegetarians.—Can any of your readers tell me whether the mole is ever known to eat the roots of vegetables, or to gnaw the roots of Turnips, Cabbages, or any other kind of plant, in such a decided manner as to give anything like a favourable colouring to the theory that he is a vegetarian? *William Earley.*

Answers to Correspondents.

Horse Mowing Machines (Q. 11, p. 439): *G. B.* See page 466.

Belgian Nurseries: *W. G.* should apply to the gentleman he names. It would be better if the applicant had some knowledge of French, but it is probably not indispensable, as it would be soon acquired. We think it would be advantageous, if the applicant is sufficiently intelligent and persevering to be able to avail himself of the opportunities offered.

Books: *J. S. S. Mushrooms and Toadstools* consists of two sheets of coloured figures, with descriptive text (Hardwicke); Cook's *British Fungi* (Hardwicke); Badham's *Esculent Fungi* (Reeve & Co).

Cyclamens: *L. E.* Sow the seeds as soon as ripe (or failing that, now) in a moderate heat, and grow on the young plants in an intermediate house—that is, a cool stove temperature—till they are well established and begin to show flower, when a light, but not too cold, greenhouse will suit them better. The seeds, it is said, have been sown, and the plants flowered, within twelve months. Of course potting on, as required, must be attended to, but too large a pot should not be used. If you cannot get seeds from some of the growers of these plants, your only resource will be the seedsmen.

Bouquets: *Lover of Flowers.* It is quite a matter of taste. There are no recognised standards of size for the various bouquets.

Names of Fungi: *W. H. Wheeler.* We cannot name fungi without seeing specimens; but from the description you give, the plant is, in all probability, the Giant Puff-ball (Lycoperdon giganteum). See fig. 457.—*A Hamptonian.* Agaricus procerus—perhaps the best of all the edible species.

Names of Fruits; *H. Mobbs.* 1, Golden Reinette; 2, French Crab; 4, Calville Rouge; 5, Sturmer Pippin.—*H. W. G. Pears:* 1, Vicar of Winkfield; 2, Broom Park. *Apples:* 1, Small's Admirable; 2, Holland Pippin; 3, Cox's Orange Pippin; 6, Cat's-head Codlin; 8, Gravenstein.—*W. H. D.* Yours are a bad lot: 1, Hawthornden; 3, Mank's Codlin; 4, Trumpington. We can't tell any of the others.—*Hartome. Apples:* 1, Cellini; 2, Herefordshire Pearmain. *Pears:* 1, 2, 3, Maréchal de la Cour; 4, Glou Morceau; 5, Louise Bonne of Jersey; 6, Beurré Diel; 7, Urbaniste.—*C. D. Smith. Apples:* 1, Dumelow's Seedling—an exceedingly fine specimen; 2, King of the Pippins. *Grape:* We cannot distinguish it from sample sent.—*A. S. B. G. Apples:* 1, Hawthornden; 2, Hawthornden, new; 3, Alfriston; 4, Nonsuch; 6, Cornish Gilliflower; 9, Beauty of Kent; 10, Blenheim Pippin; 11, Cockle Pippin; 13, Fearn's Pippin; 15, Hollandbury. *Pears:* 1, rotten; 2, Beurré de Capiaumont; 3, Thompson's; 4, Beurré d'Aremberg; 5, Urbaniste.—*W. G., a Young Gardener.* 1, Catillac; 2, Swan's Egg; 4, Keddleston Pippin; 5, Cockle Pippin.—*C. and M., Hereford. Pears:* 1, Joséphine de Malines; 2, Beurré d'Amanlis; 3, Ne Plus Meuris; 4, Eyewood; 6 M, Winter Crassane. *Apples:* 1, Fearn's Pippin; 2, Dumelow's Seedling; 3, Dutch Mignonne; 5, 6, Blenheim Pippin; 8, Mère de Ménage.—*Received without letter, numbers on Lilium auratum labels:* 7, Not known; 8, Old Nonpareil; 9, Braddick's Nonpareil; 10, Blenheim Pippin; 11, Court of Wick.

Names of Plants: *B. Pounsett.* The Loquat (Eriobotrya japonica).—*J. R. B.* Hedychium Gardnerianum.—*J. W. S. T.* The specimens are very poor; they appear to be the following:—1, Selaginella viticulosa; 2, S. uncinata (cæsia); 3, S. caulescens; 5, S. Martensii; 6, Nephrolepis tuberosa. The evergreen climber, No. 1, is Mimosa prostrata.—*J. W.* Fumaria capreolata.—*C. W. D.* Erigeron acre.

Pelargonium: *H. Golding.* There are several pink-flowered sorts with zonate leaves, and yours does not appear to be any improvement on them.

Woodlice in Mushroom Beds: *An Old Subscriber.* Pour scalding hot water in their runs and round the sides of the beds. Repeat this at intervals until you have got them under. Have a good clean-out as soon as possible.

*** Correspondents are specially requested to address all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

Catalogues Received.—John Moore (52, Market Place, Warwick), Catalogue of Select Roses.—Davison & Whittem (Hereford), Catalogue of Selected Roses.—Briggs & Brother (91, and 93, State Street, Rochester, N.Y.), Illustrated Catalogue of Floral Work.—François Desbois & Co. (Mont St. Amand, Ghent, Belgium), Price List for the Autumn of 1874.

Communications Received.—E. B. S. (we will endeavour to oblige you in an early number).—R.—R. H. P.—T. W. J. (please send us the photographs).—P. H. G.—W. Muir.—E.—W. F.—R. W. B.—Beasley.—A. N.—W. T. P.—C. E. B.—E. A. O. (thanks).—H. E.—R. N. C.—W. B.—E. S. D.—W. F. D.—W. C.—J. M.—H. M.—J. S. S.—G. C. (please send the specimens).—T. S.—T. B.

Markets.

COVENT GARDEN, October 8.

So little change has taken place during the week, that it hardly requires notice. Foreign Grapes are coming in very freely from Portugal and other places. *Thos. Taylor, Wholesale Apple Market.*

Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Asters, per doz. bun.	4 0	6 0	Mignonette, 12 bun.	2 0	6 0
Carnations, per doz. bunches	6 0	9 0	Pelargoniums, per 12 sprays	0 6	1 0
Corn-flower, doz. bun.	3 0	6 0	Pelargoniums, Zonal, per 12 sprays	0 3	0 9
Dahlias, p. doz. bun.	3 0	6 0	Roses, indoor, p. doz.	1 0	6 0
Eucharis, per doz.	4 0	9 0	— Outdoor, do.	0 4	1 0
Eschscholtzia, 12 bun.	2 0	6 0	Spiræa, per 12 sprays	1 0	2 6
Gardenias, p. doz.	3 0	9 0	Stephanotis, 12 sprays	5 0	9 0
Gladiolus, doz. sprays	1 0	2 0	Tuberoses, p. doz.	1 0	2 0
Heliotropes, per doz. sprays		0 6	Violets, p. doz. bun.	0 6	1 0

Plants in Pots.

	s. d.	s. d.		s. d.	s. d.
Asters, per dozen	4 0	8 0	Fuchsia, per dozen	4 0	12 0
Balsams, p. doz.	3 0	9 0	Heaths, in var., do.	12 0	30 0
Begonias, do.	6 0	12 0	Liliums, in var., each	1 0	3 6
Bouvardias do.	9 0	18 0	Mignonette, per doz.	4 0	6 0
Coleus, p. doz.	3 0	9 0	Myrtles do.	3 0	9 0
Chrysanthemums, p. dozen	4 0	9 0	Pelargoniums, dble., per doz.	4 0	9 0
Cyperus, per dozen	6 0	12 0	— Scarlet, per doz.	3 0	9 0
Dracæna terminalis	12 0	30 0	Solanums, per doz.	6 0	18 0
— viridis, per doz.	12 0	24 0			

Fruit.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	1 6	Oranges, p. 100	10 0	18 0
Filberts, per lb.	1 0	1 6	Peaches, p. doz.	8 0	15 0
Grapes, English, p. lb.	2 0	6 0	Pears, p. doz.	2 0	3 6
— Muscats, do.	2 6	6 0	Pine-apples, p lb.	3 0	6 0
Lemons, per 100	10 0	15 0	Plums, ½-sieve	1 6	2 0
Melons, each	2 0	3 6	Walnuts, p. bush.	16 0	..
Nuts, Cob, p. lb.	1 0	1 6			

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz. ..	1 6– ..
Beans, Fr., per bush.	5 0– ..	Mint (green), p. bun.	0 6– ..
— Scarlet, do. ..	3 0– 5 0	Mushrooms, per pott.	1 0– 2 6
Beet, per doz. ..	1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle..	0 9– 1 6	Parsley, per bunch..	0 4– 0 6
Brus. Sprts., ½ sieve	2 6– ..	Parsnips, p. doz. ..	0 9– 1 0
Cabbages, per doz. ..	1 0– 2 0	Radishes, per bunch.	0 2– 0 4
Carrots, new, p. bun.	0 4– 0 6	— black, Turnip, do. ..	– 0 6
Cauliflowers, per doz.	2 0– 6 0	Shallots, per lb. ..	0 3– ..
Celery, per bundle .	1 6– 2 0	Salsify, per bundle...	1 6– ..
Cucumbers, each ..	0 6– 1 0	Spinach, per bush. ..	2 0– 3 0
Endive, per doz. ..	1 0– 2 0	Tomatos, per doz. ..	1 0– 3 0
Herbs, per bunch ..	0 2– 0 4	Turnips, per bundle.	0 3– 0 4
Horse Radish, p. bun.	3 0– 5 0	Veg. Marrows, doz.	1 6– 2 0
Leeks, per bunch ..	0 2– 0 4		

New Potatos:—Round, 60*s.* to 90*s.* per ton; Kidneys, 90*s.* to 120*s.* per ton.

SEEDS.

LONDON: *Oct.* 8.—Our Seed Trade, as is usual at this time of the year, is now without any special feature of interest. In both red and white Clover seed very little business is passing: a few samples of new home-grown seed of both descriptions have come to hand, but without finding buyers, the prices demanded being very high. Some of the French samples now offering are of very good quality. For Trefoil seed values keep steady, although the demand is slack. Winter Tares are getting scarcer every day: the trade for them being fairly brisk, a further advance must be noted of 3*s.* to 4*s.* per quarter. New Rye for sowing is in somewhat improved request. Neither Mustard nor Rape seed exhibit any noteworthy alteration. New Dutch Hemp seed is now offering. For large blue boiling Peas we have a good demand. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the market was decidedly flat, and English Wheat was almost unsaleable, even at a reduction of 1*s.* per quarter from Monday last. For foreign produce less money had invariably to be accepted. The Barley trade was dull and rather lower. Malt was dealt in very sparingly on former terms. New Oats were slightly easier to purchase in some cases, but sound old corn was fully as dear. Maize gave way in price to the extent of 6*d.* per quarter. Beans and Peas were without change of importance. In flour the top price of town-made was reduced 4*s.*, or to 43*s.* per sack.—Dulness characterised the market on Wednesday, but there was no material change in the quotations for Wheat. Barley was also difficult to move, and rather easy in value. Malt remained stationary, and Monday's rates were demanded for Oats and Maize, in the latter of which very few sales were effected. Beans and Peas were steady, but flour experienced a very dragging trade at the late reduction.—The average prices for the week ending October 3 were: Wheat, 46*s.* 1*d.*; Barley, 42*s.* 4*d.*; Oats, 27*s.* 4*d.* For the corresponding week last year—Wheat, 62*s.* 3*d.*; Barley, 45*s.*; Oats, 25*s.* 9*d.*

CATTLE.

At the Metropolitan Market on Monday there were very few choice quality beasts, and, the weather being favourable, prices advanced. The number of sheep was much smaller, and trade was active at higher rates. A fair clearance was effected both of beasts and sheep. Choice calves were scarce and dear. Quotations:—Beasts, 4*s.* 4*d.* to 6*s.* 6*d.*; calves, 4*s.* 4*d.* to 5*s.* 8*d.*; sheep, 5*s.* to 6*s.* 2*d.*—On Thursday trade in beasts was active, at about Monday's quotations. For choicest sheep Monday's prices ruled, but for second quality the figures were scarcely so good. Best quality calves are dearer. There is a fair demand for milch cows, at late rates.

HAY.

The Whitechapel report states that the supply of fodder offered is moderate, but there is a better demand for most descriptions, and prices are slightly firmer. Prime Clover realised 100*s.* to 130*s.*; inferior ditto, 75*s.* to 85*s.*; prime meadow hay, 90*s.* to 110*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load. The Cumberland Market quotations are:—Superior meadow hay, 110*s.* to 117*s.*; inferior ditto, 90*s.* to 100*s.*; superior Clover, 120*s.* to 130*s.*; inferior ditto, 100*s.* to 110*s.*; and straw, 38*s.* to 42*s.* per load.

POTATOS.

The Borough and Spitalfields markets reports state that the unsettled weather towards the end of last week having interrupted to some extent the arrivals of Potatos, trade has been certainly better, and prices advanced from 5*s.* to 10*s.* per ton. The quotations were:—Best Regents, 75*s.* to 90*s.*; ordinary ditto, 65*s.* to 80*s.*; kidneys, 100*s.* to 110*s.* per ton. Last week's imports into London consisted of 496 bags from Terucuzcu, 150 packages 91 bags from Antwerp, 112 tons from St. Malo, 2 barrels from Jersey, and 6 bags from Hamburgh.

COALS.

At Monday's market an advance of 1*s.* per ton took place in house coals. Firmness charcterised Wednesday's business, and house coals advanced 6*d.*; Hartleys, however, declined 1*s.* per ton. Quotations:—Bebside West Hartley, 22*s.* 3*d.*; East Wylam, 23*s.*; Hastings Hartley, 22*s.* 3*d.*; Eden Main, 23*s.* 9*d.*; Holywell Main, 23*s.*; Walls End—Harton, 23*s.* 9*d.*; Hetton, 26*s.*; Hetton Lyons, 23*s.* 9*d.*; Lambton, 25*s.* 6*d.*; Stewart's, 25*s.* 6*d.*; East Hartlepool, 26*s.*; Original Hartlepool, 26*s.*; Tees, 25*s.* 9*d.*

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s.*

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

Autumn Sowing.
ODAMS' MANURES, Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.
Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

PEAT EARTH.—Fibrous Peat Earth for American and New Holland Plants, Ericas, and for Potting, delivered on Rail at Blackwater, South-Eastern Railway, and Farnborough, South-Western Railway, in truckloads of 4 tons and upwards, at 12*s.* 6*d.* per ton. Extra fibrous quality, for Orchids and Ferns, 25*s.* per ton. Sphagnum Moss for Orchids, 10*s.* per sack.
T. WALKER, 46, Cannon Street, London, E.C., where samples can be seen.

FIBROUS PEAT.—Brown Fibrous Peat, best quality, for Orchids, Stove Plants, and Potting, £6 6*s.* per 6-ton truck load. Black Fibrous Peat, for Azaleas, Heaths, New Holland Plants, &c., £5 5*s.* per 6-ton truck load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

MILDEW
May be entirely prevented as well as cured by
EWING'S INFALLIBLE COMPOSITION. Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions for use.

Russia Mat Merchants.
MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., IMPORTERS of ARCHANGEL MATS. Large stock of heavy ST. PETERSBURG and close-woven MATS now arrived.
N.B.—Heavy St. Petersburg are best for covering purposes.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing, Second sized Archangel, 100*s.*; Petersburg, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

To Florists, Gardeners, &c.
FOR SALE, TOBACCO CLOTH and PAPER suitable for fumigating purposes. For Terms and particulars apply to
Messrs. W. AND M. TAYLOR, 119, Francis Street, Dublin.

Indestructible Terra-Cotta Plant Markers.
MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of
CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E., ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

HENRY ORMSON,
HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

The Royal Pottery, Weston-super-Mare.
UNDER ROYAL PATRONAGE.
JOHN MATTHEWS (late C. PHILLIPS) Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.
JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

Stoves for Greenhouses! Portable! Terra Cotta!
ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS'S Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,
THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

The Most Perfect Hot-water Pipe in the World.
MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.
4-inch Pipe, per yard .. .. 3*s.* 4½*d.*
3-inch Pipe, per yard .. .. 2*s.* 9½*d.*
2-inch Pipe, per yard .. .. 1*s.* 8*d.*
Connections at proportionate prices.
Illustrated Price List free on application to
T. G. MESSENGER, Hot-water Engineer, Loughborough.

J. G. SMEATON & CO.,
Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.
HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Reduced Prices.
THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.
For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.
For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all outdoor work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

SPECIAL NOTICE.

F. K. BELL'S

IMPERISHABLE METAL LABELS

FOR

HORTICULTURE, WINE BINS, ARBORICULTURE AND MACHINERY.

THE ORIGINAL MANUFACTORY

of these Labels (which have given such general satisfaction throughout the United Kingdom) has been removed ENTIRELY from Stratford-on-Avon to

EASTBOURNE, SUSSEX,

Where all Orders should be addressed, and shall receive prompt attention Catalogues and samples on application.

F. K. BELL,

LABEL FACTORY, EASTBOURNE.

The Improved Imperishable Labels!!!

IMPORTANT NOTICE.

J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.

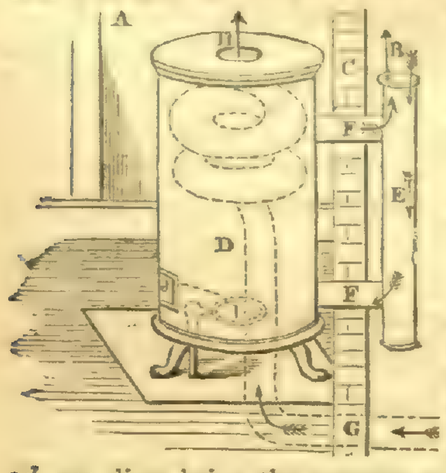
J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose. The Labels are made of a white metal with RAISED BLACK-FACED LETTERS.

All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

GEORGE'S PATENT CALORIGEN,



FOR WARMING AND VENTILATING.

COAL CALORIGEN,
£6 6*s*
Height, 36 inches; diameter, 21 inches.

GAS CALORIGEN,
£3 3*s*.
Height, 28 inches; diameter, 14 inches.

The only Gas Stove which retains the whole of the heat given off by the gas without vitiating the atmosphere. The "Coal Stove" consumes the smallest amount of Fuel—2*d.* per diem being the average cost. It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).

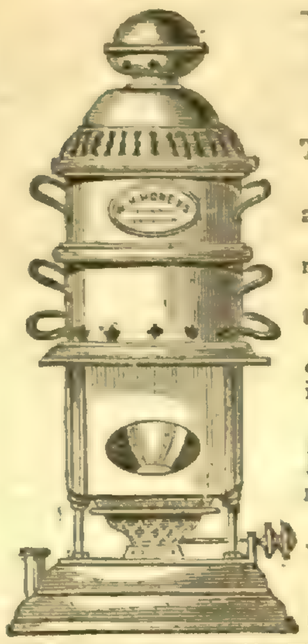
Illustrated Prospectuses and Testimonials on application.

J. F. FARWIG AND CO., 36, Queen Street, Cheapside, E.C.

This Stove introduces a strong current of warmed (not burnt) fresh air.

ESTABLISHED 1856.

KEEP OUT THE FROST.



WILLIAM H. HONEY'S PORTABLE

VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

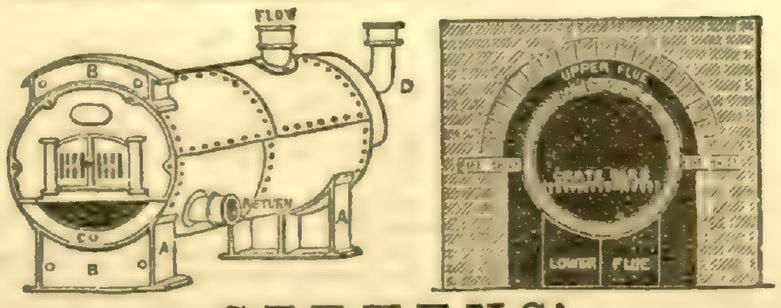
Prices, in block tin, 30*s.*; in copper, 50*s.* Copper, with glass, to give light and heat, 55*s.* Either will be sent on receipt of Post-office Order.

To be seen in operation at

WILLIAM H. HONEY,

263, REGENT STREET, W.

Catalogue free. No agents appointed.



STEVENS'

TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

AGRICULTURAL LOCOMOTIVES,

STEAM PLOUGHING MACHINERY.

ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES, STEAM ROAD ROLLERS.

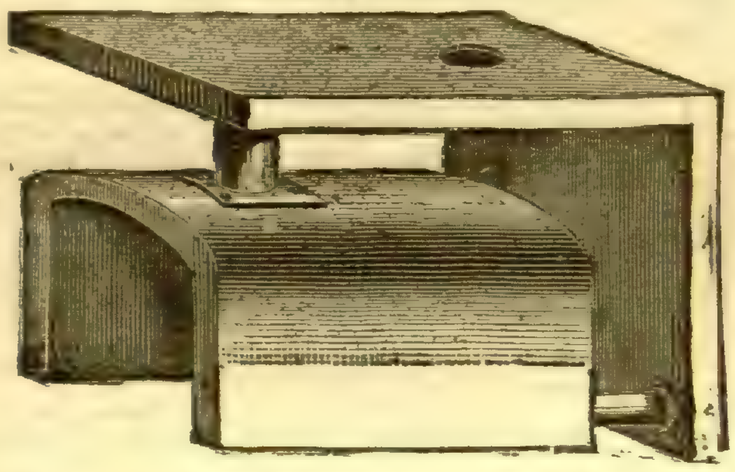
For Prices, Description, and Reports of Working, apply to the Manufacturers,

AVELING & PORTER,

ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0
30 ,,	30 ,,	72 ,,	2,600	35	0	0
36 ,,	36 ,,	96 ,,	4,500	50	0	0
48 ,,	48 ,,	108 ,,	7,000	75	0	0
48 ,,	48 ,,	144 ,,	10,000	100	0	0

And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

GREENHOUSES ERECTED in any part of England, including Brickwork and Hot-water Apparatus complete. No extras. Plans and Estimates free on receipt of size required, to

R. STEVENS, Horticultural Builder and Hot-water Engineer, Bromley, Kent.

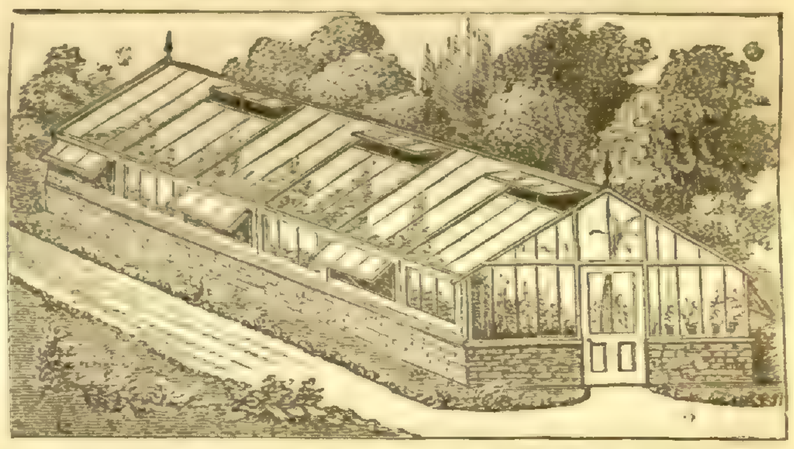
J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

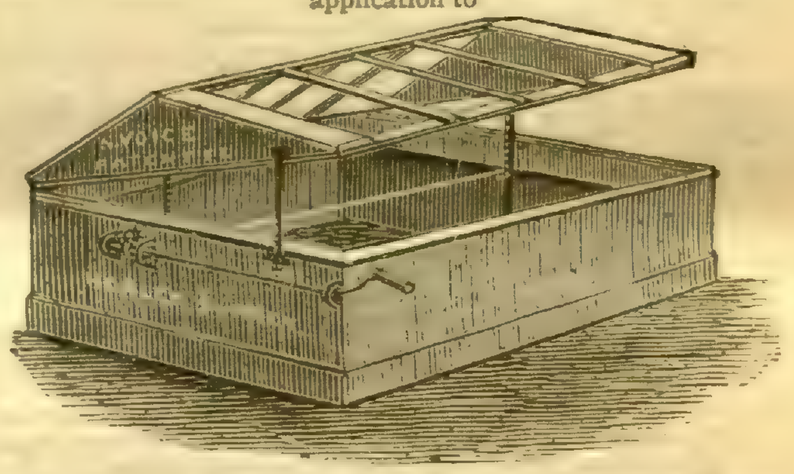
W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

HORTICULTURAL BUILDINGS

Designed, Built, and efficiently Ventilated and Heated.

Estimates given to Architect's Plans, or to Rough Sketches, with Sizes, &c.

A PAMPHLET with Illustrations, Testimonials, &c., and PRICE LISTS of Sir J. Paxton's Hothouses, for 3*d.* post free.

A HANDBOOK of Vine and Fruit Tree Cultivation, with Plans of Glass Houses, Heating, &c., post free, 13*d.*

HEREMAN & MORTON,

HORTICULTURAL ENGINEERS,

14, TICHBORNE STREET, REGENT QUADRANT, LONDON, W.

SALES BY AUCTION.

(Continued from p. 460.)

Tottenham, N.

IMPORTANT SALE of FIRST-CLASS NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Thomas Ware to SELL by AUCTION, on the Premises, the Hale Farm Nurseries, adjoining the Tottenham Station, Middlesex, and accessible from the City in twenty-five minutes, on MONDAY and TUESDAY, October 19 and 20, at 11 for 12 o'Clock precisely each day, a large quantity of particularly well-grown NURSERY STOCK, consisting of a rich assortment of Evergreen Coniferæ and Deciduous Shrubs, including 4000 Aucuba japonica, 1 to 3½ feet; large quantities of Box, Cupressus, Euonymus, Variegated and Green Hollies, Junipers, Bays, Arbutus, Portugal and common Laurels, choice Rhododendrons, Thujas of sorts, Thujopsis, English Yews, 2 to 4 feet; also a fine Collection of Standard Ornamental Trees; 6000 of the cleanest grown Fruit Trees in the Trade, including Standard, Pyramid, and Dwarf-trained Apples, Pears, Plums, and Cherries, Dwarf-trained Peaches, Nectarines and Apricots; 7000 strong Seakale; together with 5000 Standard and Dwarf Roses of unparalleled growth, lotted to suit the Trade as well as private buyers.

Now on view. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Tooting, S.W.

IMPORTANT SALE of THRIVING YOUNG NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. R. Parker, to SELL by AUCTION, on the Premises, the Nursery, Tooting, Surrey, on MONDAY, October 26 and two following days, a large quantity of remarkably well-grown NURSERY STOCK, in excellent condition for removal, consisting of 7000 choice Shrubs in specimen borders admirably adapted for effective planting, a large quantity of handsome young specimen Coniferæ, thousands of useful Evergreens in fine assortment, Ornamental and Forest Trees in great numbers, fine Standard Roses, clean-grown Fruit Trees, Climbing and Hardy Herbaceous Plants in pots, Bulbs, &c.

More detailed particulars will appear next week.

Brixton, S.W.

SALE of VALUABLE NURSERY STOCK, admirably adapted to the London Suburbs.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Ponsford & Son to SELL by AUCTION, without reserve, on the Premises, The Nursery, Loughborough Park, Brixton, Surrey, S.W., on THURSDAY and FRIDAY, October 29 and 30, a large quantity of valuable NURSERY STOCK, consisting principally of stock peculiarly adapted for the London suburbs, such as Aucubus, Euonymus, Ligustrum, Box, Laurels, Variegated and Green Hollies, Rhododendrons, Chinese Arbor-vitæ, Thujas; also 1500 Mulberry Trees, some of which are fine specimens; a large quantity of Ornamental Trees, Standard and Espaliar Fruit Trees, Climbers, &c.

Full particulars will appear shortly.

Preliminary Notice of

FORTHCOMING SALES, by PROTHEROE AND MORRIS.

NOVEMBER 2 to 10.—THE NURSERIES, Wandsworth Common, S.W. By order of Messrs. R. Neale & Son. An immense quantity of General Nursery Stock.

NOVEMBER 2 to 4.—GROOMBRIDGE NURSERIES, Tunbridge Wells. By order of Mr. Hollamby. A beautiful assortment of General Nursery Stock.

NOVEMBER 11.—EAST DOWN NURSERY, Lewisham, S.E. By order of Mr. B. Maller. A quantity of well-selected Nursery Stock.

NOVEMBER 16.—WHITCHURCH RECTORY, Edgware. By order of the Rev. J. B. Norman. A choice assortment of Coniferæ, Evergreens, Fruit Trees, and Roses.

NOVEMBER 16, 17, and 18.—THE NURSERIES, Loughton. By order of Mr. W. Paul. Many thousands of Coniferæ and Evergreen Shrubs, Fruit and Ornamental Trees, Roses, &c., in fine condition.

Catalogues of the above Sales may be had (when ready) on application to Messrs. PROTHEROE AND MORRIS, Auctioneers, Estate Agents and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Oatlands Park Nursery, Weybridge, Surrey.

IMPORTANT NOTICE to LANDSCAPE GARDENERS, GENTLEMEN, the TRADE, and OTHERS engaged in PLANTING.

MR. W. ABRAHAM has received instructions from Mr. Jesse Chapman (proprietor of the above) to SELL by AUCTION, on TUESDAY, October 13, and three following days, at 12 o'Clock each day punctually, a large portion of his NURSERY STOCK, including some very handsome specimens of Cedrus Deodara, Thujopsis borealis, Picea lasiocarpa, P. nobilis, P. Strobus, P. excelsa, Wellingtonia gigantea, Cedar of Lebanon, Thuja Warreana, Cupressus Lawsoniana, C. kewensis, C. Goveniana, Abies Douglasii; also Silver Birch, Scarlet Oak, Mountain Ash, Sycamore, all in the best possible condition and size to move successfully, with many thousands of Thuja Lobbii, T. americana, T. sinensis, Weymouth Pine, Hemlock Spruce, Picea nobilis, P. Nordmanniana, Cedrus Deodara, Abies Douglasii, Spruce Fir, handsome stock, 3 to 5 feet; Scotch Fir, 3 to 4 feet; Larch, Pinus Laricio, P. austriaca, all good stuff, 2 to 4 feet; with large quantities of common Laurel, Portugal Laurel, Aucuba japonica, Green, Gold, and Silver Holly (good), Tree Box, Retinosporas, Rhododendrons, Privet, Standard and Pyramidal Pears, choice Standard and Dwarf Perpetual Roses, and many others, enumerated in Catalogues, to be obtained on the Premises, or post-free of the Auctioneer and Valuer, Goldworth Nurseries, Woking, Surrey.

N.B.—This Stock is particularly worthy the attention of Gentlemen and Public Companies planting for immediate effect.

Extensive Sale of upwards of 2,200,000 Trees and SHRUBS.

MR. JAS. S. MARSHALL will SELL by AUCTION, at John Stewart & Sons' Camp and Fort Nurseries, Broughty Ferry, near Dundee, on TUESDAY and WEDNESDAY, October 13 and 14, commencing at 10 o'Clock each day, a large assortment of FOREST and ORNAMENTAL DECIDUOUS and EVERGREEN TREES and SHRUBS, Coniferæ, Rhododendrons, Roses, Fruit Trees and Bushes, &c., Alpine and Herbaceous Plants, Hardy Ferns, Greenhouse Plants, &c. In small and large lots to suit buyers.

Catalogues now ready. Inspection of the stock invited.

JAS. S. MARSHALL, Auctioneer, Dundee.

Wigginton Nurseries, near Berkhamsted, Herts.

EXPIRATION of LEASE.

IMPORTANT SALE of VALUABLE NURSERY STOCK.

MESSRS. WOODMAN AND SON will SELL by AUCTION, at the above Nurseries, on October 12, 13 and 14, about 38,000 TREES and SHRUBS, including 700 Cupressus Lawsoniana, 8 to 12 feet; 1000 English Yew, 3 to 5 feet; 1200 Box, 650 austriaca, 5 to 8 feet; 3000 Spruce Fir, 2000 Hollies, 6000 Mahonia, 700 P. nobilis, 3 to 8 feet; 200 P. Nordmanniana, 4 to 9 feet; 900 Variegated Yews; 200 T. borealis, 6 to 10 feet; 350 Thuja gigantea, 5 to 7 feet; 250 Retinospora ericoides, 2 to 4 feet; 6500 Beech, 5000 Oak, 750 Variegated Hollies; 300 Irish Junipers, 5 to 6 feet; 250 Cedrus atlantica, 500 P. Cembra, 3500 Rhododendron ponticum, 1500 Rhododendron Hybrids, and large specimens of Deodars, Araucarias, Wellingtonias, Abies Douglasii, &c.

Catalogues may be had on application to the Auctioneers, Hemel Hempstead, Herts; and of Messrs. LANE AND SON, The Nurseries, Great Berkhamsted.

To Landed Proprietors, Land Agents, Nurserymen, and Others.

EXTENSIVE SALE of NURSERY STOCK at the Church Hill Nurseries, Easingwold, Yorkshire. Messrs. R. Brown and Co., having purchased the above Nurseries from Mr. Joseph Hobson, and with a view to rearranging their Stock, have instructed

MR. LEONARD SMITH to SELL by AUCTION, on the Premises, on THURSDAY and FRIDAY, October 15 and 16, a great variety of NURSERY STOCK, consisting of Transplanted Forest Trees, Larch, Fir, Quicks, Ornamental Trees, Shrubs, Coniferæ, and Fruit Trees. Sale each day at 11 o'Clock.

For Catalogue of Sale apply to the Auctioneer, or to R. BROWN AND CO., Church Hill Nurseries, Easingwold.

Promenade Gardens, Malvern.

IMPORTANT NOTICE to INTENDING PLANTERS.

MESSRS. LYTHALL AND CLARKE are instructed by Mr. R. H. Vertegans, proprietor of these extensive Nursery Grounds, to SELL by AUCTION, in the Gardens, as above, on MONDAY, October 19, and following day, at 11 for 12 o'Clock precisely, a quantity of unusually handsome specimen CONIFERS, comprising splendid Cedrus Deodara, Cupressus Lawsoniana and macrocarpa, Abies Nordmanniana, Pinus insignis, Chinese Juniper, Thuja Warreana and Lobbii, Chinese Arbor-vitæ, Arbutus, English and Irish Yews, Portugal, Colchicum, and common Laurel, Phillyreas, Gold and Silver Hollies, Laurustinus; choice ROSES, with quantities of TREES and SHRUBS of fine growth, for producing an immediate effect. Every specimen has been carefully prepared for removal.

Catalogues may be had on application to Mr. VERTEGANS, Promenade Gardens, Malvern, and Chad Valley Nurseries, Edgbaston; or of the Auctioneers, the Midland Counties Repository, Birmingham.

Hertford.—The Nurseries, North Road.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, ESTATE AGENTS, and OTHERS.

MESSRS. MEDCALF have been favoured with instructions from Messrs. E. P. Francis & Co., to SELL by AUCTION, on the Premises, in the North Road, on TUESDAY and WEDNESDAY, October 20 and 21, 1874, at 11 for 12 o'Clock each day punctually, on account of the number of Lots, a portion of their valuable NURSERY STOCK, including 25,000 Hornbeam, 12,000 Laurels, 15,000 Larch and Spruce, 6000 Portugal Laurels, Alders, Limes, Birch, Horse Chestnuts, Tree Box, &c.; 1000 choice Standard, Pyramid, and Dwarf Trained Fruit Trees; and 1000 Standard and Dwarf Roses of the leading varieties.

May be viewed two days previous, and Catalogues had on the Premises; at the Nurseries; at the usual Inns in the neighbourhood; and of Messrs. MEDCALF, Auctioneers and Estate Agents, Fore Street, and Ware Road, Hertford.

First Poultry Sale of the Season at Lucas' REPOSITORY, LIVERPOOL.

MESSRS. LUCAS AND CO. will SELL by AUCTION, on FRIDAY, October 23, at 11 o'Clock prompt, at their Repository, Liverpool, 300 lots of choice domestic POULTRY and PIGEONS.

Entrance fee for Poultry, 1*s.* per pen. No entrance for Pigeons if of 10*s.* value per lot.

Commission on Sale, 10 per cent. Entrance closes as soon as 300 lots are entered.

All Birds to be at the Repository by Thursday evening, or before 9 o'Clock on Friday morning.

N.B.—Three Birds in each pen, except of great merit. Pigeons in pairs.

Potter's Bar.—Valuable, Extensive, and Thriving NURSERY STOCK

Worthy the attention of those Stocking or Contemplating Planting.

MR. F. W. SEARLE will SELL by AUCTION, by order of Mr. James Butterfield, at Osborne Nursery, near the station, Great Northern Railway, on WEDNESDAY and THURSDAY, October 28 and 29, at 11 o'Clock each day, in 800 lots, the STOCK, including 3000 Gold and Silver HOLLIES, Oakleaf, Yellowberry, Scotti, and other green Hollies; 3000 Rhododendrons, Standard and bushy Portugal and common Laurels; Laurustinus, specimen Araucarias, Thuja aurea, Lobbii, chinensis; Thujopsis, Taxodiums, Phillyreas; Flowering SHRUBS in variety, Standard Dwarf and Climbing ROSES, clean-grown FRUIT and FOREST TREES, about 200 lots of young Shrubs suitable for the trade, &c.

Purchasers will be allowed one month to lift the stock.

May be viewed any time prior to Sale, and Catalogues obtained at place of Sale, usual Inns in neighbourhood, Green Dragon, Bishopsgate; of the Auctioneer, Tottenham and Enfield.

Extensive Sale of Large Exhibition and Half-specimen SHOW PLANTS.

MESSRS. OLIVER, NEWBOLD, AND OLIVER have received instructions from Mr. George Cooper (who contemplates giving up exhibiting), of Rose Hill Nurseries, Derby, to SELL by AUCTION, on MONDAY and TUESDAY, October 28 and 29, the whole of his valuable Collection of SHOW PLANTS, containing a large quantity of very fine Ericas, of the best varieties, from 2 to 4½ feet diameter; Hedaromas, the finest in England; Azaleas, splendid plants, from 4 to 6 feet; Eriostemons, of different kinds; Stephanotis, Bougainvilleas, Rondeletias, 4 by 3 feet; Alamandas, Crotons, Cycas revoluta (a grand plant), Palms, Ferns, Ixoras, &c. The whole of the above are good specimen plants. Also the large Show Van, 16½ feet by 8 feet, water-proof top, nearly new, to run by road or rail.

Sale each day at 10 for 11 o'Clock. Catalogues may be had from the Auctioneer's Offices, Wardwick, Derby.

FOR SALE.—The "GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE" for 1871, '72, '73, clean, bound in cloth; also, "THOMPSON'S GARDENERS' ASSISTANT," bound, half calf. The Lot for £2.—HORTUS, Bollington's Library, 12, High Street, St. John's Wood, London, N.W.

FLORAL MAGAZINE. New Series, enlarged to royal 4to. Drawings and Descriptions of the choicest New Flowers for the Garden, Stove, or Conservatory. By WORTHINGTON G. SMITH, F.L.S. Monthly, with four beautifully Coloured Plates, 3*s.* 6*d.*; Annual Subscription, 42*s.* No. 34, October, contains Coloured Plates and Descriptions of Double Pelargonium "Emily Lantin," Blandfordia flammea elegans, New Varieties of Herbaceous Calceolarias, and Lilium Parviflorum, L. Dalmaticum, and L. Avenaceum.

BOTANICAL MAGAZINE. Figures and Descriptions of New and Rare Plants. By Dr. J. D. HOOKER, C.B., F.R.S., F.L.S. Monthly, with six beautifully Coloured Plates, 3*s.* 6*d.*; Annual Subscription, 42*s.* Re-issue of the Third Series in Monthly Vols. Vol. X., 42*s.*; to Subscribers for the entire Series, 36*s.*

BRITISH FUNGOLOGY. Figures and Description of British Fungi. By the Rev. M. J. BERKELEY, M.A. Twenty-four Coloured Plates, 30*s.*

THE ESCULENT FUNGUSES of ENGLAND; their History, Uses, Characters, Nutritious Properties, Modes of Cooking and Preserving, &c. By C. D. BADHAM, M.D. Second Edition. Edited by F. CURREY, F.R.S. Twelve Coloured Plates, 12*s.*

CLAVIS AGARICINORUM; an Analytical Key to the British Agaricini, with Characters of the Genera and Subgenera. By WORTHINGTON G. SMITH, F.L.S. Six Plates, 2*s.* 6*d.*

L. REEVE AND CO., 5, Henrietta Street, Covent Garden.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL AND NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.

Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

Notice.

(By Appointment to the Royal Horticultural Society.)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

THE AGRICULTURAL GAZETTE,
SATURDAY, OCTOBER 10, 1874,
Contains—

ORIGINAL ARTICLES on Wheat; Weather; Feeding—Tenant-Right—Sewage—Agricultural Machinery (Illustrated)—Poor Grass Lands—High Prices for Shorthorns—Recent Researches in Agricultural Chemistry—Notes on Wheat (Illustrated)—The Dog Show at Nottingham—Suburban Farming—Farm Labour—Dairy Notes—The Hesketh End Sale—In Covers and Hedgerows—Estate Improvement; Emigration to Westmoreland—Parasitic Diseases of Stock—The Grouse Disease—French Eggs—Marriott's Humane Beehive (Illustrated)—Bee-keeping by Farmers—Voice's Training Wires (Illustrated)—Gathering and Storing Pears and Apples, &c.

CORRESPONDENCE ON A Tenant-Right Bill — Maize, an English Crop—The Asphalted Mixing Floor—Steam Cultivation at Woolston and at Tiptree—Waste Lands—Butter Dairies—Corn Reports—Steam Cultivation by Contract—"Speed," &c.

FARM NOTES AND MEMORANDA from various Counties in Great Britain.

REPORT OF THE BEDFORDSHIRE AGRICULTURAL SOCIETY'S MEETING (Illustrated).

ALSO—

The Veterinarian—The Poultry Yard—The Garden of the Farm (Illustrated)—The Beekeeper (Illustrated)—Natural History—Notices of Books—The Weather—Reports of Markets, &c.

Price 4d.; post free, 4½d. Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

To be published on November 15, 1874,

ANNUAIRE de l'HORTICULTURE BELGE pour 1875 (Year-Book of Belgian Horticulture for 1875), by MM. F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. It will contain a complete List of the principal Nurserymen, Garden Engineers, Seedsmen, and Constructors of Horticultural Implements. Price for Great Britain, post paid, 1s. 6d.

Advertisements will be inserted at the following terms:—A whole page in 16mo. 13s. 6d.; half page, 8s.; quarter page, 5s.; and must be forwarded not later than October 15, to

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

On October 10, Fifth Edition, considerably Extended, with 40 Wood Engravings, Frontispiece, and 8 new Panoramic Maps, post 8vo, 12s. 6d.

WINTER and SPRING on the SHORES of the MEDITERRANEAN; or, the Rivieras, Italy, Spain, Greece, Constantinople, the Archipelago, Corsica, Sicily, Sardinia, Algeria, Tunis, Smyrna, with Biarritz and Arcachon, as Winter Climates. By Dr. HENRY BENNET.

J. AND A. CHURCHILL, New Burlington Street, W.

Just Published.
How, When, and What to Plant.

"THE HEATHERSIDE MANUAL," being an Alphabetical Catalogue of all the Hardy Trees and Shrubs most worthy of Cultivation, containing ample instructions as to How, When, and What to Plant. By AUGUSTUS MONGREDIEN, Author of "Trees and Shrubs for English Plantations." 115 pages. 8vo. Price 1s.; post free for 13 stamps.

London: Heatherside London Depot, 28, Queen Victoria Street, E.C.

Belgian.

BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAÎCHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid 10s. per annum.

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

WATER SUPPLY for COUNTRY MANSIONS: a Paper read by RICHARD B. GRANTHAM, Esq., M. Inst. C.E., F.G.S., at the Royal Institute of British Architects, on Jan. 26, 1874. 4to, with two Plans, 2s.

London: EDWARD STANFORD, 6, 7, and 8, Charing-cross, S.W.

New Works by the Rev. J. G. Wood, M.A.
Author of "Homes without Hands," &c.

OUT of DOORS; a Selection of Original Articles on Practical Natural History, uniform with "Strange Dwellings" by the same Author; with Six Illustrations from Original Designs engraved on Wood by G. PEARSON. Crown 8vo. Price 7s. 6d. cloth. [*On November 2.*

INSECTS ABROAD; a Popular Account of Foreign Insects, their Structure, Habits, and Transformations. With 600 Figures by E. A. SMITH and J. B. ZWECKER, engraved on Wood by G. PEARSON. Forming a Sequel or Companion Volume to "Insects at Home" by the same Author. 8vo. Price 21s. cloth. [*On November 2.*

London: LONGMANS AND CO.

THE COTTAGER'S CALENDAR of GARDEN OPERATIONS. By the late Sir JOSEPH PAXTON, M.P.

Reprinted from the *Gardeners' Chronicle*, with Additions.

Price 3d. each, or 5s. for 25 Copies for distribution amongst Cottage Tenantry.

Delivered anywhere in London on receipt of a Post Office Order, payable to WM. RICHARDS, at the King Street Office, Covent Garden.

Published at the Office of the *Gardeners' Chronicle*, 41 Wellington Street, Covent Garden, London, W.C.

WANTED, a WORKING HEAD GARDENER, where another is kept. He must be a good Grape Grower and a good Cultivator of Stove and Greenhouse Plants. Will have to live in the lodge. Must be sober and industrious.—Apply, by letter, to JOSEPH MAPPIN, Woodlands, near Battle.

WANTED IMMEDIATELY, for the Cape, a practical and intelligent unmarried GARDENER, not beyond 40 years of age, English or Scotch, who is thoroughly efficient, with a knowledge of Orchids, Sub-tropical and Hardy Plants, including Florist Flowers, and should also have some knowledge of Fruit Trees and Vines. Testimonials for sobriety and integrity indispensable. The position will be guaranteed for some time by an agreement.—Apply in person, or otherwise, with a full statement of all past experience, age, references, &c., to Messrs. E. G. HENDERSON AND SON, Wellington Nursery, St. John's Wood, London, N.W.

WANTED, a young Man, as FOREMAN and CLERK, in a small Plant Nursery. Reference as to character and ability indispensable.—Apply, stating particulars and wages required, to M. W., West Brighton Estate Nursery, Cliftonville, Hove, Sussex.

WANTED, a FOREMAN to take Charge of Vineries, Peach Houses, &c. Married Man; large family objected to. Wages £1 per week, and good cottage. Reference as to character and ability indispensable.—Apply, stating age and capabilities, to H. APPLEBY, Box Hill Nursery, Dorking.

WANTED, as PLANT GROWER, &c., in a small Nursery, a married Man; if without family preferred.—State wages (with free house and garden), experience (with testimonials), &c., to W. B. S., 89, Lower Union Street, Torquay.

WANTED IMMEDIATELY, a SALESMAN and GROUND FOREMAN, for a Nursery about 20 miles from London, where Fruit Trees are extensively grown. — Apply, stating wages expected, &c., to A. Z., *Gardeners' Chronicle* Office, W.C.

WANTED, WOOD FORESTERS, well qualified in every department, and accustomed to Hill Planting.—Apply to LITTLE AND BALLANTYNE, Nurserymen, Carlisle.

WANTED, in a London Seed Warehouse, as TRAVELLER and SHOPMAN, an energetic Man, thoroughly acquainted with the Seed Trade. — State age, amount of experience and where obtained, and salary required, HENRY CLARKE AND SONS, 59, King Street, Covent Garden, London, W.C.

WANTED, a CLERK.—Must be well recommended, sober, middle-aged, and understand Ledger-keeping, &c.—State last employment, with references, salary expected, age, &c., to F., Box 39, Post Office, Newcastle-on-Tyne.

WANTED, a WAREHOUSEMAN—a steady, sober, willing Man—to assist in a Wholesale Seed Warehouse, used to Counter Work, Parcelling and Writing upon same, Weighing, Measuring, and General Warehouse Work.—State age, salary, and reference to S. FINNY AND CO., Seed Merchants, Newcastle-upon-Tyne.

WANTED, an active, respectable young MAN (age about 20), who has some knowledge of the Retail Seed and Florist's Business.—Apply, stating full particulars, by letter, in own handwriting, to Messrs. WM. CUTBUSH AND SON, Highgate Nurseries, London, N.

WANTED, as IMPROVER, a young Man; employed under Glass. Lodgings on the premises, &c. He must be steady and persevering in his duties.—A. HENDERSON, Sion Nursery, Thornton Heath, Surrey.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

To Seedsmen and Nurserymen.

MR. W. HEALE is now open to an engagement. Practically acquainted with every detail of the Seed and Nursery Business, more especially the London Plant Trade, both Wholesale and Retail. Many years holding responsible positions in the Establishments of Messrs. F. & A. Dickson & Sons, of Chester; Messrs. Hugh Low & Co., of Upper Clapton, &c.; and for some years representing Mr. B. S Williams; also Author of the Bath and West of England Agricultural Society's *Prize Essay* on the Management of Orchids, and well known throughout a great portion of the United Kingdom.—Present address, 21, Bell Place, Stockbridge, Edinburgh.

GARDENER (HEAD), where two or three are kept.—Middle-aged; thoroughly practical in all branches. Wife a good Laundress, if required.—E. W., Post Office, Riverhead, Kent.

GARDENER (HEAD).—The Advertiser, in the prime of life, is open to an engagement in a good Garden Establishment, or would undertake the Management of Farm as well as Garden. Can be well recommended by present employer.—X. Y., Messrs. Veitch & Son, King's Road, Chelsea, London, S.W.

GARDENER (HEAD).—Age 30; understands the Cultivation of Vines, Pines, Peaches, Melons, Stove and Greenhouse Plants, and the general routine of Flower and Kitchen Gardening. Can be highly recommended.—J. H. S., 39, Cochrane Street, St. John's Wood, London, N.W.

GARDENER (HEAD).—Age 34, married; thoroughly understands Forcing Pines, Vines, Peaches, Melons, and Cucumbers, the Growing of Hot and Cold Orchids, and Stove and Greenhouse Plants; also Flower and Kitchen Gardening, Meadow Land and Stock, and the Entire Charge of the Establishment during the absence of the employer. Character will bear the strictest investigation.—ALPHA, Post Office, Shere, Guildford, Surrey.

GARDENER (HEAD, WORKING).—Age 32, married; thoroughly practical in all branches of Early and Late Forcing of all kinds of Fruits and Vegetables. Seventeen and a half years' experience.—J. C., Mere Old Hall, Knutsford, Cheshire.

GARDENER, &c.—A LADY wishes to recommend her first-class Gardener and his Wife as two most trustworthy and excellent servants, well fitted to be the domestic servants of a Lady. The Wife a most beautiful Laundress of fine things. Leaving because the Lady is giving up housekeeping.—J. A., Ockbrook, Derby.

GARDENER (UNDER), in a Nobleman's or Gentleman's Garden.—Age 22. Seven years' experience in Flower and Kitchen Gardening. Good reference as to character and abilities.—S. HOAD, Nazing, Waltham Cross, N.

FOREMAN, in a Nobleman's or Gentleman's Garden.—Age 29, single; has a practical knowledge of Forcing Flowers, Fruit, and Vegetables. Fifteen years' experience in good places. Good references—J. H., Ponsbourne Park Gardens, Hertford.

FOREMAN, to a Market Gardener.—An experienced Man.—W. C. D., Post Office, Ealing, Middlesex, W.

SEEDSMAN.—Age 33, sober and steady; has a good knowledge of the Trade. Excellent references. Leaving through change in the business.—BETA, *Gardeners' Chronicle* Office, W.C.

To the Retail Seed Trade.

SHOPMAN (HEAD).—Scotch. Thirteen years' experience, with first-class references. State salary.—SHOPMAN, Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

SHOPMAN (SECOND).—Age 24. Six years' experience. London preferred. Good reference.—W. ROBINSON, Messrs. Thomas Gibbs & Co., Seedsmen, 47, Half-Moon Street, Piccadilly, W.

SHOPMAN, or NURSERY SALESMAN.—Age 37; thoroughly understands the Seed Business in all its branches, has a good knowledge of Nursery Stock and its value. For many years Shopman and Nursery Salesman to one of the largest Nurseries near London.—J. D., 15, Richmond Avenue, Fair View, Dublin.

SALESMAN, TRAVELLER, or MANAGER.—The engagement of Mr. GLENDINNING with the Lawson Seed and Nursery Company, Limited, having terminated, he will be happy to treat with any House requiring his services as above.—3, Summer's Place, Inverleith Row, Edinburgh.

TRAVELLER, SALESMAN, and CORRESPONDENT.—Active, Persevering, and Business Man. Has a first-rate connection, and a thorough knowledge of the Value of Nursery Stock, Indoor and Out. Has been some years on the road, and knows the United Kingdom well. Security to any amount, if required.—W. W. M., *Gardeners' Chronicle* Office, W.C.

CLERK, or BOOK-KEEPER.—Age 20; four years' experience in Nursery and Seed Business. Good references.—GEORGE BAINBRIDGE, 41, Francis Street, Chelsea, S.W.

ASSISTANT (JUNIOR).—A young Man, who has served his apprenticeship in a first-class house, to which reference can be made.—E. O'T., 126, Stephens Green, Dublin.

To Horticultural Builders and Nurserymen.

DRAUGHTSMAN and OFFICE CLERK.—A middle-aged Man desires an engagement as above; has been for eight years so engaged in one of the best Horticultural Building firms in London. Can lay out grounds, if required.—H., 454, King's Road, Chelsea, S.W.

BOOK-KEEPER, CORRESPONDING CLERK, or CONFIDENTIAL SECRETARY.—GEORGE CRICKMAY, 33, Park Road, West Dulwich, S.E.

GOVERNESS.—A young Lady, with some years' experience and unexceptionable references. Competent to undertake the Teaching of English, French, German, Music, &c.—K., *Gardeners' Chronicle* Office, W.C.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Lea & Perrins' Sauce,

THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.

ASK FOR LEA AND PERRINS' SAUCE.
BEWARE OF IMITATIONS,
and see the names of LEA AND PERRINS on all Bottles and Labels.

Agents—CROSSE AND BLACKWELL, London; and sold by all Dealers in Sauces throughout the World.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

NEW APPLE—"LADY HENNIKER."

Raised by Mr. John Perkins, Gardener to Lord Henniker, Thornham Hall, Eye, Suffolk.

Obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, 12th November, 1873.

The following description is taken from the *Journal of Horticulture*, for January 8, 1874.

The fruit is very large, roundish, narrowing a little towards the apex, and with blunt angles on the sides, which terminate in prominent ridges round the eye. Skin yellow on the shaded side, with a faint blush of red, which is covered with broken streaks of crimson on the side next the sun. Eye large and open, with short segments, and set in a very deep and angular basin. Stalk very short, set in a very deep, wide russety cavity. Flesh very tender in the grain, well flavoured, and with a pleasant perfume.

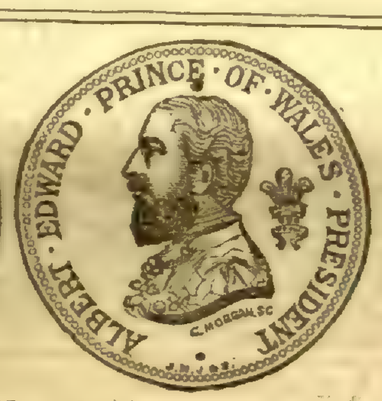
A first-rate Apple, chiefly valuable as a cooking variety, but useful also in the dessert. Season from October to February.

EWING & CO., THE ROYAL NORFOLK NURSERIES, NORWICH,

Have much pleasure in introducing this splendid novelty, for which they are now booking orders. Having purchased the entire stock of it from Mr. Perkins, they purpose distributing maiden plants on and after the 1st of November next. The price will be as follows :—

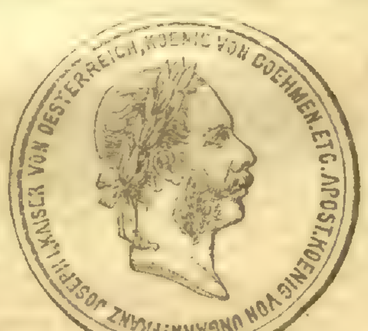
Strong Maidens, 7s. 6d. each. Three ditto, 20s. The usual Discount to the Trade.

A circular with full particulars will be forwarded gratis and post free to applicants. A list of those Nurserymen who have ordered a supply, and who will consequently have Plants to offer next autumn, will be advertised shortly.



LONDON, 1873.

GOLD MEDAL, 1872.



VIENNA, 1873.

FLETCHER, LOWNDES & CO.,

13A, GREAT GEORGE STREET, WESTMINSTER,

PATENTEES AND MANUFACTURERS OF WOOD AND IRON CONSERVATORIES, VINERIES, &c.

Messrs. F., L. & Co. beg to draw particular attention to their CURVILINEAR PRIZE HOUSES, constructed with their PATENT TUBULAR RIB, unrivalled for UTILITY, STRENGTH, LIGHTNESS, and ELEGANCE. No Bent Glass used. Also of the

VAPORISING AND VENTILATING HEATING APPARATUS,

By which perfect PURITY of ATMOSPHERE is secured, and a GREAT SAVING of FUEL effected.

☞ *Full particulars on application.*

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County, on Saturday, October 10, 1874.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 42.—Vol. II. { New Series. } SATURDAY, OCTOBER 17, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Books, notices of	491	Peaches and Nectarines	497
Brugmansia suaveolens	498	Pelargonium Society, the	497
Californian fruits	495	Pentstemon, the	499
Crocus culture	501	Plants, new garden	484
Cucumber Climax, the	499	Potato, plant of the	498
Divining-rod, the	483	Potatos, large crops of	497
Farm, the	500	Queensland exploration	486
Finocchio (with cut)	498	Recently published portraits of garden plants	488
Food prospects	500	Red-skin Flourball Potato	497
Forestry	490	Sedgwick (with cut)	484
Garden notes from the Cotswold Hills	497	Silphium plant, the	486
Garden operations	501	Snakes	490
Grapes, heavy crops of	498	Societies:—	
Harvest in Scotland, the	500	Horticultural Exhibition in Paris	499
Himalayan leaf-fungi	498	Spruce Gall, the (with cut)	499
Hothouses, double doors for	499	Stachyurus-Nandina	499
Houlletia Lowiana	484	Tillandsia musaica (with cut)	487
Hoya carnosa fruiting	497	Tomatos, plan for growing	493
Hyacinth culture	500	Vegetable physiology, the study of	493
Kew, the old walls at	495	Viburnum Awafurki	499
Manure, a remarkable	494	Villa garden, the	500
Monstrous Ferns	497	Vine culture, successful	498
Natural history	490	Viola cornuta	498
Notes on Indian forest produce	490	Water in plants, the movement of	486
Olive, the (with cut)	489	Weather, the	501
Pampas-grass, the	497		
Pancratium speciosum	494		
Parsley	498		
Peaches at Heckfield, new	499		

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is **$6 30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth, 16s.*
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

ROYAL POMONA PALACE and GARDENS, MANCHESTER.
A GRAND EXHIBITION of NATIVE and EXOTIC FRUITS, CHRYSANTHEMUMS, FLORAL BOUQUETS, CONIFEROUS PLANTS, &c., will be held on TUESDAY, WEDNESDAY, and THURSDAY, December 1, 2, and 3 next.
In reply to several Correspondents, the proprietor begs to state that the room in which the Exhibition will be held is Heated by a Steam Pipe, so that tender plants will not suffer.
Schedules are now ready, and may be had from the various Seed Establishments in Manchester, or from the Proprietor, Mr. JAMES REILLY, Pomona Gardens, Manchester.

Great International Fruit and Flower Show at EDINBURGH, in 1875.

THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY propose to hold a GREAT INTERNATIONAL FRUIT and FLOWER SHOW in Edinburgh, on SEPTEMBER 15 and 16, 1875, when £700 will be given in prizes.
Schedules will be issued at an early date, and can be had on application to the Secretary,
WM. YOUNG, 33, South Bridge, Edinburgh.

PRESTON FLORAL SOCIETY.
Open to Amateurs.
COMPETITION for LADIES PLATE, in AUGUST, 1876: 1st Prize, £25, and Gold Medal value £12 12s.; 2d, £15 and Silver Medal; 3d, £10 and Bronze Medal; 4th, £5.
Last day for entry, October 27, 1874. The 12 Stove and Greenhouse Plants to be grown on from 6-inch pots, similar to the "Davis Competition" of the Royal Horticultural Society. Conditions and full particulars from
Mr. WM. TROUGHTON, Hon. Sec.
4, Church Street (near the Town Hall), Preston.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to
CARTERS', The Royal Seedsmen, High Holborn, London.

COCOA-NUT FIBRE REFUSE.—The best material for Propagating and Plunging Plants in is Cocoa-nut Fibre Refuse. Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE, invaluable for Forcing, Plunging, and Resisting Frost and Cold. Price 9d. per bushel; 20 bushels, 5d.; 100, 4½d. per bushel.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete ever published.
Hale Farm Nurseries, Tottenham, London, N.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20s. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Dutch and other Flower Roots.

JAMES DICKSON AND SONS have received large and superior consignments, in excellent condition. Priced CATALOGUES post free.
108, Eastgate Street, Chester.

Grape Vines.

EDWARD MORSE has many Hundreds of strong Fruiting Vines in pots, at 5s., 7s. 6d., and 10s. 6d. each. Special Prices quoted for large quantities.
Original Nurseries, Epsom, Surrey.

Notice.

HORTICULTURAL SOCIETY'S STOCK GRAPES, first year.
Very fine well ripened Canes of all the best sorts, 3s. 6d. each; extra fine, in 11-inch pots, 5s. each; and PULVERISED BONE.
Mr. RANSLEY TANTON, F.R.H.S., The Nurseries, Epsom.

GRAPE VINES.—A fine stock of all the leading sorts; strong, well-ripened short-jointed Canes. Extra fruiting size, in 11-inch pots; smaller plants, in 6-inch and 9-inch pots. Prices from 3s. 6d. to 10s. 6d. each. Free from any kind of disease.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42s. to 60s. per dozen. Extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21s. each.
RICHARD SMITH, St. John's Nurseries, Worcester.

NEW STRAWBERRIES, Exquisite and Traveller (First-class Certificate).—The best for flavour and transmission. See advertisement in *Gardeners' Chronicle* of the 8th ult. Strong plants now ready. Particulars post free, from W. AND J. BROWN, Stamford.

STANDARD TRAINED PEACHES, NECTARINES, and APRICOTS, fine Trees of the hardiest and best sorts, with all other forms of Fruit Trees in great variety. Descriptive Price Lists gratis.
RICHARD SMITH, Nurseryman, Worcester.

A BARGAIN.—HORSE CHESTNUT TREES, 5 to 6 feet, 3s. per 100; fine WALNUT TREES, 4 to 5 feet, 4s. per 100; OAKS, 4 to 5 feet, 2s. per 100. For Cash. WILKIN, Tiptree, Kelvedon.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three, and four years old.
Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

TO BE SOLD, an ACRE of RHUBARB, for Forcing. Apply at
The "Lord Palmerston," East Dulwich, S.E.

WANTED, LILIUM AURATUM, large roots. State size and price per dozen to
AUSTIN AND McASLAN, 16, Buchanan Street, Glasgow.

WANTED, LARCH FIR, 2 to 3 feet, and 1 to 2 feet. Samples and price per 1000 to
H. APPLEBY, Box Hill Nursery, Dorking, Surrey.

WANTED, ALBERT, LINNÆUS and VICTORIA RHUBARB STOOLS.—State price per rod or per acre. Address,
T. J., Essex Serpent, King Street, Covent Garden, W.C.

WANTED, BOX EDGING.—Send particulars of quantity and price to
H. LANE AND SON, The Nurseries, Berkhamstead.

To Nurserymen and Gardeners.

WANTED, 400 or 500 Standard APPLE and PEAR TREES, clean, proof grown stalks. State lowest price and sorts to
R. MARTIN, Bath.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

WHOLESALE CATALOGUE of ROSES, FRUIT TREES, &c., free on application.
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey.

Roses, Roses, Roses.

EWING AND CO.'S Illustrated, Priced, and Descriptive CATALOGUE will shortly be ready. All Rosarians should possess a copy, which will be forwarded, gratis and post free, to applicants.
The Royal Norfolk Nurseries, Norwich.

Horticulture.

THOMAS RIVERS' Descriptive and Illustrated CATALOGUE of FRUITS is now ready. Also, CATALOGUE of SELECT ROSES. Post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

FOR SALE, by Private Contract, several large CAMELLIAS and Specimen Fine-Foliaged Plants. For further particulars apply to
T. C. ANDERSON, Greenroyd, Halifax.

STELLARIA GRAMINEA AUREA.—This New Plant is the prettiest thing out for Golden Leaf Borders or Carpet Bedding. A few dozen will work up a good stock for Spring. Post free, 1s. 6d. per dozen.
J. WILLIAMS, Florist, 273, Camberwell New Road, S.E.

Special.

LAURUSTINUS, 15 to 20 inches, 7s. 6d. per 100, 60s. per 1000. For Cash with Order only.
WILLIAM ABRAHAM, Fort Prospect Nursery, Limerick.

DAPHNE CNEORUM MAJUS (true). Probably the largest stock in the Trade. Plants well set for bloom. Price, by the dozen, 100, or 1000, on application.
WILLIAM COLLYER, Nurseryman, Horsell Birch, near Woking Station, Surrey.

AUCUBA JAPONICA.—Thousands of strong and very bushy plants, from 1 to 3 feet. Prices on application.
WM. RUMSEY, Joyning's Nursery, Waltham Cross, N.

WHOLESALE CATALOGUE of TREES, SHRUBS, CLIMBERS, &c., free on application.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

LAURUSTINUS.—An immense quantity of very healthy plants, 12 to 18 inches high, can be supplied at very moderate prices by
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Early Planting.

DAVISON AND WHITTEM'S CATALOGUE of all the Best and Newest ROSES is now ready. Also a GENERAL CATALOGUE of CONIFERS, FOREST, FRUIT, and other TREES. Post free on application. White Cross, Hereford.

Lily of the Valley.

JULIUS HOFFMANN, 131, Koepnickerstrasse, Berlin, begs to offer large quantities of strong flowering, for forcing, of the above, at 40s. per 1000. Stock of about 150,000 flowering plants. Lily of the Valley grown on Berlin soil is known to be of the earliest forcing.

LEE'S "VICTORIA REGINA" VIOLET.—Small Plants, 12 for 6s., post free; 40s. per 100. Strong Plants, 12 for 10s., post free; 70s. per 100. Extra strong, 12s. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

TO BE DISPOSED OF, about 100 Choice, Healthy, FRUITING and SUCCESSION PINES (Queens). Any reasonable offer will be taken. Apply to
Mr. WOOKEY, Heybridge Garden, near Maldon, Essex.

Special Offer to the Trade only.

LARCH (Scotch), ELMS, LIMES, SYCAMORES, ROSES (Standards), OAKS, &c., APPLES, PEARS, GOOSEBERRIES, &c. Prices on application to
JOSEPH GREEN, The Nurseries, Garforth, near Leeds.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

CABBAGE PLANTS.—ENFIELD MARKET and EARLY YORK, 3s. per 1000, 25s. per 10,000—free on rail. Remittances to accompany all Orders.
CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

TO THE TRADE.—PEAS: Laxton's Superlative, William the First, Omega, Popular, Fillbasket, Griffin's and Suttons' Emerald Gem. CABBAGE: Cocoa-nut. CAULIFLOWER: Veitchs' Autumn Giant. LETTUCE: Sugarloaf Cos. ONIONS: New Queen, Newnham Park.
JAMES CARTER AND CO. have surplus quantities of the above to offer at reasonable prices, all true to name, and nett seed of the current season's growth.
238, High Holborn, London, W.C.

Epidendrum vitellinum majus.

MR. WILLIAM BULL has received a large importation, in splendid condition. Price, 10*s.* 6*d.*, 15*s.*, and 21*s.* each.

Good ORCHIDS, Six Guineas per dozen. By sending names of those already possessed, different varieties can be given, and purchasers will have a good selection made for them.

ESTABLISHMENT for NEW and RARE PLANTS, King's Road, Chelsea, London, S.W.

Specimen Coniferæ.

TO BE SOLD, cheap, bargains, WELLINGTONIAS GIGANTEA, 10 to 12 feet; PICEAS NORDMANNIANA and NOBILIS, 2 to 5 feet; PINUSES, in variety, 12 to 15 feet; JUNIPERUS SINENSIS, 5 to 7 feet, all transplanted autumn, 1872. Free on rail at Idridgehay Station, Midland Railway. For price, &c., apply to

Rev. THOMAS O'GRADY, Hognaston Vicarage, Ashbourne; or, F. G. GODWIN, Seedsman, Sheffield.

ORCHARD PLANTING.—Stong Standard APPLES, strong Standard Table and Perry PEARS, Pyramid and Dwarf-trained PEARS. A choice Collection of ROSES; strong Common, Colchic, and Portugal LAURELS; LAURUSTINUS, BOX, YEW, and other Evergreens; Evergreen and Deciduous Flowering SHRUBS; Scotch and Spruce FIRS; CHESTNUT, LIMES, and other Forest Trees, up to 12 feet. Prices on application.

CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

EVERGREEN HEDGES.

AMERICAN ARBOR-VITÆ, 6 to 7 feet, 60*s.* per 100.
SIBERIAN ARBOR-VITÆ, 5 to 6 feet, 100*s.* per 100.
CHINESE JUNIPER, 5 to 6 feet, 150*s.* per 100.
COLCHIC LAUREL, 6 to 7 feet, 100*s.* per 100.
ENGLISH YEW, 3 to 3½ feet, 120*s.* per 100.
THUJA LOBBII, 4 to 5 feet, 90*s.* per 100.

RICHARD SMITH, Nurseryman, Worcester.

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.

Newton Nurseries, **Chester.**

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS and CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.

Wandsworth Common Nursery, Surrey, S.W.

The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

FOR SALE, a few Thousands of each of the following:—

IRISH JUNIPER, 1½ to 2 feet, extra fine, 20*s.* per 100; 2 to 3 feet, very handsome plants, 25*s.* per 100.
IRISH YEWS, 3-yr., 1-yr. transplanted, 10*s.* 6*d.* per 100; 1 to 1½ foot, bushy, 12*s.* 6*d.* per 100; 2 to 2½ feet, 25*s.* per 100; 2½ to 3 feet, extra transplanted, 35*s.* per 100.

All very healthy and clean grown. Address,
MICHAEL GRANT, Elm Grove Nursery, Newry, Ireland.
N.B. Sent free to Liverpool or Glasgow.

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester, have this season an unlimited stock of FOREST TREES, FRUIT TREES, ROSES, SHRUBS, and all other kinds of Nursery Stock, in the best condition for moving, and they respectfully invite intending Planters to pay their Nurseries a visit. To prevent mistake, visitors should ask for the "Upton" Nurseries, which are situate about a mile and a half from Chester Railway Station. Priced CATALOGUES Post Free on application.

The "Upton" Nurseries, Chester.

Vines Grown from the Celebrated Lambton Castle EYES.

S. BIDE is now prepared to book Orders for fine short-jointed, clean-grown VINES in Pots, from the above well-known stock, at the following moderate prices, viz.:—Single Plants, 5*s.* each; Six for 21*s.*, Twelve for 36*s.*

Mr. Hunter has grown this year Bunches of the Black Hamburgh weighing 21 lb. 12 oz., being the heaviest on record. The Vines S. B. now offers are from eyes off the same plant.

S. BIDE, Alma Nursery, Farnham, Surrey.

From Paris—New Roses for this Year.

STANDARDS and DWARFS of OTHER SORTS.

LEVÉQUE AND SON, Nurserymen, Ivry-sur-Seine, near Paris, have just published the New TRADE PRICES of their NEW and OLD ROSES, their Stock of which is very large. The Plants are strong, clean, and healthy; the Prices very moderate. The sorts, Paul Néron, Maréchal Niel, Louis Van Houtte, La France, Baronne de Rothschild, Gloire de Dijon, and all the best—can be sent per 100 and 1000 of each. A splendid lot of Tea Roses (Standards). Strong Plants and Low Prices.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.

Their NEW CATALOGUE is now ready, and will be sent, post free, on application.

Royal Nurseries, Ascot, Berks.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong Plants of which are now ready for sending out. List of Varieties and Prices, together with Catalogue of Dutch Bulbs, on application.

Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains 6 pair of choice Show Carnations, 6 pair of choice Show Picotees, 12 pair of Show Pinks, and 12 choice mixed Carnations and Picotees for borders. Carriage and package free on receipt of Post-office Order. Half the above quantities 11*s.*

Address, ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

PAUL & SON'S ROSES.

Grown at the "Old Nurseries," Cheshunt, one of the Traditional Homes of the Rose.

MESSRS. PAUL & SON

RESPECTFULLY SOLICIT EARLY ORDERS FOR

ROSES IN ALL FORMS.

The Stock for Sale is by far the finest ever produced at these long celebrated Nurseries, and the plants are so thoroughly grown, so healthy, vigorous, and well ripened, as to require no elaborate excuses to be made for them. The plants furnish a complete answer to the attempts made to depreciate the growths of exhibiting firms. The undernamed prices will be found really reasonable, and comparatively cheap for really good plants.

PAUL & SON'S DESCRIPTIVE ROSE CATALOGUE

Contains a septennial review of the New Roses as sent out in the past seven years, special notes on New Roses of the year, and Cultural Directions for the Rose year. LIST sent post free on application.

PRICES OF ROSES FOR 1874—1875.

STANDARDS, fine stems and heads, of best kinds only, as grown here, 18*s.* per doz., £7 per 100.
STANDARD ROSES, newer kinds, 24*s.* to 30*s.* per dozen, £10 per 100.
STANDARD TEA ROSES, 30*s.* per dozen, £12 per 100.

These are the finest ever offered here.

DWARF STANDARDS, Hybrid Perpetuals, 12*s.* per dozen, 90*s.* per 100.
DWARFS, on Manetti, 10*s.* to 15*s.* per dozen, 75*s.* to £6 per 100.
DWARFS, on Briar, Hybrid Perpetuals, older kinds, 10*s.* to 15*s.* per dozen, 75*s.* to £6 per 100.
DWARFS, on Briar, Hybrid Perpetuals, newer sorts, 18*s.* to 30*s.* per dozen, £7 10 per 100.
DWARF TEAS, 18*s.* to 21*s.* per doz., £7 10*s.* per 100.

Extremely fine and well ripened this season.

DWARFS, new varieties of 1874, 36*s.* per dozen.

SPECIAL ROSES, raised here at Cheshunt.

TEA, or HYBRID TEA, CHESHUNT HYBRID.—This deservedly favourite Rose we have 2000 plants of, showing our estimate of its value. It is still finely in bloom here, and is valuable in all ways, more especially as a free autumnal climber. Standards, 2*s.* 6*d.*; Dwarfs, 2*s.*

H.P. REYNOLDS HOLE.—The finest dark maroon Rose yet raised, which has a good vigorous habit and free flowering character. Standards, 2*s.* 6*d.*; Dwarfs, 2*s.*

H.P. W. WILSON SAUNDERS.—A grand novelty. A peculiarly free perpetual crimson Rose. Standards or Dwarfs, 5*s.* each.

H.P. THE SHAH.—The brightest-coloured garden Rose yet obtained. Standards or Dwarfs, 3*s.* 6*d.* each.

ROSES CULTIVATED IN POTS, speciality of the Old Nurseries.

ROSES, Teas and Hybrid Perpetuals, established for forcing or pot culture:—
EXTRA FINE PLANTS, in 8-inch pots, 42*s.* per dozen.
QUARTER SPECIMENS, in 9 to 10-inch pots, 60*s.* to 84*s.* per dozen.
SPECIMEN ROSES, 42*s.* to 105*s.* each.

ROSES on own roots, of which 10,000 fine plants, in pots, are offered.
SORTS, as Special Lists, in 48's, 12*s.* to 18*s.* per dozen, 100*s.* per 100.

ADDRESS IN FULL.

PAUL AND SON, THE OLD NURSERIES, CHESHUNT.

ROSES.

CHARLES TURNER'S CATALOGUE

IS NOW READY.

STANDARD ROSES.

These are grown in great numbers, they are very fine this season, with well-ripened wood, and are now ready for removal.

DWARF ROSES

Are also grown most extensively, and can be had on the Manetti and Briar Stocks, or on their Own Roots.

ROSES IN POTS

Are a speciality at the Royal Nurseries, where a fine stock can be seen of extra strong TEAS and HYBRID PERPETUALS, grown especially for early forcing.

☞ *The CATALOGUE also contains full Lists of FRUIT TREES, CONIFERÆ EVERGREEN and DECIDUOUS SHRUBS, &c., and can be had on application.*

THE ROYAL NURSERIES, SLOUGH.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,

SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.

First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, price 7s. 6d. each.

NEW HYBRID PERPETUAL ROSE,

CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3s. 6d. each; 30s. per dozen.

CLIMBING PERPETUAL ROSE,

CLIMBING JULES MARGOTTIN (Cranston's).

A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3s. 6d. each.

Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

TREES for AVENUES, PARKS, and ROAD SIDES.

WILLIAM PAUL

Has a splendid Lot of LARGE TREES, in fine condition for removal, including

LIMES, PLANES, HORSE CHESTNUTS, POPLARS, SYCAMORES
ELMS, NORWAY MAPLES, TURKEY OAKS, PURPLE BEECH,
ACACIAS, ASH, BIRCH, PYRUS of Sorts,

10 to 20 feet high, proportionately stout, and very handsome.

PRICED LISTS ON APPLICATION.

All Goods placed free by own waggons on any London Railway.

PAUL'S NURSERIES, WALTHAM CROSS, HERTS.

Seedsmen to the Queen.

PLANTING SEASON.

LITTLE & BALLANTYNE,

THE "KNOWEFIELD NURSERIES," CARLISLE,

Respectfully invite Inspection of their Large Collection of

Forest Trees suitable for Hill Land or Low Land Planting,

GAME COVERT PLANTS, FRUIT TREES, ROSES, DECIDUOUS EVERGREEN SHRUBS, AVENUE and PARK TREES, &c.

The above can be safely recommended to remove well to any distance; they are grown in a Northern Climate, in Open Unsheltered Ground, and are perfectly Hardy.

Priced Catalogues Post Free on application.

L. & B.'s Complete Descriptive List of Fruit Trees Cultivated in the United Kingdom will be issued in a few days. Price, 1s.

LITTLE & BALLANTYNE,
SEED MERCHANTS AND NURSERYMEN, CARLISLE.
(ESTABLISHED 50 YEARS.)

WILLIAM KERR, SEEDSMAN and NURSERYMAN, Dumfries, begs to intimate that he has this day assumed as a Partner Mr. RICHARD P. FOTHERINGHAM (for the past sixteen years Book-keeper and Confidential Clerk to Messrs. Wm. Drummond & Sons, Seedsmen and Nurserymen, Stirling), and that the business will in future be carried on under the title of KERR AND FOTHERINGHAM.

Seed and Nursery Establishment, 7, Castle Street, Dumfries, October 12, 1874.

M. Souchet's New Gladioli.—Gladioli, New Roses, &c.

EUGÈNE VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Gare d'Ivry, Paris, has the honour to announce to his numerous friends that his SPECIAL CATALOGUE of GLADIOLI is now to be had, free of charge, on application by letter (post paid); also that relating to the NEW ROSES of 1874.

The GLADIOLI will be sent out in the Autumn, in 50, 100, and 1000 of each variety, at the lowest possible price (for which, and conditions, see Catalogue).

New Apple, Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now Booking Orders for this splendid Novelty, which obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, on November 12, 1873. Circulars with full particulars will be forwarded gratis and post-free to applicants. The price for strong maidens on and after November 1 next, is 7s. 6d. each, or three for 20s. The usual discount to the Trade.

J. SCOTT'S FRUIT TREES cover many Acres, and form the most complete Collection in the World, consisting of 2200 sorts of Pears, 1400 sorts of Apples, and other kinds in proportion, amounting in the whole to over 5000 sorts. CATALOGUES, gratis, sent to all applications; or SCOTT'S ORCHARDIST, post free, for 5s. 6d., the most complete work upon Fruit Trees in the English Language.
Merriott Nurseries, Somerset.

J. SCOTT'S TREE and SHRUB CATALOGUE is replete with information about Trees, &c. It enumerates the names and gives descriptive notes of one of the best and well-grown Collections in the West of England. Parties intending to Plant should send for a copy, supplied gratis, as are also the SEED and BULB CATALOGUES; and SCOTT'S ORCHARDIST, at 5s. 6d., free by post.
The Nurseries, Merriott, Somerset.

Roots.

MR. C. F. CHONÉ, 60, Frankfurter Alée, Berlin, recommends his Special Cultures of LILY of the VALLEY (Convallaria majalis). His Stock comprises more than a Million Roots for Forcing, and capable of Blooming. FICUS ELASTICA, DRACÆNAS, PALMS, CAMELLIAS, AZALEAS, DOUBLE PRIMROSES, &c., ready to be sent out. Catalogues on application.

STRONG AUTUMN SOWN CABBAGE PLANTS can now be supplied of the undermentioned kinds (all true to name):—
EARLY BATTERSEA, ENFIELD MARKET, NONPAREIL } at 3s. 6d. per 1000.
ROBINSON'S DRUMHEAD, at 3s. per 1000.
W. VIRGO AND SON, Wonersh Nurseries, Guildford.

LAUREL'S.
COMMON LAUREL, 2 to 3 feet, 16s. per 100, £7 per 1000; 3 to 4 feet, 25s. per 100, £10 per 1000.
COLCHIC LAUREL, 3 to 4 feet, 30s. per 100; 4 to 5 feet, 42s. per 100.
PORTUGAL LAUREL, 1½ to 2 feet, 34s. per 100.
Good, bushy, well-grown plants.
RICHARD SMITH, Nurseryman, Worcester.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6s., 9s., and 12s. per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40s. cash. Baskets and Packing included.
Crown Nursery, Reading.
N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1s. per packet, post-free.

Trade Notice.

NURSERYMEN having a SURPLUS STOCK to DISPOSE OF should send particulars of the Goods, and Lowest Prices for Cash, to the New Nursery Establishment of
Messrs. GRANT AND CO., Park Nursery, Portadown.

WANTED.—HOLLY, FRUIT TREES and FRUIT TREE STOCKS, MANETTI STOCKS, RHODODENDRONS, HERBACEOUS PLANTS, &c.

NEW CATALOGUES for 1874.
A Descriptive CATALOGUE of ROSES.
A Descriptive CATALOGUE of FRUITS.
A Descriptive CATALOGUE of BULBS.
A General CATALOGUE of GENERAL NURSERY STOCK. Address
WM. WOOD AND SON, The Nurseries, Maresfield, near Uckfield, Sussex.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

Richmond Nurseries, Richmond, Surrey.
(ESTABLISHED 1802.)
To the TRADE and large CONTRACTORS.

G. AND W. STEELL have to offer this season, extra to their usual large stock of ROSE, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN SHRUBS, &c., a large quantity of fine, clean-grown and straight in the stock Standard GOLDEN QUEEN and other varieties of variegated HOLLIES, from 2 to 5 feet in the stem; Pyramid Green and Variegated do., from 2 to 7 feet; also an immense quantity of Hybrid and Ponticum RHODODENDRONS, uncommonly well set with bloom-buds, which they are prepared to supply at extremely low figures. Where large quantities are required special prices will be given.

Rose Catalogue.

WM. PAUL, Paul's Nurseries, Waltham Cross, Herts, has just published the New Edition of his ROSE CATALOGUE, which he will be happy to forward, free by post, on receipt of Postage Stamp.

New Rhododendrons.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to announce that they are now sending out the undermentioned Hardy RHODODENDRONS, price 21s. each. The usual Discount to the Trade.

MRS. RUSSELL STURGIS.
MRS. JOHN KELK.
HELEN WATERER.
JOHN WALTER.
JAMES MASON.
FREDERICK WATERER.

Victoria, Australia.

IMPORTATION of GRAPE VINES or GRAPE VINE CUTTINGS PROHIBITED.—It is Hereby Notified for General Information, that the Governor of the Colony, with the advice of the Executive Council, and in accordance with the provisions of the Act 37 Victoria, No. 457, has Prohibited the Importation into Victoria of Grape Vines and Grape Vine Cuttings.

ARCHIBALD MICHIE, Agent-General for Victoria.
8, Victoria Chambers, Westminster, October 1, 1874.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.

The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.

Knap Hill Nursery, Woking, Surrey.

FOR AVENUES and ORNAMENTAL PLANTING.

ABIES DOUGLASII, 10 to 12 feet, £3 per dozen.
CEDAR, Mount Atlas, 10 to 12 feet, £8 8s. per dozen.
CHINESE JUNIPER, 5 to 6 feet, 30s. per dozen, £10 per 100; 6 to 7 feet, 30s. per dozen, £12 10s. per 100; 7 to 8 feet, 42s. per dozen, £15 per 100.
PICEA NORDMANNIANA, 3 to 4 feet, 42s. per dozen, £12 10s. per 100; 4 to 5 feet, 60s. per dozen, £20 per 100.
PICEA PINSAPO, 6 to 7 feet, £6 6s. per dozen; 7 to 8 feet £8 8s. per dozen.
THUJA LOBBII, 12 to 15 feet, £4 4s. per dozen.
WELLINGTONIA GIGANTEA, 5 to 6 feet, £5 per dozen.

All well grown and recently transplanted. For full descriptions see LIST of the EVERGREEN FIR TRIBE.

RICHARD SMITH, Nurseryman, Worcester.

To the Trade Only.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers (samples on application):—

GUNNERA SCABRA, 40s. per 100.
SPIRÆA ARUNCUS, 25s. per 100.
WAHLENBERGIA (Campanula) GRANDIFLORA, 25s. per 100.
AILANTUS GLANDULOSA, 1-yr., 4s. per 1000.
ROBINIA PSEUD-ACACIA, 1-yr., 3s. per 1000.

NEW RHODODENDRONS.

JAMES MARSHALL BROOKS, rich scarlet, with a bronze spot, very fine and distinct.
LADY ANNETTE DE TRAFFORD, cream colour, with a distinct chocolate blotch.
MRS. FREDERICK HANKEY, salmon, richly spotted, a very pleasing kind.
MRS. SHUTTLEWORTH, scarlet, lighter centre, much spotted, a very beautiful and distinct variety.
VAUBAN, mauve, with a rich yellow blotch, very fine truss and habit.

The above-named new, beautiful, and distinct Hardy Rhododendrons will be supplied, nice plants, for 5 guineas the set.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

Planting Season.

To PLANTERS of PUBLIC PARKS, CEMETERIES, or PRIVATE GARDENS.

WILLIAM SKIRVING solicits inspection of his unrivalled Stock of choice EVERGREEN SHRUBS, FOREST and ORNAMENTAL TREES, which he is disposing of at very moderate prices, in order to clear the land for building purposes.

Among the Evergreens are many thousands of fine specimens of Variegated and Broad-leaved Green Hollies, and an immense Stock of all other Hardy Evergreen Flowering Shrubs and Ornamental Trees generally cultivated in Britain, many of which are of large size, well calculated for giving immediate effect.

To Gentlemen wishing to make new or to improve old Pleasure Grounds this is an excellent opportunity, for such an extensive and well-grown Stock of Trees and Shrubs is seldom to be met with. Nursery and Seed Stores—Walton, Liverpool.

Forest and Ornamental Trees, Evergreens, Plants For GAME COVERTS, &c.

FRANCIS & ARTHUR DICKSON & SONS, the "Upton" Nurseries, Chester, respectfully invite inspection of their almost unlimited stock of

FOREST TREES, PLANTS for GAME COVERTS,
ORNAMENTAL TREES, CONIFERS,
EVERGREEN and DECIDUOUS SHRUBS,
FRUIT TREES, VINES, ROSES,
STOVE and GREENHOUSE PLANTS, &c.

The special recommendations of their Plants are extreme hardiness, their Nurseries (over 150 acres) being situated in a very bleak and exposed position; and, by constant transplantation, the plants are well furnished, and have abundance of fibrous roots, so that removal to any part of the country may be effected with perfect safety.

Descriptive Priced CATALOGUES post-free on application.

WINTER APPROACHES.

BOILERS AND HEATING APPARATUS

OF THE BEST DESCRIPTION.

HOT-WATER PIPES AND CONNECTIONS,

And a variety of the best Boilers always kept in stock.

PRICES AND ESTIMATES ON APPLICATION.

HENRY ORMSON,

Horticultural Builder and Hot-Water Apparatus Engineer,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

WINTER and SPRING FLOWERS.

Carters COLLECTIONS OF BULBS

For Open Ground, adapted for Ordinary Good Garden Soil.

COLLECTION No. 14, Price 21s. (Packing and Carriage Free), contains:—

Hyacinths, 12, in three colours.
Narcissus, Double white, 12.
,, Poeticus, or Pheasant-eye, 12.
Double Daffodils, 25.
Tulips, extra fine mixed, double, 12.
,, ,, ,, single, 12.
,, finest mixed, late, 12.
,, Duc Van Thol, 12.
Polyanthus Narcissus, fine mixed, 6.
Campernel Jonquils, 6.
Star of Bethlehem, 12.
Triteleia uniflora, 6.
Dog's-tooth Violets, 6.
Crocus, blue, 25.
,, striped, 50.
,, large yellow, 50.
Crocus, white, 25.
Anemones, extra fine mixed, 24.
Iris, extra choice mixed English, 12.
,, extra fine mixed Spanish, 12.
Lilium candidum, 3.
,, tigrinum, 3.
Ranunculus, extra fine mixed, 24.
Snowdrops, 50. Winter Aconites, 24.

Other Collections, price 10s. 6d, 42s., 63s., and 84s. 20s. value Carriage Free.

From the Rev. W. C. PLENDERLEATH, *Calne, Wilts.*

"I was unwise enough to get some Bulbs last autumn from another grower, and your 'Old Bulbs,' saved from forcing the year before, did better than those new ones, so I will not try the experiment again."

CARTER'S, THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

VITIS HETEROPHYLLA, var. HUMULIFOLIA.

JAMES VEITCH & SONS

Have much pleasure in offering good Plants of this very Ornamental VINE, which was so much admired when exhibited, on October 7, at the Royal Horticultural Gardens,

On which occasion it was awarded a First-class Certificate.

It is exceedingly ornamental as a Hardy Climber, and, producing very profusely its bunches of azure-blue berries, it will be invaluable as a Plant for Dinner-Table Decoration.

OPINIONS OF THE PRESS.

Gardeners' Chronicle, Oct. 10.

"A First-class Certificate was awarded to the exceedingly pretty Vitis heterophylla var. humulifolia, very conspicuous for the peculiar colour of its lovely pale blue berries, and its bright red stems."

Cottage Gardener, Oct. 8.

"A First-class Certificate was awarded to the beautiful berried Vitis heterophylla, than which few plants could look more elegant and ornamental."

Garden, Oct. 10.

"VITIS HETEROPHYLLA, VAR. HUMULIFOLIA.—This is a beautiful variety of a well-known Japanese Vine, which well deserves general culture for the sake of its fruit-bearing sprays, which are very ornamental, the berries being the size of large Peas and of a pale blue colour."

Gardeners' Magazine, Oct. 10.

"VITIS HETEROPHYLLA, VAR. HUMULIFOLIA.—This proves to be a valuable plant. Growth excellent, and the berries novel and pretty."

Price 5s.

ROYAL EXOTIC NURSERY, CHELSEA, S.W.

LONDON. *Now Ready, Gratis and Post Free,* VIENNA.

DICK RADCLYFFE & CO.'S

ILLUSTRATED

AUTUMN CATALOGUE

OF

HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.

FRUIT TREES, & HORTICULTURAL ELEGANCIES.

COLLECTIONS OF DUTCH BULBS, 10s. 6d. to 63s. each.

For DETAILED LIST see D. R. & CO.'s ILLUSTRATED CATALOGUE.

DICK RADCLYFFE AND CO., 129, HIGH HOLBORN, LONDON, W.C.

EARLY SINGLE WHITE ROMAN HYACINTHS.—Surplus stock. Price on application to ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

Eltham Nursery, Kent, S.E.

One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.

THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c. Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

To the Trade.

JOHN PERKINS AND SON beg to offer the following, which are all in the finest possible condition for removal:—

APPLES, Standard, 60s. to 70s. per 100; 2 years, untrimmed, 50s. per 100; Dwarf-trained, 15s. to 18s. per dozen
APRICOTS, Dwarf-trained, 24s. to 30s. per dozen; Dwarf, 1-yr. cutback, 10s. per dozen
PEACHES, Dwarf-trained, 24s. to 30s. per dozen
NECTARINES, Dwarf-trained, 24s. to 30s. per dozen
CURRANTS, Red, fine, 60s. per 1000
CHESTNUT, Horse, 5 to 6 feet, 40s. per 1000
ELM, Huntingdon, 8 to 10 feet, 50s. per 100
OAKS, English, fine, transplanted, 3 to 4 feet, 40s. per 1000; 4 to 5 feet, 50s. per 1000; 5 to 6 feet, 60s. per 1000; 6 to 8 feet, 80s. per 1000
PRIVET, Evergreen, fine transplanted, 1½ to 2 feet, 15s. per 1000; 2 to 3 feet, 20s. per 1000
PINUS AUSTRIACA, 1½ to 2 feet, 40s. per 1000; 2 to 3 feet, 60s. per 1000; 3 to 4 feet, 120s. per 1000
WHITETHORN or QUICK, 2 and 3 years transplanted, 8s. to 11s. per 1000
BLACKTHORN, fine, 2 to 3 feet, 17s. per 1000
BERBERIS AQUIFOLIA, 1 to 1½ foot, 18s. per 1000; 1½ to 2 feet, 50s. per 1000
BOX, Green, fine bushy, 1 to 1½ foot, 80s. per 1000; 1½ to 2 feet, 100s. per 1000
CEDRUS DEODARA, 1½ to 2 feet, 18s. per dozen; 2 to 2½ feet, 21s. per dozen; 2½ to 3 feet, 24s. per dozen
CUPRESSUS LAWSONIANA, 1½ to 2 feet, 15s. per 100; 2 to 2½ feet, 20s. per 100; 2½ to 3 feet, 25s. per 100; 3 to 4 feet, 30s. per 100; 4 to 5 feet, 9s. per dozen
JUNIPERUS CHINENSIS, 1½ to 2 feet, 6s. per dozen; 2 to 2½ feet, 9s. per dozen; 2½ to 3 feet, 12s. per dozen
LAURELS, Common, 1½ to 2 feet, 60s. per 1000; 2 to 2½ feet, 70s. per 1000; 2½ to 3 feet, 80s. per 1000
LAURELS, Portugal, 1 to 1½ foot, 70s. per 1000; 1½ to 2 feet, 100s. per 1000; 2 to 2½ feet, 25s. per 100; 2½ to 3 feet, 35s. per 100; 3 to 3½ feet, 50s. per 100; 3½ to 4 feet, 70s. per 100; 4 to 5 feet, 100s. per 100
PICEA NORDMANNIANA, 1½ to 2 feet, 10s. per dozen
PINUS CEMBRA, 1½ to 2 feet, 20s. per 100; 2 to 2½ feet, 30s. per 100; 2½ to 3 feet, 40s. per 100; 3 to 4 feet, 60s. per 100
THUJA LOBBII, 2 to 2½ feet, 40s. per 100; 2½ to 3 feet, 50s. per 100; 3 to 4 feet, 10s. per dozen; 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen
THUJA AUREA, 1 to 1½ foot, 12s. per dozen; 1½ to 2 feet, 15s. per dozen; 2 to 2½ feet, 21s. per dozen; 2½ to 3 feet, 36s. per dozen
THUJOPSIS BOREALIS, 2½ to 3 feet, 12s. per dozen; 3 to 4 feet, 18s. per dozen; 4 to 5 feet, 24s. per dozen
YEWS, English, 1½ to 2 feet, 20s. per 100; 2 to 2½ feet, 25s. per 100; 2½ to 3 feet, 35s. per 100; 3 to 3½ feet, 45s. per 100

Wholesale and Retail CATALOGUES on application to 52, Market Square, Northampton.

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.

JACKMAN'S LIST of FRUIT TREES.

JACKMAN'S LIST of ROSES.

JACKMAN'S LIST of AMERICAN PLANTS.

JACKMAN'S LIST of CONIFERS.

JACKMAN'S LIST of HARDY SHRUBS.

JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.

JACKMAN'S LIST of CLEMATIS (Special Catalogue).

JACKMAN'S LIST of TRANSPLANTED FOREST TREES.

JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.

GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality:—

MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 ft.
CHESTNUTS, Common Horse, and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.

Woking Nursery, Surrey, S.W.

SPRING GARDENING PLANTS. — 500,000 DAISIES, PANSIES, PRIMROSES, SILENES, FORGET-ME-NOTS, and all the most useful sorts for the above purpose, from 4s. per 100. See Catalogue of above and ROSES. Post free.

J. MOORE, Nurseryman and Seedsman, 52, Market Place, Warwick.

TREE FERNS.

THE LARGEST STOCK IN EUROPE, and at Half the Prices usually charged.

Mr. WILLIAM BULL'S ESTABLISHMENT for NEW and RARE PLANTS, King's Road, Chelsea, London, S.W.

ROSES, ROSES, ROSES,

Immense Culture of Grafted Dwarfs and Standards.

HYBRID PERPETUAL ROSES, The best Varieties by Thousands.

STANDARDS, per 100	£4 0 0
,, my own selection	3 12 0
DWARFS, per 100	2 0 0
,, my own selection	1 12 0

PAUL NEYRON, the largest flowering Rose.

STANDARDS, per 100	£5 12 0
DWARFS, per 100	3 0 0

GRANGER, Nurseryman and Rose Grower, Suisnes, near Brie-Comte-Robert (Seine-et-Marne) France.

EUCALYPTUS GLOBULUS,
EUCALYPTUS CALLOSA,
EUCALYPTUS CALOPHYLLA,
by the Ounce or Pound. New Seed just arrived.

Mr. WILLIAM BULL'S ESTABLISHMENT for NEW and RARE PLANTS, King's Road, Chelsea, London, S.W.

MAURICE YOUNG'S

NEW DESCRIPTIVE CATALOGUE

Is now ready, and may be had on application.

IT COMPRISES:—

HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT,

QUEEN VICTORIA STREET,

CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to

THOMAS THORNTON, Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

ASPARAGUS PLANTS. — CONOVER'S COLOSSAL, 2-yr., by the 100, 1000, or 10,000; ditto, 3-yr., by the 100 or 1000. GIANT, 3-yr., by the 100 or 1000; ditto, 6-yr., for Forcing. Wholesale and Retail Prices on application.

CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

Sydenham.

SHRUBS for SALE.—A Gentleman, making an Alteration in his Garden, is desirous of DISPOSING of some fine grown SHRUBS. Apply to

GARDENER, Lordlands, Laurie Park Gardens, Sydenham, S.E.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

Special Offer to the Trade of Evergreens.

FOREST TREES, FRUIT TREES, ROSES, &c., at very low prices. CATALOGUES on application.

R. THORNHILL, Bowdon Nurseries, Bowdon, Cheshire.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

To Nurserymen and the Trade.

SEAKALE ROOTS for Forcing (very fine), 9s. per 100, 80s. per 1000. ASPARAGUS ROOTS, 2-yr. old, 3s. per 100, 25s. per 1000. Terms, cash on delivery.

SAMUEL ALLAWAY, Earl's Court Farm, Old Brompton, London, S.W.

Novelties.

NEW SWEET-SCENTED RHODODENDRONS now offered for the first time, the most novel and beautiful ever raised. NEW INDIAN AZALEAS and a fine Collection of AZALEA MOLLIS. A Descriptive Priced List forwarded to any address on application to

ISAAC DAVIES, Nurseryman, Ormskirk.

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other Dutch Roots, in fine condition. Early orders are requested.

CATALOGUES post free on application.

Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

PLANTS for WINTER FORCING.—Any one desirous of Successfully Forcing Flowering Plants during the coming Winter Months, should apply at once to JOHN STANDISH AND CO. for a LIST of their PLANTS specially prepared and adapted for this purpose.

Royal Nurseries, Ascot, Berks.

To Gentlemen, Market Gardeners, and Others.

MITCHELL'S CHAMPION of ENGLAND BROCCOLI.—J. MITCHELL, retiring from the Business, has a small quantity of NEW SEED to DISPOSE OF—the Best Late White ever grown. Will be sold in ¼ lb., ½ lb., and 1 lb. packages, at One Guinea per pound. Sent to any part of the world on receipt of Post-office Order made payable to

JOHN MITCHELL, Ponder's End, Middlesex.

Bouvardias—Vreelandii, jasminiflora, &c.

MESSRS. JOHN STANDISH AND CO.'S Stock of the above beautiful Winter-flowering Plant is exceptionally fine this season. 15s. to 18s. per dozen, fine plants. They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24s. to 36s. per dozen.

Royal Nurseries, Ascot, Berks.

THE DUKE of BUCCLEUCH VINE.—Strong well ripened planting Vines of the Duke of Buccleuch, 21s. This is the only Grape which has been extensively grown for market before being sent out—1200 lb having been cut this summer.

WM. THOMSON, Tweed Vineyard, Clovenfords, by Galashiels, N.B.

Dutch Flower Roots.

B. S. WILLIAMS begs to announce that his ANNUAL CATALOGUE of DUTCH FLOWER ROOTS, containing a Descriptive List of Choice Hyacinths, Tulips, Narcissus, Crocus, &c., also a Select List of Fruit Trees, Roses, Vines, &c., is now ready, post free to all applicants.

Victoria and Paradise Nurseries, Upper Holloway, N.

EVERGREEN SHRUBS for WINTER BEDDING.

	Per doz.—s.	d.
Aucuba japonica, 12 to 15 inches	8	0
Biota elegantissima, 9 to 10 inches	12	0
Double Gorse, 12 to 15 in.	6	0
Erica carnea, dwarf ..	6	0
,, multiflora rubra ..	6	0
,, vagans rubra	6	0
Golden Yews, 12 to 15 in.	12	0
,, Vinca, dwarf ..	3	0
Hartogia capensis, 12 to 15 inches	8	0
Japan Privet, 12 to 15 in.	8	0
,, Yews, 12 to 15 in.	9	0
Laurel, willow-leaved, 12 to 15 inches	8	0
,, Portugal, 12 to 15 inches	4	0
Laurel, Caucasian, 12 to 15 inches	4	0

	Per doz.—s.	d.
Laurel, rotundifolia, 12 to 15 inches	6	0
Mahonia Aquifolia, 12 to 15 inches	2	0
Menziesia, dwarf purple	6	0
,, ,, white	6	0
Pernettya angustifolia, dwarf	8	0
Tree Ivy, 12 to 15 inches	10	0
,, ,, Rœgneriana, 12 to 15 inches	12	0
,, ,, yellow berried, 9 to 10 inches	12	0
,, ,, silver striped, new, 9 to 10 in.	12	0
,, tricolor, 9 to 10 in.	12	0
Yucca filamentosa, 12 to 15 inches ..	12	0
,, gloriosa pendula, 12 to 15 inches	12	0

RICHARD SMITH, Nurseryman, Worcester.

ROSES.

Twelve Acres of Standard and Dwarf Roses, all clean, strong, healthy, fully ripened and well rooted.

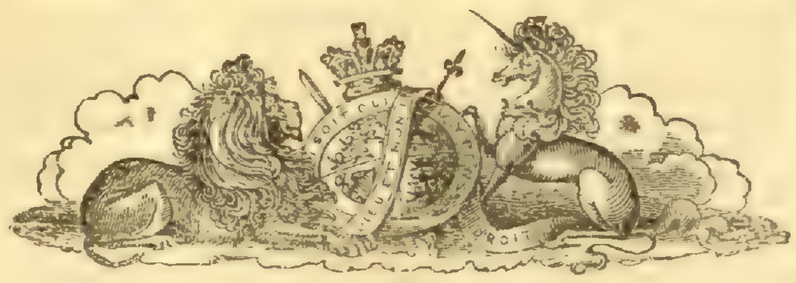
Eighty thousand choicest Tea-scented and Noisette Roses, in pots for Conservatories, walls, and sheltered situations out-of-doors.

Extra strong Hybrid Perpetual Roses of best sorts, in pots, for forcing.

Climbing Roses in great variety, for quickly covering Rockwork, Pillars, Trellises, &c.

Descriptive Price List on application. R. S. will be happy to give a special quotation for large quantities.

RICHARD SMITH, Nurseryman, Worcester.



THE ROYAL GARDENS,
FROGMORE,
AND
WINDSOR GREAT PARK.

THE "GARDENERS' CHRONICLE" *for* OCTOBER 31 *will contain a Special Supplement, uniform with that already published of* HATFIELD, *and consisting of Eight Pages of Original Illustrations and Letterpress description.*

Price Fivepence; Post Free, Fivepence-Halfpenny.

PUBLISHED BY W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.

Advertisers desirous of having extra space in this Number are particularly requested to communicate at once with the Publisher.

12 Fine Hyacinths for 6s.

Sutton & Sons

HAVE NOW RECEIVED THEIR LARGE CONSIGNMENT OF

HYACINTHS, TULIPS, CROCUS,
NARCISSUS, JONQUILS, &c.,

In Splendid Condition, and are Prepared to Receive Orders for the Same.

SUTTONS' CHOICE COLLECTIONS
OF THE ABOVE.

FOR SPRING BLOOMING IN THE OPEN GROUND.

				£	s.	d.
No. 1	Collection, containing	1089	Fine Bulbs ...	2	2	0*
No. 2	" "	591	" ...	1	1	0*
No. 3	" "	302	" ...	0	10	6
No. 4	" "	148	" ...	0	5	0

* *Carriage Free.*

FOR SPRING BLOOMING IN POTS OR GLASSES.

				£	s.	d.
No. 5	Collection, containing	278	Fine Bulbs...	2	2	0*
No. 6	" "	143	" ...	1	1	6*
No. 7	" "	69	" ...	0	10	0

* *Carriage Free.*

12 Beautiful Hyacinths for 9s.

HOW TO GROW FLOWER ROOTS SUCCESSFULLY, see SUTTONS' AUTUMN CATALOGUE for 1874,
Illustrated, and containing complete Cultural Instructions. Gratis, and Post Free, on application.

SUTTON & SONS, THE QUEEN'S SEEDSMEN, READING.

ROSES.—Fine strong Dwarfs on Manetti, 30s. per 100, £12 10s. per 1000; Standards, 80s. per 100; Half-standards, 60s. per 100.
MAURICE YOUNG, Milford Nurseries, Godalming.

QUICKS.—Good strong Quicks, 6s. to 8s. per 1000, or £25 per 100,000; extra do., 10s. 6d. to 15s. per 1000, or £45 to £55 per 100,000.
MAURICE YOUNG, Milford Nurseries, Godalming.

NARCISSUS BICOLOR HORSFIELDII. Strong Bulbs, by the dozen or hundred.
A. STANSFIELD, JUN., Kersal Moor Nurseries, Manchester.

FOR FORCING.—LILY of the VALLEY, 1000 roots, 30s.; 100 clumps, 46s. SPIRÆA JAPONICA, 100 strong clumps, 26s. Delivery against Bank Post Bill.
D. JACOBSON, Haarlem, Holland.

ROSES, Standard, fine heads and best sorts, £4 per 100. LARCH, SCOTCH, SPRUCE, OAK, ASH, and other Forest Trees, all sizes, at very low prices.
H. JACKSON, Blakedown, Kidderminster.

ROSES, Dwarf, Moss, and Cabbage, 25s. per 100. STRAWBERRY PLANTS of all the leading kinds, £1 per 1000. Well-furnished LAURELS, from 2 to 6 feet high, from £2 to £5 per 100. The Trade supplied.
G. WALKLING, College Park Nursery, Lewisham, S.E.

SPRING BEDDING PLANTS.—3000 Golden-netted, Aucubæfolia, Red Daisy, strong healthy plants, from 4 to 5 inches across. Price on application to
THOMAS LEWIN, Gardener, Woolsthorpe, Grantham, Lincolnshire.

Ericas.

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester, beg to offer to the Trade strong PLANTS of ERICA GRACILIS AUTUMNALIS, in flower and coming into flower, suitable for market purposes. Price on application.

FOR SALE, eleven CAMELLIA PLANTS, in pots:—Alba-pleno, Lady Hume's Blush, Charles Favre, Teutonia, Valtevaredo, &c., 5 to 8 feet high; one ORANGE, 6 feet high.
DANIEL WOOD, Norwood Nursery, Beulah Hill, S.E.

FOR SALE, about 200 FRUITING and SUCCESSION PINES. Warranted clean and healthy Plants. Apply,
T. HAWKINS, Gardener, Friars Place, Acton, N.

Camellias.

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester, have to offer a large stock of English-grown CAMELLIAS; strong, healthy, plants from 1 foot up to 5 feet in height, well set with flower-bud. Prices on application.

NURSERY STOCK for SALE. — Elm, Larch, Oak, austriaca, maritima, Scotch, and Laricio; 1-yr. Seedlings, 2 to 3-yr. transplanted. Further particulars on application to
Mr. ALLIX, Estate Office, Rendlesham, Woodbridge, Suffolk.

New Grape.

VENN'S SEEDLING BLACK MUSCAT. —Good Planting Canes, Two Guineas each, delivered to order on receipt of Cheque or Post-office Order on Horfield, Bristol, payable to
WILLIAM DODDS, Gladstone Villa, Bishopston, Bristol.
Testimonials of Merit to be had free on application.

SPECIAL OFFER to the TRADE. — 2-yr. Seedling LARCH, SCOTCH, SPRUCE, and 3-yr. SILVER FIR; 1-yr. BIRCH, ALDER and BEECH; 3-yr. THORN QUICK, 3-yr. SCOTCH, twice transplanted, &c. Prices on application to
JOHN BLAKE AND SONS, Dangan Nurseries, Summerhill, Enfield, Ireland.

Plant at Once.

CABBAGES.—For Ewes and Lambs, Sheep and Cows, or for Garden purposes, nothing can surpass Enfield Market and Robinson's Champion Drumhead. Good plants now ready, at 3s. per 1000, package free. Cash with orders. Large buyers liberally treated with. References given to the leading Agriculturists of the day.
F. GEE, Seed Grower, &c., Biggleswade, Beds.

Cabbage Plants.

DRUMHEADS, extra fine, 3s. per 1000; ENFIELD MARKET and EARLY BATTERSEA, 3s. 3d. per 1000. Carefully packed and put on the rail. Orders payable at Godalming.
S. WELLAND, Surrey Gardens, Godalming, Surrey.

Carnations and Picotees.
To AMATEURS and the TRADE.

J. BOOTH, FLORIST, Failsworth, Manchester, is now offering the above in all the choice named exhibition varieties.
CATALOGUES and price on application.

FIBROUS PEAT.—Brown Fibrous Peat, best quality, for Orchids, Stove Plants, and Potting, £6 6s. per 6-ton truck load. Black Fibrous Peat, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5s. per 6-ton truck load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

HOLLIES.—Hollies, 2 feet, 25s. per 100, well removed and rooted.
WALKER AND CO., Farnborough Station, Hants.

SPHAGNUM or PEAT MOSS. — Fresh Sphagnum Moss, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

RHODODENDRONS, 1½ and 2 feet, 25s. per dozen, selected from Blandyanum, Dr. Andre, Professor Koch, Minnie, Barclayanum, Brayanum, Sir William Herschel, Sir Robert Peel, Stella, Limbatum, Inquamii, Bouquet de Flore, President Vanden Heck, Alarm, Titien, Cruentum, and Francis Dixon.
E. WALKER, Farnborough Station, Hants

SATURDAY, OCTOBER 17, 1874.

THE DIVINING ROD.

THE naturally conservative tendency of men —using the word in no political sense—has before been remarked upon as affording the principal reason why ideas and superstitions, which have long since been exploded, still retain their hold among a nineteenth century population. We are so accustomed to be told how far we have advanced, and how rapidly we are still advancing—in a word, we are so constantly reminded that we live in a wonderful age, and are wonderful people—that we would gladly ignore altogether the notion that superstition has any hold upon us. And yet an observant eye will detect evidences of superstition lurking in the midst of our civilisation that show clearly enough that we are not so far removed as we wish to persuade ourselves from the weaknesses of our forefathers. It is not so very many years ago that in Essex, at Sible Hedingham—not a great distance from our metropolis — an old man was dragged through a pond on a suspicion of witchcraft; and, not to mention other instances of this gross description, fortune-telling is still a flourishing trade or profession of unprincipled persons among silly women. Among those even who are above this sort of thing, a notion of what is unlucky or lucky has an influence which is none the less felt because unacknowledged. It is no exaggeration to say that there are many who would on no account sit down thirteen to table —of which superstition (founded doubtless on the number present at the Last Supper) I have had an illustration during the last twelvemonths; that others look on it as "unlucky" to spill salt—an idea embodied by Leonardo da Vinci in his picture of the "Last Supper," where Judas has overturned the saltcellar; and that others would never begin any new undertaking upon a Friday.

Superstition having in these as well as in countless other instances maintained its hold upon us down to the present day, it is not surprising to find that its power in the middle ages—or, as some call them, the "dark ages," forgetting that in the opinion of any existing race bye-gone times are dark, and forgetting too that the time may come when this nineteenth century itself may be considered but very partially enlightened—it is not surprising that people were even more swayed by it then than they are at present. And so it is that we find such mystical agencies as the divining rod exercising a power and an influence which we at the present day can but partially enter into, and which, it may be, we but partially comprehend.

This wonderful rod was usually of Hazel, and a Hazel wand has long been associated with divers and sundry mysterious powers and achievements. Mr. M. D. Conway sums up these as follows:—

"A rod of [Hazel] was for a long time hung up in Bavarian court-rooms as a symbol of authority, and from it was made the officer's baton. Groves of Hazel or of Elm were frequently chosen by the Saxons for their temples, the Hazel being one of Thor's trees. So deep was the faith of the people in the relation of this tree to the thunder-god, that the Catholics adopted and sanctioned it by a legend we may hear in Bavaria, that on their flight into Egypt the Holy Family took refuge under it from a storm. The East Prussians cut a Hazel stick in spring, and when the first thunder comes make a cross with it over every heap of grain, believing the corn may thus be kept for many years. In Bohemia the cure of fever is as follows: A Hazel stick must be bought without bargaining, or it may also be broken from the woods before sunrise; then it must be laid in a corner of a church and three *aves* and three *paternosters* said; he who takes the stick away will have the fever, and can only be rid of it by breaking the same in three pieces. A rod cut in Arabia on Good Friday enables the possessor to strike an absent person."

To these many other superstitions might be added. Surflet, in the *Countrey Farme*, says that "the countrie people have marked in al ages that the serpent, lizard, or other venimous beast, dieth presently having been striken with a branch, staffe, or rod, of the Hasell tree." Parkinson has a similar passage, but seems inclined to attribute the fatal results of the blow to a natural, rather than a supernatural, virtue of the stick. He says, "If a snake be stroke with an Hazell wand, it doth sooner stunne it than with any other sticke, because it is so pliant that it will winde closer about it, so that, being deprived of their motion, they must needs dye with paine and want." And it is no hard matter in like manner, saith Tragus, "to kill a mad dog that shall be strooke with an Hazell sticke, such as men use to walke or ride withall." In Sweden it is believed that a blow from a Hazel rod will deprive a snake of its venom. The dedication of the tree to Thor, which we have already mentioned, accounts for its being regarded as a protection against fire and storm; and thus it is that Kelly, quoting from Mannhardt, tells us that "in some parts of France the people dance three times round the bonfires on St. John's Day with branches of Hazel in their hands, and peasant proprietors wave a Hazel branch through the flame, and hang it up before the door of their cattle stall." In some parts of Germany the twigs of the Hazel are placed in the windows during a storm.

But it is time to turn our attention more especially to the divining rod itself. Two or three points connected with it deserve especial notice, and may be dealt with separately; such are the actual *modus operandi* with the rod, the observances connected with gathering it, and the substitutes which have been employed instead of the Hazel, which is certainly the most orthodox wood for such purposes. In connection with the first head, the use of the diving rod in Great Britain is of the most interest to us, and we shall therefore mainly limit our remarks to this part of the subject, which will be familiar enough to all who have read—and who has not? —that delightful novel, *The Antiquary*, and who remember the prominent part played by it in the plans of Herr Dousterswivel.

From a long notice in the *Gentleman's Magazine* for November, 1751, it would appear that the use of the divining rod in England had then been "revived with great success by an ingenious gentleman, who, from numerous experiments, hath good reason to believe its effects to be more than imagination." He gives very full directions for its employment, from which we gather that Willow and Hazel rods will answer with all persons in good health, "if they are used with moderation, and at some distance of time, and after meals, when the operator is in good spirits." But this power is intermittent with some, who will possess it one half hour and lose it the next. Willow, Elm, and Hazel rods are all attracted by water, and the last named will indicate all metals, coals, amber, and limestone, but with different degrees of strength. The best rods are those from the Hazel, which should be cut in the winter; and as it is not always easy to find a shoot terminating in an equal fork, two single ones may be tied together with thread so as to form such a fork, and will answer as well as the naturally forked branch. The account of the way in which the rod is to be manipulated is given at greater length and with more detail than in any other English account which we have met with; and at the risk of

being tedious, we have quoted these directions almost at length, thus rendering a return to this portion of the subject unnecessary.

"The most convenient and handy method of holding the rod is with the palms of both hands turned upwards, and the two ends of the rod coming outwards; the palms should be held horizontally as nearly as possible; the part of the rod in the hand ought to be straight, and not bent backward or forward. The upper part of the arm should be kept pretty close to the sides, and the elbows resting on them, the lower part of the arm making nearly a right angle with the upper, though rather a little more acute. The rod ought to be so held that in its working the sides may move clear of the little finger. The best manner of carrying the rod is with the end prolaided (*sic*) in an angle of about 80° from the horizon, as by this method of carrying it the repulsion is more plainly perceived than if it was held perpendicularly. But after all the directions that can be given, the adroit use of it can only be attained by practice and attention. It is necessary that the grasp should be steady; for if, when the rod is going, there be the least succussion or counteraction in the hands, though ever so small, it will greatly impair, and generally totally prevent its activity, which is not to be done by the mere strength of the grasp; for, provided this be steady, no strength can stop it.

"As soon as the person's foremost foot comes near the attracting body (as far as I can observe, its semi-diameter), the end of the rod is repelled towards the face; then open the hands a little, replace the rod, and approach nearer, and the repulsion will be continued until the foot is on or over the attracting body. When this is the case, the rod will first be repelled a little, viz, 2 or 3 inches, and then be attracted towards the metallic body, *i.e.*, its end will be drawn down towards it. When it hath been drawn down, it must not be thrown back without opening the hands, a fresh grasp being necessary to every attraction, but then the least opening of the hand is sufficient. As long as the person stands over the attracting body the rod continues to be attracted, but as soon as the forefoot is beyond it, then the rod is drawn backward to the face.

"Metals have different degrees of attraction; gold is strongest, next copper, then iron, silver, tin, lead, bones, coals, springs of water and limestone."

One or two "common experiments" follow, such as covering a coin or piece of metal with the foot, and then testing the rod; and the account concludes with the statement that "a person who, by frequent practice and experience, can use the rod tolerably, may soon give the greatest sceptics sufficient satisfaction, except they are determined not to be convinced."! *B. M.*

(*To be continued.*)

New Garden Plants.

Houlletia Lowiana, *n. sp.**

When I described Houlletia Wallisii (*Gardeners' Chronicle*, 1869, p. 611) I said: "A misery that this showy plant was discovered." A very curious clerical mistake changed this into "A mystery, &c." Well, this plant, too, is really a misery for the unfortunate Orchidologists, since it comes in just between the genera Houlletia and Peristeria, and in a scientific point of view, by the homogenous hypochilium it is even a good deal nearer to Peristeria than to Houlletia, while on the other hand the development of the caudicula is that of Houlletia. One might have more light if one knew the Houlletia chrysantha, Lind. and André (see *Illustration Horticole*, xviii., p. 138). The representation is very ambiguous, and the description has not much to do with botany. I would not speak about the pyriform pseudobulbs being described as sphæroid or ovoid, except that the common notions of epichile and hypochile are carefully reversed twice, both in the Latin paraphrase and in the French text, which is to be regretted, as also the circumstance that the labellum is not regarded as part of the perianth. I have before me flowers preserved in alcohol by Mr. G. Wallis, which he himself could not recognise, his sketch being signed "Houlletia chrysantha?" and fully right he is with his interrogation, since the lateral parts of the hypochile (viz, the basilar part) are simply toothed, and the colours of the lip and of the sepals and petals are unequal, not equal, as represented in the *Illustration Horticole*. Mr. Linden was so kind as to lend me some bulbs of what he called Houlletia chrysantha; these were, however, not elongated pyriform, and showed no difference from those of our Houlletia Lowiana. Among my numerous New Grenadan supplements there are several Houlletias; I have, however, no time to name them at present, but I may do so when representing the plant in the third volume of the *Xenia*, which will soon be begun. Among Mr. Wallis' most recent discoveries there is a much more singular plant, which I shall rejoice very much to illustrate.

The pseudobulbs are very short, pallid whitish green, abbreviate-pyriform, with some longitudinal wrinkles. The leaves are cuneate oblongo-lanceolate acute, plaited, unequal. The peduncles are usually bent forwards or sideways, and are from one to three flowered. The flowers would be covered by a crown piece; they are of an ivory-like substance, yellowish white to cream colour, with some deeper sulphur yellow at the base of the lateral wings of the hypochile (the *Illustration Horticole* epichile). There can be no doubt that there is a certain similarity to flowers of Phalænopsis.

I have to thank Mr. Low for my first acquaintance with this extraordinary plant, that has puzzled me and still puzzles me so much. I believe I obtained it first in 1870-71—it appeared with Messrs. Veitch and in the Royal Gardens, Kew. It may be one of Mr. Bruchmüller's discoveries. *H. G. Rchb. f.*

* Pedunculo porrecto, uni—trifloro; bracteis oblongo-ligulatis acutis punctulatis ovariis pedicellatis longe brevioribus; labelli hypochilio ab ungue subito semilunari, alis utrinque arrectis apice aristatis, ante apicem obtusangulis; epichilio supposito parvo rhombeo seu triangulo; columna clavata, rostello tridentato; pollinarii caudicula elongata.—Pseudobulbus abbreviato-pyriformis nitidus rugis quibusdam longitudinalibus diphyllus; folia plicata, lanceolata, acuminata; pedunculus "usque triflorus" (ita ex domino, Low); bracteæ vaginæformis ovariis punctulatis bene breviores; sepala oblongo-acuta concava; tepala cuneato-rhombea obtusangula; hypochilium sellæforme basi ante columnam callus tabularis erectus, brevis, antice ligula obtusa biloba supra epichilium expansa; laciniæ laterales semilunatæ aristato antennatæ columnam æquantes; epichilium cuneato-oblongum acutum hinc angulatum; columna trigona superne ampliata; anthera oblonga depressa; pollinia pyriformia extus fissa; caudicula ligulata; glandula obtusa rhombea.

SEDGWICK:

THE SEAT OF W. H. WAKEFIELD, ESQ.

This fine place is situated about five miles from Kendal, and is approached by an easy drive from the main road leading from Lancaster to the above town. The mansion (fig. 99), an imposing stone building, has not been finished many years, yet its position in one of the loveliest valleys of this charming district, diversified by hill and dale, the beautiful undulating surface of the grounds immediately surrounding, with its verdant open glades, relieved by an abundance of fine stately timber, give it an appearance that in less favoured situations would take a lifetime to produce. The grounds were designed by Mr. Thomas, and the work carried out by Mr. Bethell, Mr. Wakefield's able gardener.

Those not conversant with the character of such work in this part of the country might form some idea of its nature were they to see the plans showing the ground as it existed before the place was made. Formidable hills of solid limestone rock, as much as 22 feet in thickness, had to be blown up and quarried; hollows similar in depth were filled up, and the whole place covered with a network of railway metals. Some notion of the task accomplished may thus be obtained. The views in every direction are exceedingly fine. From the north, or entrance front, the eye stretches over a well-cultivated expanse of grass-land, with flocks of sheep browsing, the comfortable-looking distant homesteads nestling amongst the trees that almost surround them, until it reaches the far-off heather-capped hills near the lakes in the direction of Windermere. From the south front the prospect is equally fine, yet of a different description; undulating, irregular, open glades stretch from the foot right away to the distant, densely timber-clothed hills, over which the eye rests on the far-off Evisham Head. Westerly, over Sizar Castle, with its historic associations, the distant hills rise more quickly, displaying at intervals abrupt masses of perpendicular, craggy rocks, standing out in bold relief. At each succeeding step the eye is attracted by something different from what it has previously taken in, and which imparts a charm to the whole.

The River Kent winds its tortuous course along this side of the park, at some 400 or 500 yards distance from the mansion. On the south and west of the house runs a broad terrace, principally grass, bounded by a handsome low perforated wall in polished stone, inside, at some distance from which, are planted pyramidal Hollies, some 12 yards apart; these both summer and winter relieve the straight line of the masonry. On the inside of this terrace runs an asphalted walk, which, on the south side of the house, encloses a border, planted in front with low-growing shrubs, such as Laurustinus, Berberis, Tree Pæonies, Daphnes, and hardy Heaths. Behind these are Virginian Creeper, Jasmine, Ivy, Wistaria, Clematis of sorts, interspersed with Roses, Cotoneaster, &c. These are being allowed to grow something near the height of the second storey of the building, not kept trained too primly, nor to one uniform height, and so grown cannot fail to have a pleasing effect without any objectionable formality.

A flight of steps from the western end of the terrace brings us to the flower garden, which, again, is bounded by a wall similar to the terrace. The planting is well done in subdued colours, with no more formality than is unavoidable, and an absence of the disagreeable eye-burning effects produced by a preponderance of high colours. Adjoining the mansion, and at the eastern end of the terrace, stands the conservatory, a good substantial erection, well in keeping with the rest of the place. It is 35 feet by 35. The roof is curvilinear, with a lantern top in the centre. The internal arrangements consist of a low table round the house. The front edge of this table is planted with Selaginella denticulata, which gives it a nice fresh appearance; the surface is covered with gravel, on which the plants are stood. The piping which runs under this table is partially hid by a carpet of Selaginella intermixed with Pteris serrulata, Pteris cretica albo lineata, and similar growing Ferns, that are planted in front and form a margin to the floor, which is laid with black and stone-coloured tiles which harmonise well with the colours of most flowers. The centre of the house is divided into two large low beds, with substantial stone curbing; on these the plants stand. Large Camellias occupy the central position right and left of the broad middle path, and are surrounded with Yuccas, Cordylines, and similar ornamental leaved plants; in front of these were a number of Campanula pyramidalis, both the blue and white varieties, well done, not less than 9 feet high—complete pyramids of flower from bottom to top. This is one of the best summer blooming plants in existence, more especially the blue variety, which associates well with almost any other flower: these were grown in 8 and 9-inch pots. In front of these and similar tall-growing plants are placed, next the paths, lower growing things in flower at the different seasons, interspersed with Ferns or small foliage plants. The centre of the roof is sufficiently but not too heavily clothed with floral drapery, consisting of a centre plant of Tacsonia Van Volxemi, its cord-like shoots (the extremities of which were producing quantities of flowers) hanging down so as to almost meet the heads of the plants standing underneath. The sides and ends are planted with Acacia pubescens, A. pendula, A. affinis, Lapageria rosea, the free-flowering blue Plumbago capensis, Bignonia jasminoides, Habrothamnus elegans, Trachelospermum jasminoides, and the old Hoya carnosa, trained to upright wires on the end, and grafted at intervals with H. bella, hanging down and flowering, in which way it has a novel and pleasing effect. Adjoining this house, and from which it can be entered, is the fernery, 45 feet by 24. In its construction the use of wood, or other perishable material, has, so far as possible, been avoided. Even the wall plating, where the water that is condensed on the inside of the roof runs, is composed of a strong iron gutter. In this Ferns and Selaginellas of moderate growth are planted, and have a nice effect, receiving from this condensed water all the moisture they require. The whole of the internal arrangement is of a character to give the house as much of a natural appearance as may be consistent with the possibility of occasional re-arrangement, so necessary to obviate the monotonous appearance of a house where all the plants are planted out, and where as a consequence some of the strongest outgrow and smother the weaker growers.

Adjoining the conservatory, the side of which forms the division betwixt these two houses, runs a table composed of the natural stone channelled and worn into every conceivable shape by the action of the water running and dropping upon it for ages; this material is plentiful in the neighbourhood. The supports of this table consist of selected pieces of the stone judiciously placed; the surface of the table is covered with fine, clean-washed sand. On the edge of the table, and amongst the supporting stones, are planted Selaginella, dwarf Ferns, broad-leaved Begonias, and the elegant variegated Bamboo (Bambusa Fortunei variegata). The opposite side of the house, instead of being, as usual, composed of a solid wall, is formed of arches irregular in height, breadth, and depth, varying from 5 to 10 feet in height, with a corresponding depth, the largest forming a cavern about 12 feet outwards into a large mound raised against, and nearly as high as the side of the house, some 16 feet in height. This is composed of huge blocks of stone, and forms from the outside a very attractive piece of artificial rockwork, the interstices being filled with soil and planted with low shrubs and creepers. From the top of this piece of rockwork, yet hidden from view, either inside or out, arrangements have been made for throwing as much subdued light upon the interior of these caverns as is requisite to avoid too great a gloom, as also to enable the plants that are inside to grow. These consist of Ferns and broad-leaved Begonias of the Rex type. The interior of these caverns are supplied with cascades made to imitate Nature as nearly as possible, where the water can be turned on at pleasure; not the mere squirt-like affairs often seen and devoid of meaning, but in sufficient quantities to give character to the whole and impart the cooling effects so grateful to every sense in hot weather. A single plant of scarlet Tropæolum is planted on this side of the house and allowed to grow very thin and irregularly so as to produce a few flowers peeping out here and there amongst the plants of Adiantum cuneatum, Lygodium scandens, Pteris, and other suitable things, with which the house is sufficiently but not over-clothed—the latter a condition too often met with, and which goes far to destroy the original conception. The

central portion of the house is composed of a raised bed about 18 inches high, margined with natural rugged stone, amongst which are planted low-growing Ferns, Selaginellas, and variegated Bamboo. The principal specimen Ferns are not planted out, which, well as they look so treated, has the disadvantage of inducing too rampant growth in the strongest species, to the destruction of such as are weaker, and whose position cannot be altered. The centre is occupied by large Tree Ferns in tubs and pots, interspersed with such things as Cycas revoluta, Beaucarneas, &c. The tubs in which these are grown are hid by plants of lower growth, such as Caladiums, Dracænas, and bushy-headed Ferns, amongst which there are some grand specimens of Gleichenias—G. speluncæ, G. microphylla, and G. flabellata—large, clean, and in the best possible health. Altogether, this is one of the best examples of a moderate sized fernery to be met with. The outside walls (such portions as are visible) are in keeping with the inside of the house, being built of selected stone in its most rugged natural state.

The kitchen garden, wherein are situated the principal plant and fruit-houses, is eastward, and at some distance from the mansion. The first is a span-roofed Peach-house, 60 feet by 18 feet, standing nearly north and south; the border is all inside, the trees are planted on both sides at some 4 feet distance from the walls, so as to allow sufficient room to do the necessary work they require—they are trained on arch-shaped trellis, and meet completely overhead. The house has been built and planted two years this autumn; the trees are in a fine healthy state. They were previously two years on the open walls, but were removed, Peach growing without the aid of glass being found here too precarious an affair. There is no piping in the house. The intention was to have dispensed with fire-heat altogether, an arrangement so strongly advocated by some individuals a few years back, and by which many were led astray, the result being, that in a spring like the last—when, as in this neighbourhood, there were 22° of frost whilst the trees were in full bloom—that the whole crop was destroyed. The house is now to have a pipe introduced just so as to exclude frost, the object being to keep them as late as possible. The sorts are: Royal George, Noblesse, Barrington, Lord Palmerston, and Prince of Wales Peaches; Hunt's Tawny, Violette Hâtive, and Elruge Nectarines. Leading from this, we come to a range principally of fruit-houses, facing the south. The first is a lean-to Peach-house, 20 feet by 15. The roots are outside as well as in. On the back wall are planted Barrington and Noblesse Peaches; on the front trellis, which is sufficiently low to admit plenty of light and sun to the trees upon the back wall, are Royal George Peach and Elruge Nectarine; the trees in this house were ripening a fine crop of fruit. Adjoining is a vinery, 30 feet by 18, planted with Black Hamburgh, a couple of Muscats, and the Golden Champion; the latter has fruited well, but shown a disposition to crack, and is to be removed. The crop was just ripe, the bunches fine and compact, the berries large, well-swelled, and showing the hammer marks so indicative of good cultivation; but the crop is too heavy, proportionate with the strength of the Vines to colour fully.

The centre house in this range is 30 feet by 20, with a short back light or hip; it is used as a stove, and has a tan-bed in the middle, with a 4-foot stage on the front and ends. Here were a number of fine specimen Allamandas, Ixoras, Clerodendrons, Crotons, Dipladenias, Francisceas, Nepenthes Hookerii and N. Rafflesiana, both in fine order: on the front table were a nice selection of Orchids, such as Cypripedium caudatum, C. barbatum, Lælia purpurata, Cattleya Mossiæ, Dendrobium Wardianum, Miltonias, and a quantity of the useful winter-flowering Calanthe vestita. These plants were strong and robust in appearance, their pseudobulbs and leaves having more the character of imported plants in their substance and formation than is often met with where Orchids are largely grown, and in houses devoted entirely to their cultivation. Grown as they are in this house they receive more air and less shade, consequent upon the treatment which the other occupants require, the result being that they are not quite so green in the leaves as is considered essential by the majority of Orchid growers, but so grown they will produce more flowers, finer in both colour and substance, lasting much longer in bloom, with no disposition in the plants to disease.

Next is another vinery, 30 feet by 18, devoted to Bowood and Muscat of Alexandria, Black Alicante, and Mrs. Pince. Here, again, is a heavy crop (except the Mrs. Pince) for the size of the Vines, which have not yet been allowed to reach the top of the rafters.

The remaining house in this range is devoted to Peaches and Nectarines, which here are held in great estimation. This is the earliest forced house, and has all the appearance of carrying good crops, the wood ripening off nicely and retaining its foliage well; the sorts here are Barrington and Royal George Peaches, Elruge and Violette Hâtive Nectarines.

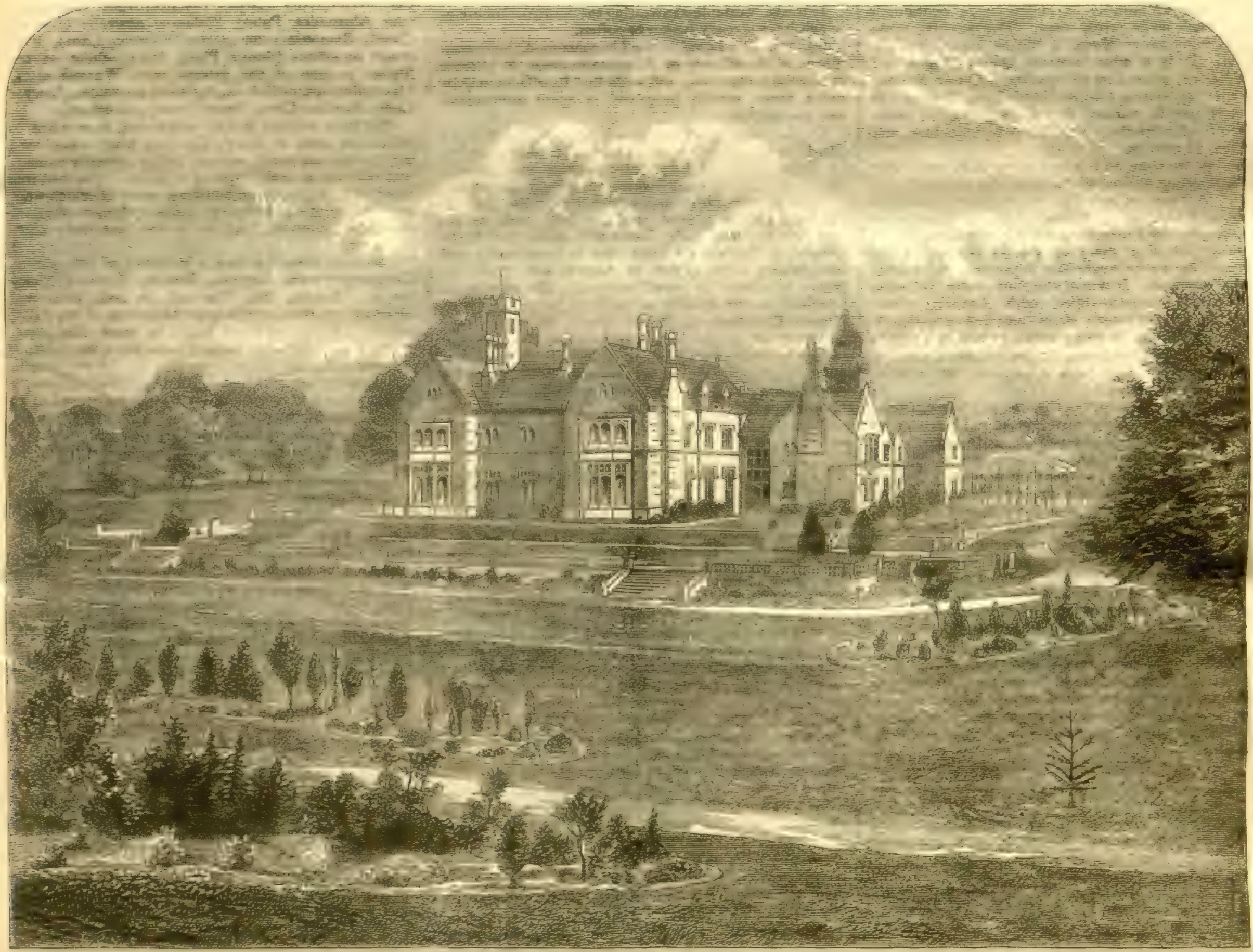


FIG. 99.—SEDGWICK, THE SEAT OF W. H. WAKEFIELD, ESQ. (FROM A PHOTOGRAPH.)

Behind this range, at a short distance, is another of the span-roofed houses, the first of which is intended for a Rose house, 30 feet by 15. Some of the Tea varieties have been planted out, and are making progress, the remainder will be grown in pots and stood upon a raised bed 2 feet high, formed at each side of an irregular walk, which runs from end to end; this again is margined with stone peculiar to the district, undressed and in its natural state. Where such exists in quantity, as is the case all through this part of the country, it cannot be too much employed for such purposes; its appearance in its natural state is much superior to the best productions of the stone-cutters, and if well put together with good cement it is most durable. This house at the time of my visit was filled with specimen Azaleas on one side, and with Tomatos grown in pots down the other; these were trained on the roof like Cucumbers. It is found necessary to grow them under glass, as they do not succeed well on the open walls.

From this we enter a small house, 20 feet by 20, used for winter-forcing such things as Azaleas,

Spiræas, bulbs, Eranthemums, Euphorbias, and similar flowering plants. This is a most useful house, not too large for the purpose required, and is indispensable where a continuous supply of winter flowers are needed; for where these have to be brought on in the ordinary stoves amongst the general occupants, the latter have to submit to the treatment necessary for the winter flowering stuff, and are thereby excited into growth before their natural time. The house has a narrow tan pit on each side and a raised bed in the centre. In the summer the sides are occupied with young pot Vines trained up the roof; the centre table is filled with a quantity of Dendrobium nobile, which, when grown this way in numbers, affords a supply of this most useful flower through most of the winter and spring months.

Adjoining this is an intermediate house, 25 feet by 20, the outer stage filled with Poinsettias, Euphorbia Jacquiniæflora, Eranthemum pulchellum, and Celosias, all for winter flowering; the roof is covered half-way up with pot Vines, some from eyes, the rest have been cut back.

The next is a house, 34 feet by 20, for growing summer stuff for conservatory decoration. From this we enter a Melon-house, 21 feet by 14, containing a crop such as is rarely seen. The variety grown here is Manchester Hero, a Melon raised by Mr. Bethell. It is a cross between Queen Emma and Lord Napier, possessing the quality of Queen Emma, with the free bearing disposition of Lord Napier. It is a most prolific variety, fruit from 3 to 4 lb., beautifully netted; the flesh is thick, pale in colour, and excellent in quality.

The last we come to is a lean-to north house 21 feet by 18, standing against the back of the principal fruit range. A house of this description is indispensable where a succession of flowering plants is required for conservatory decoration, as by its assistance the blooming season of many species of plants can be prolonged for weeks longer than is possible with houses ordinarily placed. It was at the time of my visit—the beginning of August—filled with Azaleas, which during the summer grow and set their buds apparently as well as in houses more favourably placed for catching the sun. In such a house Azaleas require no shade, are less likely to suffer from red-spider, but require keeping near the glass.

The walled kitchen garden stands southwards, fronting the principal range of fruit houses. There can be no mistake about the sufficiency of the drainage here: it was a natural hollow, the soil was taken off, and the whole of the under surface filled in with 3 feet of stone removed from the hills already alluded to in the immediate vicinity of the mansion; from 3 to 6 feet of soil was placed upon this, and as may be supposed it makes an excellent garden, producing magnificent crops of vegetables. The walls are all stone, with a 6-inch projecting coping, raised in front so as to throw the water to the back, from which it is carried off by iron gutters. In walls of this description shreds and nails cannot be used, which necessitates their being wired. They are planted on the southern aspects principally with Pears; on the west and north with Cherries and Plums. One of the greatest advantages in this garden is its unlimited supply of water, obtained at an elevation sufficient to give the necessary pressure for its distribution wherever required. *T. Baines.*

THE SILPHIUM PLANT.

SINCE the identification of the plant known to the ancients as Silphion and Asadulcis, as a species of Thapsia, we have heard very little about it. But it has been attracting the attention of medical and other scientific men, nevertheless. In the *Bulletin Mensuel de la Société d'Acclimatation de Paris* of March, 1874, we find an article on this plant from the pen of Dr. Laval, who is quite enthusiastic respecting its efficacy in certain complaints, and the desirability of acclimatising it in Algeria.

We will pass over the historical portion, which is little more than a repetition of what has already gone the round of the journals. Speaking of the narrow area of its distribution, he says we must not seek the cause in the nature of the soil, which is argillaceo-calcareous. An Hemipterous insect annually destroys the whole of the seed, so that its reproduction is impossible. This might possibly be the case for a season or two, but we can scarcely imagine it to be a permanent condition of things. Specimens of the insect in question were forwarded to Professor Gervais for determination. On the other hand, he says it spreads in all directions from the root, taking complete possession of all the arable soil. It is only where the soil is too rocky for its roots to penetrate that it is stopped. The suggestion that it has propagated itself in this way since the time of Pliny, and has thus managed to hold its ground in spite of the insects, is ingenious, and has more probability about it than the supposition that the insects have devoured all the seeds during this period.

Dr. Laval considers it quite distinct from Thapsia garganica, but from authentic seeds (carpels) collected on the spot we have failed to discover any characters to separate them. Possibly other parts of the plant may afford distinctive characters.

He finds that the gum-resin of Silphion contains two principles, a revulsive or vesicatory, as in the root of Thapsia garganica and the oil of Croton Tiglium, and a resolutive, of great value in allaying inflammation by hastening the symptoms connected with its termination. The removal of the blistering property would of course be necessary to obtain the full value of the healing quality, and this, Dr. Laval tells us, he has effectually succeeded in doing. In reference to its action in pulmonary affections he says:—After having witnessed the beneficial results of forty-eight hours' treatment of ordinary phlegmatia (pneumonia, angina, catarrh, and bronchitis) with Silphion, I tried to combat complications of phlegmatia developed around tubercles in pulmonary phthisis.

In about a month, on the average, if this remedy be used when tuberculisation commences, no stethoscopic signs of continued granulation can be discovered; hence Dr. Laval concludes that the Silphion will heal tubercles if they are not allowed to reach the ulcerating stage. [We fear this is too good to be true. EDS.]

It is also valuable in arresting the course of tubercles which have already begun to soften.

So far as Dr. Laval himself is concerned, he is convinced of the efficacy of Silphion in cases of chronic tubercular formations, and adds that its effects may be much more rapidly perceived in acute tuberculosis and meningitis.

Dr. Laval's experience has been fully verified by Dr. Chartier, chief physician at the Military Hospital at Valenciennes. Many patients were treated with Silphion, and the results were exceedingly favourable.

This, if fully borne out by further experiments, will render Silphion a most valuable drug, and, as the supply is so limited, Dr. Laval calls upon the Acclimatisation Society to assist him in introducing and establishing living plants in Algeria and Provence, where he thinks it would succeed. He asks to be attached in the quality of military surgeon to the French Consulate at Tripoli, where he would have opportunities of forwarding supplies of the drug for further experiment, and living plants for its establishment in Algeria and other suitable localities. We have reason to believe that Silphion is on its trial in England, or, if not in actual use, likely soon to be the subject of some trials. *B. H.*

THE MOVEMENT OF WATER IN PLANTS.

THE general results of Dr. McNab's experiments, elsewhere referred to, may be here briefly summarised, and they may usefully be compared with Mr. Clark's observations (see our volume for 1874, i., 443), and the articles on the sap published in the early part of the year. In a former series of experiments, alluded to at the time in this journal, only the amount of fluid given off in a short time (as an hour) was observed. In the experiments now recorded the branch was kept under observation for a whole day or longer, the temperature being recorded every hour, the amount of fluid transpired during that time being carefully determined. It is to be hoped that Dr. McNab will contrive a second parallel series of experiments on plants growing with their roots uninjured in soil or water, as it is obvious that the cut end of a branch forms a very different absorbing medium from the intact surface of a root. Transpiration, as a rule, decreases with the decrease of temperature. The decrease and increase of temperature would also, to a certain extent, indicate the changes in the light, as the thermometer rose rapidly when the sun appeared, and fell at once when the sky became cloudy.

As to the rapidity of ascent of water in the stem, Sachs observed a rate of 9 inches in the hour in the case of the White Poplar, and Dr. McNab, formerly one of 24 inches per hour, and now of 39 and 40 inches per hour. On these points we shall do well to quote Dr. McNab's conclusions *verbatim*, and refer the reader for full details to the paper in the *Transactions of the Royal Irish Academy*, 1874. Dr. McNab's conclusions are:—

1. That under favourable circumstances, a rate of ascent of 40 inches per hour can be obtained.

2. That, contrary to the generally received opinion, direct experiment has shown that the upward rapid current of water does not cease in the evening.

3. That checking the transpiration for a short time, by placing the branch in darkness, does not materially retard the rapid current of water [a singular result, requiring further experiment].

4. That the removal of the cortical tissues does not impede the rapid current in the stem, which moves only through the wood (xylem) portion of the fibro-vascular bundles.

5. That a well-marked rapid flow of fluid will take place in a stem after the removal of the leaves.

6. That fluid will rapidly flow downwards as well as upwards in the wood (xylem) portion of the fibro-vascular bundles, as seen in a branch in which lithium solution was applied at the top.

7. That pressure of mercury does not exert any very marked influence on the rapidity of the flow, in the one experiment made with a pressure of 110.55 grammes of mercury.

QUEENSLAND EXPLORATION.

SOME time since we gave some extracts from the interesting report of Mr. Walter Hill on the botanical features observed during the recent exploration of the north-east coast of that colony. We are now enabled to supplement that report by some further particulars relating to the Bellenden-Kerr range of mountains:—

On November 26 a party, consisting of Sub-Inspector Johnstone, myself, and eight native troopers, started to ascend Bellenden-Kerr, by what appeared to be a promising leading spur. We had only four days allowed us. The first 2 miles of our course led through low ground, which after much wet weather must become a swamp. The vegetation consisted of the Barringtonia Carya, Ptychosperma Alexandræ (the Alexandra Palm), Calamus australis (Lawyer Cane), Bambusa arundinacea (Bamboo Cane), Pandanus aquaticus (Screw Pine), &c.; whilst on the higher portion of the ground were Wormia alata, Dysoxylon oppositifolium, Aglaia elæagnoides, Lawyer Cane, Bamboo Cane, Screw Pines, and others.

We then crossed a fine watercross, at a place to which the name of Davy's Crossing place was given; and the stream itself, without being formally named, was referred to as the Bellenden River. The bed was filled with large granite boulders, many of which were covered with a creeping Fern (Hymenophyllum demissum, Swartz), and the water beautifully clear and cold.

The trees along the banks consisted of the genera Castanospermum, Eugenia, Brucea, Ximenia, Elæocarpus, Owenia, &c. The soil on both sides was of a sandy nature, with a good admixture of vegetable matter. It took us three hours to reach this place, which was guessed as being 3 miles from the point of departure, having risen, according to the aneroid, to an elevation of 160 feet. Having found a spur, it took us four and a-half hours to make a distance of 1½ mile, through a complete mass of Bamboos, Lawyers, and Screw Pines; and then camped for the night on a small incline between two ridges at an elevation of 1250 feet.

The trees consisted of Erioglossum edule, Cupania Robertsonii, Atalaya salicifolia, Harpullia Leichhardti, Castanospermum australe, Mimusops parvifolia, Achras Pohlmaniana, &c. The thick growth of the Pandanus was not one of the least obstacles we had to encounter in the ascent. There were here one Tree Fern (Alsophila Rebeccæ) and also the fine climbing Fern (Gleichenia Hermanni), which runs up to a height of 50 or 60 feet, and extends so much that in places we had to cut our way through it.

Proceeding on our way the following morning; the Bamboos continued until we reached an altitude of 2000 feet. We still had to make a road through the Lawyer Cane, the Pandanus, the Walking-stick Palm (Areca monostachya) also growing thickly. It was at this height that I met with two new species of Palm. One was a beautiful plant about 20 feet high, with leaves or fronds 20 feet long, and the stem about 9 inches in diameter. This not being the right season to obtain either flower or fruit, I was, unfortunately, unable to name the Palm. The other is, I believe, a Kentia; it is about 12 feet in height, and 3 inches in the diameter of the stem, with suckers shooting from the bottom. I also noticed a new Orchid (Anæctochilus) and a small Tree Fern (Alsophila Robertsiana) that I had before observed on the Moresby Range. The Tree Fern (Alsophila Rebeccæ) was the most difficult to get through, being entangled with Smilax elliptica and Flagellaria indica, &c. In the middle of the day we camped at a height of 1700 feet, being only 500 feet higher than we were on starting in the morning; we expected to reach the summit by night, but only got to the altitude of 3300 feet. A superb Proteaceous tree, about 60 feet in height, with glorious crimson blossoms, was observed at 2500 feet, and the beautiful new Anæctochilus was not seen after reaching 2000 feet; but we had still to contend with the Calamus and Pandanus, and the Alsophila Rebeccæ was the greatest annoyance we met. On our way up we passed a new species of Dammara, also a Podocarpus, both small trees and not in fruit. Where we camped we found Moræa Robinsoni and Kentia in great abundance, but neither was in flower.

After starting the next morning, we passed through the same description of vegetation, the Alsophila being still troublesome. The crests of the rises were rocky, and the trees and shrubs stunted. In three hours we reached the foot of the last incline, 800 feet from the summit. We were without water, but some was found about half a mile down the gully. Whilst it was being procured and tea made, I took a walk and found a very handsome Tree Fern, a botanical descrip-

tion of which is given in the report. It was about 40 feet high, and 12 inches in diameter 4 feet from the ground. The stem has a singular red appearance, as have also the fronds, which are clothed with bristles. I procured four plants of it. Close by I found Moræa Robinsoniana in flower (see *Gardeners' Chronicle*, 1872, p. 393), and the beautiful Palm I noticed on the previous day; it is from 40 to 60 feet in height, no flower nor fruit was to be seen; I obtained two young plants with difficulty, as they appear to be scarce, probably because the fruit is a favourite food with some birds or other animals. We reached the top of the range about noon, without observing any vegetation different from what we saw before. The crest is covered with stunted trees and shrubs. During our short stay—an hour—I collected the following:—Helicia ferruginea, Carnarvonia aralifolia, Pittosporum ferrugineum, Bursaria spinosa, Melaleuca foliolosa, Trochocarpa laurina, Alsophila Rebeccæ, Tmesipteris tannensis, Kentia, Tradescantia, &c.

The aneroid barometer showed that we were 5300 eet above the level of the sea, and on a clear day a very fine view of the surrounding scenery can, no doubt, be obtained; but everything below was hidden by mist, and the clouds threatened rain. No observation could be taken for the purpose of marking the position of the prominent points in the country around, and, as no provision had been made for a longer stay we had to return. Shortly after leaving, on our downward progress, a heavy thunderstorm broke overhead and wet us thoroughly.

We camped for the night at the foot of the incline which we had left in the morning, but the mist still continued so thick that I could not proceed any distance to collect. However, during a ramble into the gully, I saw a fine specimen of the Platycerium alcicorne, var. majus, and a splendid tree, one of the Dammaras, which could not be less than 120 feet in height, with a barrel 4 feet through. I would have liked to have got a cone, but the native troopers were so completely knocked up that they were unable to leave the camp, much less to climb a tree. There were several lofty trees about the place, amongst which I noticed Cardwellia sublimis, Darlingia spectatissima, Elæocarpus faveolatus, also others, whose names I could not determine, through being unable to obtain specimens. I gathered some seeds of Erioglossum edule, and of Kentia, and a few of Areca minor. There were scarcely any plants in flower or fruit. The trees and rocks were covered with lichens and mosses, and also a few Orchids. The previous dryness of the season, however, appeared to have parched up all the mosses and lichens, none of them being in a fit state for collecting.

We started at 6 o'clock next morning, and at nine reached the crest or peak where we intended to take observations. We remained about half an hour, during which I gathered all that was to be had in leaf, flower, or fruit. This was the only point during the ascent or descent from which we had a good view of the rivers and surrounding country. We could see large plains at the head of the north branch of the Mulgrave, and also had a clear prospect of Trinity Inlet, which was evidently encompassed by Mangrove swamps. Part of Mount Walsh appeared to be on the watershed of the Mulgrave, while the remaining portion seemed to slope towards the shores of Trinity Inlet. The course of the South Mulgrave was plainly visible for some miles, and Mr. Johnstone thought he observed plains, but was not certain.

About half an hour after leaving the peak where we halted, a thunderstorm, accompanied by a heavy fall of rain, broke upon us and put a stop to all collecting, hiding from view even the tops of the trees. We had some difficulty in finding the beautiful Proteaceous tree we saw when ascending the range, but ortunately managed to come across it again, and secured specimens. In our downward course, crossing the Bellenden River and following our former track to where the boat was waiting, the rain was heavy and continuous, drenching every one of the party to the skin, and preventing specimens from being obtained that had before been marked for collection. During the four days of our trip the work was very laborious, and the native troopers who accompanied us became at last completely exhausted.

I have to report that the ascent of Bellenden-Kerr resulted in the hope being greatly disappointed that I entertained of making many valuable botanical discoveries. This may be considered as fully accounted for by the fact that for three out of four days for which the party was provisioned we had to cut a pathway the whole distance along a razor-back ridge, in many places only 18 inches in diameter. I have still every reason to believe, however, that the visit of a collector to Bellenden-Kerr, of sufficient knowledge and able to withstand the hardships that would have to be encountered, for about nine months, during which time all the vegetation will be in flower or fruit and young plants can be obtained, would be of advantage not only to botany as a science, but also to its practical and economic application.

The main purpose of the expedition was the exploring of a certain portion of the north-east coast of Queensland; but, as I have before stated, the work having to be done in boats, the country back from the rivers was frequently cut off by dense Mangrove swamps of considerable extent. A land expedition, if sufficiently equipped (or even the one with which I was associated), had time and means permitted, could have given a complete description of the coast region beyond the country lying along the banks of the navigable watercourses. Enough, however, has been ascertained to prove that over a great part of the tract, which we could penetrate only here and there as openings presented themselves, the soil is well adapted for cultivation. On the low lying land not subject to be flooded, the Sugar-cane will flourish well, and at present will be considered the most valuable crop; although here and upon the less level portions almost every tropical plant of economic value would succeed. My report of January 30 last has stated what I saw; I may now add to what I then expressed, that I feel certain that the country, which at that time was examined only along the rivers, or in some cases for a mile or two inland, will be found of the most valuable description for nearly every kind of tropical cultivation, and it would be of great loss to the colony were it alienated for any other purpose.

Fig. 100.—TILLANDSIA MUSAICA.

TILLANDSIA MUSAICA.

This handsomely marked stove epiphyte (fig. 100) is a native of the United States of Columbia. "The leaves have the usual sheathing habit at the base, and are of a ligulate form, spreading or recurved at the apex, which is acute in some forms, and blunt with a short mucronate point in others; they are 1 foot long and 2 inches broad, the ground colour of a greyish or pale yellowish green, marked at short intervals and in an irregular way by patches of dark green, flexuous, transverse broken veins, as if marked by illegible writing, the back of the leaf having the same characters of a dull wine-red colour. These singular markings give the leaves a very interesting and ornamental character." The plant has been shown several times, and is one of the most ornamental introductions to our stoves. Its exact botanical station has not yet been ascertained, as flowers have not yet been observed by botanists. Our illustration is taken from Mr. Bull's catalogue. The mode of culture suitable for this fine plant does not differ from that adopted with other similar subjects

RECENTLY PUBLISHED PORTRAITS OF GARDEN PLANTS.

Name and Reference to Figure.	Character and Quality.	Leaves.	Flowers.	Season.	Native Country.
IRIS IBERICA, *Hoffm.* .. .. Rev. Hort. 1873, 370, with tab.; Illust. Hort., 3 ser., t. 106; Flore, t. 1963.—Iridaceæ.	Hardy herbaceous perennial, dwarf, showy	Linear ensiform, recurved ..	White, the sepals reticulately spotted with purple	May	Caucasus *Mr. T. Ware*
IRIS KÆMPFERI, *Siebold* .. .. .. Flore des Serres, tt. 2073-4.	Hardy herbaceous perennial, very showy, 3 ft. high	Narrow ensiform, acute, erect ..	Large, showy, and various in colour in different varieties	August	Japan *M. Van Houtte*
IRIS KÆMPFERI E. G. HENDERSON, *Hort.* .. Florist and Pomologist, 1874, 217, with tab.; Gard. Chron. 1874, ii. 45, fig. 11.	Hardy herbaceous perennial, tall and very showy	Narrow ensiform, acute, erect ..	Deep violet-purple, with golden rays, double, *i.e.*, with six spreading segments	August	Japan *Messrs. Henderson*
IRIS KOROLKOWI, *Regel* .. .. .. Gartenfl., t. 766.	Hardy herbaceous perennial, pretty	Narrow ligulate, sub-erect ..	Deep rosy lilac, veined with purple	April and May	Turkestan *Petersb. Garden*
IRIS OLBIENSIS, *Hénon* .. .. .. Bot. Mag., t. 6110.	Dwarf hardy perennial, ornamental	Short sword-shaped, somewhat falcate, glaucous green	Very large, dark purple	April	N. Italy *Kew*
IRIS RETICULATA, *Biéberst.* .. .. .. Gartenfl., t. 779.	Hardy bulb, of dwarf habit ..	Unequally tetragonal, erect ..	Dark purple, with the odour of Violets	March	Palestine *Petersb. Garden*
IRIS TECTORUM, *Maximowicz* .. .. Bot. Mag., t. 6118.	Hardy tuberous perennial, showy (= I. tomiolopha)	Ensiform, about a foot long (crest white, spotted with purp.)	Violet-purple, crisped, the inner segments spreading, paler	April	Japan *Mr. W. Bull*
IXIOLIRION PALLASII, *F. & Mey.* .. .. Gartenfl., t. 775.—Amaryllidaceæ.	Hardy bulb, very pretty, with leafy stem	Linear, and very long and slender (said to be same as I. montana)	Funnel-bell-shaped, pale blue, with recurved limb-segments	June	Turkestan *Petersb. Garden*
KÆMPFERIA ROSCOEANA, *Wall.* .. .. Flore des Serres, t. 1997.—Zingiberaceæ	Dwarf stove perennial, with handsome foliage	Broad, cordate-ovate, beautifully mottled	White	July and August	India
KÆMPFERIA ROTUNDA, *Linn.* .. .. Bot. Mag., t. 6054.	Stove herbaceous perennial ..	Elliptic-lanceolate, green, marked with pale green	Large, white, and lilac-purple ..	April	India
KNIPHOFIA (TRITOMA) ROOPERI, *Moore* .. Bot. Mag., t. 6116.—Liliaceæ.	Hardy perennial, remarkably showy, 2 ft. high	Recurved, ensiform acuminate, keeled	Orange-red, in ovoid-oblong spikes 6—8 in. long	November	Kaffraria *Rev. T. Rooper*
KOROLKOWIA SEWERZOWI, *Regel* .. .. Gartenfl., t. 760.—Liliaceæ.	Hardy bulb-tuber, 1½ ft... ..	Ovate or ovate-lanc., smooth, glaucous, the upper smaller	Nodding, in upper axils, yellowish green, or purplish-green	May	Turkestan *Petersb. Garden*
LÆLIA ANCEPS DAWSONI, *Anderson* .. Warner's Orchids, 2 ser., t. 34.	Stove epiphyte, chaste and beautiful (Orchidaceæ)	Ligulate-lanceolate, coriaceous..	White, the crest yellow, the lip crimson edged with white	Dec.—Feb.	Mexico
LÆLIA FLAMMEA, *Rchb. f.* .. .. .. Florist and Pomol. 1874, 133, with tab.	Stove epiphyte, handsome (L. cinnabarina × L. Pilcheri)	Solitary, ligulate-oblong, coriaceous, on cylindrical stems	Cinnabar-orange with yellow-crimson-edged lip	March	Garden hybrid *Messrs. Veitch*
LÆLIA JONGHIANA, *Rchb. f. et Libon* .. Bot. Mag., t. 6038; Rev. Hort. 1873, 291, with tab.	Stove epiphyte, very handsome..	Solitary, elliptic-oblong (pseudobulbs compressed, elliptic oblong)	Large, bright amethyst, lip white in front, with amethyst border, and yellow crests	March	Brazil *M. de Jonghe*
LÆLIA PUMILA, *Rchb. f.* .. .. .. Warner's Orchids, 2 ser., t. 32.	Stove epiphyte, handsome (= Cattleya marginata)	Solitary, oblong-lanceolate, acute, thick	Purplish-lilac, the lip purple-crimson with white edge	Sept.—October	Brazil
LÆLIA RIVIERI, *Carrière* .. .. .. Rev. Hort. 1874, 331, with tab.	Stove epiphyte, very showy; habit of L. purpurata	Solitary, lanceolate, coriaceous..	Very large, 5—7, rosy violet with deep-veined lip	May	New Grenada *M. Chauvière*
LAGERSTRŒMIA INDICA, *Linnæus* .. .. Rev. Hort. 1874, 130, with tab.—Lythraceæ	Greenhouse shrub, very ornamental when in flower	Roundish-ovate, acute, smooth..	Rosy purple, with long-stalked crispy petals	July	China and Japan
LAPAGERIA ROSEA, ET ROSEA ALBA .. Flore des Serres, t. 2059-60.—Smilaceæ.	Greenhouse evergreen climber, of great beauty	Ovate, smooth, green, longitudinally nerved	Rich, crimson-rose, spotted; or white	May	Chili
LASIANDRA LEPIDOTA, *Naudin* .. .. Illust. Hort., n. ser., t. 160.	Cool stove shrub, distinct and showy (Melastomaceæ)	Ovate acute, entire, five-nerved, densely strigillose	Bright carmine-red with white centre	....	New Grenada *M. Linden*
LEPTOSYNE MARITIMA, *A. Gray* .. .. Rev. Hort. 1873, 330, with tab.—Compositæ.	Hardy ornamental annual, 2½ ft. (not Agarista calliopsidea, introduced under same name)	Bipinnatifid, with linear-entire segments	Flower-heads 4 in. across, with 15—20 broad golden-yellow ray florets	July	California *Mr. Thompson*
LESSERTIA PERENNANS, *D.C.* .. .. Bot. Mag., t. 6105.—Leguminosæ.	Greenhouse sub-shrub, neat; stems fistular	Imparipinnate, leaflets elliptic, in 7—10 pairs	Small, reddish-lilac, in axillary racemes	July	Natal *Kew*
LEUCOJUM AUTUMNALE, *Linnæus* .. .. Flore des Serres, t. 1983.—Amaryllidaceæ.	Hardy bulb, small and pretty ..	Linear-filiform (known also as Acis)	Drooping, bell-shaped, white, red at the base	September	Mediterranean
LIBERTIA CŒRULESCENS, *Kth. et Bouche* .. Gartenfl., t. 759.—Iridaceæ.	Greenhouse perennial	Ensiform, rigid, distichous ..	Bright blue, in heads, forming long-stalked spikes	May	Chili and Peru *Berlin Garden*
LILIUM AVENACEUM, *Fischer* .. .. Florist, 1874, 193, tab.; G. C. 1874, ii. 231, fig. 49; B. M., t. 6126 (as maculatum)	Hardy bulb, showy, thought by some to be same as L. maculatum (Liliaceæ)	Oblanceolate, whorled, the upper alternate (stem 1—2 ft. high, or more)	Tawny orange, with black spots, fragrant like violets, the segments reflexed from base	June	Japan, &c. *Mr. Wilson*
LILIUM DAHURICUM, *Gawl.* .. .. .. Gartenfl., t. 740.	Hardy bulb, showy, erect, 2 ft.. (= L. spectabile, Link.)	Linear-lanceolate, the upper whorled	Crimson-red, the segments oblong-lanceolate, spathulate	June	Siberia, &c.
LILIUM HUMBOLDTII, *Roezl et Leichtl.* .. G. C. 1874, i. 143, fig. 37; F. M. t. 99.	Hardy bulb, very handsome. 4—5 ft. (= L. Bloomerianum)	Oblanceolate, often whorled, the lower 4—5 in. long	Panicled, 6—40, nodding, orange spotted with brownish purple	July	California *M. Leichtlin*
LILIUM KRAMERI, *Hook. f.* .. .. .. B. M., t. 6058; Florist, 1874, 13, tab.; Flore, tt. 2061-2; Flor. Mag. 1874, t. 105.	Hardy bulb, very handsome, varying in colour	Narrow lanceolate, acuminate, deep green, on slender stems, 4 ft. high	Large, horizontal, funnel-bell-shaped, with recurved segments, blush or pale pink	July	Japan *Mr. Wilson*
LILIUM PHILIPPINENSE, *Baker* .. .. Gard. Chron. 1873, 1141, fig. 243	Greenhouse bulb, very distinct and handsome, 1½—2 ft. high	Narrow-linear, spreading, on slender stems	White, narrowly funnel-shaped, recurved, 7—8 in. long	August	Philippine Islands *Messrs. Veitch*
LILIUM TIGRINUM FLORE-PLENO, *Moore* .. Rev. Hort. 1873, 10, with tab.; G. C. 1874, i. 145 fig. 38; Flore, t. 1995.	Hardy bulb, very ornamental ..	Linear-lanceolate, scattered, bulbiferous, as in the type	Panicled, full double, orange-red with black spots	July	Japan *Mr. Wilson*
LILIUM WASHINGTONIANUM PURPUREUM. *Baker.*—Gard. Chron. 1874, ii. 322, fig. 67; Florist, 1874, 253, with tab.	Hardy bulb, very distinct and ornamental (= L. purpureum)	Oblanceolate, densely whorled, shorter upwards	White, flushed and spotted with purple; segments much recurved	June and July	California *Mr. Bull*
LINARIA HETEROPHYLLA, *Desf.* .. .. Bot. Mag., t. 6041.—Scrophulariaceæ.	Hardy annual, branching, 2—3 ft. high	Narrow, linear, obtuse, scattered, fleshy	Pale straw-colour, with golden palate, in racemes	July	Morocco *Mr. G. Maw*
LINARIA SAGITTATA, *Hook. f.* .. .. Bot. Mag., t. 6060.	Hardy perennial, with slender subscandent stems	Lanceolate-oblong, hastate at base	Axillary, yellow, the spur curved upwards	June	Morocco *Mr. G. Maw*
LIRIODENDRON TULIPIFERUM LUTEO-MARGINATUM.—Flore, tt. 2025, 2081-2.	Hardy ornamental tree; habit of type (Magnoliaceæ)	Lobed, truncate, broadly margined with yellow	Greenish yellow and orange, as in the type	June	Garden variety *Mr. F. E. Gay*
LIVISTONA HOOGENDORPII, *André* .. Illust. Hort., n. ser., t. 174.—Palmaceæ.	Stove ornamental Palm, tall and slender	Sub-orbicular, fan-shaped, 4—6 ft. diam.	(Petioles trigonous, reddish brown, spiny-edged)	....	Sara
MACKAYA BELLA, *Harv.* .. .. .. Illust. Hort., 3 ser., t. 104.—Acanthaceæ.	Stove shrub, branched, with tumid joints	Ovate-oblong, acuminate, opposite	Racemose, white, concentrically veined with red	May	Natal *Kew*
MALORTIEA SIMPLEX, *Wendl.* .. .. Florist and Pomologist, 1873, 205, tab.	Stove Palm, dwarf, slender, elegant (Palmaceæ)	Oblong, simple, or bifid	In simple or few-branched spikes	February	Costa Rica *Kew*
MAMILLARIA SENILIS, *Salm-Dyck.* .. Belg. Hort. 1874, t. 3.—Cactaceæ.	Greenhouse succulent, curious ..	(Stem spheroid or cylindrical, numerous long white spines)	Orange-red with a violet tint ..	Spring	*M. Schlumberger*
MANTISIA SALTATORIA, *Sims* .. .. Flore des Serres, tt. 2069-70.	Stove perennial, curious, 1—2 ft. (Zingiberaceæ)	Bifarious, lanceolate, caudately filiform	Panicled, purple and yellow, with large purple bracts	May	India
MARANTA HIEROGLYPHICA, *Lind. et And.* Illust. Hort., 3 ser., t. 122-3 (as Calathea). —Marantaceæ.	Stove perennial, dwarf, ornamental	Elliptic-obtuse, mucronate, deep green, with emerald-green midrib	(L. with interrupted white lines extending nearly to the margin; pale violet beneath)	....	New Grenada *M. Linden.*
MARANTA MAKOYANA, *E. Morr.* .. .. Flore des Serres, tt. 2048-9	Stove perennial, dwarf, beautiful (= M. olivaris)	Oblong, blunt, unequal-sided ..	(L. dark green on greyish striated transparent ground)	....	Trop. America *M. Jacob-Makoy*
MASDEVALLIA CHIMÆRA, *Rchb. f.* .. Florist and Pomologist, 1873, 3, with fig.	Cool stove perennial, tufted, very curious (Orchidaceæ)	Cuneate-oblong, acute, 1 ft. long	Hairy, yellow, blotched with carmine, lip calceiform white	....	New Grenada *M. Linden*
MASDEVALLIA DENISONIANA, *Hort.* .. Floral Mag. 1873, t. 79.	Cool stove perennial, of the M. Harryana type, very fine	As in M. Harryana, of which it is a bright coloured variety	Dark crimson, with magenta flush, glowing with brilliancy	May	New Grenada *Lord Londesb.*
MASDEVALLIA HARRYANA, *Rchb. f.* .. Belg. Hort. 1873, t. 21; Illust. Hort., 3 ser., t. 142	Cool stove perennial, tufted, beautiful	Oblong-obtuse spathulate ..	Brilliant rosy magenta passing into crimson	Various	New Grenada *Messrs. Veitch*
MASDEVALLIA HOUTTEANA, *Rchb. f.* .. Flore des Serres, t. 2106	Cool stove perennial, tufted, curious	Elongate linear-lanceolate, acute	White with purple spots, the tails purple, 2—2½ in. long	....	Venezuela
MASDEVALLIA INFRACTA, *Lindl.* .. .. Belg. Hort. 1873, t. 22	Cool stove perennial, tufted, curious	Oblong-spathulate, tricuspidate at the apex	Whitish, with small brown dots, the tails yellow	November	Organ Mount. *M. Lamarche*
MASDEVALLIA LINDENI, *André* .. .. Florist, 1873, 169, tab., fig. 3; Gard. Chron. 1874, i. 385, fig. 85	Cool stove perennial, beautiful, near M. Harryana	Oblong-obtuse, spathulate, growing in tufts	Brilliant violet-rose	Various	New Grenada *M. Linden*

THE OLIVE.

OUR illustration at fig. 101 represents an Olive tree as seen in greatest luxuriance in the Genoese Riviera. In the South of France the tree is unmitigatedly ugly. In Tuscany, even, it is scarcely better looking; indeed, it is only in the region we have just mentioned that it can be seen in anything like perfection, so far as beauty is concerned. The famous Corniche road from Nice to Genoa passes for a considerable portion of its length through Olive plantations similar to that figured. These belong for the most part to small proprietors, whose properties are sometimes so small that they include one Olive tree only. The following account, taken from Dr. Bennet's *Winter and Spring on the Shores of the Mediterranean*, conveys so accurate an idea of the Olive, as grown in the Riviera, that we cannot do better than transfer it to our columns:—

"In the South of France the Olive tree, however ertile, is a miserable object. It is generally treated as a pollard, is small and dwarfish, and looks much like a mutilated dust-covered Willow. As soon, however, as the Esterel mountains are passed and Cannes is reached we enter on a different climate, more protected in winter, and more suited to its growth. It is allowed to grow as a forest tree, and at once assumes a dignity and grandeur which quite surprises those who have only seen the stunted specimens of '*la belle* Provence.' The Olive tree is only destroyed by a frost of 15° or 16° Fahr., so that it is not injured or killed on the Riviera by exceptional winters, as are the delicate Lemon trees. But the young shoots and the fruit are frozen and irremediably injured when the thermometer falls 6° or 7° below the freezing point. No frost, however, to which this region is exposed, even once in a century, can injure the tree, so that it goes on growing indefinitely, and attains its natural period of longevity, as do with us the trees that are natives of our country—the Birch, the Beech, the Scotch Fir, and the Oak. Like them, it resists the terrible cold of exceptional years, such as the years 1860–61, and reappears in spring hale and vigorous, when whole armies of apparently naturalised foreigners have succumbed. The longevity of the Olive tree, in a congenial climate like that of Mentone, may indeed be said to be indefinite. There are Olive trees still alive at Monaco, at the Cap Martin, and elsewhere, which are supposed to be coeval with the Roman Empire. It is a slow-growing tree, and forms cartloads of hard roots, which fill and cover the ground where it stands. When, after several hundred years, the trunk decays, the bark remains alive. As the decay progresses, the tree splits, as it were, into two, three, or more sections. The bark twists and curls round each of these decayed sections, and unites on the other side. Then, instead of the old tree, we have, in its place, two, three, or more, apparently separate, although in reality all growing from the same root. When these in turn die, new shoots spring up from the old roots, and thus the life of the tree is indefinitely prolonged. The old Olive groves are, from this cause, indescribably singular and interesting, presenting on every side evidences of hoary old age. All the stages of growth above described may be witnessed within the space of a few yards: and the partially decayed, partially split, gnarled, twisted curved trunks are picturesque in the extreme.

"The healthy full-grown Olive tree is really very beautiful. It is often as large as a fine old Oak, but with fewer limbs and a more sparse foliage. In the variety of the Olive tree generally cultivated on the Riviera the terminal extremity of the branches hangs down, so as to give it the characteristic appearance of a Weeping Ash or Willow. The 'weeping' character of the tree is, however, much less marked than in those just mentioned, owing to the more scanty foliage, and to the extremities of the smaller branches only drooping. To some who are sad, to mourners, the dense masses of those sombre grey-coloured trees, with hanging foliage, give a sorrowful, mournful character to the landscape. But it is only those who have sadness in their hearts, a sadness which reflects on Nature, who view the Olive tree in this light. To others, the play of the wind on the ever-moving pendulous masses of foliage, and that of the sun and light on the dark green leaves, especially when seen in masses from a height above, is both beautiful and soothing. The Olive tree, like our own evergreen Spruce and Scotch Fir, is much more beautiful in autumn and winter than in summer. At the latter period of the year most of the leaves are old, and have become browned by the summer heat and by at least a year's existence, so that the entire tree often assumes a faded, dingy hue. In early summer, too, the yellow hue of the pollen of the male flowers of the Conifers gives a yellowish tinge to the entire tree, owing to their extreme abundance. In spring the new leaves of the evergreen tree form, in summer and autumn the old ones are in a great measure cast off, and when winter comes it is all in its glory. It has thrown off its worn-out, damaged garments, and is again clothed in the grace and beauty of early youth. Thus, instead of the blown, dust-coloured foliage which the pleasure traveller sees in his autumn journey, the winter invalid sees leaves—sombre, it is true, but fresh and beautiful to look at, either from near or from afar. The scantiness of the Olive tree foliage in winter, also, is an advantage. It lets the sun filter pleasantly through, breaking its power without concealing it, and rendering a walk or a lounge in the Olive groves, even in the hot mid-day sun, a pleasant resource.

"The predominance of these Olive groves gives a very peculiar character to the Mentonian amphitheatre and to the Riviera in general—a Scriptural character, if I may so term it. The Olive tree, which is a native of Asia Minor or of Palestine, is the tree of the Holy Land; and is constantly mentioned in Scripture. Thus its presence, as the principal feature of the surrounding vegetation, imparts an Eastern charm to the place, taking the mind back to the Mount of Olives, to Jerusalem, and to the sacred scenes of Holy Writ. We feel that it was in such a land that the events we have read of from our childhood upwards with reverence and interest took place. We feel that we are nearer to these scenes than in our own northern island, and we really understand what it is 'to sit under the Fig tree,' and to walk 'in the Olive grove.'

"The branches of the Olive tree are not numerous; they spring from the trunk near the ground, or rather, the trunk generally divides into two or three branches. The latter extend, at an acute angle, a long distance from the tree, their foliage being terminal, and the wood non-elastic; they are not adapted to bear a heavy burden, for it acts as a weight at the extremity of a long lever. Thus, when snow fell thickly in the rigorous winter of 1864-65, without melting—an unheard-of event—large Olive branches broke off by hundreds, and great loss was thereby entailed on the country. The Olive

FIG. 101.—OLIVE GROVE ON THE CORNICHE ROAD, NEAR MENTONE.

tree flowers in April, and bears every year; but a year of abundance is generally followed by one, or even two, of comparative sterility. It has to be well manured every second or third year, in order to secure its fruitfulness. For this purpose the favourite manure is old woollen and linen rags, which are imported from Italy in boat-loads; and such rags! I verily believe that even our paper manufacturers would scorn them. A trench is dug round the trunk of the tree at some little distance—about 2 feet deep and 3 feet wide. In this trench the rags are placed; they are then soaked with liquid manure and covered up with the earth, a process which no doubt destroys a vast amount of life. Although done by mere routine, this system of 'arboriculture' is chemically judicious. Wool contains nitrogen, like all other animal substances, so that the rags must be, and are, valuable as manure.

"The Olive berry ripens in the autumn, becomes black, and begins to fall off the tree in December and January. Some have the trees at once cleared by beating the branches with long canes. In that case the oil is not so abundant, but is of better quality. Others leave the berries on the trees for one, two, or three months longer, until, indeed, they nearly all fall off. The oil made from these berries is more abundant, but not so good. The Olives are smaller than those which we eat pickled. The latter belong to another variety of the Olive tree, which is principally cultivated in Spain.

"Picking the Olive berries from the ground underneath the trees is quite an occupation with old or infirm women and with young girls. They earn about 16 sous (8*d.*) a day, and their labour contrasts strikingly with that of the strong, ruddy Orange and Lemon girls. Many, no doubt, commence as the latter, strong in youth and health, to end by Olive-picking once the hey-day of life is over. The poor Olive-pickers, clad only in thin cotton dresses, are apt to become rheumatic, from crouching so long over the ground, at times damp from the winter rains. Such, too often, is the contrast between youth and age in the working classes in all countries. The Olives, once gathered, are taken to the Olive mills, where they are crushed, and the oil is extracted. These mills are picturesque buildings, situated in the ravines in order to command water. In some water is used alone, in others combined with horse-power. The Olives are crushed by stone rollers; the pulp is put in stout cylindrical baskets, saturated with hot water, and subjected to great pressure. The water thus squeezed out carries the oil with it to vats, where it floats on the top and is skimmed off. The water, when it has thus done its duty, is of a dark brown colour, and is constantly seen coming down the ravines, colouring the water-course. The Olive oil is often stored in large elegantly-shaped jars, quite large enough to contain a man hidden. On looking into a warehouse and seeing these large jars ranged in rows along the wall, I am always reminded of the Eastern tale of 'Hadji Baba and the Forty Thieves.' These were evidently the identical jars in which the thieves concealed themselves during the night, and were exterminated so cunningly by Morgiana.

"The hard roots and wood of the Olive tree constitute the only fuel used at Mentone, the cooking being principally carried on by means of charcoal, as in France."

For information as to the varieties of Olive grown in this district, and the mode of propagation, see a paper of Mr. Winter's in the *Journal of the Royal Horticultural Society*, vol. iv., 1873, p. 50.

Natural History.

Snakes.—Our list of English snakes (or of what pass under the name in popular parlance) comprises only four kinds—even this limited catalogue including the blind-worm (the Anguis fragilis), which is not really a snake at all, differing materially from the serpent tribe in some points of its structure, and much more nearly approaching that of the lizards.

Of true snakes we have the harmless ringed or grass snake, known also as the water snake or common snake, the Natrix torquata of Ray, Coluber Natrix of the Linnean system, and also the poisonous snake (known equally correctly as the adder), and the viper (although local nomenclature occasionally makes some confusion in its English denomination), the Pelius Berus or Coluber Berus, Linn. We have also the rare and beautiful velvet snake, distinguishable by its black velvet markings; but never having met with this species alive in a state of liberty, I am unable to say anything of its habits from personal observation.

The common snake (N. torquata) is of a brownish-grey, with a green or olive tinge above, and with rows of black spots along the back and sides; beneath of a greenish yellow, with the abdomen of a leaden or bluish colour marked with black, or sometimes with the black almost entirely predominating, an interrupted band of yellow behind the head followed by another band or two spots of black. The head is much depressed in shape, and the tail very tapering. The length is said to be sometimes as much as 4 feet, but, in such specimens as I have taken, the largest did not exceed 39 inches in length, and that of the common adults appeared to be some inches less.

For deposit of the eggs the female prefers a heap of stable litter, a garden hotbed, or some similar mass of decaying material, which may give the warmth requisite for the development of the contained embryo. The eggs are laid in strings, adhering together with a kind of glutinous matter, and may be found in masses containing from about fifteen to twenty, externally of a white parchment-like appearance. These eggs are stated by Bell as being laid a considerable time before the young are hatched. When hatching time draws near, if an opening be carefully made through the parchment-like exterior, the young serpent will be found folded in the contained moisture; a very interesting object to the naturalist, but an unfailing source of intense disgust to those not of a scientific turn. On the dry and sunny spots near their place of exclusion the young snakes may usually be met with plentifully, and fairly good specimens of their cast skins may be obtained by getting a batch of the young creatures just before the time of throwing off the slough, and so securing the delicate pellicle free from injury after the operation.

The best specimens of adult sloughs are usually to be procured from a Gorse bush, or some similar shelter, when the collector is fortunate enough to pass by soon enough after the animal has thrown it off for the skin to be still uninjured, but quite perfect specimens are of rare occurrence.

The period of shedding the cuticle is said by Bell, in his *History of British Reptiles*, to be irregular, depending on many causes, such as the health of the snake or the state of the atmosphere; and he thus describes the operation of withdrawal from the skin and its inversion (*History of British Reptiles*, p. 52):—"I have known the skin shed four or five times during the year. It is always thrown off by reversing it, so that the transparent covering of the eyes, and that of the scales also, are always found concave in the exuviæ. . . . When the skin is ready to be removed, being everywhere detached, and the new skin perfectly hard underneath, the animal bursts it at the neck, and creeping through some dense herbage or low brushwood, leaves it detached, and comes forth in far brighter and clearer colours than before."

To those not deterred from admiration by their aversion, the snake is always (artistically considered) an object of great beauty. To see it in perfection, however, it should be watched, not wriggling away from possible pursuit, but either completely at ease, as basking on a log, or gliding swiftly through the water, or again when excited for self defence, as coiled in a figure of eight with the head raised for attack.

Under common circumstances, I believe the ringed snake is never aggressive: during the many years in which I have observed them I have only met with a single instance in which a specimen endeavoured to fasten on me, and this was in self-defence; if a way of retreat had been open it probably would not have struck, but having been trodden on it fastened to the best of its powers on the toe of my shoe, and though of course not able to penetrate, or make good its hold, I could feel the pressure as the jaws slipped off the impervious material.

The young snakes will allow themselves to be handled, twisting round the finger without show of fear, but at a larger growth conveyance by the tail is commonly preferable. With moderate care this secures the fingers from attack probably, but not certainly. As long as the snake is prevented from turning on itself, it will merely hiss and strike in the air harmlessly; but once let it fold back, and it will rise on itself up to the fingers holding the extremity of the tail, and, in the case of a poisonous snake, would be enabled to inflict a bite which, in the irritated state of the reptile, might be a very serious matter.

During the summer the N. torquata is to be found basking on warm hedge banks, in front of cliffs, amongst grass on the edge of the pools in which it so much delights, or especially in heaps of stable litter. For many years, whenever I needed a specimen, it was usually forthcoming during summer from a heap of litter adjacent to a small pond; on one occasion, a whole clothful of fine adult specimens being promptly produced, and shaken out on the grass plat, and domestic tastes being decidedly averse to their presence in the flower-garden, it cost me some pains to stop the retreat (of course directed severally to each point of the compass) before they effected a lodgment.

In the winter the common snake retires to hybernate in some sheltered spot, and is said sometimes to collect in considerable numbers which pass the cold season coiled together into a mass, but though the district in which I lived abounded with this species I was never fortunate enough to find even a single specimen during hybernation.

The N. torquata in its natural state feeds most miscellaneously—birds and eggs, frogs, lizards and small quadrupeds all suiting its appetite; and its capability of swallowing, from the characteristic serpentine construction of the jaws—which, having the bones only connected by ligaments and a power of acting independently on the two different sides—thus possess the dilatability and power of gradual absorption of large bodies so striking in the serpent tribe. In captivity it is said to be easily tamed, and even to recognise and show a kind of affection for its owner, and as an article of diet to have a special predilection for milk, but the horrible and lasting odour which it emits under provocation or fear is a decided objection to it as a domestic favourite.

The poisonous snake known commonly as the viper or adder, scientifically as the Pelius Berus or Coluber Berus, Linn., is generally distinguishable from the N. torquata by its smaller size, browner or yellower colouring, and also and most especially by the dark zig-zag line running the whole length of the body and tail.

The ground colour is variable, usually of some reddish brown or olive colour, but it is to be found of a bright ferruginous tint, and also of a rich black, these forming the varieties known as the red and black viper; and another variety is also mentioned by Mr. Bell, in which the ground was white and the markings deep black of the solitary specimen he was fortunate enough to secure. In a district where vipers were rather plentiful, I was told by a person who had studied the subject with a good deal of care that the variations in colour were local. The common tint was the distinctive brown, but we had reddish and blackish vipers also; these varieties (as he informed me, and I believe correctly) frequenting particular spots.

(*To be continued.*)

Forestry.

Notes on Indian Forest Produce.—Having devoted the two previous papers to the consideration of the uses and distribution of Deodar, Sal and Teak, together with some of the larger forest trees with which they are mostly associated as inhabitants of the same forests, we propose in this concluding paper to notice some other trees valuable either for their timber or other economic products. Thus the Walnut (Juglans regia), so well known in England and other parts of Europe as producing a dark-coloured, strong, and durable wood and a sweet edible nut, grows wild in the forests of North-west Himalaya, Kashmir, Kumaon, and Nepal. In the forests of Sikkim Himalaya it ascends the mountain slopes to an elevation of from 4000 to 7000 feet. It is cultivated in many parts for the sake of its wood as well as for its fruits. In its wild state it has a very hard shell and a small kernel, but in its cultivated forms, in which there are several varieties known in India, the shell becomes much thinner and the kernel more fully developed. In the districts where the tree is more generally cultivated the nuts form an extensive article of food, and they are also exported to other parts of India. The wood is very durable, and is valued for furniture as well as for gun-stocks—uses to which the wood is applied in England. Before the introduction of Mahogany into Europe Walnut was the most valuable of all the cabinet or furniture woods; at the present time the burrs or knots, which when cut through present a splendid dark and bold figuring, are used for choice articles of furniture, and the plain wood chiefly for gun-stocks, on account of its combined lightness and toughness. The Indian trees, it is stated, "seldom produce the beautifully variegated wood so much valued in cabinet-making at home."

The Olive, Olea cuspidata of Wall, has been considered by some Indian botanists to be identical with Olea europæa, L., but Dr. Brandis, in his *Forest Flora*, distinguishes it by its more lax inflorescence, the deep glossy green of the upper side, and the red of the under side, of the leaves, the smaller fruit, absence of spines, together with other characters, as well as the general difference in the appearance of the trees. The Indian Olive sometimes grows to a good-sized tree, and produces a hard, heavy wood, with a beautifully mottled dark brown heartwood and yellowish sapwood. It is used for making small boxes and combs as well as for agricultural implements and sometimes for boat building. The straight shoots are used for walking-sticks. Like the European species the pericarp of the fruit contains a quantity of oil but the fruit itself seldom grows to a size sufficient to qualify it as an edible fruit. A species of Pistacia (P. integerrima, known as the "Rakkar" or "Rangar") is said to produce a most beautiful wood like Zebra-wood, with a yellowish ground and black or brown wavy bands and streaks. The tree has received but little attention with regard to its cultivation; "it grows to a large size in the lower hills, especially in valleys and over cultivated lands, where it is often observed cruelly mutilated."

The Mango (Mangifera indica), an Anacardiaceous tree, so largely cultivated in India, Brazil, the Mauritius, and other tropical countries for the sake of its fruit, is cultivated to a very great extent in India, where numerous varieties are known producing fruits varying in form and size as well as in flavour. These fruits are largely used for food in their fresh state, and also for pickling and in the manufacture of chutnee. The wood likewise, which is somewhat porous and light coloured when fresh, turning brown with age is extensively used for various purposes. It is, however, liable to the attacks of insects. Amongst the furniture woods of Assam are Artocarpus chaplasha, a very large timber tree, the wood of which is of a

brownish mahogany colour, used likewise for canoes; Lagerstrœmia reginæ, a magnificent tree, producing a strong, dark red wood, known as Tarool; Mesua ferrea, a fine guttiferous hard-wooded tree, with fragrant flowers, which are commonly used as a perfume; Cedrela toona, a well-known Indian tree, with a mahogany-like wood and an astringent bark; and Michelia champaca, previously described.

In Chittagong the most valuable furniture wood is that produced by Chickrassia tabularis, known as Chittagong wood—a beautiful wood, often varied and mottled, and of a light red colour. It is largely used for furniture, but is apt to warp and crack with changes of temperature. Of the genus Diospyros, several species of which yield valuable woods, D. ebenum, D. melanoxylon, and D. Ebenaster are the chief. They are large, hard-wooded trees, the first-named of which yields the best ebony of commerce. It grows to a large size in South India and Ceylon. The Satin-wood (Chloroxylon Swietenia) is a tree some 50 or 60 feet in height, growing in Ceylon, on the Coromandel coast, as well as in other parts of India. In Madras it is found in the mountainous districts, but does not in this situation attain to its full size, planks of 10 to 15 inches only being obtainable. It flourishes best in Ceylon, where it forms perhaps the finest forest tree in the island, and where its beautiful and well known wood is used for numerous purposes, even for planking and building. A single-arch bridge of 205 feet span is described as existing in Ceylon, made principally of satin-wood.

The Jack (Artocarpus integrifolia), a large tree, found in large forests in various parts of India, Burma, and in the Malay Archipelago, and often cultivated for the sake of its fruit, which is eaten as an article of food, as are also the seeds after being roasted, gives a wood which when first cut is of a yellow colour, turning brown with age. It is equal in appearance to some kinds of mahogany, but is apt to warp and crack unless it is well seasoned. Its uses are chiefly for carpentry, turning and furniture. Pterocarpus santalinus furnishes a beautiful red wood, used both for cabinet-work and as a dye-wood. It is imported into this country chiefly for the latter purpose, under the name of Red Sanders wood. "It is found in the Naggary Hills west of Madras, in Travancore, and in Canara, also in Mysore. It takes a beautiful polish, but is chiefly sold by weight as a dye-wood; it yields its colour to alcohol, but not to water."

The best Indian furniture woods by far are the species of Dalbergia, and the most valuable of these species is Dalbergia latifolia, which furnishes the Black-wood of Bombay. In the Central Provinces "the Black-wood grows along the ghats, and to some extent in the eastern portions of the Presidency; also in Canara. In the districts where it especially abounds it attains a girth of 15 feet." The wood is very strong and heavy, of a black or greenish black colour, sometimes beautifully mottled or veined; its value, however, is sometimes marred by a deposit of earthy matter in the very centre of the wood. In some situations the trees grow to such a size that planks 4 feet wide are obtainable, and this after the sapwood has been trimmed off. The next perhaps in value to the Black-wood is the Sissoo (D. Sissoo), a quick-growing tree, "abounding principally in Bengal, and the provinces as far north as the Punjab. The wood is very strong, of a dark brown colour, but not equal in appearance to Black-wood. It is used for ship and house building as well as for furniture."

Besides the forests considered with especial reference to the value of their trees for manufacturing purposes are others called "fuel forests," in which the timber is used almost entirely for burning. In the Central Provinces, Bombay, Berar, Madras, Mysore, and Burma, "all the inferior woods, that are not specially protected, are cut and used for the fuel supply. But even in the thickly wooded provinces provision has to be made for projected lines of railway, and in Burma fuel reserves have, with wise forethought, been set apart along the Prome road. Even in India, which a superficial observer deems to be one vast extent of jungle, the regular demand for fuel of any organised steam service soon makes itself felt. The Irrawaddy steamers have required large supplies of wood, and already tracts of 'Eng' (Dipterocarpus) near the river in the Prome district have become denuded, and the fuel stacked in 1873 consisted of wretched billets of thin saplings. Acacia Catechu, the valuable wood that yields the catechu of commerce, was ruthlessly cut for this purpose." Among other trees, the woods of which are commonly used for fuel, are Salvadora oleoides, Butea frondosa, Acacia leucophlæa, Populus euphratica, Prosopis spicigera, and others. P. euphratica is a large glabrous tree, sometimes growing to a height of 60 feet and a girth of from 8 to 10 feet; the wood is of a light colour usually, but the heartwood sometimes turns dark in old trees; in some parts of India it is used in house building and carpentry work, such as for beams, rafters, and pannelling. In Sind it is used for making small boxes which are afterwards covered with lacquer. As a fuel it is used chiefly for domestic purposes, the heating power not being sufficiently great to recommend its use in the river steamers. Prosopis spicigera forms pure forests of considerable extent in Sind, the trees often rising to 40 or 50 feet in height, with stems 6 feet in girth. "It drives far down into the subsoil a deep, strong root, rendering it almost impossible to eradicate the species in spite of greedy contractors, who, eager to make the utmost profit often dig out the roots of the fuel trees." As a proof of the depth to which the roots of these trees descend, it is stated that an officer of the Punjab plantations made an experimental digging to ascertain the length of the tap-root, and after having reached a depth of 69 feet without finding the extremity, he abandoned the search. It will be readily understood that in a country so vast as India the trees we have mentioned are only a tithe of those the timber of which is used for the various purposes referred to. With regard to other products, such as gums, resins, fibres, dyes, &c., in some provinces they are of much greater value than in others. In the extreme north the value of these minor products, as they are called, is comparatively insignificant. "The Himalayas could yield large supplies of resin, but the difficulty and cost of transport to the plains have hitherto prevented anything being done in this direction. The Punjab has hardly anything worth speaking of; gum from the Acacia arabica, Odina, and other trees is collected for local use. A little lac is collected in some districts, but quite inferior to that of Central and Southern India."

"Soda, as obtained from the waste lands by burning the plants of the Salsolaceæ order, can hardly be called forest produce. An inferior cochineal was formerly found in the Jullunder district, where it caused the complete extirpation of a species of Prickly Pear (Opuntia), which had threatened to overrun the cultivated lands. The insect has disappeared with the plant on which it fed." These minor forest products yield a large revenue in the sub-Himalayan and Himalayan forests, especially in the districts of Kumaon and Garwhal. A system of revenue has been established in these places with marked success, the collection of all sorts of articles of minor produce is allowed, while at the same time all destructive processes, such as the felling of large trees, lopping for resin, &c., are prohibited. Any one may collect these products, "but the forests are so situated that when the exporter leaves the place he must pass by certain routes on which toll-houses are established, and at these his collection is overhauled, and made to pay certain seigniorage rates, according to a fixed and published scale." Amongst the produce so collected are solid and hollow Bamboo stems, used for walking-sticks, pipes, boxes, &c.; Eriophorum cannabinum, used for ropes; various kinds of reeds used for matting and for thatching houses; also the numerous gums, such as those from Odina wodier, Pterygosperma, &c.; the resins of the Sal and other plants, the fruits of Feronia elephantum, the Chiretta (Ophelia chiretta), a Gentianaceous plant, used as a febrifuge and tonic, which, by the way, is becoming more and more in repute in this country; Myrobalans, the fruits of Terminalia Chebula and T. Bellerica, largely imported for tanning purposes; kamala, the red powder obtained from the capsules of Rottlera tinctoria, and used both as a dye and as a vermifuge. [?]

(*To be continued.*)

Notices of Books.

The Flora Sylvatica of Southern India. By Lieutenant-Colonel Beddome, Conservator of Forests, Madras. 1869-73.

Nothing perhaps indicates so clearly the growing importance of forest literature as the almost simultaneous appearance of two illustrated works of great value on the trees of India. In a recent issue we noticed Dr. Brandis' *Forest Flora of Northern and Central India*, we now take up the *Flora Sylvatica of Southern India*, lately completed by Colonel Beddome, now in England on furlough, and published in Madras, under the auspices of Government. This important work, unlike the compact manual of Dr. Brandis, forms three quarto volumes. The illustrations, which are very numerous, are of the same size as Wight's *Icones Plantarum Indiæ Orientalis*, and have been executed by the same native draughtsman, Govindu, or his son. There are also a large number of smaller plates, giving an analysis of as many genera of shrubs or less important trees not figured in the larger plates.

When Dr. Wight undertook the publication of botanical works in India he encountered extraordinary difficulties in carrying them through the press, which would have damped the ardour of most men. Printing and lithography are now much improved in Madras, but we must bear in mind, in looking through Colonel Beddome's work, that such facilities for publication as are to be found in this country do not exist in our great Eastern dominion, and we therefore withhold our criticism on the typography and style of the volume.

The *Flora Sylvatica* contains a figure of every important tree of Southern India, and includes many new to science, and at least one species of every different genus. A few plates in the first seven *fasciculi* have been reproduced from Dr. Wight's *Icones*, but most of the drawings have been executed from living specimens, and there is a marked improvement in the style of the later delineations. The collection of the materials was a task of great labour and often of great risk, many of the specimens being found in very unhealthy localities. The volumes may be said to embody the notes and experience of eighteen years' research, the author having been appointed Dr. Cleghorn's assistant in 1856, and having succeeded him as Conservator in 1868, while the analytical descriptions and the letterpress of the work have occupied Colonel Beddome's time for the last five years, to the exclusion of every other pursuit except his regular official work. It is indeed surprising that he should have accomplished so much while occupied with administrative and inspecting duties.

It may occur to some that, prepared as it is specially for the use of officers in the Madras Forest Department, the work is too bulky, and that it need not have included the trees of Ceylon; so many of these, however, have been found by Colonel Beddome in the southern ghats of the Madras Presidency, that few arborescent genera of Ceylon are wanting there, and the great similarity of the floras has been proved by the recent investigations of our author and Mr. Thwaites, traces of whose work we find in the *Flora Sylvatica*.

The European forester has to deal with comparatively few trees, and books yielding trustworthy information on all of these are readily procured. The forester in India, on the contrary, has to do with perhaps a couple of hundred trees and shrubs yielding timber and various minor products, as dyes, fibres, oils, gums, &c., but he has been without the means of finding out the value of the products around him, except by the purchase of costly and rare books. His forest range may be in great part uninhabited, and even in well peopled districts only partial information is to be obtained—products which are collected and give profitable returns in one range being unknown or wholly neglected in others, as, for example, the Catechu and the Sappan. Again, the Gmelina arborea, which occurs in almost all the forests of South India, is appreciated as yielding valuable timber in one or two districts, but is supposed to be of little or no value in others. Many such instances might be given. It is to supply general information on such subjects that Colonel Beddome has prepared the *Flora Sylvatica* for the officers of his department, and we hope the publication of this work by the Madras Government is only one step towards a more systematic training in the profession of Indian forestry.

The plates will be useful, not only to forest officers but also to botanists, and we observe that they are quoted by Dr. Hooker in his *Flora of British India*, and by Dr. Brandis in the *Forest Flora of Northern and Central India*. We understand that it is proposed to reprint the letterpress or *Foresters' Manual* hereafter, when further information from the various ranges has been collated and sifted. The addition of such technical items as the specific gravity of the woods, the properties of the various timbers, &c., will greatly increase its value.

—— The plates in the October number of the *Botanical Magazine* are devoted to the following species:—Tacca artocarpifolia, a curious plant, closely allied to Ataccia cristata, which is occasionally shown at our exhibitions, where it always attracts the attention of the curious; Pogonia discolor, a terrestrial Orchid with tuberous roots, and a solitary leaf of a dark green colour above, and mottled with lighter spots, and traversed by reddish yellow nerves, the under surface is of a dull vinous purple; Lilium maculatum has been recently illustrated in our own columns, as has also Citrus japonica, the Kum Quat; Scorzonera undulata, brought from Algeria by Mr. Maw, has rosy purple flowers.

—— The last number of the *Belgique Horticole* contains a list of the Tacsonias cultivated in gardens, together with a coloured figure of T. insignis copied from that in the *Florist*; some notes on the botanical geography of Brazil, by M. Liais; supplementary note on Masdevallias; note, with coloured figure, on Oncidium Kramerianum (Hort.); a similar notice of Tillandsia Jonghei, a handsome yellow-flowered species from Brazil; &c. A large amount of interesting matter is also gathered together in this useful and well-conducted periodical.

—— Messrs. Flückinger of Strasburg and Daniel Hanbury have just issued, under the title *Pharmacographia*, a history of the principal drugs of vegetable origin—a work which we can see at a glance is of first-rate importance, and to which we shall take an early opportunity of adverting. Messrs. Macmillan & Co. are the publishers.

SALES BY AUCTION.

Tottenham, N.

IMPORTANT SALE of FIRST-CLASS NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Thomas Ware to SELL by AUCTION, on the Premises, the Hale Farm Nurseries, adjoining the Tottenham Station, Middlesex, and accessible from the City in twenty-five minutes, on MONDAY and TUESDAY, October 19 and 20, at 11 for 12 o'Clock precisely each day, a large quantity of particularly well-grown NURSERY STOCK, consisting of a rich assortment of Evergreen Coniferæ and Deciduous Shrubs, including 4000 Aucuba japonica, 1 to 3½ feet; large quantities of Box, Cupressus, Euonymus, Variegated and Green Hollies, Junipers, Bays, Arbutus, Portugal and common Laurels, choice Rhododendrons, Thujas of sorts, Thujopsis, English Yews, 2 to 4 feet; also a fine Collection of Standard Ornamental Trees; 6000 of the cleanest grown Fruit Trees in the Trade, including Standard, Pyramid, and Dwarf-trained Apples, Pears, Plums, and Cherries, Dwarf-trained Peaches, Nectarines and Apricots; 7000 strong Seakale; together with 5000 Standard and Dwarf Roses of unparalleled growth, lotted to suit the Trade as well as private buyers.

Now on view. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Sunningdale, Surrey.

HIGHLY IMPORTANT and EXTENSIVE SALE of NURSERY STOCK, beautifully grown, and in the finest condition for transplanting.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. Charles Noble, to SELL by AUCTION, on the Premises, the Sunningdale Nursery, close to the Sunningdale Railway Station, South-Western Railway, on MONDAY, October 19, and eight following days, at 11 for 12 o'Clock each day, without reserve, the Lease of a great portion of the Nursery having expired, necessitating an immediate clearance of an immense quantity of beautifully grown NURSERY STOCK, including a great number of magnificent Specimen Coniferæ and Evergreens, such as Cupressus Lawsoniana, Green and Variegated Hollies, Thujas, Retinosporas, Junipers, Piceas, Wellingtonias, Thujopsis; 100,000 Cupressus Lawsoniana, 1 to 10 feet; 75,000 Cupressus Lawsoniana nana, 6 to 24 inches; 20,000 Pinus austriaca and Laricio, 1½ to 8 feet; 10,000 Picea Nordmanniana, 1 to 10 feet; 10,000 Arbor-vitæ, americana, and Warreana, 2 to 8 feet; 5000 Juniperus chinensis, 1 to 2½ feet; 10,000 Retinospora ericoides, 1 to 4 feet; 10,000 R. pisifera and obtusa, 2 to 8 feet; 5000 R. aurea and plumosa, 6 to 18 inches; 5000 Cupressus Lawsoniana viridis, 3000 Picea nobilis, 3000 Wellingtonia gigantea, 1 to 2½ feet; 5000 Thujopsis borealis, 1 to 6 feet; 5000 Picea Pinsapo, 1 to 4 feet; 3000 Cryptomeria elegans, 1 to 2½ feet; 75,000 Thujopsis dolabrata, 6 to 24 inches; 50,000 Retinospora leptoclada, 10,000 Thuja Lobbii, 2 to 10 feet; 100,000 Laurels, 1 to 4 feet, fine bushy plants, consisting of the Colchic and common varieties: 100,000 Mahonia Aquifolia, 9 to 24 inches; 50,000 common Hollies, 1 to 2 feet; 10,000 Privet, oval-leaved and common; 10,000 White Broom, 1 to 6 feet; 5000 Skimmia japonica, 9 to 18 inches; 3000 Yucca filamentosa; 50,000 Portugal Laurels, 1 to 2½ feet; 20,000 Berberis Darwinii, 1 to 4 feet; 10,000 Spruce Firs, 2 to 8 feet; 5000 fancy and variegated Hollies, 1 to 6 feet; 3000 Aucuba japonica vera, 9 to 18 inches; 75,000 Rhododendrons, 1 to 4 feet, consisting of hybrid seedling Catawbiense, californicum, pontica, and best named varieties, and numerous other American Plants; 50,000 Deciduous Flowering Shrubs, 2 to 6 feet; 30,000 Spiræa japonica, 5000 Deutzia crenata flore-pleno, 3 to 6 feet; 5000 Sweet Briars, 50,000 Ornamental Trees, including 3000 Common and Purple Beech, 6 to 8 feet; 10,000 Birch, 6 to 12 feet; 20,000 Spanish Chestnuts, 1 to 8 feet; 10,000 Horse Chestnuts, 2 to 8 feet; 10,000 Clematis of sorts; 5000 Green and Variegated Ivies, 10,000 Fruit Trees, including Standard and Pyramid Apples, Plums, and Pears of the finest known kinds; 150,000 3-yr. Quick.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, Valuers, and Estate Agents, 98, Gracechurch Street, City, E.C., and at Leytonstone, Essex, E.

N.B.—The Railway communication is so complete that goods may be transmitted from Sunningdale Station to any part of England, Scotland, and Wales without change of truck.

Tooting, S.W.

IMPORTANT SALE of THRIVING NURSERY STOCK, in fine condition for removal.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. R. Parker to SELL by AUCTION, without reserve, on the Premises, the Exotic Nursery, Tooting, Surrey, on MONDAY, October 26, and two following days, at 11 for 12 o'Clock precisely each day, a large quantity of extra NURSERY STOCK, remarkably well grown, and in excellent condition for removal, comprising 7000 choice Evergreen and Coniferous Shrubs, in specimen borders, admirably adapted for effective planting; also a great number of handsome specimen Coniferæ, beautifully grown and symmetrically formed; large quantities of fine Spruce Firs, 2 to 6 feet; Thuja aurea, fine for potting; Caucasian and common Laurels, Thujas of sorts, bushy Arbutus, Yews, large Pinus, 500 bushy Pontica and hybrid Rhododendrons, well set with bloom-buds; a splendid assortment of Ornamental and Forest Trees, including several fine Acacia inermis and Variegated Acers, Scarlet and Horse Chestnuts, &c.; 500 Standard and Dwarf Roses, fine clean grown Fruit Trees, in bearing condition; Hardy Climbers and Herbaceous Plants in pots. Stone Paving, Pebbles, &c.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Brixton, S.W.

IMPORTANT SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Ponsford & Son to SELL by AUCTION without reserve, on the Premises, The Nursery, Loughborough Park, Brixton, Surrey, on THURSDAY and FRIDAY, October 29 and 30, at 11 for 12 o'Clock precisely each day, a large quantity of valuable NURSERY STOCK, particularly adapted for planting in the London suburbs, comprising 3250 fine bushy Aucubus, 1 to 4 ft.; 3000 Green and Variegated Euonymus, 2000 Ligustrums, 1000 Box, 1 to 4 ft.; large quantities of Arbor-vitæ, Green and Variegated Hollies, 1000 choice named and hybrid Rhododendrons, Thuia semperaurescens, elegantissima and aurea; also 1500 Mulberry trees, some of which are fine specimens; 6000 fine Limes and Poplars, 500 extra size specimen Limes, also a great number of specimen Shrubs and Trees in borders, fine Espalier and Standard Fruit Trees, the whole of which have recently been transplanted; 500 Hardy Climbing Plants in pots, Box edging, &c.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers.

Dorchester.

HIGHLY IMPORTANT CLEARANCE of the WOLVERTON GARDENS' COLLECTION of SPECIMEN and HALF-SPECIMEN PLANTS, together with SEVEN GREENHOUSES, HOT-WATER PIPING, BOILERS, &c.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from W. H. P. Weston, Esq., to SELL by AUCTION, without reserve, on the Premises, the Wolverton Gardens, near Dorchester, Dorset, on THURSDAY and FRIDAY, October 22 and 23, at 11 for 12 o'Clock precisely each day, the whole of the beautiful COLLECTION of STOVE and GREENHOUSE PLANTS, containing a great number of particularly well-grown Exhibition Specimens and numerous Half-Specimens in the highest state of cultivation, including Alocasia Lowii, 4 feet by 4 feet; Anthurium Scherzerianum, Allamandas, Lasiandra floribunda, 3 feet by 2 feet; Musas, Dracænas, Crotons, Stephanotis, Eucharis, Agaves, Beaucarnea, Araucaria, Yuccas, Acacias, and others; also a large quantity of handsome PALMS, including Areca Verschaffeltii, 6 feet by 6 feet; A. lutescens, 5 feet; Chamædorea elegans, 6 feet; C. angusta, 4 feet by 4 feet; Calamus Vershafteltii, 4 feet by 4 feet, &c.; likewise a choice assortment of Specimen EXOTIC FERNS, among which will be found a magnificent pair of Davallia elegans, 5 feet high; Adiantum Farleyense, A. scutum, 4 feet through; Gymnogrammas of sorts, and others; 200 matchless Specimen ROSES in pots, 2½ by 5 feet high, by 2½ by 5 feet through, skilfully trained, and comprising the best varieties in cultivation; also a large number of Half-specimen do.; together with Seven well-built GREENHOUSES, measuring 90 feet, 72 feet, 60 feet, 47 feet, 46 feet, 25 feet, and 22 feet respectively in length, and varying from 11 feet to 23 feet in width; also several thousand feet of HOT-WATER PIPING, Two Weeks' large-sized TUBULAR BOILERS, with fittings complete; Garden Pumps, Rustic Chairs, Vases and Implements, Hay Ricks, Carts, and numerous other effects.

May be viewed two days prior to the Sale. Catalogues may be had on the Premises, of Mr. THOMAS EAST; and of the Auctioneers, Estate Agents, and Valuers, 98, Gracechurch Street, London, E.C., and Leytonstone, Essex, E.

N.B.—The Glass Erections will be included in the Second Day's Sale.

Stoke Newington, N.

CLEARANCE SALE of NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Albion Nursery, Albion Road, Stoke Newington, N., on SATURDAY, October 31, at 11 for 12 o'Clock precisely, by order of Mr. J. Kirtland, without reserve, the land having been sold for building purposes, the whole of the valuable NURSERY STOCK, consisting of Evergreen and Coniferæ Shrubs, including Aucubas, Laurels, Hollies, Chinese Arbor-vitæ, Cedars, Magnolias, Laurustinus, Andromedas, Ribes, &c.; Ornamental and Forest Trees, including 1000 Limes, 3 to 8 feet; fine Chesnuts, &c.; together with 600 fine Fruit Trees; 500 Standard, Dwarf, and Climbing Roses, in all the leading varieties; Hardy Plants in pots, and several choice Border Shrubs.

May be viewed the day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers.

Tunbridge Wells.—Nov. 2 and 3.

Without Reserve. Thirty Acres of Land must be Cleared.

GOLDSMITH PARK NURSERIES, GROOMBRIDGE, TUNBRIDGE WELLS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Edwin Hollamby to SELL by AUCTION, without reserve, on the Premises, as above, many thousands of beautifully grown specimens of WELLINGTONIA GIGANTEA, THUJOPSIS BOREALIS, THUJA GIGANTEA, CUPRESSUS LAWSONIANA, THUJA AUREA, RHODODENDRONS, 3 to 5 feet, well set with bloom; Hardy Ornamental TREES and SHRUBS, Standard and Dwarf ROSES (the whole having been recently transplanted would produce an immediate effect), &c., too numerous to name. The Nurseries are situate within five minutes' walk of Groombridge Station.

Plants carefully packed and forwarded to all parts of the world.

Descriptive Catalogues may be had by post, or at the Nurseries, and at the Parade, Tunbridge Wells.

Wandsworth Common, S.W.

Eight days' Unreserved Sale of beautifully-grown Nursery Stock.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. R. Neal & Son to SELL by AUCTION, on the Premises, The Nursery, Wandsworth Common, Surrey, S.W., on MONDAY, November 2, and seven following days, at 12 o'Clock each day, without reserve, a portion of the land being immediately required for building purposes, an unusually large quantity of well-grown NURSERY STOCK, consisting of a very extensive and particularly useful assortment of Evergreen and Coniferæ Shrubs of luxuriant growth and in fine condition, great quantities of Ornamental Trees, 10,000 fine Fruit Trees, thousands of Deciduous Shrubs, 5000 Roses, Climbers, and other hardy plants in pots.

More detailed particulars will appear next week.

Preliminary Notice of

FORTHCOMING SALES, by PROTHEROE AND MORRIS.

NOVEMBER 11.—EAST DOWN NURSERY, Lewisham, S.E. By order of Mr. B. Maller. A quantity of well-selected Nursery Stock.

NOVEMBER 12 and 13.—HORNSEY, Middlesex, Mr. Cleall's Nursery. Clearance Sale of General Nursery Stock, the New River Company requiring the land to be immediately cleared for the construction of their new works.

NOVEMBER 16.—WHITCHURCH RECTORY, Edgware. By order of the Rev. J. B. Norman. A choice assortment of Coniferæ, Evergreens, Fruit Trees, and Roses.

NOVEMBER 16, 17, and 18.—THE NURSERIES, Loughton. By order of Mr. W. Paul. Many thousands of Coniferæ and Evergreen Shrubs, Fruit and Ornamental Trees, Roses, &c., in fine condition.

Catalogues of the above Sales may be had (when ready) on application to Messrs. PROTHEROE AND MORRIS, Auctioneers, Estate Agents and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Stanstead Park Nurseries, Forest Hill.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Downie, Laird & Laing to prepare for SALE, about the middle of NOVEMBER NEXT, a fine assortment of INDOOR and HARDY NURSERY STOCK, particulars of which will shortly appear.

Tunbridge Wells.

GREAT CLEARANCE SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. E. Hollamby, to SELL by AUCTION, without reserve, on the Premises, Goldsmith Park Nursery, Groombridge, Tunbridge Wells, on MONDAY, November 2, and two following days, many thousands of beautiful specimen CONIFERS and SHRUBS; great quantities of smaller stuff, adapted for the Trade and other large buyers; fine Ornamental Trees, American Plants, Roses, &c.

Full particulars will shortly appear.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, October 20, at half-past 12 o'Clock precisely, Partridge COCHINS, from Mr. Tudman; Coloured DORKINGS, from Mr. Fraser; Game BANTAMS, from Mr. Franklyn; CARRIERS, from Colonel Hassard and Mr. E. Walker; JACOBINS and TURBITS, from Mr. Harper; and a great variety of other choice POULTRY and PIGEONS, from the yards and lofts of well-known breeders and others.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 22, at half-past 12 o'Clock precisely, a COLLECTION of ESTABLISHED ORCHIDS, including many choice and rare species, and the following:—

Angræcum sesquipedale	Masdevallia polysticta
Cattleya exoniensis	,, Veitchii
,, Mendelii	,, Wagneriana
,, atrata	,, Harryana
,, aurea	,, Livingstoni
,, gigas	Dendrobium lasioglossum
,, Dowiana	Oncidium sarcodes
,, Schilleriana Regnelli	,, macranthum hastiferum
Lælia elegans	,, cheirophorum
,, marginata	Odontoglossum Rossii
Cypripedium niveum	,, Alexandræ
,, pardinum	,, angustatum
Pescatorea cerina	,, sceptrum
,, Wallisii	Phalænopsis Schilleriana

On view the morning of Sale, and Catalogues had.

New Oncidiums.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 22, at half-past 12 o'Clock precisely, a fine importation from the United States of Columbia of three NEW and HANDSOME FLOWERED ONCIDIUMS, viz., O. Balderramæ, O. tetracopis, and O. plagianthum. These new Oncidiums all belong to the large-flowered section, and have been named and described by Professor Reichenbach.

On view the morning of Sale, and Catalogues had.

Epidendrum vitellinum majus.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 22, at half-past 12 o'Clock precisely, a large importation of EPIDENDRUM VITELLINUM MAJUS from Mexico, in excellent condition, and breaking freely into growth.

On view the morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, October 22, at half-past 12, in masses of CYPRIPEDIUM SPECTABILE, and about 100 SARRACENIA PURPUREA, just arrived from America in splendid condition.

On view the morning of Sale, and Catalogues had.

Promenade Gardens, Malvern.

IMPORTANT NOTICE to INTENDING PLANTERS.

MESSRS. LYTHALL AND CLARKE are instructed by Mr. R. H. Vertegans, proprietor of the extensive Nursery Grounds, to SELL by AUCTION, in the Gardens, as above, on MONDAY, October 19, and following day, at 11 for 12 o'Clock precisely, a quantity of unusually fine specimen CONIFERS, comprising splendid Cedars, Deodara, Cupressus Lawsoniana and macrocarpa, Abies Nordmanniana, Pinus insignis, Chinese Juniper, Thuja Warreana and Lobbii, Chinese Arbor-vitæ, Arbutus, English and Yews, Portugal, Colchicum, and common Laurel, Phillyrea, Gold and Silver Hollies, Laurustinus; choice ROSES, in quantities of TREES and SHRUBS of fine growth, for producing an immediate effect. Every specimen has been carefully prepared for removal.

Catalogues may be had on application to Mr. VERTEGANS, Promenade Gardens, Malvern, and Chad Valley Nurseries, Edgbaston; or of the Auctioneers, the Midland Counties Repository, Birmingham.

Sunningdale Nursery.

THE GREAT SALE at the SUNNINGDALE NURSERY, which commences on MONDAY, October 19, extends over NINE days. It embraces upwards of 3000 Lots of SHRUBS, TREES, &c.; the stock is unrivalled, and in addition to the fine specimens an entirely new feature is presented in specially selected Avenues of various Trees—Limes, Poplars, Acacias, Abies Nordmanniana, Douglasii, Cupressus Lawsoniana, Thujopsis dolabrata and borealis, and other trees too numerous to mention.

(For Continuation of Sales by Auction see p. 306.)

The Gardeners' Royal Benevolent Institution.

NOTICE IS HEREBY GIVEN that in ADDITION to the LIST of PENSIONERS which will be made in JANUARY NEXT. All persons desirous of becoming Candidates are required to send in their Certificates and Testimonials to the Committee on or before NOVEMBER 7 NEXT, after which day they will not be received. Preference will be given to those applicants, or their Widows, who have been Subscribers for fifteen years and upwards; should there not be enough of that class, then the claims of those who have not so subscribed will be considered.

By Order, EDW. R. CUTLER, Secretary.

14, Tavistock Row, London, W.C.—October 7.

Printed Forms may be obtained upon application to the Secretary.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6d. each), on tinted paper, may be had on application to the Publisher, viz. :—

Dr. Hooker, C.B., Pres. R.S.
W. Wilson Saunders, F.R.S.
Rev. M. J. Berkeley, F.L.S.
M. Decaisne.
G. F. Wilson, F.R.S.
Dr. Moore, of Glasnevin.
Professor Reichenbach.
Rev. S. R. Hole, M.A.
E. J. Lowe, F.R.S.
James McNab.
Robert Hogg, LL.D.
Dr. Regel.
James Bateman, F.R.S.
Berthold Seemann, Ph.D.
Archibald F. Barron.
Hon. Marshall P. Wilder.
John Gibson.
Professor Asa Gray.
I. Anderson-Henry.
Professor Karl Koch.
Baron von Mueller.
John Smith (Kew).
Professor Westwood
Dr. Thwaites.
Professor Parlatore.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W.C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. for 12 months, including postage to—
Australia, Belgium, Canada, France, Jamaica, New Zealand, West Indies, United States

£1 10s. 4d. for 12 months, including postage to—
Austria, China, Holland, India, Portugal, Prussia, Spain, Switzerland

£1 14s. 8d. for 12 months, including postage to—
Russia, Italy, Denmark

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 17, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Oct. 19	Sale of Trees (nine days), Shrubs, and Selected Avenue Trees, at Sunningdale. Sale of 800 lots of Dutch Bulbs, at Stevens' Rooms.
Tuesday,	Oct. 20	Sale of 300 Pens of Poultry and Pigeons, at Stevens' Rooms.
Wednesday,	Oct. 21	Sale of Camellias, Azaleas, and Palms, from Ghent, at Stevens' Rooms.
Thursday,	Oct. 22	Sale of Imported Orchids, Pitcher-plants, &c., at Stevens' Rooms. Clearance Sale of Plants, &c., at Wolverton Gardens, Dorchester.
Saturday,	Oct. 24	Sale of Dutch Bulbs, at Stevens' Rooms.

WE do not wish to be considered alarmists, yet we should fail in our duty if we did not point out, so far as we are able, those departments of PRACTICAL or SCIENTIFIC HORTICULTURE in which we are likely to fall behindhand. Again and again we have called attention to what French, Belgians, Germans, and Americans are doing in the way of educating the coming race of gardeners, while we are doing nothing, save in a very desultory incomplete manner. Some results of this we alluded to recently in a leading article, where the difficulty of finding skilled hands to do the ordinary work of the garden was alluded to. The *Labourers' Union Chronicle* seized on this article for its own purposes, and put a meaning to it which we did not intend. Our contemporary properly enough, from its point of view, looked on the matter as an affair of "wages." This is a consideration we have never forgotten, and we look back with some satisfaction to the course we have always advocated in this journal of improving in all ways the material welfare of the gardener, and we believe the efforts of Mr. D. T. FISH, in our columns and elsewhere, have been, to a large extent, instrumental in bringing about a better state of things than once existed. But, unless brains be forthcoming, the addition of a few shillings a week to the gardeners' wages will be of little moment. The older race of gardeners raised themselves by continuous application, perseverance, and study; their wages and their material comforts were, as a rule, much less than those now at the command of the present race of young men. We know what they did and are doing, and the contrast with what we see and hear of the coming men gives us some fears for the future.

To some—nay to a large extent—this is the fault of our horticultural societies and other bodies, who might be supposed to look after the education of the gardeners. While Belgium, France, Germany, all have their schools of practical and scientific horticulture, where a thorough training alike in the principles and the practice of horticulture may be obtained, we have nothing of the kind.

As a nation we are just as much behind in the provisions for education in the more purely scientific departments on which successful agriculture and horticulture depend. With the exception of certain limited subjects suggested by the brilliant researches of DARWIN on the fertilisation of plants, and of LAWES and GILBERT on plant-nutrition, we have been for years almost at a standstill in vegetable physiology. If a glance be given through the year-books and records of science for the last few years it will be found that while in France, in Russia, and specially in Germany, great advances have been made and much profitable labour expended, here in England we have done comparatively very little. Such a thing as a laboratory for the investigation of plant-life scarcely exists in the country. We would not undervalue what we have got at Edinburgh, at Cirencester, and specially at Rothamsted, but when we compare them with what is to be found in Paris or in almost every little German university, to say nothing of the very numerous agricultural stations in the latter country, we have cause for a feeling of shame. It was with such a feeling that we recently received the visit of three distinguished *savans*—one French, two German—all well-known as vegetable physiologists, and one, at least, as a practical horticulturist also, and who came to us to inquire what and where were our establishments for instruction in, and for the purpose of carrying out researches in vegetable physiology and agriculture. What could we say? We have so often lamented our deficiencies in this matter that we fear to weary our readers with a thrice-told tale, but that it is no imaginary want we call attention to, no unsatisfied hobby of our own, may be seen from the following remarks made by Dr. McNAB, and prefixed to his last memoir on the Movements of Water in Plants, and published in the *Transactions of the Royal Irish Academy*:—"The chief difficulty I have to contend with," writes Dr. McNAB, "has been the impossibility of obtaining in Dublin, in the same locality, the two essentials for experimenting, namely, a laboratory and a botanic garden." What a confession for a Professor of Botany in one of the foremost university towns of the nation to be obliged to make! Dr. McNAB proceeds:—"The appliances of a chemical laboratory must be within easy reach of the plants to be experimented on; if not, then errors are sure to be made; and as much time would necessarily elapse between procuring the plant for experiment and the commencement of the experiment itself, the results obtained would certainly be untrustworthy. In fact, the nearer the plants are to the laboratory the better; the results will be more accurate, and the experiments much more easily performed. As it was *impossible to obtain in Dublin the necessary laboratory appliances in or near to a botanical garden* [The italics are ours. EDS.], I was compelled to seek for a place to experiment in where they could thus be obtained. I here take the liberty of suggesting that some steps might be taken to obtain the necessary laboratory accommodation in the botanical garden of this city. A large number of most interesting and valuable experiments might be made, if only a few pieces of apparatus could be placed near the plants to be experimented on. A balance, a water-oven, spectroscope, and the like are essential, while the few chemicals and small pieces of apparatus required could easily be had. There can be little doubt that the reason why so few physiological experiments are made in this country is to be looked for in the absence of the necessary laboratory accommodation near our gardens."

We concur with every word which Dr. McNAB here makes public, but we go further when we insist on the necessity of training observers to make proper use of the laboratory when they have it. At present if any young man have a taste for physiological experiments he is hampered by the difficulty of finding suitable means, or, if these exist, of finding some one to instruct him practically in the use of apparatus, and to put him in the way of observing for himself. So far as vegetable physiology is concerned, our botanical lectures at medical schools and elsewhere are too often worse than farcical. This is a question of much larger importance than it may seem to those who look upon "bedding-out" as the *summum bonum* of gardening. It is a question of national importance, and the sooner it is recognised as such, and acted on, the better for our thickly peopled country and our yet undeveloped empires in India and the colonies.

—— WHILST we are at all times willing to assist our readers in the identification of their flowers and fruits, we must protest, as we have often been obliged to do, against any correspondent sending more than six specimens at a time. Our *sanctum* just now is turned into a parcels' receiving-office, which parcels contain from one to thirty specimens, and the odour emitted by Apples and Pears, chopped straw and mouldy hay, pervades the establishment. The time occupied and the labour involved in this department is so great, that we cannot in justice to the great body of our readers undertake to name more than the prescribed number, and this rule we shall stringently enforce.

—— The plan adopted by Mr. J. TEGG, the gardener at Bearwood, for GROWING TOMATOS within-doors may not be altogether new, but it has the merit of answering well, therefore it is worthy of being generally applied. The seed is sown about Christmas, and by the first week in March the plants are planted out against the back wall of some of the lean-to vineries, in a good compost, with ample root-room. Here they make a rapid and vigorous growth, and in the course of the season attain to a height of from 10 to 12 feet, and produce successional crops of fruit with great profusion up till past Christmas. In this manner early and late Tomatos are obtained from the same plants. As a matter of course the plants can hardly be kept too moist, and a good dressing of crushed bones is occasionally given. The border in which the Tomatos are planted is only about 15 inches in width. The plants must be well fed, but the wonderful crops they bear is the best testimony to the advantage of a liberal treatment. The variety grown this way at Bearwood is the large red, but any other variety would no doubt do equally well. The weight of fruit obtained from one plant in a season is something remarkable, and a great size is attained by many of them. At Ashridge Mr. SAGE grows them in a similar manner, but in pots, and never fails of a supply.

—— ADHATODA CYDONIÆFOLIA is splendidly in flower in the Palm-house at Kew. It is an old Acanthaceous plant, rarely seen, but well worth cultivation. Though not a climber, it may be trained in the same way, from its slender but neat habit. The flowering branches are allowed to bend with their own weight. It has handsome foliage, the flowers are deeply two-lipped, the lower rosy purple and the upper white, forming an elegant contrast. It is a native of Brazil, but of ninety-eight species comprised in the genus only five belong to that country.

—— M. CORENWINDER has, says *Nature*, contributed to a recent meeting of the Société des Sciences of Lille an exhaustive series of observations on the processes of RESPIRATION and NUTRITION in PLANTS. He supports M. CLAUDE BERNARD's view, that the process ordinarily known as the respiration of plants —the decomposition of the carbonic acid of the atmosphere—is really a process of digestion, and that simultaneously with this plants carry on, by day as well as by night, a true process of respiration, similar in all respects to that performed by animals, consisting in an oxidation of the carbonaceous matters of their tissues. By a very careful series of analyses, performed mainly on the Lilac and Maple, M. CORENWINDER determined that the proportion of nitrogenous matter in the leaves gradually and progressively diminishes from the time that they emerge from the bud till their fall; the proportion of carbonaceous matter increases very rapidly during April and May, and then remains nearly stationary till October; while that of the incombustible substance increases during the whole period of vegetation. He distinguishes, therefore, two periods in the vegetative season of the plant. The first period, when nitrogenous constituents predominate, is that during which respiration is the most active; the second, when the proportion of carbonaceous substance is relatively larger, is the period when respiration is comparatively feeble, the carbonic acid evolved being again almost entirely taken up by the chlorophyll, decomposed, and the carbon fixed in the true process of digestion.

—— Prof. H. HOFFMAN, of Giessen, as reported in *Nature*, has made some interesting experiments on the permanence of varietal and specific characters in the case of the French Bean and Scarlet Runner (Phaseolus vulgaris and multiflorus). A very large number of attempts to fix special varieties which were casually produced invariably failed, the tendency towards reversion to the ancestral form being apparently irresistible. On the other hand, no one of the characters which are ordinarily relied on to distinguish the two species from one another is constant, but is liable, under certain circumstances, to disappear. Dr. HOFFMAN has also made a similar series of experiments on the common red Poppy (Papaver Rhœas). Constant cultivation for six years produced no perceptible variation; but in the seventh year several varieties in the colour, and in the next year in the form of the petals, made their appearance, tending towards an assimilation to P. dubium.

—— *The* (American) *Horticulturist* gives its readers in the September number a poor illustration of the south front of the Crystal Palace, Sydenham, and states that it is a "sketch of Kew Gardens, England!"

—— PANCRATIUM SPECIOSUM is now conspicuous in the Palm-house at Kew. It is one of the best of the genus, and quite as ornamental as Eucharis. The flowers are pure white, with long and narrow perianth segments, measuring from tip to tip about 1 foot; they are produced in umbels of about eight. In point of style only one or two species are of equal merit. It is a native of the West Indies. The treatment accorded to Eucharis is exactly suitable to this plant.

—— The beautiful new × TACSONIA EXONIENSIS, which, it will be remembered, was exhibited for the first time at the provincial show of the Royal Horticultural Society at Birmingham in 1872, and awarded a First-class Certificate of merit, is now a most conspicuous object in an intermediate house at Bearwood, Wokingham, the residence of JOHN WALTER, Esq., M.P. Mr. TEGG, the gardener at Bearwood, planted out in March last two examples of it, one at each end of a span-roofed house, and is training it along the roof. It has realised at Bearwood all the favourable predictions made respecting it when first exhibited. It will be remembered that this distinct and striking greenhouse climber was raised from a cross between T. Van Volxemi and T. mollissima, and with the strong-growing habit of the latter it combines the free-flowering character of the former. The flowers, when looked at against the light, are of a clear rosy magenta hue, and, as in the case of T. Van Volxemi, they hang suspended from the vigorous shoots on slender footstalks, but not so long as those of its vermilion-coloured congener. It would appear to be an almost perpetual flowerer, and it might be effectively associated with the brilliant-coloured parent, which has been well described as "almost unequalled as a greenhouse climber."

—— SALVIA GRAHAMI, though not a gorgeously-flowered species, is deserving of mention as a fine and continuous late summer-flowering greenhouse plant. It is an evergreen shrub, flowering profusely when well-established in pots, the flowers being of a rosy red hue tinted with violet, and the leaves emit a pleasant fragrance when rubbed by the hand.

—— The practice of giving testimonials to manufacturers of implements and fertilisers has, says the American *Horticulturist*, received a capital hit by the following concerning a REMARKABLE MANURE:—

"Dear Sir,—The land composing my farm had hitherto been so poor that a Scotchman could not get a living off it, and so stony that we had to slice our Potatos and plant them edgeways, but hearing of your manure I put some on a 10-acre field surrounded by a railroad fence, and in the morning I found that the rocks had entirely disappeared and a neat stone wall encircled the field, and the rails were split into firewood and piled up systematically in my back yard."

—— It may not be generally known that flowers of ALLAMANDA SCHOTTII will remain fresh for a considerable time in water after being cut. Ladies find this fine stove climber very useful in consequence; and not only is it exceedingly showy in a cut state, but the showiness can be prolonged over several days.

—— We have received from Mr. R. H. VERTEGANS, Promenade Gardens, Great Malvern, four FRUITS gathered from a tree OF THE DOUBLE-BLOSSOMED PEACH, growing in the open in the above establishment. The tree has produced a quantity of similar fruit for the last three years. This is the first time we have seen such perfect fruit from this tree.

—— Messrs. L. & A. B. RATHBONE, of Oakfield, Genesee County, New York, have furnished to the Department of Agriculture at Washington the following facts relative to their experiment in cultivating Pears:—In the spring of 1864 they set out 4000 dwarf Pear trees, 3000 Duchess, 500 Louise Bonne de Jersey, 400 Beurré d' Anjou, and 100 Vicar of Wakefield. The trees are 10 feet apart each way, occupying 10 acres. The soil is "a gravelly loam mixed with sand, with clay subsoil." For five years the trees were severely pruned. The orchard has received medium cultivation, but no fertiliser, except that in June, 1873, it was dressed with about 80 bushels per acre of slaked lime and unleached wood-ashes. Delivered in barrels at Batavia, and beginning with 1868, the several amounts received for annual sales for six successive years were as follows, and in the order named:—100 dols., 230 dols., 110 dols., 1338 dols., 2250 dols., 5530 dols. —total, 9558 dols. It will be noticed that in the last-named year, 1873, the gross sales reached 553 dols. per acre.

—— SOLANUM JASMINOIDES, on the walls at Kew, is one of the finest hardy climbers in flower during summer and this season of the year. It is sometimes grown in a greenhouse. There are two varieties—one pure white and the other bluish; a variegated variety is also in cultivation. The leaves are dark green, and, as a rule, simple. On one plant many are pinnate, and as the flowers are very like those of S. venustum, it is evident that they are nearly allied. Berries are sometimes produced, but not in sufficient numbers to be ornamental. They are violet-black, much like those of Privet. Increase may be effected by taking off any shoots from the base that have a few roots. In very severe weather the protection of a mat should be afforded. Native of South America.

—— The *American Horticulturist* states, in reference to the INTRODUCTION OF THE POTATO, that it was not, as popularly supposed, first introduced to England by Sir WALTER RALEIGH. JOHN HAWKINS first introduced it in 1565; next WALTER RALEIGH, in 1584; finally, Admiral DRAKE, in 1586. The Potato was introduced into Germany just one hundred years ago; and the year 1874 is to the Germans their great Potato centennial, which they propose to honour with befitting celebrity. When the Spaniards conquered Peru, in the sixteenth century, they caried some Potatos to Europe, and sent them to the Pope. The raw plant was cultivated a little in Spain, Italy, Burgundy and the Netherlands, and from a certain resemblance to the Truffle, an esculent fungus growing in the earth, the Italians gave them the name of Tartufi, or Taratufoli, whence the Germans derive their word *Kartoffel*. The French called them "Apples of the earth," *Pommes de terre*, while in Austria and portions of Germany, the equivalent expression *Erd-apfel* is used. Admiral DRAKE, in 1586, in England, sent some to a friend to plant, with the remark that the fruit was excellent and nutritious, so that it would be very useful in Europe; his friend planted the tubers, and they grew nicely, but, when the seed-balls were ripe, he took these instead of the tubers, and fried them in butter, and sprinkling sugar and cinamon over them, placed them before some company as a great rarity. Of course these balls tasted disgustingly, and the assembly concluded that the fruit would not ripen in Europe. The gardener pulled up the plants and burned them; but a gentleman, who chanced to be present, stepped on one of the baked Potatos as it lay in the ashes, when it broke open, and he noticed that it was white as snow, and mealy, and had such an agreeable smell that he tasted it and found it very palatable. The new vegetable was thus rescued; but for a century after it was only cultivated in his garden, and in 1600 the Queen of England made the remark in her house-book that a pound of Potatos cost two shillings.

—— In the herbaceous ground at Kew are several autumn flowering plants worthy of note. OPHIOPOGON SPICATUS, often grown in the greenhouse, is much finer planted out. It produces a fountain of narrow foliage, among which arise numerous flower-spikes recalling the Grape Hyacinth (MUSCARI BOTRYOIDES). In the temperate-house there is a yellow variegated variety, which would doubtless be ornamental out-of-doors. ANEMONE VITIFOLIA VAR. HONORINE JOBERT and A. HYBRIDA are very showy. GAURA LINDHEIMERI has flowered for many months and still continues. It is very light in appearance from its branching wiry stems, each bearing towards the point a few pure white flowers. It has been used in Paris for bedding, and might well be used for the rougher combination, not being sufficiently compact for formal productions. The ASTERS are important among the Compositæ. A. Chapmanii is one of the best, and though not new is somewhat rare. A. dumosus, A. Tradescanti, A. oblongifolius, A. turbinellus, and A. longifolius, with the vars. of A. Novæ-Angliæ are also fine. VERNONIA NOVÆBORACENSIS, with dark purple flowers, is quite distinct in colour from its neighbours. It attains a height of 5 feet. GALATELLA DRACUNCULOIDES, one of the best of the genus, is in a mass of flower. SALVIA ANGUSTIFOLIA, a fine blue Mexican species and quite hardy, is just commencing to bloom.

—— M. E. HECKEL has lately published in the *Comptes Rendus* some interesting observations which throw light on THE FUNCTIONS OF THE SPIRAL VESSELS OF PLANTS, and on the movements of the stigmas in Scrophulariaceæ, Bignoniaceæ, &c. These plants have a stigma composed of two plates which in a state of rest are wide apart, but which, when irritated, fold up so as to form one plate as the two halves of a book do when a book is closed. It is the upper or inner face of each plate studded with little papillæ that is sensitive. If one plate be irritated the movement is transmitted to the other; stimulants such as heat, ammonia, acid, &c., induce the movement, which is suspended by anæsthetics such as chloroform, &c. What is the organ of movement? inquires M. HECKEL, and then answers the question by referring the movement to the spiral vessels. He finds that the movement is most active where these tracheæ are most abundant, and further that if they be cut across movement ceases. If the vessels of one plate be cut across movement still takes place in the uninjured plate, but it is not propagated to the uninjured plate, as is the case when neither is injured. This corresponds with the observations of ZIEGLER in the case of Drosera, *Comptes Rendus*, May 18, 1874. The movements in question can hardly be attributed to variations in tension, as certain German observers think, for the movements take place as well under water as in dry air, and also in the vacuum of an air-pump or in compressed air.

—— Mr. DOWNIE sends us from Edinburgh some flowers and ripe fruit of a Strawberry growing in the garden of WILLIAM GORRIE, Esq., Gilmore Place, in that city. The fruits are about the size of ordinarily grown Keens' Seedlings, of a rosy amber colour, and, as received by us, of fairly good quality. Our correspondent understands that the variety is a chance seedling, which came up in Mr. GORRIE's garden some time ago. For the last three years Mr. GORRIE has grown the sort in pots, and regularly fruited them at this season. We judge it to be free bearing from the specimens before us, and think that, if it is as good on other points, its distribution would be a boon to many gardeners.

—— The great difficulty with those magnificent stove shrubs, the BROWNEAS, has heretofore arisen from the fact that their large size precluded their being grown in most establishments. Their magnificence may be inferred from the illustration which, thanks to Mr. CRAWFORD and the good offices of Mr. GUMBLETON, we were enabled to give at p. 779, 1873. We are now informed that a cross between BROWNEA LATIFOLIA and B. COCCINEA flowered this season in Mr. CRAWFORD's garden at Lakelands in quite a small state, the seedling not being more than about 18 inches in height, and less than three years in age. It is likely to be a fine thing, having flowers of the size of those of B. latifolia with the brilliant colour of B. coccinea. A free blooming, fine coloured Brownea producing its flowers in a small state in a pot, should be a most valuable acquisition.

—— In an article on the decay of fruit, the *Scientific American* gives an interesting account of the process as carried on by the two principal destroyers, Mucor mucedo and the Penicillium glaucum. In general structure microscopic fungi are very much alike, consisting mainly of a network of colourless cells and filaments, called the mycelium. This is the vegetative part. There is, besides, a reproductive

part, in which is produced the seed or "spore." When a fruit is invaded the vegetative filaments send their branches among and around the fruit cells, and rapidly envelope them in a network of mycelium, absorbing the substance and juice of the fruit, and producing the chemical transformation characteristic of decay. All this goes on in the interior of the fruit, the fructification of the fungus takes place only on the surface in contact with the atmosphere. Fruit covered with a firm skin, like the Apple, may be a mass of what we call corruption within, while no visible mould appears on the surface. On the other hand, thin-skinned fruits like the Strawberry, which are easily pierced by the reproductive filaments, are often covered with an abundant fructification in a very short time. The evidence that the fungus precedes and causes the changes which we call decay is of the same character as that which establishes the connection between a vaccine pustule and inoculation by vaccine virus. When sound fruit is inoculated with the spores of Penicillium decay begins at and spreads from the point of inoculation. Apples similarly wounded, but not inoculated, remain the same.

—— Mr. C. Horner contributes to the current number of the *Philosophical Magazine* a note on the behaviour of certain fluorescent bodies of castor-oil. He finds that certain colouring matters derived from woods, which do not exhibit fluorescence when dissolved in either water or alcohol, become highly fluorescent on treatment with castor-oil. For example, camwood exhibits in this way a strong apple-green fluorescence, although entirely destitute of fluorescent properties in aqueous or alcoholic media. Other substances which fluoresce to some extent in alcohol become more intensely fluorescent in castor-oil. Thus, turmeric in castor-oil gives an emerald-green fluorescent light, at least three times as vivid as that obtained in other fluids.

—— We inadvertently omitted to state in our report of the last meeting of the Fruit Committee, that Messrs. James Carter & Co. exhibited their new Tomato Carter's Green Gage, and which gained a First-class Certificate "for its singularly delicious flavour and distinct character." The fruit is of medium size, round, perfectly smooth, and of a lemon-yellow colour tinged with rose. The flavour is distinct and very good. If the plant is amenable to pot culture it will have its decorative value, in addition to its desirableness for general cultivation.

—— If advertising is becoming a science, it is calling in the aid of art also. Not long since we had occasion to call attention to the artistic and botanically accurate representation of the plant producing Cocoa adopted by one of the largest firms, and now a similarly good representation of the Tea plant is before us, issued by one of the large houses in the trade. If the articles vended be as good as the representations of the plants above-mentioned purchasers will have reason to be thankful.

—— We saw the other day in the nursery of Messrs. Downie, Laird & Laing, at Stanstead Park, Forest Hill, a collection of Pears and Grapes sent by Mr. Loney, gr. to J. J. Dickson, Esq., Gothenburg, Sweden, for exhibition at the late Crystal Palace Fruit Show, but which unfortunately arrived too late. The dish of Grapes included well-finished bunches of Muscat of Alexandria, Alicante, and a white variety called "Eschalota surperba," weighing about 4 lb. each. The Pears were finer than anything ordinarily seen in this country, which is the more remarkable from the circumstance that they were grown in pots, and of course under glass, the climate of Sweden not being favourable to fruit cultivation wholly out-of-doors. Specimens of Beurré Diel weighed 1¼ lb.; Duchesse d'Angoulême, 17½ oz.; Marie Louise, 15 oz.; General Todtleben, 16 oz.; Beurré Bachelier, 18 oz.; Maréchal à la Cour, Joséphine de Malines, Winter Nelis, and Huyshe's Victoria, were also very fine samples, the latter especially. We are sorry they could not be shown at the Palace show, as the comparison with home-grown fruit would have been interesting, and their fine quality publicly attested, to Mr. Loney's credit.

—— If, as is not improbable, the Vanilla plants may become too few to supply the pleasant flavouring element for which they are now used, we may look for a substitute in the sap of Pine trees (Pinus). M. Hoffmann states that two of his pupils have lately succeeded in extracting or forming Vanilline from the sap of the Pine without injury to the trees. No details of the process have yet, so far as we know, been published, but the matter is one that may be of some commercial importance.

—— Mr. Brown, one of the assistants in the Herbarium, Royal Gardens, Kew, is studying the Stapelias, with a view to prepare a monograph of these singular and interesting plants. Cultivators flowering any of the species, no matter how common, would be doing a service by forwarding flowers to Mr. Brown at the above address.

THE OLD WALLS AT KEW.

(*Continued from p.* 418.)

The handsome deciduous flowering shrubs known in gardens under the name Weigela, or Weigelia, belong really to the genus Diervilla, of which I have already mentioned a North American species. There are, according to Hooker and Bentham, seven species altogether. These seven species have been referred by different authors to four different genera, but they form together a tolerably natural genus. D. Middendorfiana was considered the type of a new genus, called Calyptrostigma, in allusion to the inverted cup-shaped stigma; but other species present the same character though in a less marked degree. Diervilla grandiflora, or, as it is also named, Weigela coraeensis and W. amabilis, is the species I have in view. It was introduced after D. rosea, and from which it differs mainly in its strongly reticulated leaves. Several varieties, intermediate between these two species, have been introduced from Japan, while some have been raised in Belgium. The corollas are nearly the shape of those of the Foxglove, and of a rosy pink or white in the original varieties. D. rosea flowers in the spring and D. grandiflora in the autumn, whilst some of the hybrid varieties put forth their lovely blossoms during the summer months. They are not well adapted for covering a wall or trellis, but nothing can be more showy in the front lines of a shrubbery, as they flower most profusely. D. rosea appears to be rather hardier than D. grandiflora, but both would require a little protection in severe winters north of London. The genus was named after Dierville, a French physician, and belongs to the Caprifoliaceæ, or Honeysuckle family. Euonymus japonicus is so universally known that I might pass by it with just a word in its favour as a seaside evergreen shrub of the first order; but I cannot dismiss it so unceremoniously. It appears to have been introduced into this country about 1844, that is to say the glossy dark green leaved variety. Possibly, however, one or other of the varieties was introduced earlier, as I find 1804 given as the date of its introduction in some books. Be that as it may, we have now a large number of beautiful variegated and small-leaved varieties, none of which surpass the variety above mentioned for planting in towns on the south and west coast, where it is simply invaluable. At Brighton, Folkstone, and other southern sea-side resorts, it is planted by thousands, and flourishes in the narrow fore-court gardens beyond everything else. In Japan it grows on the coast, and bears the name of Black Shore Tree, probably in allusion to the very dark almost black green of its foliage. From some cause it very rarely flowers in this country, but as the flowers are small and inconspicuous this is of little moment. It requires protection inland, especially in low humid localities where the soil is heavy, though in elevated places on a sandy soil it is rarely injured by frost, south of London at all events. E. radicans of gardens is a variety of japonica, and connected with the broad-leaved form by numerous intermediate gradations. The name is from εὐώνυμος, literally a good name or of good repute; but its application here is uncertain. The existence of an indigenous species (E. europæus), the Spindle-tree, is less generally known, and I mention it here on account of the beauty of its scarlet seed-vessels at this season of the year, which is heightened when they split open and reveal the orange-coloured arillode of the seeds. It is deciduous, or in very mild winters almost evergreen, like the Privet. E. americanus, the Burning Bush, is a North American deciduous species with brilliant scarlet capsules, hence its name. It is one of the wall shrubs, but it does not need any protection I believe. Euonymus belongs to the Celastraceæ, which furnishes scarcely any ornamental species, and is only represented in our indigenous floras by the shrub mentioned. This family is placed next to the Rhamnaceæ (to which our next subject belongs), from which it differs in having the stamens alternate with the petals, and the calyx lobes or sepals overlapping (imbricate) in bud.

Ceanothus azureus is the name of a very handsome evergreen shrub with terminal, narrow panicles of small blue flowers, now in their full beauty. There are several other species of this genus from North America, many of them hardier than the one in question; but none of them are perfectly hardy inland. The name, χεανωθος, was given by the Greeks to some spring plant, and is only appropriate in this sense to one or two species of this genus.

The Chaste Tree of the ancients, Vitex Agnus-Castus, now claims notice. It is a handsome shrub, with digitately-divided leaves clothed with a white or greyish tomentum beneath, and small violet or blue flowers in terminal panicles. It is in flower at the present time, and is interesting, amongst other things, as being a member of the Verbena family, which is mainly composed of shrubs and trees, with the exception of Verbena itself and a few other things. The many-coloured Lantanas and the "sweet-scented Verbena" (Lippia or Aloysia citriodora) are more familiar members of the same family. Vitex is the classical name of a shrub with flexible branches like the Willow, but the identity of which is not known with certainty. The specific name, Agnus-Castus, or Chaste Lamb, was given to it on account of its supposed power of subduing the passions. It possesses aromatic properties, but scarcely the virtues ascribed to it, and is found growing wild in various parts of the South of Europe. My experience of it is insufficient for me to say whether it is hardy, as stated in some books, but most likely it is in the South and West.

Fremontia californica offers an anomalous structure worth studying. I have already, under Clematis, said something about the rules by which botanists are guided in grouping plants in families, and arranging the families according to their natural affinities. All systems of classification are more or less arbitrary, and simply devised to facilitate our studies. Nature herself presents us with innumerable types of development, from the one-celled Algæ to the most complex vegetable organisms, passing by imperceptible or indescribable gradations from one into the other; hence it is impossible to contrive any system of classification that is not subject to many exceptions in every grade, from sub-kingdoms down to species. As I have already observed, botanists are unable to determine which forms are the most highly developed. At one time, those with hermaphrodite flowers, for one characteristic, were considered as such; but recent investigations have shown that self-fertilisation is not by any means so general as was supposed; in fact, we find all sorts of ingenious contrivances to favour foreign fertilisation in hermaphrodite flowers. This has induced some to change their views, and accept the unisexual as the most perfect development, and as more in harmony with the conditions of the higher organisms in the animal kingdom. It is remarkable, too, that many of the beauties in the forms and colours of flowers, which we have very complacently assumed to have been designed for our special gratification, have much higher purposes to serve, fully bearing out the idea of the German poet (whose name I forget) in the following lines:—

"Mensch es ist der Schöpfung Pracht,
Nicht für Dich allein gemacht;
Einen Theil hat sich, zur Lust,
Die Natur hervorgebracht.

"Darum singt die Nachtigall,
Wo Du schlummerst in die Nacht;
Und der schönste Schmetterling,
Fliegt wo Niemand sein hat Acht.

"Und die schönste Blume blüht,
Eh' des Tages Aug' erwacht.
Perle ruht im Meeres Schoos,
Und der Edelstein im Schacht." &c.

I cannot remember the last verse, nor will I spoil these by an attempt to translate them, but simply say that he reproves man for his presumption, and points out that the beauties of Nature are often unfolded where the eye or ear rarely penetrates. But to return to our walls and Fremontia californica. This is a deciduous shrub with cordate lobed leaves, and large pure bright yellow flowers, solitary on short stalks opposite the leaves. The under surface of the leaves is clad with a rich brown tomentum, and they are glossy green above. Altogether, it is a highly ornamental shrub, and wholly different from any other hardy species in cultivation. It belongs to the Sterculiaceæ, a family of the Mallow alliance, differing principally from the Malvaceæ in having permanently 2-celled anthers, whilst the Mallows themselves have them, ultimately at least, 1-celled. The peculiarity of the flower is that the coloured envelope is a calyx, and there is no trace of petals. This would scarcely be understood by a novice, for the flowers are furnished, like most of the tribe, with an "epicalyx" consisting in this case of three bracts, almost close under the calyx, which might readily be mistaken for that organ, and the true calyx for a corolla. Colonel Fremont discovered it, and it was introduced into this country in 1851, but it is still very rare in gardens. It is probably quite hardy, for it flowers freely and fruits also against the wall. The Sterculiaceæ and Malvaceæ are so intimately related that Hooker and Bentham originally placed this genus and the famous Hand-plant of Mexico in the Malvaceæ in their *Genera Plantarum*, but subsequently, in the Addenda to the above work, removed them to the Sterculiaceæ. I may also remark that there is a large tribe of apetalous Sterculiaceæ from Australia, and some others (including Sterculia) scattered over the tropics.

The next plant I shall consider is the beautiful climber or trailer, Smilax aspera. This is an endogen or dictyogen, as Dr. Lindley called a group of monocotyledonous plants, with net-veined ribbed leaves. Woody plants, with the exception of Palms, are not common amongst monocotyledons or endogens, and we have only one native woody species, the Butcher's Broom or Gneome, Ruscus aculeatus, a plant offering many curious points for study. It is instructive to observe the development of the young shoots thrown up from the base in spring. Our plant has cordate ribbed dark green more or less prickly leaves, and

clusters of white or pink flowers. The flowers are small, but there is something exceedingly attractive about them, and they are succeeded by clusters of red berries. But there is a condition concerning the production of these berries which I must not forget to mention. The sexes are borne on separate plants, and therefore it is necessary to have both to ensure the fertilisation of the female. The Kew plant is a pistilliferous or female one, and is in flower now, but as there is no stameniferous or male plant near it, it will probably produce no berries. This genus includes a considerable number of species chiefly found within the tropics, and some valuable for their medicinal properties, sarsaparilla being the product of one or more species. Our species is a native of the south of Europe. A closely allied species from the same region, S. mauritanica, has larger unarmed leaves. Tamus communis, the Black Bryony of our hedgerows, belongs to the neighbouring family, Dioscoreæ, distinguished from the Smilacineæ by having an inferior seed-vessel, &c.

We will pass on now to the Grape Vines of North America, recently become of more importance, since the devastations of the Phylloxera in European vineyards have assumed such a serious aspect. At present the Virginian Creeper is the most familiar North American Vine in Britain, but its merits as an ornamental plant are well known and appreciated. The species I shall mention below are not all to be found at Kew, at least so far as I am aware, but some of the principal ones are, such as V. cordifolia for instance. V. Labrusca, æstivalis, cordifolia, and vulpina are the chief species from which the American cultivated Grapes are descended. In a wild state their fruit is small and not well-flavoured, but by variously intercrossing the above-named species some excellent varieties have been obtained, almost equal in quality to the best of the European Grapes. This is of the first importance in America, because the European varieties will not flourish in some districts. In Europe, too, their cultivation in the infected districts is being tried, as they are said to be able, from the nature of their roots, to defy the Phylloxera; if so they may also be of service as stocks upon which to graft the indispensable European varieties.

Unfortunately none of them appear to be hardier, or to flower earlier, than our own sorts, and consequently are no better adapted for our climate. The Americans have given various names to the wild forms, indicating their colour, flavour, &c. Thus V. Labrusca, the Northern Fox Grape, to which the cultivated varieties Isabella, Catawba, Concord, &c., are referred; V. vulpina, Southern Fox Grape, or Muscadine, to which the famous Scuppernong owes its origin; V. cordifolia, Frost Grape, which has given birth to Norton's Virginian Seedling, and numerous others. These varieties differ in the colour of their berries from amber to deep purple. Here is an interesting note from Major Leconte respecting the suitability of varieties for different parts of the States: "The Scuppernong Grape can never thoroughly ripen North of Virginia, and the Fox Grapes of the North will scarcely grow in the lower parts of Carolina and Georgia; the Isabella or Catawba varieties of this last, which were originally brought from the upper regions of South Carolina, do not flourish in the low country, and will scarcely live in Lower Georgia. Porcher (*Resources of Southern Fields and Forests*) says the Scuppernong is a variety of V. cordifolia, and Dr. Asa Gray, I think it is, refers it to vulpina. The bunches of the American varieties I have seen assume a more cylindrical shape than the European. Dr. Regel has recently attempted to show that our Grapes are actually descended of vulpina and Labrusca, forms of which he recognises amongst the wild Vines of India. This is, however, one of those hazardous theories that can never be proved, because we really know so little of the natural variation and dispersion of forms. It comes within the range of possibility, it is true, but it is idle to speculate upon it. If some persons would only devote their time to experiments on the stability of what we call species, some interesting results might be the issue. It is stated that the North American varieties are polygamously diœcious whilst all the European are hermaphrodite."

(*To be continued.*)

CALIFORNIAN FRUITS.

THE FIG.—The broad-leaved, green, and shady Fig tree, with its clusters of Pear-shaped, juicy, purple and green fruit—next to the Vine the historic production of biblical times, the favourite of the tropics, and the beautiful viand of all nations—is represented in California by nearly 90,000 trees. Frost is its great climatic enemy, and the genial warmth of the Sacramento basin and the southern counties are its greatest helps to prolific development. In the coast valleys, where not troubled with fog, it produces one good crop annually; but in the southern part of the State, and in other favourable localities, it yields two, three, and even four crops per year. As an instance of the remarkably prolific power of this tree, it is related that Mr. Knight, by continued high temperature, produced in England as many as eight crops in twelve months. This hint may be taken by our Californian fruit-growers, who can more easily achieve the same result. A Fig tree on the estate of Mr. Clarken, in Folsom, Sacramento County, a few years ago, produced four crops of excellent fruit in one year, although no care whatever was taken of it. In the colder countries of Europe it is kept dwarfed, in order that it may receive the benefit of the heat of the sun reflected from the earth. The most common varieties in California are the Old Mission Brown and the White Smyrna. The former is more prolific, but the latter yields larger Figs, with a better flavour. The dried Fig is equal in flavour, but does not present so fine an appearance as the imported article.

The two varieties of the ALMOND (the Hard-shell and Paper-shell) are represented by about 40,000 trees. This tree resembles the Peach very closely, and is subject to the curl. It is not so hardy as the Peach, being more easily injured by frost, but is a favourite in the market.

The English WALNUT, represented by 25,000 trees, is a very profitable nut. It falls from the trees when ripe, and can be left on the ground several months without danger of loss. It is extensively cultivated in Los Angeles, Sonoma, Santa Barbara, Sacramento, and Solano counties.

THE OLIVE.—The consumption of Olive oil on this coast is very great—so much so that the Olives raised in Los Angeles will not be sufficient to supply the demand for many years to come. Olives have never been extensively cultivated here, for the reason that there is no home market for the crude oil; but there is now a sufficient quantity grown to manufacture the oil for the local market. Speaking upon this subject, the Los Angeles *Herald* says:—

"The same process by which Mr. Carreras, of the Los Angeles Petroleum Refining Company, reduces the heaviest crude oil to a first-class illumining fluid, at a cost of 2 cents per gallon, and within twenty minutes' time, will also refine Olive oil, and make it equal to the best article manufactured in Europe. This is an important discovery to the people of this valley. The cultivation of the Olive is very profitable where there is a demand for the crude oil; and the fact that we can, through Mr. Carreras' method, produce an article superior to that imported from Europe, for less money, will give an impetus to Olive culture not anticipated a few months ago. The fruit may be successfully grown in almost any part of the valley. This discovery developes another important industry, which will enable us to retain at home many thousands of dollars now sent abroad; to export an article of commerce instead of importing it, and will also enhance the value of real estate."

The San Diego *Union* remarks: "The prevailing impression has been that the Olive will not bear until ten years old, this being the ordinary time of bearing in other portions of the world with most of the varieties cultivated; but in California, with the varieties here planted, the case is different. Hollister's extensive orchard, 4 miles back from the coast at Santa Barbara, was in bearing three years after planting. The Kimball Brothers also have two-year-old trees full of fruit, on their lands at National City, upon the Bay of San Diego. Higgins' place is farther off from the coast, being about 8 miles inland, where the air is less saline, and the winds from the ocean very much moderated. At these three places the trees are not planted in the valley-land, but on the *mesa* or table-land. At the Mission of San Diego, the old trees planted by the missionaries, a hundred years ago, are in valley-land, and they probably never were irrigated. Their present flourishing condition, after many years of neglect, and the vigorous growth and healthy appearance of the trees at the Hollister, Higgins, and Kimball places, show that from Santa Barbara down to the Mexican boundary, all along the coast, and for at least 10 miles back, the soil and climate, on upland and in valley, are peculiarly adapted to the growth of the Olive."

PEARS.—The different varieties of Pears most popular here are the Dearborn Seedling, Beurré Gifford, Bartlett, White Doyenné, Seckel, Winter Nelis, and Easter Beurré. These mature in the order they are named—one coming in as the other goes out. The Bartlett Pear, for size and richness of flavour, is unequalled, and is held in high estimation in the East. The Pear trees in Santa Clara this season have been very much injured by pests in the shape of small worms and spiders. In some instances these little worms, which are so small that they can hardly be seen by the naked eye, strip the trees nearly bare of foliage. Mr. J. Q. A. Ballou, an experienced horticulturist, has ascertained that they appear in greater numbers, and do greater damage, when the trees are close together, and where the land is wet and undrained.

There are several hundred varieties of the APPLE, as well as of the Pear, grown in the State. At our agricultural exhibitions the display of this fruit cannot be matched by any other display in the New or Old Worlds. A large export trade of Apples and Pears is carried on with the East. The California Apple is not equal to that from Oregon (although it possesses many points of excellence, maturing earlier and holding out later), but surpasses the European and Eastern Apple in size. Indeed, there are some varieties which more resemble Turnips in size than Apples.

THE GRAPE.—"Nowhere else in the world does the Vine yield a more bounteous or certain crop, and nowhere is the quality of the fruit surpassed. Though the production of wine, owing to carelessness in selecting the varieties, ignorance of proper modes of manufacture, and unfriendly legislation, has not on the whole been profitable, the business is emerging from the clouds which encompassed it, and will soon take rank as one of the most reliable and profitable industries of the Pacific coast. When this is the case, millions of acres in the foot-hills will be covered with Vines, and the products of our vineyards will be famous throughout the world. For years the production of table Grapes, and the manufacture of raisins, will be more profitable than the making of wine. The finest varieties of foreign Grapes grow on our hill-sides without irrigation, and produce bountifully such Grapes as cannot be grown elsewhere on the continent. The demand for them, both at home and abroad, is every year growing larger, and as soon as we are able to do so, the teeming valley of the Mississippi, and even the Atlantic States, will be supplied from our gardens."

The Grape crop in Los Angeles this fall will be larger than that of any previous year. One of the largest vineyards in Sacramento County is that of John Miller, located on the celebrated Florin wine-belt, which extends from the American River to within a short distance of the Cosumnes, and spreads out east and west fully 10 miles. Mr. B. Bernhardt, of Auburn, Placer County, has 30 acres of land, on which are 19,000 Grape Vines, ranging from two to twelve years of age. The vineyards this season have been attacked by two pests—one a green worm (the Tobacco worm), and the other dark on the back, with yellow lines, called the Columbia worm. Each has a horn about one-fourth or one-half of an inch long on the posterior part of the back. In Tobacco plantations they were destroyed by taking them by the horn and dashing them on the ground, their size making it easy to find them.

The making of raisins is destined to become one of the most important objects of horticulture. Millions of pounds are annually imported by the people of the United States, and it will not be long before all the money we are sending abroad for this article will be kept at home, and poured into the pocket of Californian fruit-growers. The Malaga and Muscat have both been thoroughly tested, and produce a Grape that can profitably be made into raisins excelled in quality by none in the world. The ease and rapidity with which they can be produced is a great inducement for every family to engage in their culture. One does not, as with the Orange, have to invest large sums, and wait a long term of years for a return. In three years from planting the cutting, or two years after setting the rooted Vine, a good crop can be counted on with certainty, and as the years go on it increases. With rapid communication with the vast mining region lying between here and the Missouri River, and the agricultural districts in the West, there is no such thing as over-production.

Many of the Vines are very profitable, paying as much as 500 dols. nett per acre, and some even as much as 2000 dols. The Flame Tokay Vines bear occasionally 12,000 lb. to the acre, making the gross yield equal to 2400 dols., at an expense of less than 200 dols. The White Tokay, the Muscat of Alexandria, the Black Malvasia, the Golden Chasselas, the Rose of Peru, the Black Hamburg, and the White Hamburg, in places near San Francisco, have yielded more than 200 dols. nett per acre. The average crop in California is 8000 lb. to the acre, in France 3000, and in Ohio 5000. Thirteen pounds of Grapes make a gallon of wine. This gives nearly 600 gallons per acre. There are many vineyards of more than 100,000 Vines each in the State. The great wine as well as Grape region of California are the valleys of Sonoma and Napa. Some of the vineyards cover hundreds of acres, and much of the soil on which they thrive best is useless for other productions.

LEMONS AND ORANGES.—The Californian Lemon is not equal to the Malaga Lemon. It is too thick-skinned, and deficient in juice. From December last until June there were received at San Francisco from Los Angeles 4,544,140 Oranges, 490,280 Lemons, and 22,000 Limes.

We cannot better conclude this article than by quoting Hittel, in writing of the fruits of California. He says:—

"As a fruit-growing State, California takes a high position. In this particular, as in so many others, her climate gives her great advantages. In no part of the world do fruit trees grow so rapidly, bear so early, so regularly, and so abundantly, and produce fruit of so large a size. Nor is there any country where so great a variety of fruit can be produced in high excellence."

S. F. Call, in "California Horticulturist."

Home Correspondence.

Garden Notes from the Cotswold Hills.—A correspondent, Mr. Laxton, mentions an autumn-bearing Raspberry which he has at Stamford. A Raspberry of this character is common on the Continent. I procured some canes three years ago, and have now had an experience of them for two seasons, and as far as this locality (Cotswold Hills) is concerned they are a complete failure. Those I have have grown too luxuriantly and have fruited very sparingly. It is probable that our climate, and perhaps our soil, is unsuitable, the former being too damp and the latter often too rich. I saw the same plants, and from which my own were taken, growing in the neighbouring of Geneva on a hard and very dry soil, and fruiting freely in September. As a rule, I suspect the sort will not suit England in any situation. In the same garden I picked the small Strawberry called Quatre-Saisons, and which I also grow here, and fruit easily in our Strawberry season, and more sparingly up to August, but have failed to gather a dish later. They are abundant in the Paris shops up to October, and, eaten with cream as a *salade*, as the French call it, they are delicious. There are still a few blooms on my beds, but no ripe fruit. While writing I may take the opportunity of mentioning a Zonal Pelargonium which I saw everywhere bedded-out and in nearly every garden about Geneva, and it is as common, I was told by M. Thibaut, in France. It is a pink in the way of Christine, but is called Nillson or Nelson. I naturally thought it was a misnomer for Christine, but it is totally different, and a great improvement. I have now plants of it and Christine before me; the foliage is quite distinct. Moreover, the Nillson never seeds; it is a better habit, a very free bloomer, a noble trusser, and the blooms out there last long. M. Thibaut, whose nursery I visited at Sceaux on my way through Paris, spoke of this variety as a well known and well appreciated sort. I asked him if it was not Christine, and he at once pointed out the differences. Yet I do not see this variety in our catalogues, nor have I come across it before. I grow 250 varieties of Zonals, too, and have done so for years; so that if it is known in England and escaped my attention, it may have failed in making an impression or is unsuitable to our climate. M. Thibaut has some very fine Zonals raised by M. Boutart to send out next year. I was glad to see his garden resuscitated, for it was the camping ground for the Prussian cavalry. The new Begonias were growing in the open, in a sheltered spot, and some new seedlings of these were very fine. It is clear there is a grand future for this tribe of bulbous Begonias. Among other beautiful things which the French grow and we do not much were some very pretty Delphiniums. *W. H. O.*

Monstrous Ferns.—I was this week examining a fine collection of the monstrous forms of British Ferns, and I was led to speculate on the causes that produced these monstrosities. As to multifid Ferns, I have little doubt that in many cases the cause is "hypertrophy" (as explained in Masters' *Vegetable Teratology*, p. 63), but I also think that in many cases it arises from permanent fasciation [due to the same cause]. There is one form of crested Polypody in which a double midrib is very distinct, and in a branched form of Polystichum angulare the stem looks very much as if it was made up of two or three stems. Then, as to depauperated Ferns, it seems not improbable that there may be a process exactly opposite to fasciation, so that only one-half or less of the stem might be produced, which reduced stem might only bear one-half of the usual number of pinnæ. And further, as a great many of these monstrous forms are barren, it seems not unlikely that the spores and sporecases may have assumed a leafy form, as we know is sometimes the case in phanerogamous plants. [We have not been able to trace this. Eds.] "Suppression or abortion of the seed is frequently associated with the excessive development, either in size or number, of other portions of the plant, or with an altered condition." (*Vegetable Teratology*, 407.) I do not by any means assert that I have given the true account of these few monstrosities, but I should be glad to hear the opinions of others who are better acquanted with vegetable teratology than I am. *Henry N. Ellacombe, Bitton Vicarage.*

The Pampas Grass.—I think that your correspondent, Mr. G. T. Miles, in writing of the Pampas-grass, was scarcely justified in alluding to "the absurd notion of its requiring protection from frost." It was my good fortune, more than a quarter of a century ago, to be able to answer your question as to its habitat. I found it growing upon the raised banks surrounding the swampy alluvial islands in the river Uruguay—the richest soil that can be conceived; and considering that the latitude was about 33°, and the surrounding vegetation included Palms, Acacias, and Erythrinas, with acres of scarlet Verbenas—no doubt a horrid weed—upon the main land, it would have been a bold guess that the Gynerium argenteum would prove to be hardy in England. I was ordered on to India from those parts, but could I have foreseen that the Pampas-grass had such a future in store for it, I should certainly have made an effort to send home a plant. Is not the above an utter misnomer? It may probably skirt the rivers and streams of the Pampas, but I cannot conceive its growing in the open plains; it certainly did not in the Banda Oriental. *H. K., Sussex.*

—— We have a very fine tuft of the Pampas-grass here, measuring 35 feet round, and 10 feet 6 inches high, with 102 fine spikes upon it. *Geo. Walker, Gr. to Mrs. Honywood, Marks Hall, Kelvedon.*

—— I can fully indorse the remarks of your correspondent, Mr. G. T. Miles, p. 465, as to the highly ornamental character of this grass. For some years past it has been largely planted on this estate in favourable situations—in the woods, by the sides of drives, and in proximity to water, singly and in groups, mingled with American plants, Conifers, evergreen and deciduous trees and shrubs. Itis perfectly hardy, grows rapidly, and ripens its seeds freely. And at the present time, amidst the varied autumnal tints of deciduous trees and shrubs, and the different shades of evergreen foliage, the Pampas grass, with its stately plumes, stands out with grand effect, unapproachable by any other hardy plant for elegance and beauty. *J. Wallis, Orwell Park.*

Zinc Labels.—A French paper, after describing a new and simple process invented by Puscher, of Nuremberg, for painting on zinc, remarks that it might be found useful to gardeners, among others, for writing the names of plants on zinc labels. The process depends on the use of acetate of lead, which, mingled with black lead, for instance, produces a very agreeable warm brown tint. For writing with dark ink on sheets of zinc a solution of chlorate of copper is employed. *J. W. P.*

Hoya carnosa Fruiting.—I see by Editors' note, p. 465, that the fruiting of this plant is "very rare." Will you kindly allow me to say that two years ago there was a large plant of the Hoya above-named growing here, trained to the back wall of an intermediate plant-house, that fruited annually for at least five years previous to its being removed to make room for other subjects? The capsules produced here were about 3 inches long and $\frac{3}{16}$ inch across the centre; they were smooth, of a dark-brown colour, and tapered from the middle to each end, the lower end terminating sharply. When ripe the capsules split open, and, owing to the silky hairs attached to each seed, the latter were easily transported to different parts of the house, when air was admitted. In fact, some of the seeds found their way into an adjoining house, and lighting among the pseudobulbs of some Phaiuses and other Orchids, germinated and grew freely. *J. Wallis, Orwell Park.*

The Red-skin Flourball Potato.—Taking up some Red-skin Flourball Potatos last week I found some (to me) extra-sized tubers, half a dozen of the largest weighing 9 lb. 7 oz., one weighing 28 oz., two 27 oz. each, one 25 oz., and two 22 oz. each; we had also eighteen weighing 20 oz. each. I planted three-quarters of a peck, not taking more than ordinary trouble in their culture, the produce being over four bushels, all very fine and all perfectly sound. The Potato crop generally with us has been below the average, being mostly small but sound. *George Walker, Gr. to Mrs. Honeywood, Marks Hall, Kelvedon.*

Potato Rector of Woodstock.—In your journal of September 5, p. 308, Mr. D. Lumsden refers to Potato Rector of Woodstock "as a round, pasty variety; a poor cropper, and quality very indifferent." I think he must have made a mistake as to the variety. Rector of Woodstock as grown by me is a capital cropper, with handsome even tubers, of excellent cooking quality. I grow over 100 different sorts, and amongst the lot there is no better table variety, either in size or quality, than Rector of Woodstock. I had the seed Potatos direct from Mr. R. Dean, Bedfont, so that there can be no mistake as to the variety. *Peter McKinlay, Woodbine House, Beckenham, Oct. 12.* [We can to a great extent confirm *de gustu* this favourable verdict. Eds.]

The Pelargonium Society.—I have heard with great pleasure of the formation of this Society. I think it will be very useful. Its first object, I imagine, will be to judge of the value of the already existing varieties, because, in my opinion, there are a great many names which, owing to many of the varieties known under them being alike or nearly similar, should be reduced. Another necessary object of the Society will be to judge new seedling Pelargoniums as we now do seedling Roses in Lyons, because the raisers are all disposed to fancy their own seedlings are superior to any others, and, not being always able to compare them with those raised elsewhere, think them new. I am of opinion that the Pelargonium Society may do a great deal of good, but to do this as well as possible its membership ought not to be limited to England, but be made international, as we have done with the rosarians. At our last show the judges were one Belgian, two Swiss, and two French; three English were invited, but they could not come in September. We intend to have another Rose show next year, in June, to which your rosarians will be invited. Every one must understand that seedlings judged by independent men foreign to the town acquire a real value and give security to purchasers. *Jean Sisley, Lyons.*

Peaches and Nectarines.—Peaches and Nectarines are, in my opinion, the kings and queens of out-of-door fruits, and deserve a word of notice. In January the flowers began to open; I put on my 22-inch coping sheets, which run with rings on iron rods, and I did not undraw the curtains for six weeks. The weather being so unfriendly to such fruits, I was inclined to "throw up the sponge" and give up all for lost; but I have not had such good crops for the last seven years. I will number the fruits, because I can refer to them without repeating the names. I. *Peaches:* 1, Early Louise; 2, Early Victoria; 3, Early York; 4, Early Alfred; 5, Dr. Hogg; 6, Grosse Mignonne; 7, Violette Hâtive; 8, Royal George; 9, Noblesse; 10, Bellegarde; 11, Barrington; 12, Nectarine Peach; 13, Lord Palmerston; 14, Princess of Wales; 15, Lady Palmerston; 16, Radclyffe. These were upon the open walls; Albatross and Golden Eagle with Royal George and Bellegarde were under glass, and bore last year and this year good crops of nice Peaches. Golden Eagle is yellow-fleshed—the yellow-fleshed are not so good as the white-fleshed. I have only two others, Lady Palmerston, lemon-fleshed, late, and Frogmore Golden, early; still they vary dessert. I have had good crops of 1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, and 15. No. 16 had but one fruit, but it was handsome and the best flavoured of all the late Peaches, and was gathered October 2. Nos. 11, 12, 13 14, 15 are good late Peaches; but 16 is a long way before them in flavour and quality of flesh. It was raised by Mr. Rivers from Desse Tardive. I thank him for the compliment. The colour of the exposed cheeks is brilliant scarlet-crimson, with blotches. The flowers are large, and the glands roundish-kidney, season October. I have had good crops of them on a severe east wall—namely, 1, 4, 8, 10, 12; and on exposed west walls good crops of these—namely, 5, 6, 9. The others were on south walls: Nos. 2, 3, 13, 16, did not crop well. One word about Bellegarde: it is a noble Peach, but is frequently represented by the Violette Hâtive, from which it differs signally. Its leaves are dense, dark green; it is larger, later, and of blackish purple when ripe. They are of the same family, Bellegarde being the French and true Galande, and the Violette Hâtive being the English Galande, and derived from the former. II. *Nectarines:* I recommend the following highly:—Elruge (same as Oatlands and Claremont), Violette Hâtive (very like the former), Downton, Rivers' White, Emmerton's White, Rivers' Orange, and Rivers' Pine-apple. I do not recommend for out-of-door purposes any later than the last. The two last are yellow-fleshed and exquisite, and altogether preferable to the Pitmaston Orange as regards vigour, hardihood, size, and cropping. I should be wrong if I did not now express my thanks, and that of many others, to Mr. Rivers for extending the Peach and Nectarine season. I began with Early Louise Peach July 23, and ended with Lady Palmerston and Radclyffe, October 2. One of his best Peaches, and a sure cropper every year, is the Early Alfred. After almost all the other Peaches were gone, the trees of the Princess of Wales and Nectarine Peach were grand sights—something to "dream of!" I give a selection of Peaches for small gardens in the order of ripening:—Early Louise, Early Alfred, Grosse Mignonne, Royal George, Bellegarde, Noblesse, Barrington—all excellent and good croppers. If a later than Barrington is wanted, select the Nectarine Peach. Select Nectarines for small gardens would be Elruge or Violette Hâtive, Downton, Rivers' Orange, and Pitmaston Orange. You cannot, readers, burn your fingers in selecting from the above noble fruits. I have read my article over again and again, desiring to curtail it as much as I could, remembering

> "Poets lose half the praise they would have got,
> Were it but known what they discreetly blot."

In fine, the trees are in fine fettle for next year; their leaves are cut in half, the skins look mahogany or blood colour, the wood hard, and the triple eyes well developed. The success in 1875 depends much on the ripening of the wood in 1874. I am a short pruner, as recommended in Mr. Bréhaut's noble book, which should have gone through many editions! I thank him much. *W. H. Radclyffe, Oct. 5.*

Large Crops of Potatos.—The "extraordinary Gooseberry" of the penny-a-liner has now been entirely shut out from public notice and approval by the less luscious but more useful Potato. Every

autumn the readers of local papers are informed that "Mr. Thomas Smith has just exhibited at our office some remarkable specimens of the American Rose Potato that weigh on the average 25 oz. each;" or that "Mr. John Brown, of the 'Windsor Castle Inn,' has just lifted one of the most remarkable crops of Victorias we have ever seen;" or that "Farmer Bull, whose general crop has proved to be a lamentable failure, will have his rent entirely paid by the enormous crop he has raised of that well-known Potato, the Prince of Wales." And thus, in all directions, we are treated to paragraphs that are doubtless locally of intense interest. Big Potatos are, as a rule, better fitted to be the diet of cattle than of men, but whilst a *furore* after "big" things rages they will have no lack of admirers. In that direction I may commend to notice the new American variety, Vermont Beauty, that will produce immense tubers, quite putting the Early Rose in the shade, and the new Snowflake, if single eyes be planted, will also produce some immense tubers. In the matter of average produce we have not yet attained to that said to have been obtained from 1 lb. of seed in America—but like our cousins' mountains and rivers their taters are "tarnation big" also. However, I have heard of 1 cwt. of produce resulting from 1 lb. of seed, and that is quite enough to satisfy our moderate appetites for Potato sensations. A crop cannot well be too heavy, but tubers may be too large, and, therefore, except at cattle shows, are not generally favoured. Editors of local papers may be assured that Potatos have other and more important points than that of bigness. *A. D.*

Viola cornuta.—Since the introduction of the crosses between the Viola and Pansy, such as Viola Perfection, Enchantress, Magnificent, &c., little has been said in favour of the original Viola cornuta, which, when well managed, still holds its own. I was very much pleased to see it in great perfection last week at Panshanger, where it was the gem of all the flower-beds in the principal flower garden, its beautiful soft mauve colour quite lighting up the whole mass. Since the days when my friend Wills and myself took so much interest in its culture, I have not seen it in greater perfection at this late season of the year than at Panshanger. I shall next season plant it extensively, and see if I cannot once more do justice to this somewhat neglected old favourite. *E. Bennett, Hatfield, Herts.*

Parsley.—To secure good curled Parsley a little care in the selection of seed stock is involved that is quite worth the trouble when taken. I invariably save from one plant only, always selecting it as presenting the very best possible curled form and compactness of growth. This I lift bodily out, and put it away in a place remote from the rest of the stock, and it at all times yields enough seed for a good sowing. One apparent quality of Parsley, however, depends not a little upon the time of sowing; thus it is invariably of better quality the second year than it is in the first year, although spring-sown Parsley will attain to a good form late in the autumn, but it is good practice to sow new seed as soon as ripe, and it will then develope into good plants of excellent quality early next spring, and not run to seed to any extent that year. Still, if seed be sown early in the spring it will be sure to have produced good-sized plants before the previous crop has gone to seed and have become useless. Of course I am arguing on the supposition that crops of Parsley are allowed to seed, but this is not the rule in private gardens, where the flower-shoots are usually pinched out, and the plants thus continue to yield much longer. It is dangerous to omit the sowing of seed annually, as an awkward interregnum sometimes intervenes, and when sown the crop of young plants should be properly thinned, as the quality of the produce is thus greatly improved. *A. D.*

Heavy Crop of Grapes.—I am pleased to read, in these times of surpassing Grape culture, that the neighbourhood of Edinburgh is conspicuously to the fore. Mr. Paul's production of 60 lb. and 70 lb. to a rod is in advance of anything I have yet been apprised of. The secret of this unique fertility must, I fancy, be due to some more powerful agent than the covering or uncovering of the outside borders (see p. 401). Will Mr. Paul kindly inform us through your pages which variety succeeds in this superb manner with him?—and the quantity and weight of the individual bunches will be of equal interest. *J. Muir.*

Brugmansia suaveolens.—This plant may now be seen in perfect condition in the gardens at Crakemarsh, about a mile north of the thriving town of Uttoxeter. The plant is growing in a 13-inch pot, with several branches from 2 to 5 feet high. At the time of my visit there were over 200 fully expanded blooms on it, and many more ready to open as the old ones faded away. Mr. Freeman, the gardener at Crakemarsh, informed me that it had been flowering in a like manner for fully a month, and from the appearance of it it was likely to remain in bloom for some considerable time to come. Mr. Freeman's treatment is simply this: when the plants have done flowering, all the soil is shaken from the roots and all the fibres are cut off, and then potted in turfy loam and leaf-mould and started into new growth. They are then set out-of-doors for a time, when they produce a few blooms; afterwards they are put into gentle heat, when they make rapid growth and bloom profusely. Mr. Freeman has grown and flowered them in this way for the last sixteen years at Crakemarsh. *Edward Gilman, Wootton Hall Gardens, Ashbourne.*

Finocchio.—A vegetable which we scarcely ever see in this country, but which, nevertheless, is amply deserving culture, is the Finocchio of the Italians, the bulbous Fennel of some catalogues, the Fœniculum dulce of botanists. The base of the stem, together with the sheathing portions of the leaves, become in this plant dilated and succulent, and when boiled or stewed have an appetising flavour deficient in the majority of our cultivated vegetables. In Italy, in the spring, it is a never-failing element of the dinner. The plant is earthed up to secure succulence, whiteness, and delicate flavour. Without this process its taste would be far too potent to be agreeable. The seeds are sown in rows successionally all the spring, and the plants thinned when necessary. Hoeing and watering are practised when necessary, and earthing-up is practised as soon as the stalks begin to swell, and is repeated three or four times in the course of the season. In Italy it is used not only cooked, as we have stated, but also raw, as a salad, either by itself or with other vegetables. In this manner, however, its flavour is too *prononcé* for our palate. *M.* [See also 1874, ii., p. 143. Eds.]

Fig. 102.—Finocchio.

Himalayan Leaf Fungi.—Dr. Fleming, late of Delhi, has placed a small collection in my hands made by him during a trip in the Himalayas. It consists, amongst others, of Uredo clematidis, Berk.; Æcidium rubellum, De Cand.; Puccinia dissiliens, Cooke; Uredo potentillarum, De Cand.; Uromyces ambiens, Cooke; Puccinia cruciferarum, C. uredo punctoidea, Cooke; and immature states of Ailographum and Volutella. Interesting, because we know so little of the parasitic fungi of all India, and also as showing how undoubtedly rich a field remains unexplored. *M. C. Cooke.*

Killing and Colouring Rye-grass Seed.—At an adjourned meeting of the wholesale Rye-grass seed trade of Belfast, the letter signed "Ventilation," published in the *Gardeners' Chronicle* of October 10, and replying to the resolution of the trade published on September 26, was duly considered and the following reply agreed to:—That the grass-seed trade of the North of Ireland is chiefly centred in Belfast, Bunbridge, and Newry, the great bulk of the seed being shipped from Belfast. That in quality and purity the Belfast seed compares favourably with the best samples offered, and commands a ready sale in the Scotch, English, and foreign markets. That the author of the letter signed "Ventilation," if desirous of exposing and preventing the illegal practices he refers to, might have done so most effectually by means of the Adulteration of Seeds Act, 1869, which in case of guilt being proved not only fines but enables the Court to advertise the name of the offender. That by publishing these general calumnies the author of these letters may unintentionally injure our trade, and some people may imagine not for the apparent object—the public good—but for a private end—the promotion of his own trade interests. We now call upon the Editor of the *Gardeners' Chronicle* to furnish us with the name and address of his correspondent, that we may require him to prove the truth of his accusations or exonerate the Belfast trade from all connection with such dishonest practices. *J. H. Lytle, Secretary.* [It remains for our correspondent to do as he pleases in the matter. We have no personal knowledge or interest in it, save on public grounds. We may, however, remind Mr. Lytle and his friends that no charge has been made against the trade in general. Eds].

Successful Vine Culture.—I send you two photographs of a house of Muscat Grapes, under my charge here, and would append a brief statement of my management since the Vines were planted in March, 1871. By the end of that year the canes (two rods to each plant) reached the top of the house, and were well ripened in autumn. In the spring of 1872 I cut them back to within 4 feet of the ground; that year they showed an abundance of fruit, but I only allowed two bunches on each rod, and which, when ripe, would weigh from 3 lb. to 5 lb. each bunch. In 1873 they were cut back to very nearly the same length as in the preceding year, and bore from five to six bunches on each rod, averaging from 4 lb. to 6 lb. each. This year I have ripened from eight to ten bunches on each rod, weighing from 3 lb. to 6 lb. each. As yet I have observed no tendency to shanking, and the fruit has finished off well. We have formed no outside border as yet, the roots being confined by a brick wall. As regards general treatment, I may mention that from the time of setting I have never allowed the temperature to fall below 73°, and have never used the syringe since the plants started into growth. *Wm. Shaw, Donisea House, Edinburgh, Oct. 8.*

The Plaint of the Potato.—Suffer me so bring to your notice the great wrong done to me by those to whose lot it fell to revise the schedule of prizes of the Royal Horticultural Society for 1875. Up to 1874, and that notwithstanding I had been regarded as one of the most esteemed, and certainly one of the most popular vegetables in cultivation, paltry prizes were offered for unlimited collections of my varieties. I

always felt I was far too much neglected by the powers that were, and it was with heartfelt satisfaction that I and those who seek to improve me, and those who cultivate me, saw me lifted up to a proper position and recognised in a liberal and becoming spirit in the schedule of prizes for 1874. At the September meeting of the Society I appeared in strong force, being numerously and worthily represented, but owing to being badly judged, through no fault of mine, my admirers grew excited and protested warmly against the decisions of the judges, unhappily with too much apparent cause. Is it because of this that the prizes offered for me in 1875 have been reduced just one-half? During the present year the sum of £4 was offered as a 1st prize for twenty dishes of Potatos, and the sum of £2 for twelve dishes. Apart from the fact that a fine collection of twenty dishes of the best varieties by which I can be represented is well worth a prize of £4, there was in the fact of such an amount being offered a general consistency with the amounts offered for other vegetables. This harmony no longer exists. At the exhibition of fruit and vegetables to be held on November 10, 1875, I find the sum of 40*s.* offered for a dish of the six heaviest Pears, and they will be certain to be large, ungainly, worthless fruit; and the same sum is offered for a collection of twenty dishes of myself, distinct varieties. For twenty dishes of Potatos a prize of 20*s.* is offered, the same is offered for twelve Onions, and in many classes for six fruits of Pears and Apples, while three sticks of Celery get the sum of 15*s.* Such is my plaint. Am I not *An injured Potato?*

The Spruce Gall.—The Larch, the Spruce Fir, and some of their congeners, *e.g.*, Abies Pinsapo, are very commonly distorted by a little insect, which in its work of destruction produces a formation so like that of little cones as very frequently to be mistaken

Fig. 103.—SPRUCE-GAUL.

for them. They are, however, the work of the larva of an insect, whose eggs are deposited between the bud scales. The insect producing these eggs is something between a coccus and an aphis, and inherits the destructive proclivities of both. By entomologists it is known as Chermes or Adelges Abietis. The history of the insect is given in our volume for 1852, and its earlier stages have been quite recently elucidated by our correspondent "O.," at p. 635 of our first volume for the present year. We call attention to the insect and its work at the present time from having recently witnessed the sad havoc occasioned by it in a plantation in Hertfordshire, to which our attention was called with a view to a remedy. The only remedy we know is to cut away the infested branches and burn them, and to take particular care in the spring of the year to watch for the first symptoms of the disfigurement, and especially for the small white silky patches, which indicate the presence of the female insect, and to clear these away remorselessly. We do not believe in the efficiency of any mere smashing the insect, but counsel the entire removal and destruction of the affected twigs. *M.*

Stachyurus-Nandina.—I have two rather scarce shrubs nows showing bloom in the open ground, viz., Stachyurus præcox and Naudina domestica, the first-named said to be followed by black berries, the latter to produce edible berries. *W. E. G., Queenstown, Cork.*

The Pentstemon.—Is the great value of the Pentstemon as an autumn flower so well known as it deserves to be? It is now, and has been, one of our mainstays in filling up an occasional hamper of flowers. It is the safest plan to strike cuttings every autumn, as an extra severe frost kills those left in the ground. Young plants give the finest spikes also, though they do not commence flowering so early as the old plants. Cuttings planted in pans or pots in the beginning of September, and shut up in a cold frame, with shade from the sun, will strike without any loss. They require wintering as half hardy plants, the less coddling they receive being the better for them subsequently. The following selection will be found a good one to commence with:—Beau Villageois, Ceres, Calliope, Black Knight, Monsieur Chabert, Mr. Bell, Stanstead Rival, Zampa, Jules Simon, Michel Buchner, Majenta, White Beauty. *R. P. B.*

Double Doors for Hothouses.—The sudden chills to which stove plants are exposed by the opening of the doors of the houses in which they are grown must often (to use a common expression) "give them their death of cold." You allude to the new Orchid-houses at Kew having recently been furnished with porches. Why should not double-doors, with standing-room in the vestibule between them for any given number of persons, be so arranged that one door could not possibly be opened until the other door is shut? I cannot spare time just now to work out the *modus operandi*, or to patent the idea; but perhaps one of your readers will apply the notion for the sake of the plants. *W. T. P.*

New Peaches at Heckfield.—When visiting Heckfield Place, the residence of that well-known patron of gardening, Lord Eversley, on two or three occasions during the past summer, I had opportunities of inspecting and noting some characteristics of a few of the new Peaches raised by Mr. Rivers, of Sawbridgeworth. They have been denominated a "new race of early Peaches," but some of them possess qualities of a striking character, that cannot fail to interest all fruit cultivators, and especially those whose ambition it is to get crops of ripe Peaches as early as possible in the season. Mr. W. Wildsmith, the gardener at Heckfield, is widely known as an accomplished fruit cultivator, and any new fruits that he may take in hand for the first time will be certain to have their merits fully tested under an ample and intelligent course of culture. Early Louise Mr. Wildsmith commends as the best of all the early Peaches, and ripened with him this season in an intermediate house six weeks before Bellegarde and Royal George, growing in the same house; the flavour is perfect, the fruit medium-sized and bright red in colour; the size of the flowers small. Early Beatrice Mr. Wildsmith has discarded, as being too small and not so early as Early Louise. Early Rivers is much larger than the Early Louise, but not nearly so early, still a very desirable variety to cultivate, being of very fine flavour and remarkably handsome, having a lovely coloured pink cheek, the flowers large. The large Early Mignonne produces splendid looking fruit, very large, and of pale straw colour, with a rosy cheek. It sets very freely, and at Heckfield it ripened a few days earlier than the old Early Grosse Mignonne; the flesh melting and rich in flavour, the flowers large. Princess of Wales Mr. Wildsmith terms the best of all Mr. Rivers' new kinds, late, enormously large, splendid flavour, a sure bearer, and not at all liable to mildew. During the second week in September it was grandly ripe in the late Peach-house at Heckfield—a truly courtly fruit, worthy the royal lady whose name it bears. When at its best the large fruit is of the most delicate pink and straw colour. The flowers well deserve the description given to them by the raisers, "very large and beautiful." Magdala is a very fine Peach, of a peculiar oval shape, and with a smooth skin, very like that of a Nectarine, creamy white flushed with crimson. It appears to crop freely, and the flowers are small. Lord Palmerston is considered by Mr. Wildsmith to be the largest Peach known, and when fully ripe it is of a delicious flavour. Like all the Sawbridgeworth Peaches, it grows and fruits freely; the skin is creamy white with a pink cheek, the flowers very large. The Alexandra Noblesse is a fine large Peach, distinct from the old Noblesse, and a few days earlier. Its superb quality is summed up in Mr. Wildsmith's remark in reply to a question respecting its flavour—"I think it the finest flavoured Peach I ever tasted." It differs also from the old Noblesse in having smooth leaves and round glands, hence it is not liable to mildew. Dr. Hogg is another large Peach, and as the flesh is apt to come stained with red it may be termed a red-fleshed Peach, in fact it is frequently quite red through to the stone; flavour rich and sugary. It has a most robust and hardy habit of growth, and produces large delicate pink flowers. Early Alfred has also been discarded as being too small. There will be an excellent study of Peaches at Heckfield next season, as Mr. Wildsmith has converted one of his long span-roofed Melon-houses into an early Peach-house, and planted it with twelve remarkably fine trees of the leading varieties. His neighbour, Mr. Tegg, of Bearwood Gardens, and formerly of Clumber, grows some of his early Peaches on the cordon system, and with the greatest success, getting not only a numerous crop but remarkably fine fruit. *R. D.*

Vicomtesse Hericart de Thury Strawberry.—I can indorse what was said of this variety in last week's issue; the only fault it has in these days is the general smallness of the fruit. However, where quantities of fruit are in request, it is the best variety that can be grown. As to Keens' Seedling and Sir C. Napier, the insipidity of the former and the acidity of the latter ought to have long ago consigned them to the ranks of worthless fruits. In the peaty soil here Dr. Hogg has proved the best; wet, however, is very injurious to it. Cockscomb is one of the best for wet seasons; it is also large and fine flavoured. It is surprising, considering the many fine varieties in cultivation now, the cheap rate at which a few can be bought, and the small amount of trouble consequent on growing the Strawberry, that gardeners do not generally try for themselves the sorts most suitable for their particular localities. I have no doubt the *régime* of outdoor Strawberry culture will, in a few years, be completely revolutionised. Those who have tried for themselves, or noted the results obtainable from the one-year system of Mr. Douglas, of Loxford Hall, on the light soil there, or of Mr. Gilbert, of Burghley, on soil of an opposite character, can only have one opinion as to its superiority over the old system. *R. P. B.*

Cucumber Climax.—From seeing Cucumbers recommended or spoken of in high praise in your columns I have sometimes tried them, but, as a good, useful, and handsome variety, especially for winter work, I have found none to approach Climax, sent out, I believe, by Mr. William Bull, Chelsea, from whom I procured seeds. It is a prodigious cropper, far surpassing any other I have ever grown. During the past season I grew two Cucumber-houses full of it, also a frame, and it was equally good in both places. The consumption of Cucumbers here is large, and I find that this sort can be thoroughly relied on for a good and continuous crop, for I have been cutting heavily since April till last week from the same house. I also find that the opinion of other gardeners coincides with my own, and therefore I send you this letter, for it is an important thing to a gardener to know what Cucumber he can thoroughly rely on, for he neither wants to be experimenting on all the Cucumbers in the seedsmen's lists, nor to be constantly buying the new sorts that are from time to time brought out. *E. Morgan, The Gardens, Courty Gollon, Crickhowell.*

Viburnum Awafurki.—Of all the brilliantly coloured autumnal plants I have ever seen the plant above-named is the finest. Some of its leaves are now of a bright rose colonr. *W. E. G., Queenstown, Cork.*

Reports of Societies.

Horticultural Exhibition in Paris. — The National Society of Horticulture of France has held its autumnal exhibition with great success. It was held in the house and grounds of the Society in the Rue Grenelle Saint Germain, and included flowers, fruit, and vegetables.

The exhibition, as usual, was arranged with great taste, and the *coup-d'œil* was charming. The visitors passed between two rows of flowers—Pelargoniums, Clematises, Celosias, Begonias, Cinerarias, Gynerium, &c.—to a covered court transformed into a glowing parterre, where, amongst many more notable objects, were a group of beautiful Palms from Bourg-la-Reine, and a splendid Vanda Lowii, grown in the environs of Paris, in flower. The vestibule of the great conservatory was filled with a fine collection of Dracænas, and the arcade leading from it to the conservatory with Palms, Ferns, and large-leaved plants. The exhibitors were 157 in number, fifty showing flowers, fifty-five fruit, and fifty-two vegetables, but many of them exhibited a large number of specimens. The flowers did not include any very remarkable, with the exception of the double Begonias and Petunias.

The fruit was superb. One grower showed 320 sorts of Pears, 167 sorts of Apples, and sixty-three varieties of Grapes. There were in all 3500 plates of fruit on the tables. There were about a hundred varieties of Grapes, but M. Rose Charmeux at Thomery, and others nearer Paris, can show more than twice that number. Amongst the most remarkable Grapes were the Chasselas Napoléon. There were 500 varieties of Apples and as many of Pears. Amongst them were the Pomme d'Api, black and striped, splendid Beurré, Doyenné, and Catillac Pears, and an immense Pear named La Belle Angevine, weighing 2 lb. or thereabouts, remarkable for its bad flavour. The size and perfection of the fruits were remarkable.

Of other fruits, amongst the finest were the Peaches of Montreuil, so large, firm and perfect in their velvet coats that they looked artificial, Medlars of such size that half a dozen filled a fruit plate, and some beautiful Plums named after Saint Martin.

The vegetables were quite as fine in their way as

the fruit. A Pumpkin measured just below 100 inches in circumference, and was said to weigh 190 lb. French, that is to say about 209 lb. English; a Cabbage of nearly the same circumference, a Beetroot weighing 18 lb., a black Radish 5 lb., some magnificently grown Cardoons, Tomatos as large as big Swede Turnips, and a collection of Gourds, many of them grown for show merely—very curious and pretty.

The collection sent by the market gardeners of the plain of Gennevilliers, supplied with sewage, attracted great and deserved attention. The vegetables exhibited by them were enormously large and well-grown. It is said that such is now the fertility of the plain, formerly the most ungrateful soil imaginable, that Asparagus is brought to perfection there in two years. The Cauliflowers, the Chinese Ignames (Yams), Sweet Potatos, Melons and Pumpkins, were especially remarkable, and some Leeks were as large as a man's arm.

The Gennevilliers' was a combined exhibition, but really included some hundreds of exhibitors, for there were 108 entries, and some of these represented entire villages devoting themselves to one particular branch of cultivation. Paris has certainly turned a portion of her sewage to admirable and economical account.

THE FARM.

FOOD PROSPECTS.—Now that harvest is not only over, but much work has been accomplished towards the future in food production for man and the animals under his charge, it will be well to look to our present prospects in these respects. We have already reported a good Wheat harvest, and at one time we confess to having been jubilant over a most prolific crop of Potatos; but, alas! the hopes of the latter are now well-nigh dissipated all over the country, more than two-thirds of the Potato crop having already succumbed to the fell disease, and the cry is still they go; a fact which should make us doubly anxious to duly estimate the probable yield of the Wheat crop.

Now, as regards this latter, we must confess to a large degree of personal disappointment, which may be put in the most comprehensive form when we say that our deficiency from the estimate when growing ranges from one to two sacks an acre, and this in both white and red Wheats—*e.g.*, we estimated the probable yield at harvest as reaching ten sacks per acre; but that infallible touchstone, the bushel, tells us that though some is over eight sacks, yet that eight sacks will be for us a good average. On looking into the causes for this we find the two following to be the most prominent—

1. Though the ears of Wheat were long and thick-set, as well as being thick on the ground, the grains of corn prove to be small.

2. Insects have proved unusually destructive.

With regard to the latter evil, as affecting Wheat, we would now only quote from Kirby and Spence's *Entomology* on this subject, reserving for a future article a description of one of the greatest insect pests we have this year met with. "Bread is called 'the staff of life,' yet should Divine Providence in anger be pleased to give the rein to various insects which, in different stages of its growth, attack the plant producing it, how quickly would this staff be broken! From the moment that Wheat begins to emerge from the soil, to the time when it is carried into barn, it is exposed to their ravages." Yea, and we may add that after it is garnered the grain is even more liable to destruction. For the present, then, as regards this matter, we may say that we think we are suffering to the full extent of a sack an acre from an insect even now eating the grain, and which we hope to fully describe shortly.

Taking, then, the first question of the smallness of the grain into account, it will be obvious that a small berry will not fill up the bushel so well as a larger one; and as showing the difference in this respect we have before us samples of both white and red Wheat, 100 grains of each of which weigh as follows:—

	Grs. Weight.
100 grains of white Essex Wheat	70.0
" " "	50.0
100 grains Golden Drop Wheat	85.0
" " "	40.0

The same holds good with regard to Peas of this year, as never did we see them so small; and here we may cite differences in samples, thus:—

	Grs. Weight.
100 Peas (dwarf white)	100
" "	150

And again, as regards Vetches, it is singularly true, as no full-sized Vetch seed is to be met with at market.

Of course this diminution in size is due to the warm dry summer weather which continued up to the time of the ripening of the crops, so that the grain did not properly swell; but against this we may set the fact, that for the most part Wheat has been harvested in good condition, and so the weight of this small grain per bushel is this year found to be somewhat above the average; hence, then, good bread will be made, but we much doubt if corn will continue so cheap as it is at present.

Should it do so, much will be consumed for feeding purposes, as Wheat at 40s. per quarter will be one of the cheapest feeding stuffs we can have recourse to, and especially as cake of all kinds is at a maximum price.

It is, however, a curious circumstance that at the present moment Wheat, for its weight and quality, is cheaper than any other kind of corn—a condition which we never before recollect. In this state of things Wheat is recommended as a feeding substance, but the position is so anomalous that we are persuaded it cannot last, and we therefore advise a little waiting, as much will depend upon the kind of winter which may be before us. Should the winter be mild there may yet be a larger growth of roots, and not so much of any kind of food either for man or the lower animals will be required; but if, on the other hand, it be severe, roots will be but a scanty crop, and with the deficiency in the Potato, and grain below an average crop, Wheat will by no means keep at the low price which at present prevails.

THE HARVEST IN SCOTLAND: *Inverness, Oct.* 5.—The harvest is now completed in the North of Scotland, fully a fortnight or three weeks earlier than last year, and, on the whole, with satisfactory results. During the early part of harvest operations we had a period of the most propitious weather for the ingathering of the crops, advantage of which was fully taken to secure as much as possible in the best possible order. Latterly, however, the weather became more unsettled, with occasional heavy plumps of rain, but almost invariably accompanied by cold winds, and followed by fine, drying, searching breezes, which prevented any evil results, excepting the partial discoloration of any fields of Barley then outstanding.

WHEAT.—In point of quality and yield per acre it is, undoubtedly, the best crop of the season, and the average yield will be considerably in excess of 1872-73. During those two years hardly a sample could be found free of sprout or some blemish, but this season farmers can bring to market choice samples, and a satisfactory trade with English millers is anticipated. Not much of the new crop has yet come into the market, and, with the present range of prices, farmers will be most unwilling to do so, but later on the market must receive its ordinary supplies.

BARLEY.—This crop does not bulk nearly so well as in former years, but the yield in threshing is found to be more than one would infer from the appearance of the stackyard. Quality will vary very considerably, and it is feared that the greater portion will be deficient in the fine colour so much desiderated by the maltster, but in condition and freeness from sprout it is equal to any ordinary good year. Some samples brought to market are very fine in colour and weight, and a fair portion of the crop will be still available for the finest malting, but distillers will be the buyers of the great bulk of the crop.

OATS are the most deficient crop of the season, having grown thin on the ground; the bulk per acre is unusually small, but they are threshing out much in excess of anticipations, and the quality is excellent. Samples, as yet delivered, weigh from 41 to 42½ lb., and produce in meal from 14 to 15 stones per quarter. The extra quality and yield in meal, compared with the last two years' samples, will go a long way to make up for the deficiency in crop.

POTATOS are an excellent crop, and the quality good. Reports of disease having made its appearance in various parts of the country are not without foundation, but the tubers are now in a state of advancement that, it is hoped, will secure their immunity from much further ravage.

A good deal of Barley and Oats of the new crop have already come to market, but it will be fully a month later before much Wheat is offered. *Henry Munro & Co.*

AMERICAN CROP RETURNS.—The following paragraphs are extracted from the lately issued report of crop returns furnished by the Department of Agriculture:—

CORN.—None of the large corn-producing States reach average, while several of them show a decline from even last year's depressed condition. The only States that are average, or above, are Rhode Island, Connecticut, South Carolina, Georgia, Florida, California, and Oregon, which, together, produce less than one-twentieth of the crop.

WHEAT.—The average condition of the Wheat crop of the United States, as shown by our September returns, is 93, or 2 per cent. less than the average of September 1873. The increased acreage, however, amounting to 7 per cent., raises the prospective yield to nearly average upon last year's acreage.

OATS.—In New England the crop is unusually good. Maine, from which every county reports, returns an average condition of 104; New Hampshire, 105; Vermont, 110; Massachusetts and Connecticut, 103; Rhode Island, 100. Minnesota and California return 103. All other States fall below average, ranging from 99 in Oregon to 47 in Kentucky. The reported causes of reduced condition are: New York, 88, drought and rust; New Jersey, 72, rust; Pennsylvania, 82, drought and grasshoppers. Throughout the South Atlantic and Gulf States both drought and rust have extensively prevailed. The same is true of Arkansas, Missouri, Tennessee, and Kentucky. In the States west of the Mississippi grasshoppers have been very destructive on Oats, as on other crops. Chinches have also done extensive injury in large areas of both the Mississippi and Ohio valleys. Drought united with chinches to reduce the crop in Wisconsin, 83. The average for the country is a condition of 86.

RYE.—It is above average in all of the New England and Middle States except Vermont and Pennsylvania. It is below average in all the Southern States except Maryland, Georgia, Florida, Tennessee, West Virginia, and Kentucky. In Ohio and California it is full average, and in all the other States below. In the Eastern States generally it appears to have enjoyed favourable conditions of growth, and also in the Southern inland States. West of the Mississippi it suffered from drought and insect ravages. It is very little cultivated in the Gulf States.

BARLEY.—Barley averages 92 per cent. of a full crop. Very little is raised south of Kentucky, where it is above average. In the New England and Middle States it is about average. In the north-west it is about 90 per cent., and on the Pacific coast a little above average. The late crops in the north-west were injured by drought and insects.

BUCKWHEAT.—This crop is below average in all the States except Vermont, Massachusetts, and Connecticut. In New England it is about average on the whole. In the Middle States it is about 92. Considerable quantities are grown in West Virginia and Tennessee, but in the other Southern States its culture is insignificant. In the north-west the crop has nowhere been very satisfactory. In Kansas the grasshoppers reduced the average to 39.

TOBACCO.—Our returns foreshadow that less than half a crop of Tobacco will be gathered this year. The only States presenting a condition above average are Connecticut, 107, and California, 102. Wisconsin, Iowa, and Oregon, are average. These five States, however, grow less than one twenty-fifth of the whole crop. Kentucky, representing about two-fifths of the Tobacco-growing interest, averages but 31, a decline of 11 since the July report. Tennessee and Nebraska make a still more unfavourable return, averaging but 24 each. Kansas strikes the base-note at 20. In the South and West the prevailing drought is sufficient to account for the generally low condition, which, in connection with the reduced acreage, will warrant the low estimates received from this part of the country.

POTATOS.—The average condition reported for the entire country is 83. In New England, where the crop has suffered scarcely any drawback, full reports return an average condition of 103. Throughout the remainder of the country, except on the Pacific slope, droughts, Colorado beetles, grasshoppers, and chinches, either singly or conjointly, have preyed on the crop to a greater or less extent. All these have combined to reduce the condition in Kansas to 20, and in Nebraska to 24. The prevalence of rot is only noted in Otsego, New York. In the Middle States, except New York, ravages by the Colorados have been more extensive than heretofore.

The Villa Garden.

THE process of potting Hyacinths appears to be simple enough, and quite within easy accomplishment by any one versed in gardening, and yet failures frequently occur, and the blame is laid on the bulbs, or rather the person who supplied them. For general decorative purposes it is a good plan to refrain from potting any Hyacinths till the coronal of incipient rootlets which surrounds the base of the bulbs begin to swell as if desirous of making a quick growth. Then the Hyacinths, when potted, readily penetrate the soil, and form a dense healthy mass in the pot before there is scarcely any sign of growth in the flower-spike. This is what all who grow Hyacinths with attention, and wish to have them as fine as possible, should aim at bringing about—it is beginning well, and that is a point of great importance. Many persons have failed with Hyacinths through potting them early in a compost in which what might be termed rank manure is freely mingled. As soon as potted the pots are throughly saturated with water; they are then stood away in some damp unsuitable place, getting thoroughly drenched with rain; by-and-bye a weakly growth appears, and with it abortive spikes of flower, the foliage decays, and on turning out one or two of the bulbs it will be found

that the roots are rotten, and a colony of worms has made a home of the decayed bulb. Nothing perhaps is easier to cultivate well than Hyacinths in pots; and it seems a waste of words to point out what should be avoided; but there are notwithstanding so many failures, that advice is always necessary. Many of those who grow a few to give a little floral life to their greenhouse in early spring, or to decorate the windows of their living room, fail, because of using too much manure, and that of a half-decayed character. The soil becomes soddened, rot results, and a grievous disappointment into the bargain. Better to use too little than too much manure of this character; at the blooming season it is easy to supply a stimulus, as for instance a patent manure or manure water.

There is a great deal of over-potting done in the case of Hyacinths. A Hyacinth does best when it roots quickly into the soil, and fills the pot with them. Provided the soil used for potting Hyacinths be fairly good, a 48-sized pot will grow a bulb as well as any. All our finest exhibition Hyacinths are grown in 32-sized pots, some in a smaller size. There should be a layer of crocks—a single one will suffice; then a piece of decayed turf, and on that a few pieces of manure, then fill in with the soil and pot the Hyacinth, burying about one half of the bulb. Use the soil pretty dry, not exactly dust-dry, but so nearly dry as that it will not cling to the hands. When the potting is completed, give the Hyacinths a gentle soaking by means of a sprinkle-pot, and when the water has drained away, then put the pots away on a bed of ashes in some sheltered spot, having a depth of 3 or 4 inches below them, and as many above, and then let them rest quietly for the space of five or six weeks, by which time the pots will have become filled with roots, and the shoot will have made some progress towards growth. During mid-winter Hyacinths, unless they are in heat, grow but slowly, and no doubt it is well that it is so, for during that time the plants appear to be gaining strength to make the final effort of flowering. When the days begin to lengthen, and the sun gains power with the advancing spring, a quick growth sets in, then it is that water should be freely given in drying weather, and as much air as possible to keep the plants in robust health. Let the first batch of Hyacinths be potted now, and it is quite easy enough to do it; then follow on with a few more at intervals during the next two months. The last potted may flower first after all, but a succession of bloom will certainly be provided, and it is not difficult to retard the flowering of some of them by-and-bye.

CROCUSES.—A few of these should also be potted in 48-pots, using the soil somewhat more sandy than for Hyacinths, and not quite so rich. At the spring flower, shows our cultivators of bulbs make pots of Crocuses most ungainly things, as a rule, by putting too many corms in a pot; the consequence is a crowded and confused mass of bloom, in which the individual beauty of the flowers is completely lost. A "happy and beautiful Crocus," as one of our poets termed it, is full of lines of beauty; an exquisitely striped and pencilled flower is indeed a "bright and glorious revelation" of vernal loveliness. Put four or six Crocuses, or one or two more, in a pot, according to the size of the bulbs. Some are very large, as, for instance, the Giant Yellow, Albion, Sir Walter Scott, La Majestueuse, and others. The blue and white varieties of the Crocus have generally smaller corms. What if their term of floral service be not of long duration? The Crocus cannot be dispensed with for pot-work in early spring; a hundred or two of bulbs of different varieties will fill a good many pots, and make a cold greenhouse or conservatory look very gay when there is scarcely a flower to be found out-of-doors. The Cloth of Gold Crocus, a very early blooming variety, known also as C. reticulatus, or C. susianus, and sold under these names; and the Scotch Crocus, or C. biflorus, are our two favourites for earliest blooming. We have now in pots, flowering freely, one of the beautiful autumn-blooming species, C. speciosus, throwing up its charmingly pencilled flowers on naked stems, without a blade of grass to relieve them. The growth comes immediately after the bulbs have done blooming. There are some other autumn-flowering species of great beauty, that might be bloomed in pots in the autumn, and planted out in the spring for lifting again in August to put in pots. What charming pans or pots might be made of some of these autumn-flowering Crocuses, if they were planted early in August, and the pans carpeted with the elegant Mesembryanthemum cordifolium variegatum, perhaps best known to the initiated as a low-growing variegated Mesembryanthemum, much employed for bedding purposes during the summer.

SQUILLS.—Really lovely things for early spring flowering in pots are the Vernal Squills or Scillas, especially bifolia and sibirica. The pleasant hue of blue found in each, though differing in tints, appears to acquire a peculiar richness at mid-winter. If half a dozen bulbs of each are put in a 48-pot, in soil similar to that used for Hyacinths, they do well, and are very effective. We should no more think of being without those pretty blue Scillas in our greenhouse in early spring, than of tabooing Zonal Pelargoniums for summer flowering in pots. When our Scillas have gone out of flower they are left in the pots all the summer, and plunged in ashes under a north wall, and a little top-dressing of soil given to them when placed there. In October it will be found that the bulbs are beginning to put forth fresh roots; they are then turned out of the soil, the offsets removed, and planted thickly in a shallow box in some light sandy soil, and the bulbs epotted as directed above. This is better than turning them out in the open ground, where they are apt to get neglected and dried up by the summer's sun.

VIOLETS.—A few strong plants of The Czar or Victoria Regina Violets, also of the Double Blue and Double White, should be at once potted up in the Hyacinth soil, using 48 or 32-pots, according to the size of the plants. If kept out-of-doors during mild weather till fully established, and then brought into the greenhouse, Violets can be had at Christmas, or even earlier, and never are these fragrant blossoms more welcome than at that festive season of the year.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, OCTOBER 14, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
Oct.	In.	In.	°	°	°	°	°	°			In.
8	29.79	+0.10	59.0	38.7	20.3	46.9	− 5.2	41.5	79	WSW: S.	0.00
9	29.74	+0.05	59.8	41.0	18.8	51.7	− 0.1	52.9	96	SSW: S.W.	0.02
10	29.94	+0.25	62.7	44.3	18.4	53.5	+ 1.9	51.6	88	SSW: S.W.	0.00
11	29.98	+0.29	62.8	49.6	13.2	55.5	+ 4.1	52.9	91	S.W.	0.44
12	29.95	+0.26	64.8	49.3	15.5	55.8	+ 4.6	53.0	91	S.W.	0.00
13	29.73	+0.03	67.2	50.4	16.8	57.7	+ 6.8	56.0	94	S.: E.: SW	0.00
14	29.62	−0.08	61.1	52.1	9.0	55.9	+ 5.3	55.5	99	N.E.: S.E.: S.	0.19

Oct. 8.—A very fine day; cloudless in morning and at night; a few light clouds in afternoon.
— 9.—Overcast generally till evening, and showers of rain fell frequently; cloudless at night.
— 10.—A fine day; partially cloudy till evening, then cloudless.
— 11.—Generally overcast till evening, and rain fell occasionally; fine, but partially cloudy after 7 P.M.
— 12.—A fine day; the amount of cloud was very variable.
— 13.—Generally cloudy but fine till sunset: cloudless at night.
— 14.—The amount of cloud was large, and thin rain fell at times during the day. Heavy rain between 7 P.M. and midnight.

—— In the neighbourhood of London the reading of the barometer, at the level of the sea, decreased from 29.49 inches at the beginning of the week to 29.37 inches by noon on the 4th; increased quickly to 30.08 inches by 9 P.M. on the following day, decreased to 29.27 inches by the morning of the 7th, increased to 29.99 inches by noon on the 8th, decreased to 29.88 inches by 9 A.M. on the 9th, and then increased to 30.15 inches by the end of the week. The mean reading for the week was 29.81 inches, being 0.15 inch higher than that of the preceding week, and 0.06 inch below the average of the corresponding week, as deduced from 18 years' observations.

The highest temperatures of the air ranged from 53¼° on the 4th to 62¾° on the 10th, the mean for the period being 58¼°. The mean of the low night temperatures of the air was 41°, the extreme values being 38° on the 6th, and 44¼° on the 10th. The mean daily range of temperature was 17½°.

The mean daily temperatures of the air, with departures from their respective averages, were as follows:—4th, 46°.6, —6°.9; 5th, 45°.5, —7°.8; 6th, 49°.4, —3°.5; 7th, 50°.2, —2°.3; 8th, 46°.9, —5°.2; 9th, 51°.7, —0°.1; 10th, 53°.5, +1°.9. The mean temperature of the air for the week was 49°.1, being 3°.4 lower than the average of the same week, as deduced from observations extending over a period of 50 years.

The highest reading of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, was 104° on the 9th, and at other times the readings of this instrument did not exceed 100°; the mean value for the week was 87½.

During the early morning hours of the 5th, 6th, and 8th, a thermometer on grass, with its bulb fully exposed to the sky, read 30°, 29°, and 29¾° respectively, and on the remaining four nights the readings did not fall below the freezing point.

The most prevalent direction of the wind was S.W., its strength was gentle, except on the 6th and 7th, when the mean daily pressures on the square foot were respectively 1.7 lb. and 2.5 lb.; and the respective maximum pressures recorded during gusts on these days were 10½ lb. and 22½ lb.

On the 6th the sky was overcast throughout, and it was generally cloudy during the other days, but the nights were for the most part clear.

Rain fell on three days; the amount measured was 1.08 inch.

In England the extreme high temperatures observed by day ranged between 70° at Sunderland and 57° at Newcastle-on-Tyne, the general average over the country being 60¾°. The extreme low temperatures observed by night varied from 43° at Liverpool to 34° at Norwich, the general average being 38¼°. The mean range of temperature in the week was 22½°, varying from 31° at Sunderland to 14¼° at Liverpool. The mean high day temperatures ranged from 64° at Sunderland to 55¼° at Liverpool and Newcastle-on-Tyne, with an average value of 57°. The mean low night temperatures varied from 46° at Liverpool to 39° at Nottingham, with a general average of 42¼°. The mean daily range of temperature was 14¾°, the greatest mean daily range being at Sunderland, 20½°, and the least at Liverpool, 9¼°. The mean temperature for the week was 48½°, the highest being at Sunderland, 52½°, and the lowest, 46¾°, both at Norwich and Nottingham. The amounts of rain measured during the week varied from 1 inch 6-tenths at Portsmouth and Bristol to 2-tenths of an inch at Newcastle-on-Tyne. The average fall over the country was 9-tenths of an inch.

The weather during the week was dull, cloudy, and showery.

A bright aurora was seen at Bradford and Wokingham on Sunday, October 4.

In Scotland, the highest temperatures ranged from 59¼ at Aberdeen, to 55¾° at Glasgow, the general average being 57½°. The lowest temperatures varied from 37½° at Leith, to 33½° at Paisley, with a general average of 35¼°. The mean range of temperature was 22¼°. The mean temperature for the week was 48°, the highest being at Leith, 49¼°; and the lowest at Glasgow, 46¾°. Rain was measured at Paisley to the amount of 2 inches 6-tenths, but at Aberdeen only 4-tenths of an inch was recorded; the average fall over the country was 1 inch 2-tenths nearly.

At Dublin, the highest temperature was 60¼°, the lowest, 29°, the mean 49°, and the fall of rain 4-tenths of an inch.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—When wet weather occurs, the opportunity should not be lost to prepare plenty of sticks for tying; those that are sold ready-made are too often very poor white deal, that will scarcely last until the time again comes round for replacing them; bought sticks are also mostly thick and clumsy, giving the plants a heavy appearance. The heart of the best Baltic deal, such as the lath-makers use, is the best and cheapest in the end. The large amount of resin it contains causes it to last in the soil much longer than such as is deficient in this moisture-resisting substance. In painting these supports it is well to use two colours—pale green for a portion, and a considerably darker shade for the remainder. The most suitable can then be selected, according to the colour of the plants' foliage to be tied; by this means much less of the sticks will be seen. Pale pea-green sticks used for a dark-leaved plant look badly, as do also the opposite dark-coloured sticks to a plant with pale foliage. The object being to show as little of the supports as possible, it is worth while to take the little trouble necessary to as far as possible effect it. *Lasiandra macrantha floribunda* will now shortly be expanding its violet-purple flowers, but to induce them to open freely the plant should be placed where it will receive a few degrees more warmth than in the ordinary greenhouse. It is a fine plant for a slightly warm conservatory coming

in during the autumn when flowers are scarce, and is deserving for this purpose of extensive cultivation. The plant strikes freely at any season, from ripe or half ripe wood inserted in sand and covered with a bell-glass in a little heat. It will do well in either peat or loam, with a moderate amount of sand added. It is free in growth and flower; moderate-sized plants are the best for decorative purposes, therefore it is well to strike a few every year. The lovely blue flowers of *Witsenia corymbosa* will now be opening; the plant is naturally inclined to get bad in the points of its leaves, which detracts from its appearance; these brown portions should be removed with a keen-edged knife. It will, when in flower, bear removal to the conservatory well, but it should not there be crowded in too close with other plants. *Monochætums* that have been well ripened through the autumn will shortly flower, but to induce them to do so freely they also should have a temperature in the night of from 45° to 50°; by this means they will open much more satisfactorily. Some of the earliest *Epacrises*, if removed to an intermediate house temperature, will have their blooming much accelerated without materially injuring the plants. As a yellow-flowering subject for winter there is nothing superior to the old *Cytisus racemosus superbus* (*Genista fragrans*); if a portion of the stock have been purposely grown and ripened well and early they will bear removal now into heat, keeping them well up to the glass.

Camellias.—Athough these plants, like most others, especially such as have stout, hard leaves, will bear placing much closer when not making growth, yet they are in no way benefited by such treatment, the absence of sufficient light hastening the decay of their leaves, consequently it is better to grow fewer in number and give them plenty of space. When they are in good healthy condition, without being over-vigorous, they generally set many more flowers than they are able to support, and if the first blooms are wanted for cutting, and are required with a portion of the wood attached, there is no use in leaving more than a couple of buds to a shoot, as more impoverish the plant without being of any service; the superabundant buds should, therefore, be removed now before they have taken much from the plants; even where the flowers are used, as in Covent Garden Market, without a particle of wood attached, it is better to thin them, for, if in greater quantity than the plants can support, it frequently causes many more to fall off than can be spared. *T. Baines, Southgate, N.*

Orchids.—Formerly this used to be a very dull season in the Orchid-houses, but since so many valuable introductions have been added by the collector and the hybridiser, there is no cessation of flower, especially where the selection has been carefully made when forming a collection of this charming class of plants. Where the houses are erected to suit the requirements of the different plants they are mostly of easy culture. Some decline must still be made in the temperature—a mean of 70° by day and 60° by night; the Cattleya-house, 65° by day and 55° by night; Odontoglossum-house, 55° by day and 45° by night. Very little ventilation will now be necessary, still, at mild intervals, a little should be admitted. Atmospheric moisture must be reduced in each department, and syringing overhead must be discontinued for some time to come, except where any plant is in a shrivelled state. Plants not unfrequently become shrivelled from their roots decaying, also when placed in too dry an atmosphere when in flower. The cause of shrivelling must be sought for. If it be found the roots are decayed, the plant must be shaken out, and all dead roots cut away, and those remaining should be well washed. The plant should be re-potted, and very little water given until it pushes forth young roots. Syringe the plant frequently, and keep a moist atmosphere about it. Where a plant is shrivelled, and has plenty of healthy roots, a moist atmosphere and frequent dampings overhead will soon restore it to its former vigour; but in such a case water lightly at the roots. The practice of removing the plants that have completed their growth to a drier atmosphere must be continued. It is necessary to see that the material in which they are potted is comparatively dry previous to their being removed, or the probable consequence will be that the roots will rot off. The roller blinds will be found very useful to let down on cold nights. I have found them to make a difference of 3° to 5°, consequently the saving of fuel is something considerable through the winter months; again, a sudden fall in temperature outside does not so quickly affect the temperature inside when the house has a covering of canvas upon it. When the *Zygopetalums* start into growth, which they generally do about this season of the year, they should be repotted; the pot should be three parts filled with potsherds, filling up with good rough peat, and grown in a moist atmosphere. This has become rather a neglected plant of late years, though I cannot tell why, for the flowers are very beautiful and last a long time in perfection, and the plants are mostly of very easy culture. *Z. rostratum* has the most delicate constitution; it requires growing in the East India house all the year, requiring plenty of water at the roots. Where *Anæctochilus* are grown under bell-glasses it will be necessary to sponge the moisture off every morning. Keep the glass tilted to admit fresh air. Water must be given very sparingly at this season, otherwise the roots will rot. A temperature of 55° to 65° is now the most suitable for them. *G. Baker, Clapham Common.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—The flower garden is still wonderfully gay, and though some little frost has been experienced, there has not yet been sufficient to kill Coleus and Alternantheras, the two tenderest plants used in flower gardens. Yet if it is desired to save any plants they should be lifted at once. All kinds of *Pelargoniums* when housed should have a dry atmosphere, as damp is their greatest enemy. *Alternantheras, Coleus* and *Iresines* should have a minimum temperature of 60° to winter them successfully. *Verbenas, Petunias* and *Calceolarias* will do well in any light, airy situation, so long as the temperature keeps above the freezing point. Succulents of the half-hardy type, such as *Sempervivum tabulæforme, canariense, Donckelearii, arboreum variegatum; Echeveria metallica, glauca metallica*, and *farinosa; Pachyphytums* and *Kleinias, Aloes* and *Agaves*, and the like, should at once be taken up, potted in good open soil, and placed in a dry, warm house or pit till established, when they may be removed to a cooler situation with advantage. As soon as there has been sufficient frost to cause a general lifting of stock, all the strength ought to be employed in making a clearance of all tender plants, preparatory to replanting the beds for the winter, either with spring-flowering plants, bulbs, &c., or with evergreens and other hardy plants for winter display. In our own case we plant more especially for winter appearance, and use for the purpose evergreens in great variety, such as Gold and Silver *Hollies, Aucubas, Retinosporas*, Golden and common *Yews*, Portugal *Laurels, Thujas*, variegated *Euonymus*, common and variegated *Vinca*, or *Periwinkle, Japanese Honeysuckle*, &c.; whilst for groundwork, lines, &c., we use *Stachys lanata, Ajuga reptans rubra, Thymus hirsutus, Pyrethrum Golden Feather*, and the common *Heath* in tufts. For edgings we have the Gold and common *Thyme, Festuca glauca* (blue-grass), small Golden *Yews*, and *Cerastium, Sedum, Sempervivum* and *Saxifraga* in great variety, the best being *Sedum corsicum, lividum* [? *Lydium*] and *glaucum; Saxifraga granulata* and *hirta, Sempervivum calcareum, montanum* and *arachnoideum. Echeveria secunda glauca* is all but hardy here, and every plant is left out. These give a brightness to the winter garden which we get with no other plant at this season, and it is worth while to risk the loss of a few hundreds of plants to attain this object. Of course a reserve stock, in case of loss by severe frost, must be propagated. Planting of all kinds of evergreens and deciduous trees and shrubs may be done now; indeed, this is the best time of the whole year for the operation. As the ground is comparatively warm, the plants must begin to make fresh roots at once. All alterations, as opportunity offers, may now be done, such as making fresh walks, lifting and replanting Box and other edgings. Oftener than not, such work is left for the spring months; but there is nothing like taking time by the forelock. Sweeping and cleaning up must still be the order of the day for a long time to come, as leaves and worms make no end of labour. *W. Wildsmith, Heckfield.*

FRUIT HOUSES.

The Cherry House.—If any alteration of the trees here is to be effected it should be done as soon as the leaves are off the trees. I have found that those trees which are planted upon loam not only thrive, but also yield the best results. Borders for this purpose should be about 2½ feet deep, and well drained, and about 6 feet wide is ample. In selecting trees which are to be planted under glass, if obtainable, those which have been trained on a wall for four or five years are preferable to any other. Unless the house be required for other purposes, the lights which were removed off the trees need not be replaced before the expiration of another month or six weeks; but generally it is required, as it is here, for Chrysanthemums and other plants of a similar nature, which want plenty of air with mere protection from frost. Such subjects can be accommodated here without being at all detrimental to primary considerations if the ventilation be properly conducted. An examination of the stock of trees which are in pots should soon be made; such trees as require larger pots should be shifted into those 3 or 4 inches larger. Disroot and surface-dress others as may be required in the manner as indicated for Fig trees in pots in the Calendar for the week ending October 3, using the same compost and applying the treatment as then recommended. *Geo. Thos. Miles, Wycombe Abbey.*

Melons.—In small gardens the Melon season may now be considered over, and the pits and frames will by this time be full of bedding stuff, winter salads and the like. In large establishments, however, Melons will still form part of the dessert. A sudden transition from summer to real autumn weather necessitates great care in the application of water to crops still unripe; a very moderate watering once a week will now suffice; dryness at the root will facilitate the ripening. Maintain a high temperature, and a thoroughly dry condition of the atmosphere, giving a little air at every favourable opportunity. In houses, as the crops become cleared, let winter Cucumbers occupy the places forthwith. It is hardly necessary for the next two months to give any further directions under this heading. In the meantime let the cultivator secure a goodly quantity of rich strong maiden loam, building it up in the form of a pyramid, and, if possible, incorporate about a cart-load of bushels of quicklime with every cartload of loam; the whole will thus become thoroughly well pulverized ere it is wanted next spring. A good quantity of cow dung should also be collected and kept in the pits. Through the next two or three months, too, will be the time to devise and carry out any alterations which may be deemed necessary to the trelliswork, or piping, or anything else, which has not worked quite satisfactorily. *Thos. Simpson, Brook Lodge, Chelmsford.*

The Orchard House.—The ventilators of the structure should still be kept open by night as well as by day, unless frost is apprehended, when, on account of the ripening or ripe Grapes which the house may contain, they should be closed. To protect such fruit from birds and insects, the apertures should still be kept covered with the hexagonal netting. Such varieties of Grapes as the *Muscadine, Sweetwater*, and the *Black Hamburgh*, will now be quite ripe, but if protected they may, if desired, be allowed to remain upon the Vines for some time to come. *Vines* may to some extent be grown, and good fruit produced, in an orchard-houses, without in any degree interfering with the culture of other fruit trees the house may contain, or occupying any space which could possibly be required by them, by merely training a single rod over the centre of the path or paths, under the apex of the roofs, &c.; while the roots of such Vines may be either inside or outside the structure, as may be most convenient. The foliage of the *Peach* and *Nectarine*, when grown under glass, not unfrequently retains its green colour when quite ripe, and may without injury to the young wood, be easily removed by merely drawing the shoots through the hand. And as soon as the bulk of faded and falling leaves can be got rid of, any root-pruning which may be required by planted-out trees, should be attended to, trees in pots laid upon their sides, and all roots which may have entered the borders cut off close to the bottom of the pots, and the surface soil of the pots, with the roots or fibres it may contain, scraped out to the depth of at least 2 or 3 inches. A rich surface dressing should be at once applied, composed of good turfy loam, rich well rotted manure, and a portion of crushed bones, or, what is much better, a few handfuls of "Meredith's Vine Manure." All fruit trees in pots which may have been placed in the open air, with the view of retarding the ripening of their fruit and of giving increased space to other trees retained inside the structure, should now be surface-dressed, as has been directed, and immediately returned to the house, so as to prevent their being saturated by the heavy autumnal rainfalls which may ere long occur. When all trees in pots have been duly surface-dressed, or repotted where found necessary, they should then be placed as close together as possible at one end of the structure, and receive one good watering—the pots being immediately afterwards covered with straw or littery manure, which will effectually prevent evaporation from the soil contained in the pots, and keep the roots of the trees in a healthy and equable condition during the winter months, while the space in the interior of the house gained by the close packing together of the potted trees will be found exceedingly useful for flowering *Chrysanthemums*, wintering Tea-scented and other *Roses*, &c. *P. Grieve.*

FORESTRY.

Intending planters should endeavour to make themselves familiar with the arrangement of the different sorts of trees that will contrast to the best effect before the changing tints of autumnal foliage is faded. If these observations have been obtained, and jottings made during spring and summer of the principal attractive sorts, as advised in the Calendar at the proper time, the planter will be enabled to dispose of the plants at the time of planting in a ready and off-handed manner. It is not easy to lay down a definite rule how to place each plant, as much will depend on the taste of the designer and site of the plantation chosen to be planted. Study to keep all work forward before the busy season of planting begins. Those who have still trenching and pitting in hand, should lose no time in pushing it forward. Continue to remove

branches from nursing trees encroaching upon Coniferæ or other permanent ornamental ones. Clear the sides of ditches of any rank herbage collected through the summer months, and deepen the bottom, to allow water to get freely away. Trim hedges and mend fences, wherever required. Paint or coal-tar gates, posts, and strained wire fencing. Those who are much annoyed by hares and rabbits destroying young trees should try the composition sent out by Davidson & Co., Scottish Colour Works, Leith. It is sent out in casks of different sizes, at the rate of 9*s.* per cask of 28 lb. The process of applying it is by a small brush, rubbing it over the stem and branches. It proves thoroughly effective and perfectly harmless to the plant, and is now being much used by foresters and others all over the kingdom. Clear out all weeds from forest stock in nursery ground, so as to allow them to get all the air and light possible. *J. Webster.*

Enquiries.

He that questioneth much shall learn much.—Bacon.

Many enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would this ain hope that this enquiry column may serve as a ll as ond of sympathy and good-will between our correount spondents and readers, and be the means of eliciting may much valuable information. Eds.]

such Jute Carpets.—The paper on Jute which you st ote in your issue of October 3, finishes with the statent that stair-carpets of that material can be sold u *rgo*, I suppose, bought) at 3*d.* per yard. How can I find out where? *R. N. H.*

16. What is the botanical name of a deciduous Acacia-like shrub called Demerara Goat's Beard? Is it a Poinciana? *G.* [It is not mentioned in the list of colonial names in Grisebach's *West Indian Flora*. Eds.]

17. Paterson's Victoria Potato.—Can any of your readers tell me the cause of Paterson's Victoria Potato chiefly going speckled in the middle? It is not the general Potato disease, but a sort of speck, or disease, which keeps increasing, and cannot be seen till the Potato is cut open. *C. C.*

Answers to Correspondents.

Books: *Rus in urbe.* There is no such book published. It is the very thing wanted.

Corchorus: *Mrs. R.* The plant formerly called Corchorus japonica is more properly called Kerria japonica. It is a member of the Rose family, and has nothing to do with the true Corchorus, or Jute, which latter is Tiliaceous.

Discount: *D. H.* Our opinions on this subject are well known. We see no object in reopening the controversy at present, but if you will furnish us with the particulars of a bad case we will take it into consideration.

Grasses for Drying: *T. G. H.* We shall shortly publish an article on ornamental grasses.

Hollyhocks: *J. Caulfield.* The leaves are affected with the Puccinia malvacearum.

Insects: *C. C. H. G.* The caterpillar sent is that of the large white Cabbage butterfly, and the mass of small yellow cocoons are those of a minute Ichneumon fly (Microgaster glomeratus), the grubs of which have fed within the body of the butterfly-caterpillar, from which they burst out when full-grown, destroying the creature on whose entrails they have subsisted. They are very common. *I. O. W.*

Lythrum, &c.: *Mrs. R.* Mr. Darwin's paper on Lythrum is contained in the *Journal of the Linnean Society*, vol. x., 1863, p. 393. See Henfrey's *Elementary Course of Botany* (Van Voorst), Oliver's *Lessons on Elementary Botany* (Macmillan), Masters' *Botany for Beginners* (Bradbury, Agnew & Co.).

Manuring the Ground for a Plantation: *H.* As far as we can judge from your letter, we should say that the proposed application of partially dissolved bones, and nitrate of soda, or ammonia, is unnecessary.

Names of Fruit.—Notwithstanding that we have frequently protested against our correspondents sending more than six varieties at one time, we are just now inundated with baskets and boxes containing some as many as thirty specimens. However great our desire may be to assist in correcting fruit nomenclature, our duty to the general body of our readers does not afford us the time necessary to identify unlimited numbers. Besides, it is unreasonable to expect us to do so; and we are compelled, in future, to stringently enforce our rule not to deal with more than half-a-dozen at one time. —*R. W. B. Pears:* 1, not known; 2, Winter Nelis; 3, Easter Beurré; 4, Glou Morceau. *Apples:* 1, Fearn's Pippin; 2, Gravenstein; others next week.—*W. F., Solihull. Apple:* Court-pendu Plat.—*A. H., Salisbury.* 1, White Doyenné; 3, Old Colmar; 4, Old Crassane; 5, Beurré Diel; 12, Swan's Egg; 13, Duchesse d'Angoulême—mostly all very fine specimens.—*A Hamptonian.* 1, Blenheim Orange, very large and unusually conical; 2, perhaps White Juneating; 3, Pope's Pearmain; 4, Ribston Pippin; 6, Alfriston; 5 and 7, not known.—*A Subscriber, A. G. Apples:* 1 and 2, Blenheim Orange. —*M. & K.* Pear too much rubbed and bruised to be identified.—*Beasley.* We do not recognise your Apple. —*A. N. Apples:* 1, Manx Codlin, much bruised; 4, probably Alfriston; others unknown.—*F. C., Barleythorpe. Apples:* 1, a distinct looking fruit, which we do not know; 2, Waltham Abbey Seedling; 3, Golden Noble; 4, Court of Wick. *Pears:* 5, Beurré Rance; 6, Beurré Diel.—*J. B. Tibbets. Apples:* 1, Bad specimen of Lord Suffield; 2, Fearn's Pippin; 3, Alfriston. *Pear:* Easter Beurré.—*G. C., Auchtertyre.* 1, Small's Admirable; 2, not Ecklinville: name unknown to us; 3, Waltham Abbey Seedling; 4, Gloria Mundi or Warner's King; 5, Gravenstein. We do not know the Pear.

Names of Fungi: *M. and K.* Clavaria vermiculata.—*J. D., Hounslow.* Your Fungus is Scleroderma vulgare, an ally of the Puff-ball. We are aware that it has been eaten, but we should be very sorry to recommend it for the table, particularly as we have known ill effects ensue. Its odour is generally considered not only "powerful," but highly disagreeable.—*C. W. D., Eton.* The name of your plant is Sparrasis crispa, a rare Fungus, and only of late years known to be British. It belongs to the edible series.

Names of Plants: *W. K.* The scarlet-berried shrub is Euonymus europæus. The other plant is probably the Winter Cherry (Physalis alkekengi).—*R. M., Halifax.* It is quite impossible to recognise such worthless scraps. Send them when they come into flower.—*J. Caulfield.* 1, Pteris hastata major; 2, Davallia solida; 3, Blechnum occidentale; 4, Lastrea tenericaulis; 5, Adiantum cardiochlæna; 6, Asplenium furcatum; 7, Selaginella tuberosa; 8, too imperfect.—*W. T. P.* Specimen far too imperfect for determination. Not R. tenuis; some form of the troublesome group of Cæsii. *C. C. B.*—*J. W. D.* The scraps you send are too insignificant for identification.—*C. Lawrence.* Cratægus punctata.—*E.* Epidendrum ciliare, and Oncidium urophyllum.—*Ventnor.* Aristolochia Maqui. —*P. H. Gosse.* Dendrobium sphegidiglossum. Rchb. f. —*G. W.* A species of Geranium, which we should be glad to name from better specimens. The scrap sent seems different to anything we have.—*W. Muir.* We have been unable to name your Orchid from the specimen sent. It seems to be an interesting species, and we should be glad of another flower and leaf.—*L. E. B.* 1, Probably Carex præcox (cannot be correctly named without fruit); 2, Luzula campestris; 3, Symphoricarpus racemosus; 4, Inula conyza; 5, Parietaria officinalis; 6, Lepigonum salinum.—*J. A., Bristol.* Specimens not sufficient.

Plants for a Clipped Hedge: *G. H. Palmer.* The common Juniper bears clipping well; but where the most beautiful hedge is required, and the cost is no object, we would recommend Cupressus Lawsoniana, and particularly its variety, gracilis.

Tomato Disease: *A. Boyle.* Your Tomatos are attacked by the Peronospora which causes the Potato disease. In some localities it is so destructive that it is very difficult to cultivate Tomatos, as we have ourselves experienced. *M. J. B.*

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

Catalogues Received.—François Lacharme (Quai de la Vitriolerie, à Lyon), List of New Roses.—Auguste Van Geert (Ghent, Belgium), General Catalogue and Price List.—V. Lemoine (Rue de l'Etang, à Nancy, France), Catalogue of New Plants, and General Price List.—Jonathan Booth (Pole Lane, Failsworth, near Manchester), Catalogue of Carnations, Picotees, and Pinks.

Communications Received.—E.—L. E. B.—A. K.—C. H. B. —R. H. V.—G. F.—G. Clark.—Fawcett.—W. D.—M. D. K. —Brownslade.—R. S.—J. E. H.—J. S.—J. A. B.—R. V. A. —C. H. B.—W. E.—A. F.—G. Croucher (thanks).—J. I.—W. C.—W. R. B.—A. F. G.—G. E. E.—T. H. S.—J. R.—N. E. B.

Markets.

COVENT GARDEN, October 15.

Markets remain very quiet, without any material alteration in price or description of goods. *Thos. Taylor, Wholesale Apple Market.*

Cut Flowers.

	s. d. s. d.		s. d. s. d.
Asters, per doz. bun.	4 0– 6 0	Mignonette, 12 bun.	2 0– 6 0
Camellias, doz. bun.	4 0–12 0	Pelargoniums, per 12 sprays	0 6– 1 0
Carnations, doz. bun.	6 0– 9 0	Pelargoniums, Zonal, per 12 sprays ..	0 3– 0 9
Corn-flower, doz. bun.	3 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Dahlias, p. doz. bun.	3 0– 6 0	— Outdoor, do...	0 4– 1 0
Eucharis, per doz. ..	4 0– 9 0	Spiræa, per 12 sprays	1 0– 2 6
Eschscholtzia, 12 bun.	2 0– 6 0	Stephanotis, 12 sprays	5 0– 9 0
Gardenias, p. doz...	3 0– 9 0	Tuberoses, p. doz. ..	1 0– 2 0
Gladiolus, doz. sprays	1 0– 2 0	Violets, p. doz. bun.	0 9– 1 6
Heliotropes, per doz. sprays	– 0 6		

Plants in Pots.

	s. d. s. d.		s. d. s. d.
Asters, per dozen ..	4 0– 8 0	Fuchsia, per dozen	4 0–12 0
Balsams, p. doz. ..	3 0– 9 0	Heaths, in var., do.	12 0–30 0
Begonias, do. ..	6 0–12 0	Liliums, in var., each	1 0– 3 6
Bouvardias do. ..	9 0–18 0	Mignonette, per doz.	4 0– 6 0
Coleus, p. doz... ..	3 0– 9 0	Myrtles .. do.	3 0– 9 0
Chrysanthemums, p. dozen	4 0– 9 0	Pelargoniums, dble., per doz.	4 0– 9 0
Cyperus, per dozen	6 0–12 0	— Scarlet, per doz.	3 0– 9 0
Dracæna terminalis	12 0–30 0	Solanums, per doz...	6 0–18 0
— viridis, per doz.	12 0–24 0		

Fruit.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Oranges, p. 100 ..	10 0–15 0
Filberts, per lb. ..	1 0– 1 6	Peaches, p. doz. ..	8 0–15 0
Grapes, English, p. lb.	2 0– 6 0	Pears, p. doz. ..	2 0– 3 6
— Muscats, do. ..	2 6– 6 0	Pine-apples, p lb. ..	3 0– 6 0
Lemons, per 100 ..	10 0–15 0	Plums, ½-sieve ..	2 0– 3 6
Melons, each	2 0– 6 0	Walnuts, p. bush. ..	16 0– ..
Nuts, Cob, p. lb. ..	1 0– 1 6		

Vegetables.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz. ..	1 6– ..
Beans, Fr., per bush.	5 0– ..	Mint (green), p. bun.	0 6– ..
— Scarlet, do. ..	3 0– 5 0	Mushrooms, per pott.	1 0– 2 6
Beet, per doz. ..	1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle..	0 9– 1 6	Parsley, per bunch..	0 4– 0 6
Brus. Sprts., p. bush.	5 0– ..	Parsnips, p. doz. ..	0 9– 1 0
Cabbages, per doz. ..	1 0– 2 0	Radishes, per bunch.	0 2– 0 4
Carrots, new, p. bun.	0 4– 0 6	— black, Turnip, do. ..	– 0 6
Cauliflowers, per doz.	2 0– 6 0	Shallots, per lb. ..	0 3– ..
Celery, per bundle .	1 6– 2 0	Salsify, per bundle ..	1 6– ..
Cucumbers, each ..	0 6– 1 0	Spinach, per bush. ..	2 0– 3 0
Endive, per doz. ..	1 0– 2 0	Tomatos, per doz. ..	1 0– 3 0
Herbs, per bunch ..	0 2– 0 4	Turnips, per bundle .	0 3– 0 4
Horse Radish, p. bun.	3 0– 5 0	Veg. Marrows, doz.	1 6– 2 0
Leeks, per bunch ..	0 2– 0 4		

New Potatos:—Round, 60*s.* to 90*s.* per ton; Kidneys, 90*s.* to 120*s.* per ton.

SEEDS.

London: *Oct.* 16.—Red Clover seed now meets with a little more attention, although the actual business doing in the article is very limited. In order to induce sales, lower quotations come to hand both from France and America. The quality of most of the samples, especially the French, is very fair. Trefoil seed is also easier. Of new winter Tares the stocks seem now almost exhausted; values, consequently, keep very firm at the late advance. Canary seed, on account of its continued scarcity, is noted 2*s.* to 3*s.* per qr. dearer. Hemp seed shows no change from the low figure at which it has so long stood. In foreign Italian very few transactions are reported. Rape seed is firm, particularly for good black parcels. In Mustard, Linseed, &c., there is no quotable variation. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

At Mark Lane on Monday dulness again characterised the trade for Wheat; the rates of Monday last were demanded, though not in all cases acceded to by millers. Barley of fine quality realised very high rates, but inferior descriptions were difficult to move, even at some reduction. Malt was without material change in value. Oats were not easy of disposal, but the value of sound corn remained pretty firm. Maize was the same in price. Beans and Peas were steady, though quietly dealt in; for flour of any description there was little demand, and prices continued weak.—On Wednesday the market remained quiet, and no change of importance occurred in the value of either English or foreign Wheat. Barley was not freely dealt in, but fine malting produce continued very firm. Malt was almost neglected, and very little inquiry prevailed for Oats, Maize, and other descriptions of spring corn. Flour was dull and weak in price.—The average prices of corn for the week ending October 10 were:—Wheat, 44*s.* 8*d.*; Barley, 42*s.* 7*d.*; and Oats, 27*s.* 11*d.* For the corresponding week last year:—Wheat, 61*s.*; Barley, 44*s.* 3*d.*; Oats, 25*s.* 3*d.*

CATTLE.

At the Metropolitan Market on Monday there was a large increase in the number of beasts, consequently prices were lower; a large proportion were of inferior quality, and several of these remained unsold, but choice ones were all disposed of. The number of sheep was also much larger, and could not all be sold, even at a reduction. Trade was bad for calves, especially for middling descriptions. Quotations:—Beasts, 4*s.* to 6*s.* 4*d.*; calves, 4*s.* to 5*s.* 4*d.*; sheep, 4*s.* 10*d.* to 6*s.*—The few choice beasts on offer at Thursday's market found purchasers at fair rates, otherwise trade was exceedingly dull. Scarcely any business was done in sheep. Calves were plentiful, and lower in price. Trade was exceedingly bad for milch cows.

HAY.

Trade at the Whitechapel market has been steady, there having been a fair supply of all kinds of fodder, the value of which experienced no change. Prime Clover sold at from 100*s.* to 130*s.*; inferior ditto, 75*s.* to 85*s.*; prime meadow hay, 90*s.* to 110*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load. Cumberland Market quotations:—Superior meadow hay, 112*s.* to 120*s.*; inferior do., 90*s.* to 100*s.*; superior Clover, 120*s.* to 130*s.*; inferior do., 100*s.* to 110*s.*; and straw, 38*s.* to 42*s.* per load.

POTATOS.

At the Borough and Spitalfields markets the arrivals of Potatos were rather short, owing to the unsettled weather, and trade in them continues steady, at the following quotations:—Good Regents, 80*s.* to 90*s.*; ordinary ditto, 75*s.* to 80*s.*; rocks, 60*s.* to 70*s.*; and kidneys, 100*s.* to 110*s.* per ton. The imports into London last week consisted of 111 bags from Antwerp, 143 Brussels, 14 casks Dunkirk, 14 casks 5 bags Boulogne, and 3 casks 12 bags Rotterdam.

COALS.

The market was firm on Monday, but without change in prices worth noting; on Wednesday, however, house coals advanced 6*d.* and Hartleys 1*s.* per ton.

JULES DE COCK ET SŒUR, The Nurseries, Ledeberg, near Ghent, Belgium, offer to the Trade:—

100 AZALEA INDICA, good size and variety, 90*s.* to 300*s.*
100 CAMELLIAS, best variety, with buds, 100*s.* to 500*s.*
100 DRACÆNA INDIVISA, 1 foot high, 100*s.*
100 ,, ,, smaller, 35*s.*
100 ,, LINEATA, 1 foot high, 125*s.*
100 ,, ,, smaller, 35*s.*
100 CHAMÆROPS EXCELSA, or FORTUNEI, 10*s.*
100 CORYPHA AUSTRALIS, 24*s.*
100 PHŒNIX PUMILA, 32*s.*
100 ,, SYLVESTRIS, 32*s.*
100 ,, RECLINATA, 32*s.*
100 ,, TENUIS, 16*s.*
100 SABAL ADANSONI, 20*s.*
100 SPIRÆA JAPONICA 16*s.* and 20*s.*

Planting Season—Avenue Trees.

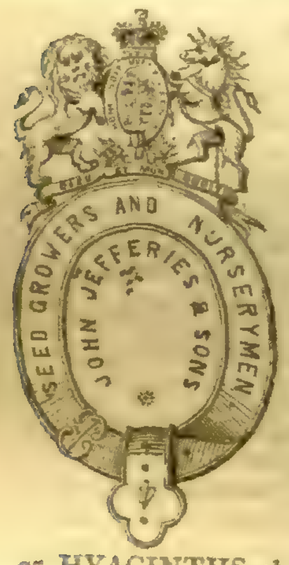
LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.
PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.
All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.
POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

Camellias and Indian Azaleas, &c.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to acquaint his Customers and the Trade in general that his Stock of Budded Plants of the above is unusually fine, and ready for delivery on the following terms, viz.:
CAMELLIAS, with bud, from £7, £8, and £10, to £12 per 100.
,, without bud, £5 to £6 per 100.
INDIAN AZALEAS, with bud, splendid stuff, £5, £6, and £8 to £10 per 100.
Selection of varieties of the above, which are composed of the best quality, to be left entirely to A. V. G.
A. V. G. begs further to offer the following cheap articles:—
OTAHEITE ORANGES, with fruit, 18*s.* per dozen.
GREVILLEA ROBUSTA, fine, 15*s.* per dozen.
BALANTIUM ANTARCTICUM, nice stuff, in single pots, 50*s.* per 100.
PHŒNIX RECLINATA, in store pots, 25*s.* per 100.
CHAMÆROPS FORTUNEI, strong, 18*s.* per dozen.
CORYPHA AUSTRALIS, 18*s.* to 24*s.* per dozen.
LILY of the VALLEY, strong clumps, 50*s.* per 100.
SPIRÆA JAPONICA, strong, 21*s.* per 100.
YUCCA ALOIFOLIA, fine plants, 18*s.* per dozen.
AGAVE FILIFERA, 24*s.* per dozen.
,, VERSCHAFFELTII, fine young plants, 30*s.* per dozen.
ARAUCARIA IMBRICATA, 3-yr. seedlings, 63*s.* per 100.
WELLINGTONIA GIGANTEA, fine young plants, in pots, 6 to 8 inches, 63*s.* per 100.
GLOXINIA, strong bulbs, seedlings, in fine mixture, 25*s.* per 100.
FUCHSIA SUNRAY, 6*s.* per dozen.
THUJA SEMPERAURESCENS, 30*s.* per dozen.
CUPRESSUS MACROCARPA, 25*s.* per 100.
PINUS EXCELSA, 3-yr. seedlings, 21*s.* per 100.
CHAMÆROPS HUMILIS, fine plants, 2*s.* 6*d.* to 5*s.* each.
MAGNOLIA GRANDIFLORA, var. exoniensis, strong specimens, in tubs, 21*s.* each.
LOMARIA GIBBA, fine strong plants, 9*s.* per dozen.
GARDENIA RADICANS and FLORIDA, 6*s.* per dozen.

NEW PLANT CATALOGUE 1874,
Gratis and Post Free.

B. S. WILLIAMS'
NEW PLANT AND GENERAL
CATALOGUE OF NURSERY STOCK
Is now ready, and will be forwarded to all applicants.
It contains many splendid Novelties for the present season, in addition to a choice selection of all the best Exotic Plants in Cultivation.
VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.



THE CORINIUM
Guinea Collection of Bulbs,
Suitable for Outdoor, also Conservatory and Greenhouse.

This is the cheapest and contains the best supply of bulbs ever offered, which cannot fail to please purchasers; the cost of the same, if each article were ordered separately, would be considerably more than 21*s.*, but owing to the large number we are constantly supplying of the several sorts included in the Collection, we are able to offer the under-mentioned liberal quantity.

25 HYACINTHS, choice, for borders.
6 Ditto, choice, for pots or water.
12 NARCISSUS, for pots.
12 Ditto, for borders.
12 JONQUILS.
25 TULIPS, assorted.
25 RANUNCULUS.
200 CROCUS, assorted.
100 SNOWDROPS.
50 ANEMONES.
4 IXIAS.
6 SCILLAS.
6 TRITELEIA ODORATA.
50 ACONITES, winter.

Carriage paid to any railway station in England.
JNO. JEFFERIES AND SONS,
Seed Merchants and Nurserymen, Cirencester.

VINES, VINES, VINES—
EPIPHYLLUMS, PERESKIA STOCKS.
VINES.—Fruiting and Planting Canes, strong, well ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Buckland Sweetwater, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2*s.* 6*d.* to 5*s.* each; a few extra strong canes, 6*s.* 6*d.*
EPIPHYLLUMS.—Good Standards, with nice heads, in twelve best sorts, 9*s.* and 12*s.* per dozen.
PERESKIA STOCKS, out of pots, 15*s.* per 100.
CINERARIA HYBRIDA, fl.-pl., 6*s.* per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

To Gardeners.
Gardeners are most respectfully Invited to Visit
THE PINE-APPLE NURSERY,
MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.
JOHN BESTER, Manager.

In Chancery.

HOGG VERSUS SCOTT.—SIR: In consideration of your sanctioning my retention of the remaining Copies of my Book, "The Orchardist," now in my possession, I hereby admit that I copied important and considerable portions of that book from your works, "The Fruit Manual," "British Pomology," and "The Gardeners' Year Book and Almanac," and I apologise and express my sincere regret for the use so made by me of your said works, and I undertake to idemnify you from all cost and expenses which you have incurred in consequence thereof, and particularly the costs paid to me as Defendant in the first suit, and also the costs of the Plaintiff in the two several suits of Hogg *v.* Scott, 1873, H. No. 139, and Hogg *v.* Scott, H. No. 207, as between Solicitor and Client. It is also understood that the perpetual injunction obtained by you in the second mentioned suit remains of full force except so far as concerns the said copies now in my possession. I also engage that this apology shall be published at my cost once in *The Journal of Horticulture, The Gardeners' Chronicle, The Gardeners' Magazine*, and *The Garden*, and a printed copy thereof pasted in a conspicuous part of each of the copies of "The Orchardist" now remaining in my possession, which are not to be given away but sold in the usual course of trade, except one hundred, in each of which is to be written, "To be given away," and signed by Messrs. J. & W. B. Sparks.
(Signed) JOHN SCOTT,
Merriott Nurseries, Crewkerne, Somerset.
Dated, July 3, 1874.
To Dr. ROBERT HOGG.

WANTED, one or two Acres of MARKET GARDEN LAND, within 10 miles of Covent Garden, with five-roomed Cottage. Immediate possession.
G. H., 6, Stratford Place, Oxford Street, London, W.

TO BE DISPOSED OF, the WHOLE or PART of an OLD-ESTABLISHED NURSERY BUSINESS, in good working order, within easy distance of London by rail. Principals only dealt with. Apply to
HORTICULTURIST, *Gardeners' Chronicle* Office, W.C.

TO BE DISPOSED OF, a WHOLESALE HAY, STRAW, POTATO, FRUIT, and VEGETABLE BUSINESS. (Established 40 Years.) Satisfactory reasons given for disposal. Lease if desired. Apply
J. BRAMLEY, 11 and 13, Beck Street, Nottingham.

SEED BUSINESS, Well Established, for DISPOSAL. Situate in the South of England. Present Owner retiring. For full particulars, &c., apply to X. Y., Messrs. Hurst and Son, 6, Leadenhall Street, London, E.C.

TO BE LET, within 10 miles of Covent Garden, HALF an ACRE of GROUND, well stocked with Flower Roots and Roses, &c. Rent £12 a year. Fourteen years unexpired. Incoming about £60, or at valuation. For particulars, address
J. D. G., Post Office, Ashbourne, Derby.

To Market Gardeners.

TO BE LET, on LEASE, 42 ACRES of LAND; within seven miles of Covent Garden, and close to a station. For particulars apply to
E. MILLARD, Oxted, Surrey.

WANTED, SHOP DRAWERS and FITTINGS. Sketch, size, Price, and number of drawers, to X., Hurst & Son, Leadenhall Street, London, E.C.

Loam, Loam, Loam.

THE TOP SPIT of a MEADOW, delivered at Bexley Railway Station, at 5*s.* per yard. Sample and Testimonials on application to
J. ELLINGHAM, Bexley Heath, Kent.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

Autumn Sowing.

ODAMS' MANURES, Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.
Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

PEAT EARTH.—Fibrous Peat Earth for American and New Holland Plants, Ericas, and Potting, delivered on Rail at Blackwater, South-Eastern Railway, and Farnborough, South-Western Railway, in truck of 4 tons and upwards, at 12*s.* 6*d.* per ton. Extra fine quality, for Orchids and Ferns, 25*s.* per ton. Sphagnum for Orchids, 10*s.* per sack.
T. WALKER, 46, Cannon Street, London, E.C., where samples can be seen.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solution of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

MILDEW
May be entirely prevented as well as cured by
EWING'S INFALLIBLE COMPOSITION.
Can be had through most Seedsmen and Florists, or of the Manufacturers, EWING AND CO., the Royal Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions.

Russia Mat Merchants.

MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., IMPORTERS of ARCHANGEL MATS. Large stock of heavy ST. PETERSBURG and close-woven MATS now arrived.
N.B.—Heavy St. Petersburg are best for covering purposes.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100*s.*; Petersburg, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mat at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

To Florists, Gardeners, &c.

FOR SALE, TOBACCO CLOTH and PAPER suitable for fumigating purposes. For Terms and particulars apply to
Messrs. W. AND M. TAYLOR, 119, Francis Street, Dublin.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices and Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Manures, Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of
POOLEY AND CO., Horticultural Sundriesmen, 25, Bush Lane, Cannon Street, London, E.C.

Labels—Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3*s.* 6*d.* per 1000, or 30*s.* per 10,000; if eyeletted, 4*s.* per 1000. Vellum Cartridge, 4 inches long, 3*s.* per 1000 or 10,000. Sample Labels sent on receipt of Postage Stamps. Orders delivered free in London.
JOHN FISHER AND CO., Label Works, Boston.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E., ERECT HOT-WATER APPARATUSES complete, and supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Gardener* of March 1, 1873:—"ROBERTS's Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,
THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton, and the late Professor Lindley, &c., &c.
MADE OF PREPARED HAIR AND WOOL.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.
PROTECTION FROM COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.
"FRIGI DOMO" CANVAS.

Two yards wide	1*s.* 10*d.* per yard run.
Three yards wide	3*s.* per yard.
Four yards wide	3*s.* 10*d.* per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," 288, Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.
NOTICE.—REMOVED from 3, CANNON STREET, CITY.

The Improved Imperishable Labels!!!
IMPORTANT NOTICE.

J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.

J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose. The Labels are made of a white metal with RAISED BLACK-FACED LETTERS.

All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

For Park, Farm, and General Enclosures.

FRANCIS MORTON & Co's (LIMITED) LIVERPOOL NAYLOR STREET CABLE FENCING

Is in use over many thousand miles,

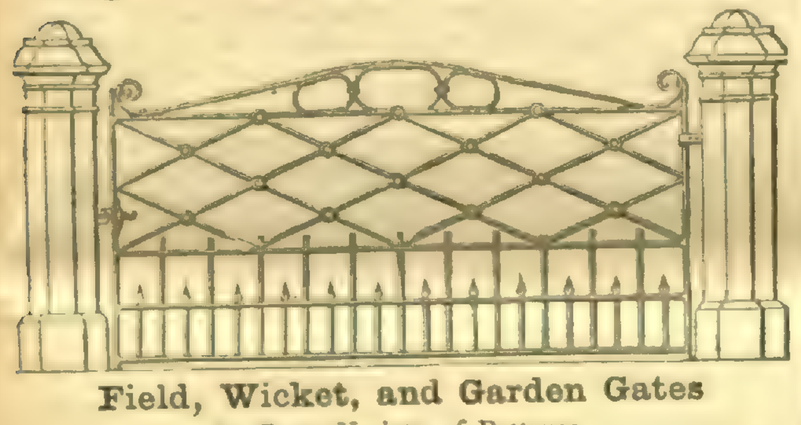
And has been awarded the Silver Medals and Highest Commendations of the leading Agricultural Societies, it forms the most efficient strained iron fence known.

ORNAMENTAL

IRON ENTRANCE GATES, &c.,

IN WROUGHT AND CAST IRON,

Designed for the Mansion, Villa, or Farm.



Field, Wicket, and Garden Gates

In Great Variety of Patterns.

ORNAMENTAL and FIELD HURDLES,

With Round or Flat Bars.

Continuous Bar Iron Fencing,

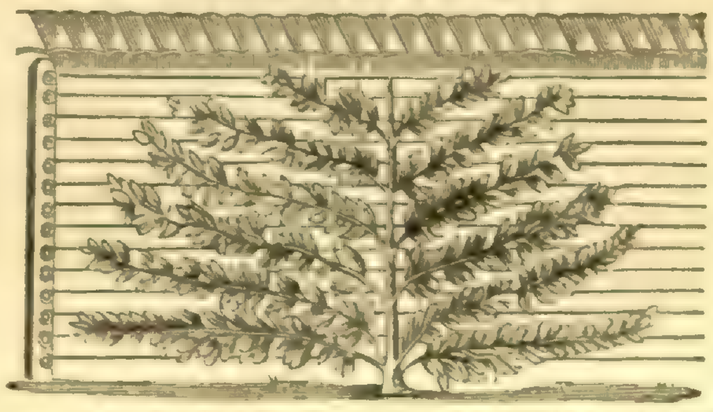
Fitted with F. M. & Co.'s Patent Self-locking Joints, which form a continuous rigid brace from end to end of the Fence, and the most perfect system for securing its efficiency.

F. M. & Co.'s New Illustrated CATALOGUE is now ready, and will be forwarded on application.

LONDON OFFICE—

1, DELAHAY ST., WESTMINSTER, S.W.

Garden Wall Wiring.



R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.

For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.

Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

GALVANISED WROUGHT IRON

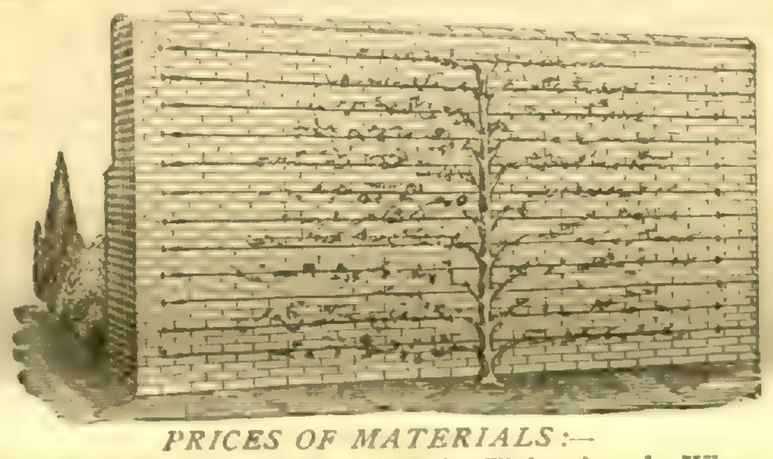
FITTINGS for WIRING WALLS,

For the Purpose of Training Fruit Trees

ON THE FRENCH SYSTEM,

and as recommended by Mr. W. ROBINSON, F.L.S., in his new work, "The Parks, Promenades, and Gardens of Paris."

By this system nails and shreds are entirely dispensed with, the walls are not injured, and no harbour is afforded to small insects. The Tying of the Fruit Trees is effected in one-fifth of the time required by the old system. The arrangement is so simple, that it can easily be applied to any Walls by inexperienced hands.



PRICES OF MATERIALS:—

GALVANISED RAIDISSEURS for Tightening the Wires. One of these required for each Line of Wire.

No. 900. 4*s.* per doz.

GALVANISED WALL EYES, 6*d.* per dozen.
GALVANISED TERMINATING HOLDFASTS, 2*s.* per doz.
GALVANISED WIRE, 2*s.* 6*d.* and 3*s.* per 100 yards.

ILLUSTRATED LISTS, with full particulars of the above, and of FITTINGS for ESPALIER TRAINERS, on very economical principles, free on application to

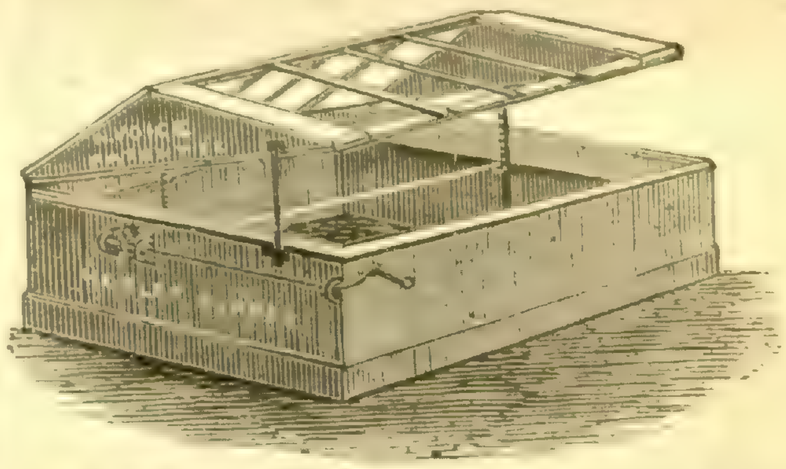
BARNARD, BISHOP & BARNARDS,
NORFOLK IRONWORKS, NORWICH.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.

Illustrated Price Lists free.

HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

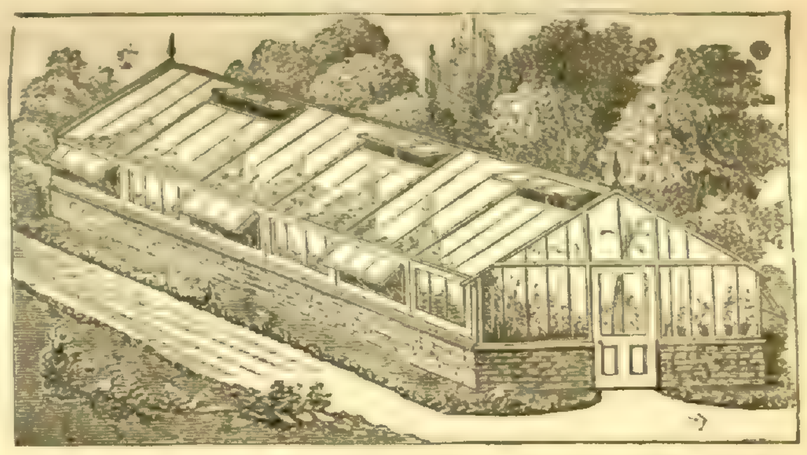
N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works Horley, Surrey.

N.B.—AGENTS WANTED.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

HOT-WATER

HOT WATER APPARATUS BOILER AND PIPES COMPLETE FROM 50/- FOR HEATING CHURCHES CHAPELS CONSERVATORIES AND GREENHOUSES

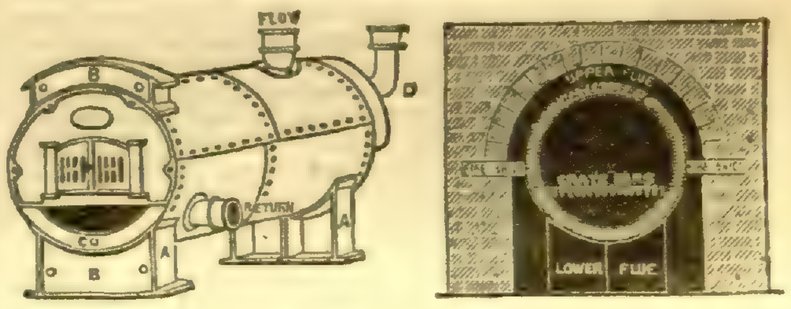
If you wish to know

THE CHEAPEST AND BEST WAY

TO HEAT YOUR GREENHOUSE,

Send 2 stamps for a Priced and Descriptive Catalogue, containing 100 illustrations.

J. MUSSETT, Winstanley Road, Clapham Junction, S.W.



STEVENS'

TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers,

F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

T. G. MESSENGER,

CONTRACTOR, MIDLAND HORTICULTURAL BUILDING AND HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH,

Begs to inform his numerous Patrons and the Public generally, that since his recent disastrous fire he has erected new, more extensive, and commodious works, fitted with the best steam-power machinery, for the construction of Horticultural Buildings in wood or iron, plain or ornamental, of any required dimensions. T. G. MESSENGER is now, therefore, in a position, from his great facilities and experience, to carry out with dispatch and in the best manner, at moderate cost, the orders with which he may be entrusted. Glasshouses erected on Messenger's Patent principles are, owing to mechanical arrangements, very strong, *most durable*, light, *elegant; perfect efficiency* for purpose intended is *guaranteed;* are economical in cost and maintenance. Hot-water engineering in all its branches. Messenger's Patent Hot-water Boilers, Flexible Jointed Hot-water Pipes and Valves, are now in use in many thousands of instances, with the greatest success. Particulars on application.

Plans and Estimates forwarded. Ladies and Gentlemen waited upon. The Plans of Architects and others carried out.

A richly Illustrated CATALOGUE forwarded Post Free on receipt of 33 Stamps.

ESTABLISHED 1856.

KEEP OUT THE FROST.

WILLIAM H. HONEY'S PORTABLE

VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

Prices, in block tin, 30*s.*; in copper, 50*s.* Copper, with glass, to give light and heat, 55*s.* Either will be sent on receipt of Post-office Order.

To be seen in operation at

WILLIAM H. HONEY,
263, REGENT STREET, W.

Catalogue free. No agents appointed.

SALES BY AUCTION.

(Continued from p. 492.)

Crouch Hill House, Hornsey.

A VALUABLE COLLECTION of FERNS, STOVE and GREENHOUSE PLANTS, GARDEN TOOLS, MOWING MACHINE, TWO LATHES, WAGGONETTE by Booker, and MISCELLANEOUS EFFECTS.

MESSRS. NORTON, TRIST, WATNEY, AND CO. will SELL by AUCTION, on THURSDAY, October 22, on the Premises, as above, a choice COLLECTION of FERNS, STOVE and GREENHOUSE PLANTS, including fine Specimens of the Clerodendron Thompsonii, Eucharis amazonica, Hoya carnosa variegata, Platycerium grande, Camellias, Azaleas, &c.; Garden Tools, Seats, Rustic Vases, Iron Rollers, a capital Mowing Machine by Green, Ladders, Force Pump, Carpenter's Benches, Pedestal Stoves, Iron Hurdles, Two capital Lathes, Engines and Apparatus Tools, Invalid's Chair, Perambulator, a well-built Waggonette by Booker, Harness, and sundry Useful Effects.

May be viewed one day prior to the Sale, and Catalogues had on the Premises; and of the Auctioneers, 62, Old Broad Street, Royal Exchange, E.C.

Leasehold Nursery Ground, of over 3 Acres, together with the VALUABLE and EXTENSIVE STOCK, GLASS, and FORCING-HOUSES, covering an area of 6300 feet, in one lot, with possession.

MESSRS. J. J. CLEMMANS AND SON will SELL, on the Premises, on TUESDAY, October 20, at 2 for 3 o'Clock, the above Valuable Premises, known as MUSKETT'S NURSERY, High Street, Clapham.

Particulars obtained of Messrs. WINTER, WILLIAMS AND CO., Solicitors, Bedford Row, W.C.; and of the Auctioneers, 5, Finsbury Square, E.C.

Turville Park, Oxon, near Henley-on-Thames.

SALE of CHOICE FERNS, AZALEAS, CAMELLIAS, STOVE and GREENHOUSE PLANTS, &c.

MR. W. T. HEWS is instructed by C. Scholefield, Esq., to include in the SALE of the OUTDOOR EFFECTS at Turville Park, on WEDNESDAY, October 28, a very fine collection of Tree and other valuable FERNS, AZALEAS, CAMELLIAS, STOVE and GREENHOUSE PLANTS in great variety, and including some very choice specimens.

May be viewed prior to the Sale, and Catalogues had of Mr. W. T. HEWS, Auctioneer, Henley-on-Thames.

Potter's Bar.—Valuable, Extensive, and Thriving NURSERY STOCK.

Worthy the attention of those Stocking or Contemplating Planting.

MR. F. W. SEARLE will SELL by AUCTION, by order of Mr. James Butterfield, at Osborne Nursery, near the station, Great Northern Railway, on WEDNESDAY and THURSDAY, October 28 and 29, at 11 o'Clock each day, in 800 lots, the STOCK, including 3000 Gold and Silver HOLLIES, Oakleaf, Yellowberry, Scotti, and other green Hollies; 3000 Rhododendrons, Standard and bushy Portugal and common Laurels; Laurustinus, specimen Araucarias, Thuja aurea, Lobbii, chinensis; Thujopsis, Taxodiums, Phillyreas; Flowering SHRUBS in variety, Standard Dwarf and Climbing ROSES, clean-grown FRUIT and FOREST TREES, about 200 lots of young Shrubs suitable for the trade, &c.

Purchasers will be allowed one month to lift the stock.

May be viewed any time prior to Sale, and Catalogues obtained at place of Sale, usual Inns in neighbourhood, Green Dragon, Bishopsgate; of the Auctioneer, Tottenham and Enfield.

Extensive Sale of Large Exhibition and Half-specimen SHOW PLANTS.

MESSRS. OLIVER, NEWBOLD, AND OLIVER have received instructions from Mr. George Cooper, of Rose Hill Nurseries, Derby (who contemplates giving up exhibiting), to SELL by AUCTION, on MONDAY and TUESDAY, October 28 and 29, the whole of his valuable Collection of SHOW PLANTS, containing a large quantity of very fine Ericas, of the best varieties, from 2 to 4½ feet diameter; Hedaromas, the finest in England; Azaleas, splendid plants, from 4 to 6 feet; Eriostemons, of different kinds; Stephanotis, Bougainvilleas, Rondeletias, 4 by 3 feet; Alamandas, Crotons, Cycas revoluta (a grand plant), Palms, Ferns, Ixoras, &c. The whole of the above are good specimen plants. Also the large Show Van, 16½ feet by 8 feet, water-proof top, nearly new, to run by road or rail.

Sale each day at 10 for 11 o'Clock. Catalogues may be had from the Auctioneer's Offices, Wardwick, Derby.

Extensive Sale of Forest Trees, Evergreen Shrubs, And FRUIT TREES, at the NURSERIES, ELGIN.

MESSRS. TROTTER AND MUNRO, Inverness, are instructed by Mr. R. Morrison, of the Elgin Nurseries, to OFFER for SALE, by PUBLIC AUCTION, at his Grounds, Elgin, on THURSDAY and FRIDAY, October 29 and 30, a Selection of EVERGREEN SHRUBS, CONIFERÆ, FRUIT TREES, ROSES in pots, of varieties sent out during 1872 and 1873. Dwarf and Standard Roses of all the finest sorts, Seedling and Transplanted Forest Trees, &c.

Catalogues and full particulars to be had of Messrs. TROTTER AND MUNRO, or of Mr. R. MORRISON.

Sale to begin each day at 10 o'Clock, and Purchases made at Sale will be delivered free of charge at Railway Station, Elgin; and through rates are allowed to all Stations.

7, Academy Street, Inverness.—October 5.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.

87, Bishopsgate Street Without, E.C.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

Notice.

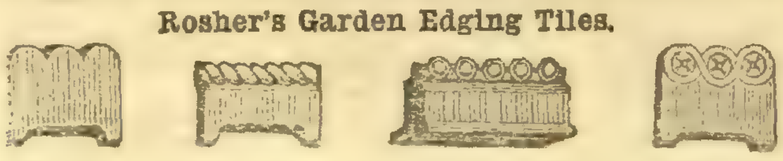
(By Appointment to the Royal Horticultural Society.)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants. See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

CARSONS' PAINT,

PATRONISED BY THE QUEEN,

The British, Indian and Colonial Governments, 8000 of the Nobility, Gentry, and Clergy, Railway and Canal Companies, Collieries, Ironmasters, &c., &c.,

Is extensively used for all kinds of

OUTDOOR WORK.

It is especially applicable to

WOOD, IRON, BRICK, STONE & COMPOSITION

CAN BE LAID ON BY UNSKILLED LABOUR.

Sold in all Colours.

2 cwt. free to all Stations.

Prices, Patterns, and Testimonials sent Post Free.

WALTER CARSON & SONS,

LA BELLE SAUVAGE YARD,

LUDGATE HILL, LONDON, E.C.,

And 21, BACHELOR'S WALK, DUBLIN.

NO AGENTS.

Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on outdoor work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5s., amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

Have the largest and most complete Stock in the Trade of

HOT-WATER BOILERS, | PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

They are thus enabled to offer these Goods at Low Prices, notwithstanding the very great increase in the cost of all kinds of Iron.

NEW PATENT CLIMAX BOILER (1874).

GOLD MEDAL BOILER (Birmingham, 1872).

PATENT EXCELSIOR BOILER (1871).

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE.

THE AGRICULTURAL GAZETTE,
SATURDAY, OCTOBER 17, 1874,
Contains—

ORIGINAL ARTICLES: Parasitic Diseases of Stock—Notes on the Underley Shorthorns (Illustrated)—Hatching Eggs—Potatos—Wheat Sowing—Introducing Ligurian Bee Queens—Agricultural Machinery (Illustrated)—Wages and Labour—Game Laws and Landlords—"A Tenant-Right Bill"—Soils and Sites for Trees—Scab in Sheep—Sewage Farming—The Value of Bates' Bulls—Cheesemaking—The Nature and Uses of Rennet—Sheep in Selkirkshire—Farming in Wales—Notes at a Sussex Sale—Poor Grass Lands—Racing at Newmarket, &c.

HOME AND FOREIGN CORRESPONDENCE on *Morton's Cyclopædia of Agriculture*—Why are Good Horses so Rare?—Steam Cultivation—"Speed"—Canadian Farming—Farm Notes from Toronto, &c.

FARM NOTES AND MEMORANDA from various Counties in Great Britain.

REPORTS OF SOCIETIES AND FARMERS' CLUBS.

ALSO—

The Veterinarian—The Poultry Yard—The Garden of the Farm—The Household—The Beekeeper—The Weather—Reports of Markets, &c.

Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

Just Published.
How, When, and What to Plant.
"THE HEATHERSIDE MANUAL," being an Alphabetical Catalogue of all the Hardy Trees and Shrubs most worthy of Cultivation, containing ample instructions as to How, When, and What to Plant. By AUGUSTUS MONGREDIEN, Author of "Trees and Shrubs for English Plantations." 115 pages. 8vo. Price 1s.; post free for 13 stamps.
London: Heatherside London Depot, 28, Queen Victoria Street, E.C.

October 10, Fifth Edition, considerably Extended, with 40 Wood Engravings, Frontispiece, and 8 new Panoramic Maps, post 8vo, 12*s.* 6*d.*
WINTER and SPRING on the SHORES of the MEDITERRANEAN; or, the Rivieras, Italy, Spain, Greece, Constantinople, the Archipelago, Corsica, Sicily, Sardinia, Algeria, Tunis, Smyrna, with Biarritz and Arcachon, as Winter Climates. By Dr. HENRY BENNET.
J. AND A. CHURCHILL, New Burlington Street, W.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.
This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.
Advertising charges, 8*d.* per square inch, Translation included.
Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.
Address, The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.

CONTENTS:—
INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*
Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.
The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London .. Mr. George Street, 30, Cornhill, E.C.
Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham. Mr. R. S. Kirk, 90, New Street.
Liverpool .. Lee & Nightingale, 15, North John Street.
Bristol .. James & Henry Grace, Royal Insurance Buildings.
Edinburgh .. Robertson & Scott, 13, Hanover Street.
Glasgow .. W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

Belgian.
BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAÎCHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid 10*s.* per annum.
H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

New Works by the Rev. J. G. Wood, M.A.
Author of "Homes without Hands," &c.
OUT of DOORS; a Selection of Original Articles on Practical Natural History, uniform with "Strange Dwellings" by the same Author; with Six Illustrations from Original Designs engraved on Wood by G. PEARSON. Crown 8vo. Price 7*s.* 6*d.* cloth. [*On November* 2.
INSECTS ABROAD; a Popular Account of Foreign Insects, their Structure, Habits, and Transformations. With 600 Figures by E. A. SMITH and J. B. ZWECKER, engraved on Wood by G. PEARSON. Forming a Sequel or Companion Volume to "Insects at Home" by the same Author. 8vo. Price 21*s.* cloth. [*On November* 2.
London: LONGMANS AND CO.

WANTED, a GENERAL NURSERY FOREMAN; steady, experienced.—State age, qualifications, references, wages required, &c., to R. THORNHILL, Bowdon Nurseries, Bowdon, Cheshire.

WANTED, as MANAGER in the Nurseries, a steady, persevering young Man. He must have a thorough knowledge of the profession, and one whose character will bear the strictest investigation.—WOOD AND CO., Barborne Nurseries, Worcester.

MR. WM. PAUL has a VACANCY for a young Man of character and ability, to take a leading part in the Seed Department.—Paul's Nurseries, Waltham Cross, Herts N.

WANTED, in a London Seed Warehouse, as TRAVELLER and SHOPMAN, an energetic Man, thoroughly acquainted with the Seed Trade.—State age, amount of experience and where obtained, and salary required, HENRY CLARKE AND SONS, 39, King Street, Covent Garden, London, W.C.

WANTED, an INVOICE CLERK, in a Wholesale London Seed Establishment.—A neat and quick writer, and one with a knowledge of the Trade preferred.—Apply in own handwriting to CLERK, Alfred Legerton, Seed Merchant, 5, Aldgate, London, E.

WANTED, a WAREHOUSEMAN—a steady, sober, willing Man—to assist in a Wholesale Seed Warehouse, used to Counter Work, Parcelling and Writing upon same, Weighing, Measuring, and General Warehouse Work.—State age, salary, and reference to S. FINNY AND CO., Seed Merchants, Newcastle-upon-Tyne.

WANTED, as IMPROVER, a young Man; employed under Glass. Lodgings on the premises, &c. He must be steady and persevering in his duties.—A. HENDERSON, Sion Nursery, Thornton Heath, Surrey.

F. AND A. SMITH are in WANT of TWO good BASKET PACKERS. State wages expected, with reference.—The Nurseries, West Dulwich, S.E.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.
THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD), where three or more are kept.—Scotch; thorough knowledge of Gardening. Highly recommended.—GARDENER, Messrs. Keith & Co., 63, George Street, Edinburgh.

GARDENER (HEAD), where two or three are kept.—Age 25, single. Satisfactory references.—HORTUS, Kersal Toll Bar, Manchester.

To Noblemen and Gentlemen.
GARDENER (HEAD).—CHARLES HIGGS, The Gardens, Caversham Park, Oxon, can with confidence recommend his Foreman, Thomas Elisha, to any Lady or Gentleman requiring a first-rate Man. Well up in all branches of the profession.—Address as above.

To Noblemen and Gentlemen.
GARDENER (HEAD), to any Nobleman or Gentleman requiring the services of an efficient Gardener.—W. FARR, Owlpen Park, Dursley, Gloucestershire, will be disengaged on December 11. Four years' good character, with references as to ability.

GARDENER (HEAD).—Age 34, married; understands Greenhouses, Vines, Cucumbers, Melons, &c. Six years' character.—J. CHUTER, Byfleet, near Weybridge, Surrey.

GARDENER (HEAD).—The Advertiser, in the prime of life, is open to an engagement in a good Garden Establishment, or would undertake the Management of Farm as well as Garden. Can be well recommended by present employer.—X. Y., Messrs. Veitch & Son, King's Road, Chelsea, London, S.W.

GARDENER (HEAD).—Age 35, married; thoroughly practical in all branches of the profession. Would take the Management of a Farm. Well up in the Management of Land, Stock, &c. Good character.—B., 73, Hampden Road, Upper Holloway, London, N.

GARDENER (HEAD, WORKING).—Age 32, married; thoroughly practical in all branches of Early and Late Forcing of all kinds of Fruits and Vegetables. Seventeen and a half years' experience.—J. C., Mere Old Hall, Knutsford, Cheshire.

GARDENER (HEAD, WORKING).—Age 30, married, one child; thoroughly understands Forcing in all its Branches, and the general routine of Flower and Kitchen Garden. Good character from last employer.—W. P., North Road, East End, Finchley, London, N.

GARDENER (SECOND), in a Gentleman's Garden.—Age 26. First class references.—R. J., Post Office, Putney, S.W.

GARDENER (UNDER), in a Nobleman's or Gentleman's Garden of high order.—Age 23; accustomed to Plants and Fruits under Glass, with a good knowledge of Gardening generally. Been through apprenticeship. Nine years' experience, and first-class character.—Apply, stating particulars, to T. B., 16, Raphael Street, Knightsbridge, London, S.W.

TO LANDED PROPRIETORS.—The Advertiser is desirous of meeting with an engagement where his general knowledge of Gardening, Management of Arable and Grass Land, Timber and Planting, Making of Plans for, and carrying out of, Groundwork and Buildings, may be available. Would be found competent to Plan and Lay-out a New Garden. Good testimonials.—X. Y., *Gardeners' Chronicle* Office, W.C.

To Seedsmen and Nurserymen.
MR. W. HEALE is now open to an engagement. Practically acquainted with every detail of the Seed and Nursery Business, more especially the London Plant Trade, both Wholesale and Retail. Many years holding responsible positions in the Establishments of Messrs. F. & A. Dickson & Sons, of Chester; Messrs. Hugh Low & Co., of Upper Clapton, &c.; and for some years representing Mr. B. S. Williams; also Author of the Bath and West of England Agricultural Society's *Prize Essay* on the Management of Orchards, and well known throughout a great portion of the United Kingdom.—Present address, 21, Bell Place, Stockbridge, Edinburgh.

TO SEED MERCHANTS.—The Advertiser, age 29, married, desires a Situation; accustomed to light duties of a Seed Warehouse. Eight years' character.—R., 87, Speke Road, Clapham Junction, S.

SHOPMAN (in a London Wholesale Seed Warehouse preferred).—A young Man, of good abilities and excellent character. Has had ten years' experience in one of the leading Provincial Seed Houses.—A. B. C., Mr. R. Dean, Ranelagh Road, Ealing, London, W.

SHOPMAN or TRAVELLER.—Age 34. Nineteen years' experience in England and Ireland. First class references.—R. D., *Gardeners' Chronicle* Office, W.C.

FOREMAN (in the Houses), in a Gentleman's Garden.—Eight years' experience. Good recommendations from last and previous employers.—W. J. S., Acton Rise, Middlesex, W.

CLERK.—A Lady (aged 40), accustomed to the Seed, Bulb, and Nursery trade; energetic, an excellent writer. Good reference.—S. M. C., 131, Upper Hill Street, Liverpool.

FURNISHER.—Understands Table Decoration, Construction and Planting of Rockeries, Ferneries, Seed and Plant Packing, Gardening, &c.—F., 18, Conduit Place, Spring Street, Paddington, W.

BOOK-KEEPER and CORRESPONDENT.—Eleven years' experience; willing to Travel, if required. Excellent references to past and present employers.—Z., *Gardeners' Chronicle* Office, W.C.

HOUSEKEEPER (age 50).—A LADY is anxious to recommend her late Housekeeper to a Nobleman's or Gentleman's Family. She thoroughly understands her duties. Left in consequence of the Establishment being broken up.—Y., The Gardens, Wrothan Park, Barnet.

KINAHAN'S . LL . WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

DINNEFORD'S FLUID MAGNESIA.
The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

Important Letter from Plumstead,
KENT.
17, Walmer Road, Plumstead, Kent,
September 30, 1874.
GENTLEMEN,—For the benefit of my fellow-creatures afflicted in a similar manner to what I have been myself, I send you the following account of my case, hoping that you will publish it, as I think it ought to be made known. Sixteen years ago I was attacked with rheumatism and asthma, and, notwithstanding that I tried numerous remedies, also, by the advice of Doctors, I took Doctors' medicine and used their applications, for a period of fifteen long years I continued to suffer severely, and quite despaired of ever getting better. A twelvemonth ago a Friend recommended me to try PARR'S LIFE PILLS. I procured a box from your agent, Mr. CLARKE, Chemist, 51, Plumstead Road, and, to my great joy, I derived considerable benefit from them. I decided upon giving them a fair trial, and have continued taking them at intervals up to the present time, the result of which is that I am an entirely different man, and I may say, that with the exception of a little shortness of breath at times, I am perfectly cured. My age is 59 years.
Having gained such immense benefit myself, I make a point of recommending them to others whenever I get the opportunity.
I am, Gentlemen, yours, much obliged,
WILLIAM HESSEY.
Messrs. ROBERTS & CO., 8, Crane Court, Fleet Street, E.C.
SOLD BY ALL CHEMISTS.

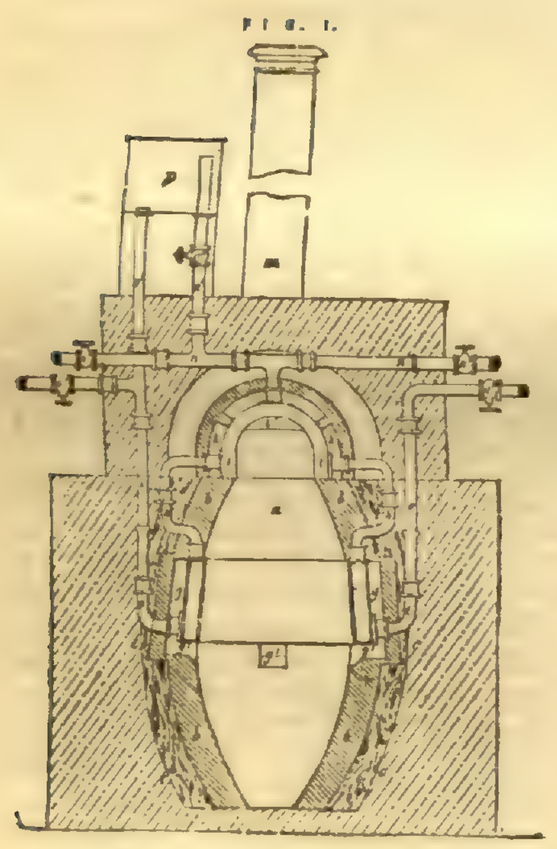
THE GOWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company, having purchased from the Dromore Patent Heating Company Mr. Cowan's valuable Patents for the United Kingdom, is now prepared to undertake the Erection of Apparatus on that System in all parts of the Country.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

THE SUCCESS OF EVERY APPARATUS ERECTED BY THE COMPANY IS GUARANTEED.



Full Particulars of this System, Testimonials, and Opinions of the Press, be seen in the Company's Illustrated Pamphlet, which can be obtained, post free application.

The Company have an Efficient Staff of Engineers, and send at any tim inspect places where the idea is entertained of Erecting the Apparatus.

The System has lately been adopted at Hazelwood, Herts, the seat of L Rokeby; Stackpole Court, the seat of the Earl of Cawdor; Ripley Ca Yorkshire, the seat of Sir H. D. Inglby, Bart.; Langleybury House, H seat of Jones Lloyds, Esq.; and at many other places.

The Company also undertake the Erection of all other kinds of Heating Apparatus, and of Horticultural Buildings.

PLANS AND ESTIMATES FURNISHED ON APPLICATION.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

Office: 4, LOTHBURY, BANK, LONDON, E.C.

S. OWENS & Co.,

HYDRAULIC ENGINEERS,

WHITEFRIARS STREET, LONDON, E.C.

THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
No. 63. PORTABLE IRRIGATORS with Double or Treble Barrels for Horse or Steam Power.
No. 46a. IMPROVED DOUBLE ACTION PUMPS on BARROW for Watering [Gardens, &c.
No. 49a. GALVANISED SWING WATER CARRIERS, for Garden use.
No. 50 and 54a. FARM and MANSION FIRE ENGINES of every description.
No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.
No. 49. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.
No. 54b. THE CASSIOBURY FIRE EXTINGUISHER, as designed for the Right Hon. the Earl of Essex.
No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.
No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.
No. 39b. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution. FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, October 17, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 43.—Vol. II. { New Series. } SATURDAY, OCTOBER 24, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Apiary	522	Nertera depressa	528
Arlington Tomato	528	October wild flowers	515
Aster grandiflorus	526	Opuntias (with cut)	517
Bailey, Mr. Thomas (with portrait)	527	Pampas-grass	529
Beech tree, a remarkable (with cut)	521	Peach harvest	526
Begonia geranoides	526	Peas, late	530
Belladonna Lilies	530	Pelargonium Society, the	530
Books, notices of	523	Phyto-geography	525
British Gardeners	527	Plants and animals, relation of	526
Cassia corymbosa	530	Plants suitable for bee-culture, a list of	522
[illegible]uarinas	521	Potatos, heavy crops of	529
[illegible]ylirion acrotrichum	526	Potato, Vermont Beauty	530
[illegible]hrochiton hypophyl-[illegible]thus	526	Prize vineries	528
[illegible], the	531	Season, the	530
[illegible]ry	530	Societies:—	
[illegible] of the Azores	520	Darlington Gardeners' Institute	531
[illegible]m and fungi	530	Helensburgh Horticultural	531
[illegible]n operations	533	Snakes	522
[illegible]d, a large	528	Solanum Warscewiczii	527
[illegible]es, a heavy crop of	528	Stealing Belladonna	531
[illegible]e-growing under [illegible]ficulties	517	Suspended animation	529
[illegible]olly and its varieties, the common (with cuts)	519	Tree Violet, the	527
Kew, the old walls at	527	Viburnum Awafurki	529
Lamp, a cheap convertible	529	Villa garden	532
Law notes	531	Wallflower, a tall	528
Natural history	522	Weather, the	532

THE ROYAL GARDENS, FROGMORE, AND WINDSOR GREAT PARK.

THE GARDENERS' CHRONICLE for NEXT SATURDAY, October 31, will contain a SPECIAL SUPPLEMENT, *consisting of Eight Pages of Original Illustrations and Letterpress descriptive of the above.*

Price Fivepence; Post Free, Fivepence-Halfpenny.

May be had of all Booksellers and News Agents.

Published by W. RICHARDS, 41, Wellington Street, Strand, London, W.C.

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is **$6.30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth*, 16s.
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

ROYAL BOTANIC SOCIETY, Regent's Park, N.W.
EXHIBITIONS, &c., 1875.
SPRING FLOWERS—WEDNESDAYS, March 31, and April 28.
SUMMER EXHIBITIONS of PLANTS—WEDNESDAYS, May 26, and June 16.
FRUIT and CUT FLOWERS—WEDNESDAY, June 30.
EVENING FETE, &c.—WEDNESDAY, July 14.
Lectures, Promenades, General Meetings, &c., as usual.

ROYAL POMONA PALACE and GARDENS, MANCHESTER.
A GRAND EXHIBITION of NATIVE and EXOTIC FRUITS, CHRYSANTHEMUMS, FLORAL BOUQUETS, CONIFEROUS PLANTS, &c., will be held on TUESDAY, WEDNESDAY, and THURSDAY, December 1, 2, and 3 next.
In reply to several Correspondents, the proprietor begs to state that the room in which the Exhibition will be held is Heated by a Steam Pipe, so that tender plants will not suffer.
Schedules are now ready, and may be had from the various Seed Establishments in Manchester, or from the Proprietor, Mr. JAMES REILLY, Pomona Gardens, Manchester.

PRESTON FLORAL SOCIETY.
Open to Amateurs.
COMPETITION for LADIES PLATE, in AUGUST, 1876: 1st Prize, £25, and Gold Medal value £12 12s.; 2d, £15 and Silver Medal; 3d, £10 and Bronze Medal; 4th, £5.
Last day for entry, October 27, 1874. The 12 Stove and Greenhouse Plants to be grown on from 6-inch pots, similar to the "Davis Competition" of the Royal Horticultural Society. Conditions and full particulars from
Mr. WM. TROUGHTON, Hon. Sec.
4, Church Street (near the Town Hall), Preston.

CAMELLIAS.—English-grown; nice healthy Plants, well set with buds, 10s. 6d., 15s. and 21s. each.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

NARCISSUS BICOLOR HORSFIELDII.
Strong Bulbs, by the dozen or hundred.
A. STANSFIELD, Jun., Kersal Moor Nurseries, Manchester.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

FOR FORCING.—LILY of the VALLEY, 1000 roots, 30s.; 100 clumps, 46s. SPIRÆA JAPONICA, 100 strong clumps, 26s. Delivery against Bank Post Bill.
D. JACOBSON, Haarlem, Holland.

LEE'S "VICTORIA REGINA" VIOLET.—Small Plants, 12 for 6s., post free; 40s. per 100. Strong Plants, 12 for 10s., post free; 70s. per 100. Extra strong, 12s. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

AUCUBA JAPONICA.—Thousands of strong and very bushy plants, from 1 to 3 feet. Prices on application.
WM. RUMSEY, Joyning's Nursery, Waltham Cross, N.

LAURUSTINUS.—An immense quantity of very healthy plants, 12 to 18 inches high, can be supplied at very moderate prices by
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Special.

LAURUSTINUS, 15 to 20 inches, 7s. 6d. per 100, 60s. per 1000. For Cash with Order only.
WILLIAM ABRAHAM, Fort Prospect Nursery, Limerick.

WHOLESALE CATALOGUE of TREES, SHRUBS, CLIMBERS, &c., free on application.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Early Planting.

DAVISON AND WHITTEM'S CATALOGUE of all the Best and Newest ROSES is now ready. Also a GENERAL CATALOGUE of CONIFERS, FOREST, FRUIT, and other TREES. Post free on application. White Cross, Hereford.

New Climbing Rose.

JULES MARGOTTIN, 3s. each, 30s. per dozen. The old favourite Rose in all respects, except in being a free climber.
RICHARD SMITH, Nurseryman, Worcester.

Roses, Roses, Roses.

EWING AND CO.'S Illustrated, Priced, and Descriptive CATALOGUE will shortly be ready. All Rosarians should possess a copy, which will be forwarded, gratis and post free, to applicants.
The Royal Norfolk Nurseries, Norwich.

WHOLESALE CATALOGUE of ROSES, FRUIT TREES, &c., free on application.
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

HYBRID RHODODENDRONS, raised from the finest White, Scarlet, Rose-pink, and Purple varieties. Plants, 1½ to 3 feet high, 20s. per 100.
H. JACKSON, Blakedown, Kidderminster.

Special Offer to the Trade only.

LARCH (Scotch), ELMS, LIMES, SYCAMORES, ROSES (Standards), OAKS, &c., APPLES, PEARS, GOOSEBERRIES, &c. Prices on application to
JOSEPH GREEN, The Nurseries, Garforth, near Leeds.

A BARGAIN.—HORSE CHESTNUT TREES, 5 to 6 feet, 3s. per 100; fine WALNUT TREES, 4 to 5 feet, 4s. per 100; OAKS, 4 to 5 feet, 2s. per 100. For Cash. WILKIN, Tiptree, Kelvedon.

FRUIT TREES.—One hundred thousand strong Standard and Pyramid Cherries, Apples, Pears, and Plums, from 75s. per 100. Gooseberries, 3-yr., from 10s. per 100; Currants, 3-yr., from 6s. per 100. CATALOGUES on application to
T. EVES, Gravesend Nurseries.—Established 1810.

Hyacinths, Tulips, Crocus, &c.

The best material in which to grow the above is
COCOA-NUT FIBRE REFUSE.—Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE, invaluable for Forcing, Plunging, and Resisting Frost and Cold. Price 6d. per bushel; 20 bushels, 5d.; 100, 4½d. per bushel.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

Dutch and other Flower Roots.

JAMES DICKSON AND SONS have received large and superior consignments, in excellent condition. Priced CATALOGUES post free.
108, Eastgate Street, Chester.

Large Dutch Crocus.

WILLIAM HOOPER has just received a Consignment of the above, of good quality and condition. Price 15s. per 1000; 1s. 6d. per 100. Yellow, Blue, White, Striped, or Mixed. CATALOGUES on application.
Florist and Seedsman, 88, Oxford Street, W.

Dutch Bulbs direct from the Grower.

HYACINTHS for Pots or Glasses, 16s. per 100; Bedding, 12s.; TULIPS, 6s.; CROCUS, 1s. Other Bulbs equally cheap. CATALOGUES ready. Address, S. HARVEY, Popham Street, Nottingham.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20s. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete ever published.
Hale Farm Nurseries, Tottenham, London, N.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

Vines.

B. S. WILLIAMS has a large and fine stock of FRUITING and PLANTING CANES, of all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, N.

Grape Vines.

EDWARD MORSE has many Hundreds of strong Fruiting Vines in pots, at 5s., 7s. 6d., and 10s. 6d. each. Special Prices quoted for large quantities.
Original Nurseries, Epsom, Surrey.

GRAPE VINES.—A fine stock of all the leading sorts; strong, well-ripened short-jointed Canes. Extra fruiting size, in 11-inch pots; smaller plants, in 6-inch and 9-inch pots. Prices from 3s. 6d. to 10s. 6d. each. Free from any kind of disease.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42s. to 60s. per dozen. Extra strong Fruiting Canes, 7s. 6d. to 10s. 6d. each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21s. each.
RICHARD SMITH, St. John's Nurseries, Worcester.

New Grape.

VENN'S SEEDLING BLACK MUSCAT.—Good Planting Canes, Two Guineas each, delivered to order on receipt of Cheque or Post-office Order on Horfield, Bristol, payable to
WILLIAM DODDS, Gladstone Villa, Bishopston, Bristol.
Testimonials of Merit to be had free on application.

STANDARD TRAINED PEACHES, NECTARINES, and APRICOTS, fine Trees of the hardiest and best sorts, with all other forms of Fruit Trees in great variety. Descriptive Price Lists gratis.
RICHARD SMITH, Nurseryman, Worcester.

NEW STRAWBERRIES, Exquisite and Traveller (First-class Certificate).—The best for flavour and transmission. See advertisement in *Gardeners' Chronicle* of the 8th ult. Strong plants now ready. Particulars post free, from W. AND J. BROWN, Stamford.

Strawberry Plants.

VICOMTESSE HERICART DE THURY (see *Gardeners' Chronicle*, Oct. 17, p. 499), 5s. per 100.
JAMES McRONALD, Westgate Nursery, Chichester.

MANETTI STOCKS—13,000, full of Cuttings, strong, 25s. per 1000. GIANT ASPARAGUS, 12,000, 3-yr. old, 15s. per 1000.
THOMAS READE, Beach Nursery, Southend, Essex.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three, and four years old.
Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

SEAKALE and ASPARAGUS, strong, for forcing. Price on application.
HENRY PAGE, Walham Green, Fulham, S.W.

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other Dutch Roots, in fine condition. Early orders are requested.
CATALOGUES post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammer-Smith, London, W.

PLANTS for WINTER FORCING.—Any one desirous of Successfully Forcing Flowering Plants during the coming Winter Months, should apply at once to JOHN STANDISH AND CO. for a LIST of their PLANTS specially prepared and adapted for this purpose.
Royal Nurseries, Ascot, Berks.

Dutch Flower Roots.

B. S. WILLIAMS begs to announce that his ANNUAL CATALOGUE of DUTCH FLOWER ROOTS, containing a Descriptive List of Choice Hyacinths, Tulips, Narcissus, Crocus, &c., also a Select List of Fruit Trees, Roses, Vines, &c., is now ready, post free to all applicants.
Victoria and Paradise Nurseries, Upper Holloway, N.

To Nurserymen and the Trade.

SEAKALE ROOTS for Forcing (very fine), 9*s.* per 100, 80*s.* per 1000. ASPARAGUS ROOTS, 2-yr. old, 3*s.* per 100, 25*s.* per 1000. Terms, cash on delivery.
SAMUEL ALLAWAY, Earl's Court Farm, Old Brompton, London, S.W.

Carnations and Picotees.

To AMATEURS and the TRADE.
J. BOOTH, FLORIST, Failsworth, Manchester, is now offering the above in all the choice named exhibition varieties.
CATALOGUES and price on application.

SPRING GARDENING PLANTS.—500,000 DAISIES, PANSIES, PRIMROSES, SILENES, FORGET-ME-NOTS, and all the most useful sorts for the above purpose, from 4*s.* per 100. See Catalogue of above and ROSES. Post free.
J. MOORE, Nurseryman and Seedsman, 52, Market Place, Warwick.

VINES, VINES, VINES, quality unsurpassed.—Fine stock of short-jointed, well-ripened CANES, of all the leading varieties. Prices, extra strong planting Canes, 5*s.* to 7*s.* 6*d.* each; ditto, fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* each.
Descriptive CATALOGUES of NURSERY STOCK forwarded, post free, on application.
W. G. CALDWELL AND SONS, The Nurseries, Knutsford.

To the Trade Only.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers (samples on application):—
GUNNERA SCABRA, 40*s.* per 100.
SPIRÆA ARUNCUS, 25*s.* per 100.
WAHLENBERGIA (Campanula) GRANDIFLORA, 25*s.* per 100.
AILANTUS GLANDULOSA, 1-yr., 4*s.* per 1000.
ROBINIA PSEUD-ACACIA, 1-yr., 3*s.* per 1000.

Roses—Vines.

JOHN KEYNES, Castle Street, Salisbury.
The above are of the usual first-rate quality.
CATALOGUES ready. Every attention paid to Orders.
Salisbury, October 14, 1874.

Eltham Nursery, Kent, S.E.

One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.
THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c.
Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

To Gentlemen, Market Gardeners, and Others.

MITCHELL'S CHAMPION of ENGLAND BROCCOLI.—J. MITCHELL, retiring from the Business, has a small quantity of NEW SEED to DISPOSE OF—the Best Late White ever grown. Will be sold in ¼ lb., ½ lb., and 1 lb. packages, at One Guinea per pound. Sent to any part of the world on receipt of Post-office Order made payable to
JOHN MITCHELL, Ponder's End, Middlesex.

Bouvardias—Vreelandii, jasminiflora, &c.

MESSRS. JOHN STANDISH AND CO.'S Stock of the above beautiful Winter-flowering Plant is exceptionally fine this season. 15*s.* to 18*s.* per dozen, fine plants.
They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24*s.* to 36*s.* per dozen.
Royal Nurseries, Ascot, Berks.

FIBROUS PEAT.—Brown Fibrous Peat, best quality, for Orchids, Stove Plants, and Potting, £6 6*s.* per 6-ton truck load. Black Fibrous Peat, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5*s.* per 6-ton truck load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

HOLLIES.—Hollies, 2 feet, 25*s.* per 100, well removed and rooted.
WALKER AND CO., Farnborough Station, Hants.

SPHAGNUM or PEAT MOSS.—Fresh Sphagnum Moss, 10*s.* 6*d.* per sack.
WALKER AND CO., Farnborough Station, Hants.

RHODODENDRONS, 1½ and 2 feet, 25*s.* per dozen, selected from Blandyanum, Dr. Andre, Professor Koch, Minnie, Barclayanum, Brayanum, Sir William Herschel, Sir Robert Peel, Stella, Limbatum, Inquamii, Bouquet de Flore, President Vanden Heck, Alarm, Titien, Cruentum, and Francis Dixon.
E. WALKER, Farnborough Station, Hants.

PLANTING SEASON.

SEEDSMEN *TO THE QUEEN.*

LITTLE & BALLANTYNE,

THE "KNOWEFIELD NURSERIES," CARLISLE,

RESPECTFULLY INVITE INSPECTION OF THEIR

LARGE COLLECTION OF FOREST TREES

Suitable for Hill Land or Low Land Planting,

GAME COVERT PLANTS, FRUIT TREES, ROSES, DECIDUOUS AND EVERGREEN SHRUBS, AVENUE and PARK TREES, &c.

The above can be safely recommended to remove well to any distance; they are grown in a Northern Climate, in Open Unsheltered Ground, and are perfectly Hardy.

Priced Catalogues Post Free on application.

L. & B.'s Complete Descriptive List of Fruit Trees Cultivated in the United Kingdom will be issued in a few days, price 1*s.*

LITTLE & BALLANTYNE,
SEED MERCHANTS AND NURSERYMEN, CARLISLE.
(ESTABLISHED 50 YEARS.)

ROSES.

CHARLES TURNER'S CATALOGUE

IS NOW READY.

STANDARD ROSES.

These are grown in great numbers, they are very fine this season, with well-ripened wood, and are now ready for removal.

DWARF ROSES

Are also grown most extensively, and can be had on the Manetti and Briar Stocks, or on their Own Roots.

ROSES IN POTS

Are a speciality at the Royal Nurseries, where a fine stock can be seen of extra strong TEAS and HYBRID PERPETUALS, grown especially for early forcing.

☞ *The CATALOGUE also contains full Lists of FRUIT TREES, CONIFERÆ, EVERGREEN and DECIDUOUS SHRUBS, &c., and can be had on application.*

THE ROYAL NURSERIES, SLOUGH.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,

SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.
First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, price 7s. 6d. each.

NEW HYBRID PERPETUAL ROSE,

CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3s. 6d. each; 30s. per dozen.

CLIMBING PERPETUAL ROSE,

CLIMBING JULES MARGOTTIN (Cranston's).

A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust fo[illegible] but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3s. 6d. each.

Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

WINTER and SPRING FLOWERS.

Carters COLLECTIONS OF BULBS

For Open Ground, adapted for Ordinary Good Garden Soil.

COLLECTION No. 14, *Price* 21*s.* (*Packing and Carriage Free*), *contains* :—

Hyacinths, 12, in three colours.
Narcissus, Double white, 12.
,, Poeticus, or Pheasant-eye, 12.
Double Daffodils, 25.
Tulips, extra fine mixed, double, 12.
,, ,, ,, single, 12.
,, finest mixed, late, 12.
,, Duc Van Thol, 12.
Polyanthus Narcissus, fine mixed, 6.
Campernel Jonquils, 6.
Star of Bethlehem, 12.
Triteleia uniflora, 6.
Dog's-tooth Violets, 6.
Crocus, blue, 25.
,, striped, 50.
,, large yellow, 50.
Crocus, white, 25.
Anemones, extra fine mixed, 24.
Iris, extra choice mixed English, 12.
,, extra fine mixed Spanish, 12.
Lilium candidum, 3.
,, tigrinum, 3.
Ranunculus, extra fine mixed, 24.
Snowdrops, 50. Winter Aconites, 24.

Other Collections, price 10*s.* 6*d.*, 42*s.*, 63*s.*, and 84*s.* 20*s.* value Carriage Free.

From the Rev. W. C. PLENDERLEATH, *Calne, Wilts.*

"I was unwise enough to get some Bulbs last autumn from other grower, and your 'Old Bulbs,' saved from forcing the year before, did better than those new ones, so I will not try the experiment again."

CARTER'S, THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

THE LAWSON SEED NURSERIES,

EDINBURGH.

The Extensive Stock of

Seedling and Transplanted Forest Trees,
ORNAMENTAL TREES and SHRUBS,
FRUIT TREES, &c.,

Is this Season in Splendid Health, and will be Sold at Moderate Prices.

Catalogues on Application, and Special Offers will be made for Large Contracts.

THE LAWSON SEED AND NURSERY COMPANY, LIMITED,
EDINBURGH AND LONDON.
LONDON ADDRESS: 106, SOUTHWARK STREET, S.E.

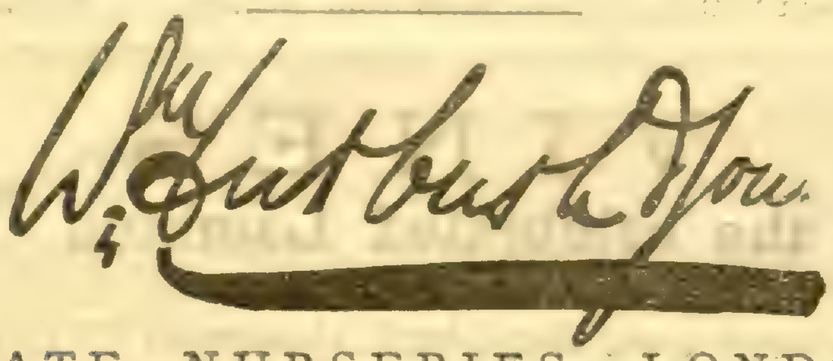
CAMELLIAS, CAMELLIAS, CAMELLIAS—
AZALEAS, AZALEAS, AZALEAS,

From 1 to 10 feet, beautifully set with Bloom. Price on application.

The Finest Stock in the Country.

WINTER BLOOMING HEATHS, EPACRIS, BOUVARDIAS, &c.

A VISIT TO THE NURSERIES SOLICITED.



HIGHGATE NURSERIES, LONDON, N.

THE SWEET-SCENTED VIOLET,
LEE'S VICTORIA REGINA.

Flowers very large (often said of them "they are like Pansies"); violet-purple on first opening, but changing to deep blue afterwards; footstalks long, rather stout; compact growth, very hardy.

As the above beautiful Violet is now so widely distributed, and has given such remarkable satisfaction, it affords me very much pleasure to offer it again at greatly reduced prices.

Very much has been written in its praise by many of last season's Purchasers, and I am able fully to endorse all that has been written. Many who had it last season by the hundred or hundreds—as Mr. J. Shaw, of Manchester; Messrs. J. Backhouse & Son, York; Messrs. W. Clibran & Son, Altrincham; Mr. B. S. Williams, Upper Holloway; Messrs. T. Cripps & Son, Tunbridge Wells—some of the above had previously tested it in smaller quantities, and afterwards ordered it in large, for "Stock,"—will no doubt be able to bear me out; as will also those who had it in somewhat smaller quantities, as Messrs. E. G. Henderson, St. John's Wood; Messrs. Hogg and Wood, Coldstream; Mr. R. S. Yates, Sale; Messrs. Fisher, Holmes & Co., Sheffield; Messrs. J. Dickson & Son, Newton, Chester, with above fifty others.

The "Victoria Regina" is, without dispute, very far in advance of all previously existing varieties, very large, fine colour, surpassing sweetness, and of a fine, vigorous growth. Very superior either for the Amateur or for Market, as it not only fetches a very much higher price, but meets with a ready sale.

Plants of the above, strongest, at 12*s. per dozen;* 6*s.* 6*d. per half dozen. Smaller sizes, at* 6*s. to* 9*s. per dozen;* 3*s.* 6*d. to* 6*s. per half dozen.*

GEORGE LEE,
MARKET GARDENER, CLEVEDON, SOMERSET.

Turf, at 4d. per Square Yard.

J. CHEAL AND SONS, of Lowfield Nurseries, Crawley, can supply TURF of excellent quality at the above price, delivered in trucks at Crawley Station. The Ground must be cleared in a few weeks to make room for extending the Nurseries.
Priced CATALOGUES of TREES and SHRUBS free by post

Seedling H.P. Rose.

DUCHESS of EDINBURGH: First-class Certificate from Royal Horticultural Society. Standards, 7*s.*, Dwarfs, 6*s.* each.
A fine stock of H.P. ROSE, CAPTAIN CHRISTIE, in pots, well hardened, 3*s.* each. Trade price on application.
H. BENNETT, Manor Farm Nursery, near Wilton, Wilts.

Rose Catalogue.

WM. PAUL, Paul's Nurseries, Waltham Cross, Herts, has just published the New Edition of his ROSE CATALOGUE, which he will be happy to forward, free by post, on receipt of Postage Stamp.

NEW CATALOGUES for 1874.

A Descriptive CATALOGUE of ROSES.
A Descriptive CATALOGUE of FRUITS.
A Descriptive CATALOGUE of BULBS.
A General CATALOGUE of GENERAL NURSERY STOCK. Address
WM. WOOD AND SON, The Nurseries, Maresfield, near Uckfield, Sussex.

Trade Notice.

NURSERYMEN having a SURPLUS STOCK to DISPOSE OF should send particulars of the Goods, and Lowest Prices for Cash, to the New Nursery Establishment of
Messrs. GRANT AND CO., Park Nursery, Portadown.

WANTED.—HOLLY, FRUIT TREES and FRUIT TREE STOCKS, MANETTI STOCKS, RHODODENDRONS, HERBACEOUS PLANTS, &c.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

NURSERY STOCK for SALE, by PRIVATE TREATY, at a low valuation—the Stock standing on about 1½ acre, on the Nursery of Mr. JOHN JONES, Altrincham, near Manchester, consisting of choice Rhododendrons, Hollies, Flowering Shrubs, and General Nursery Stock.
To any one wishing to commence business an excellent opportunity is afforded.
Application in the first instance to be made to Mr. J. P. JONES, The Grove, Reading, Berks.

DICK RADCLYFFE AND CO.'S
ILLUSTRATED
AUTUMN CATALOGUE
OF
HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.,
is now ready, and can be had gratis and post free on application.
129, High Holborn, London, W.C.
Seed Grounds—Erfurt, Prussia.

The Planting Season.

THE BROUGHTY FERRY NURSERIES, covering an area of over 45 acres, are well stocked with every variety and size of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES and BUSHES, CLIMBING, HEDGING, and EDGING PLANTS, HERBACEOUS and GREENHOUSE PLANTS, &c., all healthy and well-rooted, and in a fit state for removal. Prices very moderate. CATALOGUES may be had on application. Special quotations for quantities.
JOHN STEWART AND SONS, The Nurseries, Broughty Ferry. Seed Warehouse, 21, Nethergate, Dundee.

New Rhododendrons.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to announce that they are now sending out the undermentioned Hardy RHODODENDRONS, price 21*s.* each. The usual Discount to the Trade.
MRS. RUSSELL STURGIS.
MRS. JOHN KELK.
HELEN WATERER.
JOHN WALTER.
JAMES MASON.
FREDERICK WATERER.

Victoria, Australia.

IMPORTATION of GRAPE VINES or GRAPE VINE CUTTINGS PROHIBITED.—It is Hereby Notified for General Information, that the Governor of the Colony, with the advice of the Executive Council, and in accordance with the provisions of the Act 37 Victoria, No. 457, has Prohibited the Importation into Victoria of Grape Vines and Grape Vine Cuttings.
ARCHIBALD MICHIE, Agent-General for Victoria.
8, Victoria Chambers, Westminster, October 1, 1874.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to
CARTERS', The Royal Seedsmen, High Holborn, London.

From Paris.—New Roses for this Year.
STANDARDS and DWARFS of OTHER SORTS.

LEVÊQUE AND SON, Nurserymen, Ivry-sur-Seine, near Paris, have just published the New TRADE PRICES of their NEW and OLD ROSES, their Stock of which is very large. The Plants are strong, clean, and healthy; the Prices very moderate. The sorts, Paul Néron, Maréchal Niel, Louis Van Houtte, La France, Baronne de Rothschild, Gloire de Dijon, and all the best—can be sent per 100 and 1000 of each. A splendid lot of Tea Roses (Standards). Strong Plants and Low Prices.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.

Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

NEW RHODODENDRONS.

JAMES MARSHALL BROOKS, rich scarlet, with a bronze spot, very fine and distinct.
LADY ANNETTE DE TRAFFORD, cream colour, with a distinct chocolate blotch.
MRS. FREDERICK HANKEY, salmon, richly spotted, a very pleasing kind.
MRS. SHUTTLEWORTH, scarlet, lighter centre, much spotted, a very beautiful and distinct variety.
VAUBAN, mauve, with a rich yellow blotch, very fine truss and habit,

The above-named new, beautiful, and distinct Hardy Rhododendrons will be supplied, nice plants, for 5 guineas the set.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

FOR AVENUES and ORNAMENTAL PLANTING.

ABIES DOUGLASII, 10 to 12 feet, £3 per dozen.
CEDAR, Mount Atlas, 10 to 12 feet, £8 8s. per dozen.
CHINESE JUNIPER, 5 to 6 feet, 30s. per dozen, £10 per 100; 6 to 7 feet, 30s. per dozen, £12 10s. per 100; 7 to 8 feet, 42s. per dozen, £15 per 100.
PICEA NORDMANNIANA, 3 to 4 feet, 42s. per dozen, £12 10s. per 100; 4 to 5 feet, 60s. per dozen, £20 per 100.
PICEA PINSAPO, 6 to 7 feet, £6 6s. per dozen; 7 to 8 feet, £8 8s. per dozen.
THUJA LOBBII, 12 to 15 feet, £4 4s. per dozen.
WELLINGTONIA GIGANTEA, 5 to 6 feet, £5 per dozen.

All well grown and recently transplanted. For full descriptions see LIST of the EVERGREEN FIR TRIBE.
RICHARD SMITH, Nurseryman, Worcester.

To the Trade and Others.
PINESHAW NURSERIES, near INVERURIE.

EXTENSIVE SALE of SHRUBS, FOREST TREES, and other PLANTS and FLOWERS.—The Stock belonging to the Trustee on the Sequestrated Estate of George Taylor is now for Sale, at greatly reduced prices. The following are some of the principal lots:—180,000 Norway Spruce, 180,000 Scotch Fir, 100,000 Silver Fir, 200,000 Larch, 80,000 Beech, 18,000 Planes, 11,000 English Oaks; also, American Spruce, Limes, Elms, Poplars, Willows, Ash, Hollies, Portugal Laurels, Rhododendrons, Fruit Trees, Roses, Sundries Plants, Greenhouse and other Flowers, &c.

Apply to the MANAGER, at the Nurseries, for particulars and Catalogues.

Richmond Nurseries, Richmond, Surrey.
(ESTABLISHED 1802.)
To the TRADE and large CONTRACTORS.

G. AND W. STEELL have to offer this season, extra to their usual large stock of ROSE, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN SHRUBS, &c., a large quantity of fine, clean-grown and straight in the stock Standard GOLDEN QUEEN and other varieties of variegated HOLLIES, from 2 to 5 feet in the stem; Pyramid Green and Variegated do., from 2 to 7 feet; also an immense quantity of Hybrid and Ponticum RHODODENDRONS, uncommonly well set with bloom-buds, which they are prepared to supply at extremely low figures. Where large quantities are required special prices will be given.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong Plants of which are now ready for sending out. List of Varieties and Prices, together with Catalogue of Dutch Bulbs, on application.

Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains 6 pair of choice Show Carnations, 6 pair of choice Show Picotees, 12 pair of Show Pinks, and 12 choice mixed Carnations and Picotees for borders. Carriage and package free on receipt of Post-office Order. Half the above quantities 11s.

Address, ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

Planting Season.
To PLANTERS of PUBLIC PARKS, CEMETERIES, or PRIVATE GARDENS.

WILLIAM SKIRVING solicits inspection of his unrivalled Stock of choice EVERGREEN SHRUBS, FOREST and ORNAMENTAL TREES, which he is disposing of at very moderate prices, in order to clear the land for building purposes.

Among the Evergreens are many thousands of fine specimens of Variegated and Broad-leaved Green Hollies, and an immense Stock of all other Hardy Evergreen Flowering Shrubs and Ornamental Trees generally cultivated in Britain, many of which are of large size, well calculated for giving immediate effect.

To Gentlemen wishing to make new or to improve old Pleasure Grounds this is an excellent opportunity, for such an extensive and well-grown Stock of Trees and Shrubs is seldom to be met with. Nursery and Seed Stores—Walton, Liverpool.

Forest and Ornamental Trees, Evergreens, Plants
For GAME COVERTS, &c.

FRANCIS & ARTHUR DICKSON & SONS, the "Upton" Nurseries, Chester, respectfully invite inspection of their almost unlimited stock of

FOREST TREES, PLANTS for GAME COVERTS,
ORNAMENTAL TREES, CONIFERS,
EVERGREEN and DECIDUOUS SHRUBS,
FRUIT TREES, VINES, ROSES,
STOVE and GREENHOUSE PLANTS, &c.

The special recommendations of their Plants are extreme hardiness, their Nurseries (over 150 acres) being situated in a very bleak and exposed position; and, by constant transplantation, the plants are well furnished, and have abundance of fibrous roots, so that removal to any part of the country may be effected with perfect safety.

Descriptive Priced CATALOGUES post free on application.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.
PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.

All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.

POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

CHOICE RHODODENDRONS.

ALARM, white centre, edged with bright carmine
BRAYANUM, vivid scarlet, very fine.
CONCESSUM, fine clear rosy pink.
ELFRIDA, deep rose, much spotted.
EVERESTIANUM, rosy lilac, with dark spots.
HENDERSONII, purplish crimson, very free bloomer.
JOSEPH WHITWORTH, very dark rich lake, spotted, fine blooms.
LADY ELEANOR CATHCART, fine clear rose, beautifully spotted.
MICHAEL WATERER, splendid crimson, large truss.
MINNIE, blush white, large chocolate spots.
MRS. JOHN CLUTTON, beautiful clear white, fine truss.
NERO, fine dark rosy purple, large blooms.

The above very beautiful and distinct varieties are offered by W. H. ROGERS, Red Lodge Nursery, Southampton, at 2s. 6d. each.

An immense number of other named varieties, as per Catalogue, at 1s. 6d. each, selected; or £6 per 100.

CABBAGE PLANTS.—H. J. HARDY begs to offer a quantity of strong autumn-sown plants, as true:—

ENFIELD MARKET, EARLY BATTERSEA, } 3s. per 1000.
ROBINSON'S DRUMHEAD, } 25s. per 10,000.
WHEELER'S COCOA-NUT, 5s. per 1000.

LETTUCE PLANTS, SIBERIAN COS.—H. J. H. has much pleasure in offering fine strong plants of this Siberian Cos, at 7s. 6d. per 1000. This is one of the best Lettuces grown to stand the winter; is highly recommended for excellency of flavour and fine green colour. It grows large, turns in early, and stands a long time before it runs to seed. It is very suitable for Market Gardeners. A liberal allowance to large buyers.

Packages and carriage free to London.

Cash must accompany all Orders from unknown Correspondents. Post Office Orders made payable at Bures. Apply to H. J. HARDY, Stour Valley Seed Grounds, Bures, Essex.

FRUIT TREES.

HARDY TREES and SHRUBS, New and Old.

MESSRS. PAUL & SON,

THE OLD NURSERIES, CHESHUNT, N.,

Will be glad to send, Post Free,

DESCRIPTIVE CATALOGUE of FRUIT TREES and HARDY GROWTHS,

WITH

SPECIAL SUPPLEMENT of NEW HARDY TREES and SHRUBS.

An Inspection of the Stock by intending Planters is invited.

The "Old Nurseries" are particularly rich in Standard and well-trained Fruit Trees; vigorous, healthy, straight, Deciduous Trees; Evergreens, especially Hollies, Conifers and American Plants.

The Stock is large and fine, and unimpaired, not having been weakened by frequent or periodical Auction Sales.

Close to London: Cheshunt Station forty minutes from Bishopsgate, one mile from the Nurseries.

VINES

Grown from the celebrated Lambton Castle Eyes.

S. BIDE can now supply good, short-jointed, clean-grown VINES in POTS of all the leading kinds, from the above celebrated and well-known Stock (a list of which may be had on application), at the following moderate prices, viz.:—

Single Plants, 5s. each; 6 for 21s.; 12 for 36s.

Mr. Hunter has grown this year Bunches of the Black Hamburgh weighing 21 lb. 12 oz., being the heaviest on record.

S. BIDE, ALMA NURSERY, FARNHAM, SURREY.

WINTER APPROACHES.

BOILERS AND HEATING APPARATUS

OF THE BEST DESCRIPTION.

HOT-WATER PIPES AND CONNECTIONS

And a variety of the best Boilers always kept in stock.

PRICES AND ESTIMATES ON APPLICATION.

HENRY ORMSON,
Horticultural Builder and Hot-Water Apparatus Engineer,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

TO THE TRADE.—PEAS: Laxton's Superlative, William the First, Omega, Popular, Fill-basket, Griffin's and Suttons' Emerald Gem. CABBAGE: Cocoa-nut. CAULIFLOWER: Veitchs' Autumn Giant. LETTUCE: Sugarloaf Cos. ONIONS: New Queen, Newnham Park.

JAMES CARTER AND CO. have surplus quantities of the above to offer at reasonable prices, all true to name, and nett seed of the current season's growth.

238, High Holborn, London, W.C.

PINES.—To be sold, cheap, FRUITING and SUCCESSION PINES—Smooth Cayenne, Charlotte Rothschild, Queens, and Prince Alfred. Quantity of each sort on application to

W. TROUGHTON, Seed Merchant, Preston.

GOLD FERN.—Being over-stocked with the GOLD FERN, will Sell or Exchange for other things. Also, two good plants of GYMNOGRAMMA CHRYSOPHYLLA, seedlings, good gold colour; and one large plant of CYCAS REVOLUTA—too large for the place, in good health. Apply to

R. H. CRANK, Berkeley Castle Gardens, Gloucestershire.

Plant at Once.

CABBAGES.—For Ewes and Lambs, Sheep and Cows, or for Garden purposes, nothing can surpass Enfield Market and Robinson's Champion Drumhead. Good plants now ready, at 3*s.* per 1000, package free. Cash with orders. Large buyers liberally treated with. References given to the leading Agriculturists of the day.

Fine Red Dutch Pickling Cabbage Plants, 5*s.* per 1000.

F. GEE, Seed Grower, &c., Biggleswade, Beds.

EVERGREEN SHRUBS for WINTER BEDDING.

	Per doz.—*s.*	*d.*		Per doz.—*s.*	*d.*
Aucuba japonica, 12 to 15 inches	8	0	Laurel, rotundifolia, 12 to 15 inches	6	0
Biota elegantissima, 9 to 10 inches	12	0	Mahonia Aquifolia, 12 to 15 inches	2	0
Double Gorse, 12 to 15 in.	6	0	Menziesia, dwarf purple	6	0
Erica carnea, dwarf ..	6	0	,, ,, white	6	0
,, multiflora rubra ..	6	0	Pernettya angustifolia, dwarf	8	0
,, vagans rubra ..	6	0	Tree Ivy, 12 to 15 inches	10	0
Golden Yews, 12 to 15 in.	12	0	,, ,, Rœgneriana, 12 to 15 inches	12	0
,, Vinca, dwarf ..	3	0	,, ,, yellow berried, 9 to 12 inches	12	0
Hartogia capensis, 12 to 15 inches	8	0	,, ,, silver striped, new, 9 to 10 in.	12	0
Japan Privet, 12 to 15 in.	6	0	,, tricolor, 9 to 10 in.	12	0
,, Yews, 12 to 15 in.	9	0	Yucca filamentosa, 12 to 15 inches ..	12	0
Laurel, willow-leaved, 12 to 15 inches	6	0	,, gloriosa pendula, 12 to 15 inches	12	0
,, Portugal, 12 to 15 inches	4	0			
Laurel, Caucasian, 12 to 15 inches	4	0			

RICHARD SMITH, Nurseryman, Worcester.

ROSES.

Twelve Acres of Standard and Dwarf Roses, all clean, strong, healthy, fully ripened and well rooted.

Eighty thousand choicest Tea-scented and Noisette Roses, in pots for Conservatories, walls, and sheltered situations out-of-doors.

Extra strong Hybrid Perpetual Roses of best sorts, in pots, for forcing.

Climbing Roses in great variety, for quickly covering Rockwork, Pillars, Trellises, &c.

Descriptive Price List on application. R. S. will be happy to give a special quotation for large quantities.

RICHARD SMITH, Nurseryman, Worcester.

To the Trade.

JOHN PERKINS AND SON beg to offer the following, which are all in the finest possible condition for removal:—

APPLES, Standard, 60*s.* to 70*s.* per 100; 2 years, untrimmed, 50*s.* per 100; Dwarf-trained, 15*s.* to 18*s.* per dozen
APRICOTS, Dwarf-trained, 24*s.* to 30*s.* per dozen; Dwarf, 1-yr. cutback, 10*s.* per dozen
PEACHES, Dwarf-trained, 24*s.* to 30*s.* per dozen
NECTARINES, Dwarf-trained, 24*s.* to 30*s.* per dozen
CURRANTS, Red, fine, 60*s.* per 1000
CHESTNUT, Horse, 5 to 6 feet, 40*s.* per 1000
ELM, Huntingdon, 8 to 10 feet, 50*s.* per 100
OAKS, English, fine, transplanted, 3 to 4 feet, 40*s.* per 1000; 4 to 5 feet, 50*s.* per 1000; 5 to 6 feet, 60*s.* per 1000; 6 to 8 feet, 80*s.* per 1000
PRIVET, Evergreen, fine transplanted, 1½ to 2 feet, 15*s.* per 1000; 2 to 3 feet, 20*s.* per 1000
PINUS AUSTRIACA, 1½ to 2 feet, 40*s.* per 1000; 2 to 3 feet, 60*s.* per 1000; 3 to 4 feet, 120*s.* per 1000
WHITETHORN or QUICK, 2 and 3 years transplanted, 8*s.* to 11*s.* per 1000
BLACKTHORN, fine, 2 to 3 feet, 17*s.* per 1000
BERBERIS AQUIFOLIA, 1 to 1½ foot, 18*s.* per 1000; 1½ to 2 feet, 50*s.* per 1000
BOX, Green, fine bushy, 1 to 1½ foot, 80*s.* per 1000; 1½ to 2 feet, 100*s.* per 1000
CEDRUS DEODARA, 1½ to 2 feet, 18*s.* per dozen; 2 to 2½ feet, 21*s.* per dozen; 2½ to 3 feet, 24*s.* per dozen
CUPRESSUS LAWSONIANA, 1½ to 2 feet, 15*s.* per 100; 2 to 2½ feet, 20*s.* per 100; 2½ to 3 feet, 25*s.* per 100; 3 to 4 feet, 30*s.* per 100; 4 to 5 feet, 9*s.* per dozen
JUNIPERUS CHINENSIS, 1½ to 2 feet, 6*s.* per dozen; 2 to 2½ feet, 9*s.* per dozen; 2½ to 3 feet, 12*s.* per dozen
LAURELS, Common, 1½ to 2 feet, 60*s.* per 1000; 2 to 2½ feet, 70*s.* per 1000; 2½ to 3 feet, 80*s.* per 1000
LAURELS, Portugal, 1 to 1½ foot, 70*s.* per 1000; 1½ to 2 feet, 100*s.* per 1000; 2 to 2½ feet, 25*s.* per 100; 2½ to 3 feet, 35*s.* per 100; 3 to 3½ feet, 50*s.* per 100; 3½ to 4 feet, 70*s.* per 100; 4 to 5 feet, 100*s.* per 100
PICEA NORDMANNIANA, 1½ to 2 feet, 10*s.* per dozen
PINUS CEMBRA, 1½ to 2 feet, 20*s.* per 100; 2 to 2½ feet, 30*s.* per 100; 2½ to 3 feet, 40*s.* per 100; 3 to 4 feet, 60*s.* per 100
THUJA LOBBII, 2 to 2½ feet, 40*s.* per 100; 2½ to 3 feet, 50*s.* per 100; 3 to 4 feet, 10*s.* per dozen; 4 to 5 feet, 12*s.* per dozen; 5 to 6 feet, 18*s.* per dozen
THUJA AUREA, 1 to 1½ foot, 12*s.* per dozen; 1½ to 2 feet, 15*s.* per dozen; 2 to 2½ feet, 21*s.* per dozen; 2½ to 3 feet, 36*s.* per dozen
THUJOPSIS BOREALIS, 2½ to 3 feet, 12*s.* per dozen; 3 to 4 feet, 18*s.* per dozen; 4 to 5 feet, 24*s.* per dozen
YEWS, English, 1½ to 2 feet, 20*s.* per 100; 2 to 2½ feet, 25*s.* per 100; 2½ to 3 feet, 35*s.* per 100; 3 to 3½ feet, 45*s.* per 100

Wholesale and Retail CATALOGUES on application to

52, Market Square, Northampton.

EUCALYPTUS GLOBULUS,
EUCALYPTUS CALLOSA,
EUCALYPTUS CALOPHYLLA,

by the Ounce or Pound. New Seed just arrived.

Mr. WILLIAM BULL'S ESTABLISHMENT for NEW and RARE PLANTS,

King's Road, Chelsea, London, S.W.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

TREE FERNS.

THE LARGEST STOCK IN EUROPE,

and at Half the Prices usually charged.

Mr. WILLIAM BULL'S ESTABLISHMENT for NEW and RARE PLANTS,

King's Road, Chelsea, London, S.W.

THE OXFORD ROSES, or Roses budded on the Cultivated Seedling Briar (Rosa canina).

The Rev. C. L. ALEXANDER, *Vicar of Stewkley, Leighton Buzzard*, writes:—

"Having tried your Roses on the Cultivated Seedling Briar for the last two years, it gives me great pleasure to state that they have been most satisfactory; the bloom has been larger, the colour better, and the plant more healthy than under the old system."

Descriptive CATALOGUES on application.

GEORGE PRINCE, 14, Market Street, Oxford.

B. S. WILLIAMS,

VICTORIA and PARADISE NURSERIES,

UPPER HOLLOWAY, LONDON,

Respectfully invites inspection of the choice and very extensive

Stock of Plants which he now has for Sale.

They comprise all the recent Introductions of Merit now to be found in European Gardens, as well as vast quantities of handsome Specimens, both large and small, of CAMELLIAS, AZALEAS, CAPE HEATHS, for Winter and Summer flowering, NEW HOLLAND PLANTS, a large and choice assortment of STOVE PLANTS, both flowering and ornamental leaved kinds, whilst the Collections of ORCHIDS, TREE FERNS, PALMS, and Succulent Plants are unsurpassed in the Trade.

The Cool-house Specimens, both large and small, are this season in splendid condition, and will amply repay a visit from any one about to furnish New Greenhouses or Conservatories; whilst the Stock of Winter Blooming Plants are extra fine, and well set with buds.

CATALOGUES gratis, and post free, on application.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

ROSES, ROSES, ROSES.

SECOND TO NONE IN THE TRADE.

Extra Strong Plants of the Best Exhibition Varieties of

HYBRID PERPETUAL ROSES

At 9*s.* to 10*s.* per dozen; 60*s.* to 65*s.* per 100.

Catalogues Free on Application.

ALSO, LARGE STOCKS OF

Fruit, Ornamental, and Forest Trees,

In fine Condition.

THE DORSET NURSERIES, BLANDFORD,
H. BLANDFORD, Proprietor.

NEW APPLE.

PEASGOOD'S NONESUCH.

Handsomest, and one of the Largest Autumn Apples in Cultivation.

AWARDED:—

First-Class Certificate at the Royal Horticultural Fruit Committee, September 18, 1872;

First-Class Certificate, Crystal Palace Show, September 8, 9, and 10, 1874.

See *Gardeners' Chronicle* Report, September 12; and Advertisement, September 19.

IN USE, SEPTEMBER TO NOVEMBER.

Strong Maidens, ready in November, 7s. 6d. each.

Trade Terms on Application.

A List of Nurserymen who have Ordered a Supply will be published on Saturday, November 7.

W. & J. BROWN,

NURSERYMEN, STAMFORD, LINCOLNSHIRE.

Cabbage Plants.

SUTTON AND SONS can supply fine plants of the following:—

SUTTONS' IMPERIAL.
ENFIELD MARKET.
SUTTONS' IMPROVED LARGE DRUMHEAD, and others.

Lowest price on application.

Royal Berks Seed Establishment, Reading.

To Gentlemen about to Plant.

HENRY BAILEY has a few very fine CONIFERS, best varieties, suitable for single specimens on Lawns, &c., to offer for Sale; also handsome large AUCUBA JAPONICA. An inspection is invited. Nursery two minutes' walk from station, South-Western Windsor line.

Royal Nursery, Feltham.

Camellias.

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester, have to offer a large stock of English-grown CAMELLIAS; strong, healthy, plants from 1 foot up to 5 feet in height, well set with flower-bud. Prices on application.

SIBTHORPIA EUROPÆA VARIEGATA, or Variegated Cornish Money-wort.—This beautiful plant will shortly be sent out. Good plants 10*s.* 6*d.* each. Trade price on application.

The Lawson Seed and Nursery Company (Limited), Edinburgh and London.

BEDDING CALCEOLARIA CUTTINGS, from the most healthy stock in England, viz., Gem (dark), Prince of Orange (brown), integrifolia (lemon), aurantia (orange, fine), in EXCHANGE for SPRING BEDDING or HERBACEOUS PLANTS.

E. BENNETT, The Gardens, Hatfield, Herts.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum).—SEEDS of the Blue Gum, and other Tasmanian and Australian Forest Trees and Shrubs, can be obtained of

C. F. CRESWELL, Wholesale and Retail Seed Merchant, Hobart Town, Tasmania; or at his Branch Establishments, 478, George Street, Sydney, New South Wales; and 37, Swanton Street, Melbourne, Victoria.

Price LISTS sent gratis to any part of the World on application.

From Paris.—Gladioli Seedlings,

per colour; Mixed Seedlings, and Sorts per name.

LEVÊQUE AND SON, Nurserymen, Ivry-sur-Seine, near Paris, beg to offer, for the first time, SEEDLING GLADIOLI, in separate colours, beautiful, of flowers equal to the collection.

Mixed White, 12*s.* per 100; do. Red, 12*s.* per 100; do. Yellow, 24*s.* per 100; do. Rose, 12*s.* per 100.

Seedlings, mixed, of all colours, 8*s.* per 100, £3 4*s.* per 1000.

Their stock of named sorts is splendid, and cheap.

See the LIST, sent free on application.

VINES, VINES, VINES—EPIPHYLLUMS, PERESKIA STOCKS.

VINES.—Fruiting and Planting Canes, strong, well ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Buckland Sweetwater, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2*s.* 6*d.* to 5*s.* each; a few extra strong canes, 6*s.* 6*d.*

EPIPHYLLUMS.—Good Standards, with nice heads, in twelve best sorts, 9*s.* and 12*s.* per dozen.

PERESKIA STOCKS, out of pots, 15*s.* per 100.

CINERARIA HYBRIDA, fl.-pl., 6*s.* per dozen.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

JULES DE COCK ET SŒUR, The Nurseries, Ledeberg, near Ghent, Belgium, offer to the Trade:—

100 AZALEA INDICA, good size and variety, 90*s.* to 300*s.*
100 CAMELLIAS, best variety, with buds, 100*s.* to 500*s.*
100 DRACÆNA INDIVISA, 1 foot high, 100*s.*
100 ,, ,, smaller, 35*s.*
100 ,, LINEATA, 1 foot high, 125*s.*
100 ,, ,, smaller, 35*s.*
100 CHAMÆROPS EXCELSA, or FORTUNEI, 10*s.*
100 CORYPHA AUSTRALIS, 24*s.*
100 PHŒNIX PUMILA, 32*s.*
100 ,, SYLVESTRIS, 32*s.*
100 ,, RECLINATA, 32*s.*
100 ,, TENUIS, 16*s.*
100 SABAL ADANSONI, 20*s.*
100 SPIRÆA JAPONICA 16*s.* and 20*s.*

Camellias and Indian Azaleas, &c.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to acquaint his Customers and the Trade in general that his Stock of Budded Plants of the above is unusually fine, and ready for delivery on the following terms, viz.:

CAMELLIAS, with bud, from £7, £8, and £10, to £12 per 100.
,, without bud, £5 to £6 per 100.
INDIAN AZALEAS, with bud, splendid stuff, £5, £6, and £8 to £10 per 100.

Selection of varieties of the above, which are composed of the best quality, to be left entirely to A. V. G.

A. V. G. begs further to offer the following cheap articles:—

OTAHEITE ORANGES, with fruit, 18*s.* per dozen.
GREVILLEA ROBUSTA, fine, 15*s.* per dozen.
BALANTIUM ANTARCTICUM, nice stuff, in single pots, 50*s.* per 100.
PHŒNIX RECLINATA, in store pots, 25*s.* per 100.
CHAMÆROPS FORTUNEI, strong, 18*s.* per dozen.
CORYPHA AUSTRALIS, 18*s.* to 24*s.* per dozen.
LILY of the VALLEY, strong clumps, 50*s.* per 100.
SPIRÆA JAPONICA, strong, 21*s.* per 100.
YUCCA ALOIFOLIA, fine plants, 18*s.* per dozen.
AGAVE FILIFERA, 24*s.* per dozen.
,, VERSCHAFFELTII, fine young plants, 30*s.* per dozen.
ARAUCARIA IMBRICATA, 3-yr. seedlings, 63*s.* per 100.
WELLINGTONIA GIGANTEA, fine young plants, in pots, 6 to 8 inches, 63*s.* per 100.
GLOXINIA, strong bulbs, seedlings, in fine mixture, 25*s.* per [100.
FUCHSIA SUNRAY, 6*s.* per dozen.
THUJA SEMPERAURESCENS, 30*s.* per dozen.
CUPRESSUS MACROCARPA, 25*s.* per 100.
PINUS EXCELSA, 3-yr. seedlings, 21*s.* per 100.
CHAMÆROPS HUMILIS, fine plants, 2*s.* 6*d.* to 5*s.* each.
MAGNOLIA GRANDIFLORA, var. exoniensis, strong specimens, in tubs, 21*s.* each.
LOMARIA GIBBA, fine strong plants, 9*s.* per dozen.
GARDENIA RADICANS and FLORIDA, 6*s.* per dozen

12 Fine Hyacinths for 6s.

Sutton & Sons

HAVE NOW RECEIVED THEIR LARGE CONSIGNMENT OF

HYACINTHS, TULIPS, CROCUS,
NARCISSUS, JONQUILS, &c.,

In Splendid Condition, and are Prepared to Receive Orders for the Same.

SUTTONS' CHOICE COLLECTIONS
OF THE ABOVE.

FOR SPRING BLOOMING IN THE OPEN GROUND.

				£	s.	d.
No. 1	Collection, containing	1089	Fine Bulbs ...	2	2	0*
No. 2	" "	591	" ...	1	1	0*
No. 3	" "	302	" ...	0	10	6
No. 4	" "	148	" ...	0	5	0

* *Carriage Free.*

FOR SPRING BLOOMING IN POTS OR GLASSES.

				£	s.	d.
No. 5	Collection, containing	278	Fine Bulbs ...	2	2	0*
No. 6	" "	143	" ...	1	1	6*
No. 7	" "	69	" ...	0	10	0

* *Carriage Free.*

12 Beautiful Hyacinths for 9s.

HOW TO GROW FLOWER ROOTS SUCCESSFULLY, see SUTTONS' AUTUMN CATALOGUE for 1874,

Illustrated, and containing complete Cultural Instructions. Gratis, and Post Free, on application.

SUTTON & SONS, THE QUEEN'S SEEDSMEN, READING.

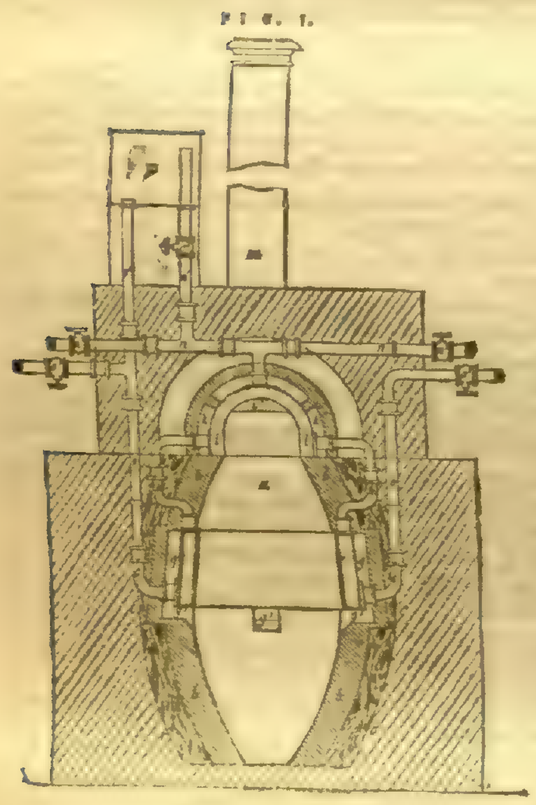
THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company, having purchased from the Dromore Patent Heating Company Mr. Cowan's valuable Patents for the United Kingdom, is now prepared to undertake the Erection of Apparatus on that System in all parts of the Country.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

THE SUCCESS OF EVERY APPARATUS ERECTED BY THE COMPANY IS GUARANTEED.



Full Particulars of this System, Testimonials, and Opinions of the Press, can be seen in the Company's Illustrated Pamphlet, which can be obtained, post free, on application.

The Company has an Efficient Staff of Engineers, and send at any time to inspect places where the idea is entertained of Erecting the Apparatus.

The System has lately been adopted at Hazelwood, Herts, the seat of Lord Rokeby; Stackpole Court, the seat of the Earl of Cawdor; Ripley Castle, Yorkshire, the seat of Sir H. D. Inglby, Bart.; Langleybury House, Herts, the seat of Jones Lloyds, Esq.; and at many other places.

The Company also undertakes the Erection of all other kinds of Heating Apparatus, and of Horticultural Buildings.

PLANS AND ESTIMATES FURNISHED ON APPLICATION.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

Office: 4, LOTHBURY, BANK, LONDON, E.C.

Ericas.

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester, beg to offer to the Trade strong PLANTS of ERICA GRACILIS AUTUMNALIS, in flower and coming into flower, suitable for market purposes. Price on application.

LAURELS.
COMMON LAUREL, 2 to 3 feet, 16*s.* per 100, £7 per 1000; 3 to 4 feet, 25*s.* per 100, £10 per 1000.
COLCHIC LAUREL, 3 to 4 feet, 30*s.* per 100; 4 to 5 feet, 42*s.* per 100.
PORTUGAL LAUREL, 1½ to 2 feet, 34*s.* per 100.
Good, bushy, well-grown plants.
RICHARD SMITH, Nurseryman, Worcester.

LAURUSTINUS, 2 to 3 feet, 6*s.*; 3 to 4 feet, 9*s.* per dozen, fine, in bloom, planted last Spring.
LAURELS, 2 to 3 feet, 12*s.* 6*d.*; 4 to 5 feet, 25*s.* per 100.
LARCH, 2 to 3 feet, 30*s.*; 3 to 4 feet, 40*s.* per 1000.
PINUS INSIGNIS, 3 to 4 feet, 9*s.* per dozen.
" AUSTRIACA, 3 to 4 feet, 25*s.* per 100.
DEODARA, 2½ to 3 feet, 18*s.* per dozen.
ARAUCARIA IMBRICATA, 1½ to 2 feet, 18*s.* per dozen.
DAVISON AND WHITTEM, Hereford.

Epidendrum vitellinum majus.

MR. WILLIAM BULL has received a large importation, in splendid condition. Price, 10*s.* 6*d.*, 15*s.*, and 21*s.* each.
Good ORCHIDS, Six Guineas per dozen. By sending names of those already possessed, different varieties can be given, and purchasers will have a good selection made for them.
ESTABLISHMENT for NEW and RARE PLANTS, King's Road, Chelsea, London, S.W.

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, **Chester.**

EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 6 to 7 feet, 60*s.* per 100.
SIBERIAN ARBOR-VITÆ, 5 to 6 feet, 100*s.* per 100.
CHINESE JUNIPER, 5 to 6 feet, 150*s.* per 100.
COLCHIC LAUREL, 6 to 7 feet, 100*s.* per 100.
ENGLISH YEW, 3 to 3½ feet, 120*s.* per 100.
THUJA LOBBII, 4 to 5 feet, 90*s.* per 100.
RICHARD SMITH, Nurseryman, Worcester.

Specimen Coniferæ.

TO BE SOLD, cheap, bargains, WELLINGTONIAS GIGANTEA, 10 to 12 feet; PICEAS NORDMANNIANA and NOBILIS, 2 to 5 feet; PINUSES, in variety, 12 to 15 feet; JUNIPERUS SINENSIS, 5 to 7 feet, all transplanted autumn, 1872. Free on rail at Idridgehay Station, Midland Railway. For price, &c., apply to
Rev. THOMAS O'GRADY, Hognaston Vicarage, Ashbourne; or, F. G. GODWIN, Seedsman, Sheffield.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6*s.*, 9*s.*, and 12*s.* per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40*s.* cash. Baskets and Packing included.
Crown Nursery, Reading.
N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1*s.* per packet, post-free.

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester, have this season an unlimited stock of FOREST TREES, FRUIT TREES, ROSES, SHRUBS, and all other kinds of Nursery Stock, in the best condition for moving, and they respectfully invite intending Planters to pay their Nurseries a visit. To prevent mistake, visitors should ask for the "Upton" Nurseries, which are situate about a mile and a half from Chester Railway Station. Priced CATALOGUES Post Free on application.
The "Upton" Nurseries, Chester.

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS and CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.
Wandsworth Common Nursery, Surrey, S.W.
The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

J. SCOTT'S TREE and SHRUB CATALOGUE is replete with information about Trees, &c. It enumerates the names and gives descriptive notes of one of the best and well-grown Collections in the West of England. Parties intending to Plant should send for a copy, supplied gratis, as are also the SEED and BULB CATALOGUES; and SCOTT'S ORCHARDIST, at 5*s.* 6*d.*, free by post.
The Nurseries, Merriott, Somerset.

J. SCOTT'S FRUIT TREES cover many Acres, and form the most complete Collection in the World, consisting of 2200 sorts of Pears, 1400 sorts of Apples, and other kinds in proportion, amounting in the whole to over 5000 sorts. CATALOGUES, gratis, sent to all applications; or SCOTT'S ORCHARDIST, post free, for 5*s.* 6*d.*, the most complete work upon Fruit Trees in the English Language.
Merriott Nurseries, Somerset.

New Apple, Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now Booking Orders for this splendid Novelty, which obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, on November 12, 1873. Circulars with full particulars will be forwarded gratis and post-free to applicants. The price for strong maidens on and after November 1 next, is 7*s.* 6*d.* each, or three for 20*s.* The usual discount to the Trade.

STRONG AUTUMN SOWN CABBAGE PLANTS can now be supplied of the undermentioned kinds (all true to name):—
EARLY BATTERSEA, ENFIELD MARKET, NONPAREIL } at 3*s.* 6*d.* per 1000.
ROBINSON'S DRUMHEAD, at 3*s.* per 1000.
W. VIRGO AND SON, Wonersh Nurseries, Guildford.

SATURDAY, OCTOBER 24, 1874.

OCTOBER WILD FLOWERS.

CAMPBELL wrote the *Pleasures of Hope*, and Rogers the *Pleasures of Memory*. Happy the day when some lover of flowers, gardens, and the fields, endowed with the sweet power of utterance in metre, will complete the beautiful triplet by giving us the "Pleasures of the Present"; for assuredly, of all mankind there are none who abide more thoroughly in the consciousness of present enjoyment than those who find their pastime in cultivating the friendship of trees and plants. Like the friendship of books, it is not alone for youth or for age, for summer or winter, for east or west, or for any special section of human society. It never wears out or becomes tedious, rather does it grow and strengthen as we move along the current of existence. It has the immense advantage, also, over the friendships formed with people like ourselves, in the fact that we never have occasion to mourn either unfaithfulness or final departure.

"States fall, arts fade, but Nature doth not die."

I have just been visiting a neighbourhood consecrated as the early residence of Coleridge, and as the scene of much that belongs to Tennyson's "In Memoriam"—the picturesque and healthful village of Clevedon, Somersetshire, and while there of course found my way to that quiet green promontory at the western extreme, which juts into the Channel as though it were the bastion of some magnificent natural fortress, and which is understood, I believe on authentic showing, to be the spot where the Laureate conceived those exquisite lines—

"And the stately ships go on
To their haven under the hill.
But 'tis oh! for the touch of a vanished hand,
And the sound of a voice that is still."

The "haven," it is hardly necessary to say, is the port of Bristol, the water being the grand estuary of the Severn; while the "vanished hand" and the voice never more heard refer to the poet's dear friend, young Hallam, whose remains lie in the graveyard on the inner declivity. Sunset from this green hill is unspeakably varied and brilliant. I have myself watched the white sails times innumerable, for a distance of from two to fifteen miles. I think I may have understood also the poet's deeper meditation; as to this, however, never mind. Abreast of it when in the sunshine of pretty Clevedon, and inhaling the fresh pure breeze that always seems to me a sort of aëriform champagne, comes, every time, the pleasant feeling that whatever else takes its departure, the wild flowers keep their places, maintaining all the ancient traditions, and losing not an atom of their primitive power to make one glad and cheerful,—any one, that is, who is willing to believe in the value of the simple and common, of that which is bestowed "without money and without price." Depend upon it the golden thread of all sensible education, the filament that shall best hold together everything else, is interest in the common things of Nature; and he who, after morals, does most to improve and quicken the art of seeing them, and enjoying them, is a benefactor every bit as great as a learned lecturer. Looking at the wild flowers, when the companionship of a few years has made their countenances familiar, Hope and Memory seem to shake hands and keep festival. These two are always the factors of the most enjoyable kind of Present; sincerely do I hope therefore, that we may yet see the poetic tale I speak of—the "Pleasures of the Living Moment," as realised in the friendship of Old England's trees and flora.

A feature in wild Nature very pleasing in October, is the copious repetition of much that belongs especially to the spring and early summer. Nature always seems reluctant to stop entirely. No matter whether in the garden or the wilderness, she always lingers, like a lover, on the doorstep; perhaps one of her most beautiful characteristics is the unwillingness she shows, at every season, to say "good-bye." How loth are the Blue Bells to take their leave! At Disley, seven miles from Manchester, I have seen them in full bloom on Midsummer Day. How loth, in turn, are the Roses of autumn to desist. They always appear to me a sort of picture of the English at Waterloo, never knowing when they are beaten. Do we not read also of plates of Strawberries gathered at Christmas! Last week, in a lane at Clevedon, I found a bush of the common Dog-Rose still in full flower! And quite as singular as refreshing was the spectacle of the sweet pink concave petals, since they were commingled with the scarlet and glossy fruit of the bloom of three months ago; and the more particularly since alongside were Sloe bushes loaded with their miniature Plums, while the foliage of the Hawthorn was fast preparing its old accustomed amber and purple. It is interesting to observe that in spring the Hawthorns unfold their leaves so irregularly, as to individuals, that the hedges are not covered uniformly with green, but dappled; and that now in autumn the change of colour is confined, at first, to certain portions, after the same manner that we may observe in the boughs of the Elm trees. Such waifs and strays as these pink Dog-Roses furnish the chief material of our autumn bouquets. I refer, of course, to bouquets of wild flowers.

After the bright autumnal Furze, that always hastens so quickly after the Heather, the innumerable and honied Ivy bloom, and the purple flush among the grass of the Colchicum and the autumn Crocus, there is little produced at this season which can be strictly called original—always, of course, excepting the inestimable and too sadly neglected Cryptogams, the fungi in particular, which are now at the very acme of their quaint and deep-dyed beauty: would that it were less frequently deceitful. There is plenty, nevertheless, for the diligent gleaner, especially if he will take for his associates in the collecting a party of zealous little maidens, when not even a dropped petal will be missed. The abundance becomes quite remarkable when, as in this current year, 1874, the summer has been inordinately hot; for after seasons such as those we have recently experienced, just as in July people turn out for evening promenade, balancing the losses of the sultry noontide, so do the things of wild Nature make an effort, as it were, to enjoy the cool of the year. I do not mean to imply that plants are conscious of enjoyment. Actual life is too abounding in romance for any one who values his time to take up the old phantasies of Empedocles. That plants have a single faculty or sensation is in the highest degree improbable. Where, nevertheless, shall we find a more lively picture of enjoyment than is set forth by a plant which, after being parched for three or four months, and dried almost to death, pushes forth in the sweet cool eventide of the year, fresh green shoots, and shining leaves and smiling flowers? We read the other day in the *Gardeners' Chronicle* of the "manners and customs of plants" (p. 451). The expression (apparently editorial) is one I cordially approve; it will sustain me, at all events, when I speak of

their enjoyments. On October 10 there were in bloom at Clevedon no fewer than sixty-eight different kinds of wild flowers. Conspicuous among them were the Herb Robert, the lilac Scabious, the Cinquefoil, and the Corn Poppy, the Yellow Toadflax, the Fumitory, the Bladder Campion, the Milfoil, the white Dead Nettle, and the Vervain Sage; while here and there appeared the grand flowers of the Centaurea Scabiosa, the delicate little lilac crosses of the Sherardia, and the azure of the Veronica Buxbaumii; the Red Valerian and the Pellitory of course were very plentiful, and among the welcome little things that have fragrant leaves, the Calamint and Oberon's "Wild Thyme." In addition to the flowers popularly so called, there was a fair supply also of grasses. These are plants which beginners generally "leave to another time." Ah, what a mistake! But it is never too late to mend, and in October they are provided with a really golden opportunity. For at this period of the year there may usually be found plenty, and in a state of great perfection, of that best of all the tribe for the initiative, the Silver Oat-grass, Arrhenatherum avenaceum. The size and the clear disclosure of all the parts is everything that can be desired; and when in the forthcoming season the hay-fields are in preparation, everything else will come quite easy. Mark here how considerately to us Dame Nature never fails in a single department. Many a time when I have asked for a book at the library, the answer has been "not in." Wild Nature never says so. Even in mid-winter, if we want a grass, she has the wayside Poa. The Meadow Fox-tail is also apt to renew itself in October, the Ray-grass also, and the Trisetum flavescens; while, for the experienced, it is very interesting to observe how often a grass may now be found in the viviparous condition. Not the quasi-viviparous, caused by the germination of the ripe seed before falling from the glumes; such as constitutes what farmers call the "sprit" or sprouting of Wheat, but the *bonâ fide* viviparous, which consists in the development of young plants instead of flowers.

In the space of an hour the other day I discovered in this latter condition the Crested Dog's-tail, the Cock's-foot grass, and the Meadow Fox-tail. Here let me remark upon another besetting difficulty with young students, which if they will but keep to the front, and believe in Nature, October will mitigate immensely. This consists in the distinctions of the Umbelliferæ. Nearly all the text-books lead off with the peculiarities of the ripened fruit, in which, without a doubt, reside the absolute differences. For want of it when, as must needs be the case, the plant is only in flower, say in May or June, the order too commonly gets ignored, though in no family is the structure more curious, while the species are, in many cases, of pre-eminent interest. Begin in October, and the Umbelliferæ will prove quite as manageable as the grasses. The fruits of a dozen or more may now be collected; at Clevedon, on the day in question, there were in high perfection, as to fruit, the common Angelica, the wild Parsnip, the Shepherd's Needle, the Bur Parsley, the Cow Parsnip, the wild Carrot, and several others. Whatever hitch there may have been before over "vittæ," and "cremocarps," and "mericarps," in the presence of these common but meaningful plants it altogether disappears. There are plenty of flowers also to be got, sufficient at least to illustrate the general fabric, late examples of the Cow Parsnip being almost invariably at hand; and as for the foliage of the Umbelliferæ, it is in many cases never to be seen in greater luxuriance, though tender and limp. I note, with peculiar delight in its freshness, the beautiful new green in autumn of many another bit of leafage that we thought was done with till another year. In no instance perhaps is this more striking than that of the tufted Dimple Wort—if I may be allowed thus to re-christen the Cotyledon Umbilicus, the objectionable old name of which, in the vernacular, was imposed when men were not particular as to delicacy of terms, and which ought now to be disused. October is naturally a time for fruits rather than for flowers, a circumstance which gives new interest to the Labiatæ. For while corollas and didynamous stamens exist in plenty, and particularly in the Linnæan genera Stachys and Lamium, there is no period when the very curious fourfold ovary is more intelligible. The "four naked seeds" so-called are particularly obvious in the Stachys sylvatica and in the Salvia verbenaca, both of which plants produce their fruit in great abundance. Lay a seed of the last-named upon the tongue for a minute or two, and it becomes enveloped in a light mucus. Placed in this condition, in the eye, when an atom of dust has got in, so as to cause pain, the mucus catches the culprit, and both come out at once.

How beautiful again the wild capsules in October! Leading the way, as to form and substance, are those of the different species of Lychnis, Cerastium, and Arenaria. In the first-named they are as hard as shell, brown and polished, and seem to cover the plant with tiny sepulchral urns. But the gem of all is the pyxid of the Pimpernel, or Shepherd's Weather-glass, one of those charming little annuals which, though they come first in the middle of summer, remind us now, in the fall, of the *encores* given to favourite singers. The jewelled beauty of this lovely little plant, the scarlet Pimpernel, places it quite in the van of English wild flowers. It is unique, moreover, in the spherical capsule, for though pyxids are found likewise in the Plantains, there is not in the whole world, except in its own genus, a box fashioned like this one. It is perfectly globular, and when mature, opens by a line of dehiscence so exactly equatorial, that the upper and lower halves correspond to the fraction of a hair's breadth. They say that when renowned Helen rambled up and down the earth in search of a model for a cup of perfect symmetry, in the which, when discovered, she should offer her oblations to the gods, she found nothing that would compare with her own bosom. The meaning of this beautiful fable is obviously that, for the worship of our Heavenly Father, there is nothing better or so good as a pure and reverent heart. When I contemplate this little Pimpernel capsule, I cannot but fancy, nevertheless, that Helen somehow overlooked it.

While on the subject of seeds, let me mention the pretty pentagons of various Chenopods, none excelling in symmetry those of the Suæda maritima. Just as in the Gaultheria, and many another plant of far nobler pretensions, the fruit is here enclosed and protected by the enlarged and succulent perianth, which in the Suæda resembles five little green beads placed in a ring—the rich chestnut-coloured achenium, burnished like the nut of the Æsculus, lying hidden in the midst. How odd that some of these Chenopods should have their little fruits placed horizontally, while in others they are vertical. The spiral embryo, which is very easily extracted, reminds one of the famous snake-seed of Guiana. In a paper on Chatsworth plants the other day (*Gardeners' Chronicle*, p. 291) I adverted to the obliging way in which our simple English wild flowers are prone to illustrate the phenomena of the tropics. The embryo of the Chenopods may count as another instance. The chestnut hue of the fruit in Suæda and Chenopodium, it may be worth adding, is not continued into that of the allied genus Salicornia, which is pale grass-green, as might be expected, perhaps, when we consider how deeply it is embedded among the fleshy scales which compose the principal portion of the plant. Beautiful below Clevedon, between there and Woodspring, in October, is the aspect of the Salicornia, which, covering the mud-flats like a forest, and changing to rosy amber, then gives one quite the idea of reposing sunlight.

Another plant, which, like the Pimpernel, in October comes out afresh, is the common Mercurialis annua, not so very common either, since in Lancashire and Cheshire it is quite unknown. Call it a weed if you like, I note it as the only example I am acquainted with of a true and genuine trimerous flower. The liliaceous flowers, ordinarily so styled, are not trimerous but hexamerous. Here, on the contrary, we have three green valves, pure and simple, which, spreading widely, allow the nine stamens to stand erect, each bearing its double head of gold. Many of the Euphorbiaceæ are remarkable for the beauty of their twin anther cells; the Mercurialis is certainly not in the rear. Mark, likewise, the odour of the flowers in the male plant. They emit a scent almost exactly like that of honey, and which, if a specimen be laid between papers to press for the herbarium, continues for nearly a week, after the manner of that of the Oleaster, Elæagnus angustifolia, the perfume of which lingers till the piece is completely desiccated. Among other elements of this charming flower-set on October 10 it was impossible to pass indifferently the wild Teasel, which had thrown out a beautiful new lateral growth, the corollas, as customary with this singular plant, displayed in patches, as if there were no one about the place to give proper instructions how to proceed. Spring Buttercups, too, were plentiful, with relics of Galium verum, and of the Mouse-ear Hawkweed, the latter scented exactly like Raspberry jam.

Among the hedge berries the most conspicuous were the bright crimson ones of the Dulcamara, and those which make such elegant wreaths of the stems of the Tamus. The black fruit of the Privet and of the Rhamnus catharticus formed a strong contrast and, more than either, the tender silk of the Clematis Vitalba. Everywhere in October one is thus invited to admire not only the simple beauty of wild plants, and the marvellous diversity in forms and colours induced by change of seasons, but the incomparable perseverance with which they set to work to accomplish their great impulse—namely, that of ripening seeds. If our preachers want examples of unspeakable fortitude, energy, and resolution, they will certainly find the best in Old England's wild flowers. They carry no heraldic mottoes, but the universal watchword is "Never say die." A limit there is, of course, but so long as the aim of their life is not accomplished, give them ever so small a chance of self-repair and self-retrievment, and they set an example more to the point than a thousand exhortations.

Well did that excellent philosopher, the Bishop of Manchester, at one of the many recent Congresses, commend field botany to the working-man as a noble lever in self-improvement, both morally and intellectually. For it is such things and occurrences as those above described which help to make mute Nature the profound and unimpeachable preceptor the wise and good among mankind have always proved it to be, since moral truth is always found abreast of clear and pretty natural phenomena. Nature is always found full of encouragement. She never has any sympathy with those who murmur. Nature, in a word, the botanist's portion of Nature at all events, is not only what the *Times* would call "a great fact"—a thing already in our hands, and a memorial of the past—it is saturated with rich promise for the future, and for our individual application. See how exquisitely this is set forth in the little catkins of the Alder and the Hazel, which, before the leaves of 1874 are

ready to drop, already are getting in order for 1875. See how exquisitely, again, this is illustrated in the buds of the Sallows, which even now in October, if opened carefully, show the silky blossoms that are to step forth with next year's Primroses. If Nature likes to finish, truly she yet more dearly loves to begin over again. Happy are those who mark her ways and follow her counsels. *G.*

OPUNTIAS.

Very odd, very quaint, very unlike any other plants, it is, perhaps, easily understood why few people care much, and why those few care a great deal, about them. Apart from the oddity of their form, the brilliancy of their flowers gives them a real charm in the eyes of the plant-lover. The fruits, too, of one species, Opuntia Tuna, are eaten under the name of Prickly Pears, and are not unfrequently seen in our markets; but we fancy their presence on the dessert-table is due more to their rich colouring and singular appearance than to any flavour they may possess. In hot countries, where anything that is cool and moist is highly prized, Prickly Pears may be valued, but here we decidedly prefer the Pears without the prickles. In Sicily the plants are said to grow abundantly on the sides of Mount Etna, in the lava which by the agency of their roots is broken up, disintegrated, and ultimately converted into very fertile soil for the growth of Vines, &c. The fruits, too, are largely used by the natives. One or two of the species furnish food for the Cochineal insects, and are cultivated for that purpose in Mexico. The appearance of the insect (which may be seen in the succulent-house at Kew) is very like that of the common mealy-bug, which is such a pest to gardeners.

In this country we seldom or never see these plants, save in a comparatively young, bushy state, when their stems present nothing but a succession of flattened oval, or battledore shaped joints, one above another, but as the plants advance in age cylindrical trunks are formed, in some species, of considerable height, and branching into a crown of branches at the top. The species are very numerous, and may be divided into groups according to the form of the joints, flattened or cylindrical, the presence or absence of hairs, prickles, and tubercles.

The culture of these plants is of the easiest: plenty of light, moderate heat, a rich, open, well-drained soil, and a moderate supply of water, are the main requisites, stagnant moisture is peculiarly hurtful to them.

Some species are mentioned as hardy in this country, such as Opuntia prostrata, vulgaris, and Rafinesquii—we can only speak with certainty as to the latter, but we believe that on a dry, well-drained border, at the base of a south wall for instance, many species might be grown with success, and it is most desirable that further experiments be made in this direction.

Along the Mediterranean, as at Monaco and Mentone, Opuntia vulgaris thrives with a degree of vigour surprising to northern eyes. Great wisps of it hang down from the rocks overhanging the sea, waving to and fro with the wind in the weirdest and most impressive fashion. Our illustration (fig. 104), taken from a photograph, kindly placed at our disposal by Dr. Bennet, as well as others which we have previously given of the gardens and vegetation of Monaco and its neighbourhood, may serve to give some idea of the luxuriant growth of these plants. So abundant and so much "at home" are they in these regions, that it is difficult to believe that they are not wild there. Nevertheless, few things are more certain than that no Opuntia was known in Europe till after the discovery of the American continent. The genus is (so far as wild plants are concerned) entirely confined to the American continent, the hot, dry regions of Mexico, California and Peru affording the largest number of species. Pliny's Opuntia must, therefore, have been something widely different.

The writers of the sixteenth century, says Caruel in his *Statistica Botanica della Toscana*, only speak of the plant as an exotic or cultivated plant, though now it is as wild on some of the hills near Florence as on the rocks on the Mediterranean coast, or in Spain. It is said also to be naturalised in some parts of Switzerland (Valais) and the Tyrol.

Steinheil considered that the plant was brought by the Spaniards from Mexico, and cultivated by them in the South of Spain, from whence it was diffused throughout the Mediterranean region to Palestine, and that the Moors, driven out of Spain, took the plant with them to Barbary, whence the names "Barbary Fig," and the Arab expression, "Christian Fig."

Desfontaines in his *Flora Atlantica*, after noticing the stamens are irritable to the touch (*stamina ad tactum irritabilia*), refers to its use as a hedge plant in Algeria, "*munimentum hortorum et domorum impenetrabile.*"

A brief summary of all that is known as to its introduction to Europe is given in De Candolle's *Géographie Botanique*, ii., 725. The same remarks will apply, *mutatis mutandis*, to the Agave, so common as a hedge plant in the Riviera and in Spain, as to the Opuntias.

Fig. 104.—Opuntias near Mentone.

GRAPE GROWING UNDER DIFFICULTIES.

Waterdale Gardens, Sutton, Lancashire.—It is often said that South Lancashire grows bricks better than anything else, yet plentiful as are these here, and inimical to vegetable life as are the consequences of their existence in such quantities, and for the purposes they are employed, even in the very midst of this wilderness of burnt clay are grown large quantities of the very best Grapes and other garden produce that is to be found in the country. This great Grape growing establishment was built by the late Mr. Blinkhorn, father of the present owner and managing partner of the far-famed Royal Plate Glass Company's works at the above place, which is situated not far from St. Helen's,

betwixt the latter place and Runcorn Gap, a name that bodes worse evils to vegetable life than any other spot in the kingdom, for in its immediate vicinity not even can that scourge and evidence of bad farming—Couch-grass—exist; but the deleterious gases fortunately do not reach the place under notice, or if they do they are so diluted as not to destroy vegetable life. And in all conscience there is no need of them, for there is more than enough generated in the immediate neighbourhood, as will be understood when I state that it virtually adjoins the glassworks, where 2000 tons of coal are consumed every week, and to aggravate the evil there are large copperworks adjoining, the fumes from which Mr. Smith, Mr. Blinkhorn's gardener, dreads much more than the mere soot vomited from the numerous chimneys of the glass-works.

The houses are numerous; most of them, especially those devoted to Grape growing, large and very substantially built, with every appliance for carrying out the work they were intended to accomplish. In erecting these houses in the position they occupy, so far as I can learn, Mr. Blinkhorn was actuated by a laudable love for gardening, which in the neighbourhood he could in this way best indulge, and also exemplify the properties of rough plate glass with which the whole of the different houses are glazed. It runs in sizes from 2 feet 2 inches by 4 feet up to 2 feet 2 inches by 10 feet, is $\frac{5}{16}$ of an inch in thickness, and weighs about 4 lb. to the foot—its great weight, as will be obvious, necessitating more than ordinary strength in the woodwork, still further required by the greater than usual width of many of the houses, which are 20 feet. The bars are 6 inches deep, independent of the rabbet, are 2¼ inches in thickness, and are each strengthened by a truss rod; in addition it has been found necessary to place midway betwixt the back and front of the houses, at intervals of 9 feet, a 2-inch iron pillar, clipping a stout iron rod running the whole length of each of these lean-to houses. The front lights are 3 feet in depth, and are hung upon what is understood in garden phraseology as the swing principle by a pivot in the middle, and are worked by a lever; the roof ventilation is by means of every other top square, 4 feet by 2 feet 2 inches, in frame, hinged at the top, and worked by a lever, yet in very hot weather Mr. Smith finds this ventilation insufficient; the strong glass being very hot in sunny weather, it also has corresponding power in resisting cold. All the laps are puttied so as to make them quite tight, for when the wind is in the north, bringing the soot and vapour over the houses, every means possible is resorted to for their exclusion; this requires very great care in air-giving, especially through the spring in bright weather.

The first range we come to is a lean-to, 150 feet long by 20 in width, divided into three compartments; the first of which is the earliest house; it is closed the beginning of November, and no time is lost, as will be apparent from the fact of cutting having commenced the last three years not later than March 27. The sorts are Black Hamburgh, Buckland Sweetwater, and Foster's Seedling: the latter is here found to be much the best white companion to the Hamburgh for this early work, and it is being grafted upon the Buckland so as to ultimately take the place of the latter; it is hardier in constitution, forces better, and when ripe keeps longer in condition, although in the case of this vinery there is not much chance of them getting out of condition through hanging long, for the house is cleared in three weeks from the time the first are cut. This quick removal of the fruit has something to do with the good condition of the Vines and crops they bear, under the whip and spur forcing they undergo during the sunless winter months. Plenty of active feeding roots, and these under perfect control, are also indispensable for this early work. Considerable difficulty has been experienced in preventing these early Vines from breaking towards the end of summer; this is no doubt aggravated by the fixed roof and nature of the glass: to obviate this Mr. Smith treats them as follows as soon as the fruit is cut. The inside border is thoroughly saturated with water, after which no more is given until the Vines are pruned in the beginning of October; at the end of July (by which time the wood is got almost as hard as whalebone, and the foliage fast going) they are loosened from the wires, and laid flat upon the floor of the house, where the temperature must necessarily be much lower than at the ordinary distance at which Vines are suspended from the glass; the outside border is also covered with wooden shutters: this treatment prevents any premature growth. At the time of starting the border inside and out is again thoroughly soaked with water at a temperature of 65°, obtained from a very large tank heated by a coil of 4-inch piping, so arranged that a sufficient supply is at all times in readiness at whatever temperature it may be required. This abundant supply of water, warmed up to the requisite temperature, is of the first importance where high-class cultivation is attempted on a large or small scale, either with fruits or flowering plants.

The second vinery, like the last, comprises one-third of this range. It is planted with Black Hamburgh, except two or three Foster's Seedling and Madresfield Court. It is started soon after the house just described, worked a little slower, and comes in by the middle of April; and, like the last, the crop is all cut in about three weeks.

The remaining house in this range is filled with Muscats, except one Golden Champion, which is grafted on a Black Hamburgh; it is at the warmest end, comes in a fortnight before the Muscats, and is here everything that can be desired, free from spot or cracking. This house is started with a little heat the first week in December; cutting is commenced at the end of April, and the whole cleared by the end of May, except such as may be kept for some special purpose. It was from these Vines that Mr. Smith exhibited the splendid Muscats which took the 1st prize and medal at the Royal Horticultural Society's show at Birmingham, and which for perfection of colour and general excellence have rarely been surpassed, and for so early in the season probably not equalled; the same Vines produced the Grapes that took the 1st prize and Veitch Memorial Medal and prize at Bath last year. When in bloom the atmosphere is kept quite moist, with a day temperature of 75°, night 70°, and 5° lower if the weather is severe. The Vines in both this and the last house are treated exactly like those in the earliest, in respect to watering the border, loosening and laying them down to prevent the buds breaking in the autumn. The rainfall is here considerably over what is experienced in the south or midland counties, the subsoil is a wet, retentive clay. The borders in this range occupy 12 feet inside and as much out; they are all concreted, and upon the concrete is placed 6 inches of brick rubbish for drainage, the depth of border in these and the other vineries not averaging more than 2 feet. The Vines in this range were all planted inside in the autumn of 1870. Mr. Smith lifted them, and remade the border 6 feet inside, and the same outside, and has since added to both, the inside being now completed up to 12 feet, but about 2 inches of new soil is laid on the surface every year, with 2 inches of rotten dung, besides liberal applications of manure water. The soil is a strong loam, with lime rubbish and half-inch bones mixed. The outside border at the time the Vines are started is covered with just enough litter to exclude frost, over which are at once put wooden shutters. These houses front south-east, and are efficiently heated with six rows of 4-inch piping dispersed over the surface of the border.

The next is a lean-to vinery, with a south-east aspect, 56 feet by 10 feet in width, a very steep roof—the rafters 13 feet. The glass in this house is in 6 feet lengths, with a narrow lift-light at top; there are shutters in the front wall. All in this house are Hamburghs, seven years planted, and have borne four very heavy crops. The border is similar to the last in construction, occupies the whole space inside, and 4 feet out.

Standing with its back to the last house, and divided therefrom by a longitudinal glass partition, and consequently facing north-west, is another lean-to house, divided by a partition, the first part filled with specimen and half-specimen Azaleas, well grown, with plenty of clean foliage of that dark green colour which denotes vigorous health and freedom from the insect pests which they are so subject to, but which must be kept thoroughly under if the plants are expected ever to show their desired character. They comprise most of the good varieties, and are well trained without being overdone.

The next division is in every way similar to the last, and is filled with a mixed collection of hard and soft-wooded plants and general decorative stock for the production of cut flowers.

Adjoining the end of these, forming a continuation, and equal in width to both, is a span-roofed house filled with a good collection of moderate-sized Camellias in fine flowering condition, evidencing by their profusion of healthy foliage that although these plants require shading from strong sun, yet they enjoy a good light house.

Next, at a short distance, is a span-roofed vinery, 30 feet by 15, with a narrow inside border on both sides of the central path formed by a low wall. The Vines are all Muscats, planted on each side, 2 feet 6 inches apart. These were carefully taken up, and the roots shortened to 4 feet in length, and the border renewed three years ago this October. They bore a few bunches the following season. The last and the present summer the crop has been very heavy. There is on each side a 6 feet border outside. The house is started after the early Muscat-house, and succeeds it in ripening.

Near is another span-roofed house similar to the last, filled with Black Alicante—taken up, their roots shortened, the border remade and treated as the last house at the same time. These were just beginning to colour a good crop of well swelled fruit, the wood and leaves strong, healthy, and ample.

At some distance from these are two other large vineries, the first filled with Muscats, except three specimens of Madresfield Court, which are grafted respectively on Nice, Barbarossa, and Lady Downe's, upon all of which stocks they do remarkably well, never having shown the least disposition to crack, but they will not keep long. To avoid any waste of heat the flue from the boilers traverses one side of this house, but to obviate the danger from an escape of injurious fumes it is arched over; so arranged it still gives off a good deal of heat which would otherwise be lost. The outside border of this and the adjoining house is 8 feet in width, and was renewed three years ago. The inside border occupies the whole of the space, except what is taken up by the flue; the inside roots were lifted last autumn, and the border remade. The crop was remarkably fine in colour, but not heavy, as might be supposed from last year's removal of the inside roots. Adjoining is a similar vinery now filled with Lady Downe's, but which are to be inarched with Alicante, which is much preferred, is finer in appearance, equal in keeping properties if the bunches are well thinned in the inside, and here better in quality.

We next come to the fruiting Pine-stove, 76 feet by 12, with a path down the middle. Black Jamaica is the sort principally grown, with a few Smooth Cayenne, all so far as possible being required for winter and spring.

Next are two Cucumber-houses, each 76 feet by 14, with a path down the centre, with a brick wall on each side, which forms the bed in which the plants are turned out, well up to the glass. Large rough Cucumbers are not held in any estimation in the north of the kingdom, and after trying almost every kind that has appeared a moderate sized smooth variety in the hands of a few north country growers is grown, to the exclusion of all others; it runs about 15 inches in length. The average number cut from these two houses is from 8000 to 9000 per year. The seed is sown the second week in October; they are planted out the third week in November, and cutting commences at the end of January.

Running parallel with these is the succession Pine-pit, 50 feet in length; it is filled with good, stout young plants, strong and short in their leaves. Tomatos will not here succeed out-of-doors, but are grown inside; a small lean-to house is devoted to them. They are planted on the front, and trained Cucumber-fashion up the roof near the glass; in this way much more fruit is obtained than when they are grown in the ordinary manner.

In a small house near were a number of Mexican Odontoglots, Vanda cœrulea, Epidendrum vitellinum, and others, that delight in a cool, close atmosphere.

Adjoining the dwelling-house is a conservatory, kept gay with the usual flowering and foliage plants. Nothing is grown in the fruit-houses that can at all interfere with the well-being of the fruits, which is undoubtedly the best practice, as, where plants are introduced amongst Vines, it must of necessity result in a compromise of treatment detrimental to both, and is too often the means by which troublesome insects are communicated to the Vines, and which do much more harm than the value of the plants which have caused the mischief.

On visiting this place there are two things that will strike the Grape grower: that is, the little hesitation in either wholly or in part taking up Vines and renewing the borders when such is found to be necessary, and the comparatively shallow depth—not averaging more than 2 feet deep—and confined area of the borders, especially the outside portion, with the continuous and liberal feeding with manure-water. Some Grape growers advocate a depth of as much as 5 feet, and maintain that if they are well made at first Vines do not require disturbing or removal of the soil for a lifetime; others take the opposite extreme and adopt shallow borders. In this, as in many other matters connected with gardening where a different system is advocated, both may be right, according to the different conditions of the situation, especially in respect to both surface and subsoil. Where the soil is naturally suited to the requirements of the Vine, with a good open rocky or gravelly subsoil, little preparation is required or is of any use beyond giving them when newly planted a start, and where such conditions exist there can be no question of their being better and more suited to the requirements of the Vine than any preparation that can be made for them. Where the subsoil is of such a nature as will not injure the roots of a Vine when they enter it, deep borders, in a great part outside, with plenty of room for the roots to extend far and wide, are the right thing; in such Vines will be found to attain the greatest strength, and last the longest, providing they are fairly treated in other respects. But where, as in the neighbourhood of the place under consideration, all these conditions are reversed—where the subsoil is a cold clay, with a heavy rainfall, and much early and hard forcing is carried out, comparatively confined and shallow borders, the greater part inside, where the roots must of necessity be near the surface, and consequently more under control, and in a position to receive immediate assistance from liberal applications of manure-water—in such situations borders such as are in existence here are no doubt the best. The heating power for the whole of these houses is most efficient; three 5-feet welded saddle boilers are used, with a fourth in case of accident or extremely severe weather. There is an

air of order and good keeping about the place generally, and altogether it is an evidence of what may be accomplished in gardening under difficulties of soil and climate, especially with good light houses, managed by a man like Mr. Smith, who is a close and attentive observer, passionately fond of the pursuit, ever ready to adapt his practice to the requirements of the occasion. To give some idea of the condition of the atmosphere, I may mention that to protect the late Grapes that are kept hanging on the Vines from the accumulation of soot that comes in when the top lights are opened freely in the autumn, papers similar in shape to such as are used for bouquets are cut open to the middle, so as to slip in the stalk of the bunch, the cut ends are lapped over so as to cause the paper to lie over the bunch in the shape of an inverted funnel, and pinned; in a very few days I saw the pins so used as black as if they had been coated with the preparation such as is used for mourning pins. *T. Baines.*

THE COMMON HOLLY AND ITS VARIETIES.—II.

(*Continued from p.* 433.)

We come now to a group in which the leaves are of intermediate size, and in which, consequently, the distinctive feature is arbitrary; but it will be found to offer a fairly tangible character for subdivisional purposes. It includes two lesser series, differing in the breadth of their leaves.

ordinary or typical form of Holly, from which the varieties in the previous sub-division differ in the greater size of their leaves. In this typical form

1

green Hollies of the nurseries, and which are so largely used as hedge plants, and also for admixture with other evergreens in ordinary shrubberies and plantations. It is also used as a stock, on which the variegated and other sorts which are not reproducible from seeds, are budded or grafted. It may be designated as the most valuable of all evergreen shrubs, growing on in favourable soils and localities into a small tree. In the wild state it is often met with in the condition described by Southey—smooth and unarmed above, while bristling with spines in all the lower branches. The var. diversifolia of the Lawson collection differs very little, if at all, from the green-barked form.

11. I. A. PENDULA, Waterer, Fisher, Lawson, Paul.—The peculiarity of this form is that its branches are pendent; its leaves are deep green, divaricately spiny, and ordinarily from 2 inches to 3 inches long. The bark is dark purple in some cases, purplish in others, and green in others; while the spines are somewhat broader, and in some cases fewer in number than in the type, though sufficiently numerous to bring it amongst the many-spined varieties. When well-grown it forms a very handsome tree. There are some magnificent specimens of it to be found in the Knap Hill Nursery, which is famous for its collection of these plants, and its stock of grand specimen plants and standards of some of the best varieties.

12. I. A. FRUCTU-LUTEO, Lawson, Smith, Paul; yellow-berried, Waterer, Fisher; flavum, Masters & Kinmont.—This is a green-barked variety, or, in the case of Mr. Smith's sample, purplish. It has leaves

2

3

Fig. 105.—1, ILEX AQUIFOLIUM; 2, I. AQUIFOLIUM HETEROPHYLLA; 3, AQUIFOLIUM FISHERI.

A. Leaves Green (*continued*).

§ Spines marginal, numerous, strongly developed.

* Spines divaricate, *i.e.*, variously directed.

†† Leaves medium-sized, 1½ to 2½ inches long.

‡ Leaves oval or ovate in outli usually more than an inch wide.

10. I. Aquifolium, Waterer, Smith, Lawson, Paul (fig. 105, 1); diversifolia, Lawson.—This is the

different samples vary from 1½ inch to 2½ inches in length, and excluding the spines, from three-quarters of an inch to about a full inch in breadth. All the examples quoted above happen to be of the purple-barked type; but the common Holly occurs—and we suppose most frequently occurs—with the bark of the young shoots green. This typical form is furnished with strongly-developed and numerous spines, which are much divaricate. The figure represents the full

averaging 2½ inches, but reaching to 3 inches in length, of an ovate form and bright green colour, the margin generally furnished with a moderate number of spines, which are slightly divaricate, but sometimes only bearing a very few (3—5) scattered spines. So far as its general aspect is concerned, this closely resembles a common green Holly, but with fewer spines than ordinary; its chief peculiarity being the production of yellow berries, so that in

Fig. 106.—ILEX AQUIFOLIUM SMITHIANA.

Fig. 107.—ILEX AQUIFOLIUM BEETII.

size of the leaf under ordinary conditions of growth. The common Holly being raised from seed varies in character to some extent, as it might reasonably be expected to do. It is this plant which constitutes the

Fig. 108.—ILEX AQUIFOLIUM HANDSWORTHENSIS

the fruiting state it is very distinct in character and aspect.

13. I. A. FRUCTU-AURANTIACO, Paul; orange-berried, Waterer.—Mr. Paul's plant has deep purple bark, and ovate strongly divaricate-spined leaves; but Mr. Waterer's, which we understand was a seedling plant, has green bark and elliptic-ovate leaves, which are moderately undulated and spiny, and average 2¾ inches in length. As in the last, the chief distinction is in the berries, which here are orange-tinted, as if resulting from a cross between the scarlet and yellow, which was no doubt its origin.

14. I. A. COSTATA; Grecian Holly, Fisher, Smith.—This variety was sent out, and, we presume, raised by Messrs. Fisher, Holmes & Co., of the Handsworth Nurseries, Sheffield. Authentic examples received directly from them, show it to belong to the series with purple or reddish-purple bark, while the deep green leaves, which are 2½ inches long and 1¼ inch broad, are oblong acute, furnished with slightly divaricate spines at somewhat distant intervals. It is a free-growing sort, and has the costa distinctly indicated by a purple line on the back of the leaf.

15. I. A. FISHERI, Fisher, Paul (fig. 105, 3).—This also is one of the many fine varieties raised and sent out from the Handsworth nurseries. Our authentic samples have green bark; and the leaves, which are variable in character, are about 2½ inches long and 1¼ inch wide, of a very dark green colour and coriaceous texture, ovate, with a somewhat acuminate apex, occasionally entire, with a thickened margin, sometimes spiny throughout, with strong, much divaricated spines, more commonly with 1—2 to 5—6 spines along the margins, and an entire acuminate point. It is a bold, free-growing, and a handsome sort. Mr. Paul's plant, which appears to be the same in all other particulars, has the bark of a deep purple.

16. I. A. HETEROPHYLLA, Lawson, Smith, Fisher; heterophylla major, Paul (fig. 105, 2).—This variety has considerable resemblance to laurifolia; but, according to our memoranda, the leaves are shorter and comparatively broader. The bark is purple on all but Mr. Smith's plant, in which it is green; and the leaves, which are ovate or elliptic-ovate, average 2½ inches in length, by 1 or 1⅛ inch in width, sometimes measuring 2¾ inches by 1⅛ inch; they are dark green, somewhat twisted near the point, and either entire or (intermixed on the same twigs) distinctly spinose, very rarely but occasionally spiny throughout, the spines, when present, strongly developed and divaricate, generally distant, and always irregularly disposed. It is a strong-growing and effective Holly.

17. I. A. HYBRIDA, Paul.—A variety in which the bark is deep purple, and the leaves are ovate, about 2 inches long, with the marginal spines slightly divaricate, and either few and scattered, or numerous and regularly disposed. The leaves will probably grow larger in other soils and situations, Mr. Paul's samples being mostly of small size compared with those of similar kinds from the other collections cited.

18. I. A. BEETII, Fisher, Paul (fig. 107).—A very peculiar-looking variety, raised in the Handsworth nurseries. It is green-barked, with very short, dark green, glossy leaves, nearly circular in outline, about 1½ inch long by 1¼ inch wide, strongly spinose at the edge, the spines very much divaricate. The leaves are stout in texture, with thickened margins. This Holly is remarkably distinct in character, its peculiarity being the shortness and bluntness of its leaves.

‡‡ Leaves lance-shaped in outline, about an inch or less in width.

19. I. A. HANDSWORTHENSIS, Fisher, Paul (fig. 108).—This variety, which also originated in the Handsworth nurseries, is green-barked in Messrs. Fisher & Co.'s authentic specimens, but purple in Mr. Paul's, which appear otherwise identical. The leaves are ovate-lanceolate, acuminate, of a glossy green, 1¾ inch in length, and about ¾ inch in breadth, with numerous thickly-set marginal spines, which are projected forwards towards the apex of the leaf, and are moderately divaricate. It has some slight resemblance to ciliata major, but differs in the divarication of the spines.

20. I. A. SMITHIANA, Smith, Fisher, Paul (fig. 106).—A distinct variety, with narrow leaves, forming the green counterpart of Doningtonensis. The bark is green or sometimes tinged with reddish purple; the leaves are lanceolate, from 2 to 2½ inches long, by ⅝ to ⅞ inch in width, of a bright glossy green colour, with distant irregular weakish spines, which are moderately divaricate. The leaves are comparatively thin in texture.

21. I. A. ELLIPTICA; flammea angustifolia, Paul.—A green-barked variety with elliptic leaves, measuring 1¾ to 2 inches in length, and ¾ inch in breadth, and which are sometimes entire, sometimes furnished with a few wavy spines, and sometimes furnished with numerous spines, which are weak but strongly divaricate. It approaches to myrtifolia, but has larger leaves. *T. Moore.*

FRUITS OF THE AZORES.

THE Azores have long been known to produce the very finest description of Orange that can be met with in any part of the world. More recently the Pine-apple and Banana have been cultivated with almost equal success. These islands are situated within a few days' steam from ourselves, and although belonging to Portugal, they may be considered as one of the outlying fruit gardens of Great Britain. With a lavish hand Nature has bestowed advantages upon this western archipelago, the climate is all that can be desired, having a fine atmosphere and a pure air. The vicinity of the sea, combined with the mountainous elevation of the general surface of the land and the incessant absorption of humidity which the volcanic nature of the soil induces, tends to temper the extreme ardour of the sun in these isolated spots of the ocean. The extremes of temperature are never felt; in the winter the cold is never considerable, nor is the heat of the summer intense. According to careful observations made at St. Michael's, the principal of the group, the mean temperature of the winter months is 20° colder than Madeira, 5° warmer than Lisbon, 13° warmer than Nice, 12° warmer than Rome, and 12° warmer than Naples. This general mildness is so marked and peculiar, that no provision is requisite for the poorer classes against the winter; and the facilities for obtaining the means of sustenance are so great that a constitutional aversion is almost engendered to those exertions necessary for the improvement of cultivation. The people are a healthy, robust, and handsome race, whom cholera or yellow fever have never yet visited, and by whom epidemics of any kind are almost unknown.

Nothing can be more enchanting or lovely than the spring; vegetation shoots forth with a rapidity and vigour that is quite astonishing, whilst there is a fresh verdure in the herbage, and a brilliancy, beauty, and fragrance in the flowers, eminently ornamental to the different gardens and parts of the country where they abound. The possession of mineral springs is another natural advantage peculiar to St. Michael's, and although the remaining islands of the group contain no natural curiosities so wonderful as these springs, they are by no means destitute of objects of interest. Their striking volcanic conformation is worthy of the study of the geologist, and their magnificent scenery would afford endless opportunities to the artist, yet even to the inhabitants of the mainland of Portugal they remain almost a *terra incognita*, whilst to the world at large they are almost as remote and mysterious as were the Hesperides to the civilised world in the classic days of Greece and Rome. [Some account of the vegetable products of these islands was published in our columns by M. Goeze in 1867.]

When first discovered these islands were entirely covered with forest and underwood, all of which was burned down or otherwise cleared away by the Portuguese settlers, for the cultivation of the Sugar-cane, which was imported from Candia and Cyprus, and at that period warmly encouraged by the Government of the mother country. When, however, the sugar trade subsequently became established in the newly-discovered Indian possessions and Brazil the demand from the islands declined, and, in consequence, the cultivation of grain of all sorts, or Oranges and Lemons, was substituted, and to a great extent that of the Vine, which for the first time was introduced from Portugal and Madeira. In the islands of Pico and Fayal a large quantity of an inferior class of wine was accordingly made. Since the attacks of the oïdium Vine culture has almost ceased, and this failure, combined with the Potato disease, brought great distress upon the poorer inhabitants, with whom this esculent was the principal article of sustenance. The tenure upon which property was long held placed insuperable obstacles in the way of civilisation and prosperity. The great proprietors of the entailed estates, who were called morgados, were unable to cultivate their extensive properties, and there existed no middle class to tenant them to advantage, whilst enterprising settlers were debarred from entering upon properties which they could not hand down to their children. The want of adequate accommodation for shipping was experienced in the island of St. Michael, by far the most important of the Archipelago, and from which a large direct trade is carried on with Great Britain. This has been supplied in the erection of a harbour at Ponta Delgada, to shelter the shipping from the storms to which these islands, in their exposed position, are often subjected. The employment of steam in place of the older sailing vessels has enabled the passage to be accomplished to London within seven days, and has brought the Azores thus much nearer the chief markets for their produce. The necessity for these facilities was imperatively felt since the development of the fruit traffic between the South of Europe and Great Britain, consequent upon the superior facilities afforded by railways, and the progress made in the culture of the Orange, especially in Spain. From the port of Valencia alone the exports have been enormous, and the Azoreans have been compelled to adopt every available means at their disposal to counteract the tendency to depreciate the value of their fruit. Attempts were made to extend the markets to the United States, but these have been abortive, the St. Michael's Oranges being more perishable than others. The islands have, however, shared in the improved fortunes that have befallen the possessions of the House of Braganza, and are at the present time in a fair way to benefit from their splendid soil, climate, and capabilities.

The superiority of the St. Michael's Orange is well known: its small size, its thin and smooth rind, its sugary delicious flavour, make it the Orange *par excellence* of the whole globe. The tree, which was introduced by the Portuguese, has here found a spot most congenial for the development of its excellent qualities. The plantations, or quintas, are in general the property of the morgados; they are of large extent, always encircled by a wall from 15 to 20 feet high, and within a thick plantation belt of the Faya, Cedar tree, Fern, Birch, &c., to protect the Orange trees from the sea breezes. The trees are propagated from shoots or layers, which are bent at the lower end into the ground, and covered with soil until the roots begin to strike, when they are separated from the parent stem and transplanted into a small excavated well about 3 feet deep (lined with pieces of lava, and surrounded at the top by plantations of Laurel, young Faya, and Broom), until the tender Orange plants are sufficiently strong, at which period the plantations immediately around them are removed, and each plant begins to shoot up and flourish, after which no further care is taken of it, beyond occasionally tarring the stem to prevent injury by insects; and it in time spreads out with the majestic luxuriance of a Chestnut tree. In these islands it only requires seven years to bring an Orange plantation to good bearing, and each tree, on arriving at full growth, a few years after, will then annually, upon an average, produce from 12,000 to 16,000 Oranges, and even as many as 26,000 have been gathered at once.

The crops are purchased previous to their arriving at a state of maturity by the merchants, who ascertain the value of the probable year's produce through the medium of experienced men, and then make their offer accordingly. The men thus employed to value orange crops gain a livelihood thereby; and such is their skill that, by walking once through a plantation, and giving a general glance at the trees, they are enabled to state, with astonishing accuracy, on what number of boxes the merchant may calculate. It becomes, however, quite a matter of speculation to the purchaser, as Orange crops are a very uncertain property, and subject to various casualties between the time they are thus valued and the gathering. For instance, a continuance of cold north and north-easterly wind will cut them off, a violent thunderstorm will sometimes lay the whole crop on the ground in a night, or it may be entirely destroyed by insects. Nothing can exceed the rich, luxuriant appearance of these Hesperian Gardens during the principal fruit months, namely, from November to March, when the emerald tints of the unripe and the golden hue of the mature fruit mingle their beauties with the thick dark foliage of the trees. The bright odoriferous blossom meanwhile diffuses a sweetness through the surrounding neighbourhood.

The islands of Graciosa, St. Michael, and Fayal may be considered, on account of the general superiority of soil, as the most flourishing, and Pico, Terceira, and Santa Marie the least so. St. Michael's is 45 miles in length, and from 6 to 12 miles in breadth, exhibiting in its physical character a more evident instance of the peculiar volcanic features of the Azores than do any of the islands of this archipelago. The roads and paths are over cinders, pumice, or calcined stones of some sort, the towering walls of the quintas are formed of volcanic stones, and the houses are all built of lava. Yet from the decomposing quality of the surrounding atmosphere, so rich and fertile is the generality of the soil, that with industry it might be rendered one of the most productive spots in the world. It is reckoned that British capital from an early period has flowed into the archipelago to the amount of two millions sterling, and although England for many years has relieved the fruit imported from the Azores from all duty, nevertheless it is to be regretted that no reciprocity exists in the tariff. In the year 1870 the quantity of fruit exported from St. Michael's was contained in 283,712 boxes, being much in excess of the previous year; and this found employment for 243 sailing vessels and thirty steamers. The whole value of the fruit may be reckoned at £77,800, of which £76,000 may be taken as the value of that sent to Great Britain. The foreign export trade of all the other islands is by no means of so much importance as that of St. Michael's alone. Previously to the year 1842 from 20,000 to 30,000 boxes of Oranges were annually exported from Fayal, but owing to the attacks of the insect (Coccus Hes-

Fig. 109.—Beech at Newbattle Abbey, near Edinburgh.

peridum), which destroyed the trees, for several years no Oranges were produced. The insects have been disappearing and the exportation of Oranges is augmenting. It is calculated that the crop of 1868 yielded 6,430,000 Oranges. A certain amount of fruit is annually sent to the English market, but much of the soil, especially in Terceira, Graciosa and St. George, is devoted to arable culture, and considerable quantities of grain are despatched to Portugal.

Attention has of late years been turned in St. Michael's to the culture of the Pine-apple. The produce of this recent cultivation having realised very good profits in the English markets, and the quality having been recognised as superior to those of foreign growth generally, conservatories on a large scale are being constructed. In 1872, 40,000 plants were in cultivation. A first experiment was likewise made in the same year in the exportation of Bananas to England, which succeeded on account of their good quality, the Banana Prata being especially superior in flavour. *E. T. B.*

A REMARKABLE BEECH TREE.

The accompanying illustration (fig. 109) is taken from a photograph of a very remarkable Beech tree, which stands in the pleasure grounds at Newbattle Abbey, the seat of the Marquis of Lothian, near Edinburgh. It is believed to be the grandest tree of its kind in Europe, and certainly it is a magnificent specimen. Its height is 100 feet, and the circumference of its branches is 120 yards. The circumference of its noble bole at a foot from the ground is 33 feet, and at 8 feet from the ground it measures 27 feet. Its lower branches arch over until they reach the ground, when many of them assume an upright growth. Its principal limbs are straight and clean growths of immense proportions, and its lowest branches are at such a height from the ground that a carriage and pair might almost be driven under them, and be entirely hidden from sight by its ample foliage. Its exact age we have been unable to learn, but it is believed to have been planted in the sixteenth century; however that may be it must be classed with the "King" and "Queen" Beeches at Ashridge, the seat of Lord Brownlow, in Hertfordshire, as the most noble trio in Great Britain. The latter, however, are of a different and distinct character, having straight and branchless trunks of large size to a great height. The subject of our illustration stands at the bottom of the flower-garden at Newbattle Abbey, and though it is associated with other handsome specimens of Oak, and especially of Sycamores, in the park, it is justly shown as pre-eminent by its noble owner and by his worthy gardener, Mr. McLeod.

Foreign Correspondence.

Agri-Horticultural Society's Garden, Madras.—*The Casuarina.*—In answer to your correspondent, "W. T. P.," p. 274, allow me to say that Casuarina equisetifolia, or C. muricata, is a large tree, attaining to the height of from 100 to 150 feet. The former is said to be a native of the South Sea Islands, while the latter is a native of India. I question if they are different. I have examined trees considered to be different, but can find no difference. "W. T. P." has evidently put the question because dictionaries give the height from 12 to 18 feet. This is not to be wondered at, as compilers of dictionaries are not generally men who have travelled, but it is a matter for surprise that some of our travelled botanists have not publicly corrected the error. [The size given is about that which the trees attain in our Botanic Gardens.] Perhaps they are, like myself, content with a marginal correction in their own copies, or perhaps they have not seen the thousands of acres there are under cultivation to the north and south of Madras, as they are of very recent date. The land planted has been reclaimed from the Bay of Bengal at no very distant date, and is pure sea sand, with good fresh water at a depth of about 10 feet from the surface.

I am inclined to differ from your correspondent as to the Casuarina being a surface feeder. As some parts of this vast tract of sand has what Scotch farmers call a pan, or stratum of hard subsoil which no roots can penetrate, the trees are only shrubs from 3 to 4 feet high and as many through, unless the owner knew what he was about when planting, and broke through this stratum, which is about 2 feet from the surface and 1 foot thick. This is conclusive that the tree is not a surface feeder. If any more demonstration was required it is to be found in the fact that during the cyclone of 1872, when one half of the trees of Madras were blown down, not a single Casuarina came up with the root, but many were broken over, as the wood is very brittle.

In the Australian colonies the Casuarina is vulgarly known as Beef-wood, from the fact that the wood is the colour of raw beef. The wood is close-grained, hard, and heavy, but is very little used either by the builder or cabinet-maker, owing to its susceptibility to the influence of the atmosphere. When heavily

charged with moisture, the wood increases largely in bulk; on the contrary, when the atmosphere is dry it cracks and splits along the grain, and when fully exposed to wet and dry weather (such as fencing), it very soon rots and crumbles into mould; but for firewood it is invaluable, giving a very strong heat, and burning with very little ash, and its rapidity of growth makes it a very good commercial concern. If properly planted and watered for the first three months the trees require no further attention, and will be ready to cut in seven or eight years, when the yield per acre will be about 60 tons, which, at 10*s*. per ton, gives £30. If worked on the coppice system, about the same will be realised in about another four years, and this is clear of all expense of cutting and carrying to market, as you sell it (as it is termed) on its feet. *J. M. Henry, September* 23.

Russian Cucumbers.—On my way home from the fair [of Nijni-Novgorod] I was again struck with what I had often remarked before, viz., the profusion of Water Melons and Cucumbers, which were being everywhere offered for sale. Pyramids of Melons and Water Melons, like cannon-balls in an arsenal, were heaped up in every direction, and as for Cucumbers, you couldn't help fancying that a plague of Cucumbers, like locusts, had descended upon the earth. All along the Volga, from Astrakhan to Nijni, the whole population seemed engaged in eating Water Melons. Their price being three copeks, equivalent to one penny, put them within the reach of even the moderately wealthy. At every wood station that we stopped at the Water Melon and its rival, the Sunflower, were the subject of a lively traffic. Saratov seemed to be the headquarters of this latter fruit, but he had outposts all along the line. But if the Water Melon and the Sunflower are luxuries and pastimes, the Cucumber is a law and a necessity. You never see a Russian peasant at dinner but you see the lump of black bread and the Cucumber. A moujick's dinner may be said to consist of x plus Cucumber. The x will consist of his favourite cabbage soup (schtchi), with or without meat in it, and sometimes in addition to it the equally famous grit porridge (kascha). Sometimes the kascha is without the schtchi, and sometimes the schtchi is without the kascha, but whether in separation or combination, the Cucumber, at least, is always there; and should x equal zero, as I am afraid it sometimes does, then the ever-faithful Cucumber does duty for all the rest. Cucumber seems certainly a singular dish to be so national in a country with a climate like Russia's. It is the last that one would select *à priori* for the post; but this is only one of a great many singularities one meets with. The Cucumber costs the thirtieth part of a penny about the Volga; perhaps this fact will explain the anomaly. *B. J., in the "Daily News."*

Apiary.

"A List of Plants Suitable for Bee Culture, excluding those commonly grown in the kitchen garden and orchard: compiled Dr. Münter, Director of the Botanic Garden, of Greifswald." The following list, extracted from the above work, may be of interest to some of our readers who are beekeepers. We may note that Greifswald lies in about 54° 5′ N. lat., and about 13° E. long., hence its spring is about a fortnight or three weeks later than in England:—

I.—*For the period from March* 1 *till the middle of April.*

Erythronium Dens-canis, honey
Scilla amœna, honey
Galanthus nivalis, honey
Leucojum vernum, honey
Crocus vernus, honey
Daphne Mezereum, honey
Corylus tubulosa, pollen
Primula officinalis, honey
Lamium maculatum, honey and pollen
Pulmonaria officinalis, honey
Symphytum orientale, honey
Petasites niveus, pollen and honey
,, officinalis, pollen and honey
Sambucus racemosa, honey
Cornus mas, honey
Ribes sanguineum, honey
Viola odorata, honey
Saxifraga cæspitosa, honey
,, hypnoides, honey
Arabis alpina, honey and pollen
Aubrietia columnæ, pollen and honey
,, deltoidea, honey and pollen
,, microstyla, pollen and honey
Corydalis cava, honey
,, solida, honey
Eranthis hiemalis, honey
Helleborus niger, honey

II.—*From the middle of April until the end of May.*

Taxus baccata, pollen
Picea alba, pollen
Erythronium Dens-canis, honey
Scilla amœna, honey
Hyacinthus orientalis, honey
Ornithogalum nutans, honey
Fritillaria imperialis, honey
Galanthus nivalis, honey
Leucojum vernum, honey
Crocus vernus, honey
,, germanica, honey
,, gramineus, honey
Polygonum Bistorta, pollen and honey
Daphne Mezereum, honey
Primula officinalis, honey
,, Auricula, honey
Galeobdolon luteum, honey
Lamium maculatum, honey
Salvia pratensis, honey
Symphytum orientale, honey
Anchusa officinalis, honey
Myosotis sylvatica, honey
Petasites officinalis, honey and pollen
,, niveus, honey and pollen
Taraxacum officinale, honey and pollen
Sambucus racemosa, pollen
Fraxinus Ornus, honey and pollen
Cornus mas, honey
Ribes sangineum, honey
,, aureum, honey
Saxifraga hypnoides, honey
,, cæspitosa, honey
,, crassifolia, honey
Amygdalus nana, honey
,, communis, honey
Persica vulgaris, honey
Prunus armeniaca, honey
,, Mahaleb, honey
Orobus vernus, honey
Æsculus hippocastanum, honey
Geranium phæum, honey and wax
Viola odorata, honey
Arabis alpina, honey
Aubrietia deltoidea, honey
,, columnæ, honey
,, microstyla, honey
Barbarea vulgaris, honey
Lunaria rediviva, honey
,, biennis, honey
Corydalis cava, honey
,, solida, honey
Helleborus fœtidus, honey
Adonis vernalis, pollen

III.—*From the beginning of June till the end of July.*

Allium Schœnoprasum, honey
Fritillaria meleagris, honey
Lilium Martagon, honey
Asphodelus luteus, honey
Polygonatum officinale, honey
,, multiflorum, honey
Iris graminea, honey
,, germanica, honey
,, pallida, honey
,, sibirica, honey
Polygonum Bistorta, pollen and honey
Rheum undulatum, pollen and honey
Rheum rhaponticum, pollen and honey
Populus balsamifera, cement and honey
Armeria maritima, honey
Salvia pratensis, honey
,, verticillata, honey
Betonica officinalis, honey
Melittis melissophyllum, honey
Origanum creticum, honey
,, Onites, honey
Digitalis purpurea, honey
,, ambigua, honey
,, lutea, honey
Veronica latifolia, honey
Polemonium cœruleum, honey
Syringa vulgaris, honey
,, persica, honey
Centaurea scabiosa, honey
Valeriana officinalis, honey
Diervilla canadensis, honey
Lonicera Periclymenum, honey
,, caprifolium, honey
Cratægus coccinea, honey
,, nigra, honey
Rosea lutea, honey
,, spinosissima, honey
Fragaria chilensis, honey
,, grandiflora, honey
,, virginiana, honey
Cytisus Laburnum, honey
Robinia Pseud-Acacia, honey
Pavia flava and carnea, honey
Ruta graveolens, honey
Dictamnus Fraxinella, honey
Althæa officinalis, honey
,, rosea, honey
Reseda odorata, honey
Sinapis alba and nigra, honey
Isatis tinctoria, honey
Papaver somniferum, pollen
Mahonia Aquifolium, honey
Aquilegia vulgaris, honey
Thalictrum flavum, honey
T. aquilegifolium, honey

* IV.—*From the end of July till the middle of September.*

Anthericum ramosum, honey and pollen
Gladiolus floribundus, honey
Lilium candidum, honey and pollen
Gladiolus gandavensis, honey
Polygæum Sieboldii, honey
Cannabis sativa, wax, pollen
Statice Limonium, honey
Lavandula officinalis, honey
Dracocephalum moldavica, honey
Salvia æthiopis, honey
,, hispanica, honey
Monarda didyma, honey
,, punctata, honey
,, barbata, honey
,, Kalmiana, honey
Teucrium chamædrys, honey
Leonurus cardiaca, honey
Pentstemon barbatum, honey
Nicotiana rustica, honey
,, tabacum, honey
,, macrophylla, honey
Physalis Alkekengi, honey
Borago officinalis, honey
Cerinthe major, honey
,, gymnandra, honey
Hydrophyllum virginicum, honey
Phacelia congesta, honey
Nolana paradoxa, honey
Convolvulus tricolor, honey
Ipomœa coccinea, honey
Asclepias syriaca, honey
Campanula Medium, honey
,, pyramidalis, honey
,, carpatica, honey
Lobelia Erinus, honey
Solidago virga-aurea, honey
Senecio sarracenicus, honey
Helianthus annuus, honey
,, argyrophyllus, honey
Tagetes patula, honey
Echinops exaltatus, honey
,, sphærocephalus, honey
Centaurea moschata, honey
Sanvitalia procumbens, honey
Ageratum mexicanum, honey
Helenium pumilum, honey
Silphium amplexicaule, pollen
Cephalaria transsylvanica, honey
Scabiosa lucida, pollen
,, atropurpurea, pollen
Sicyos angulata, honey
Bryonias alba and dioica, honey
Heuchera americana, honey
,, divaricata, honey
Sedum Fabaria, honey
Portulaca oleracea, wax
Lythrum salicaria, honey
,, flexuosum, honey
Godetia albescens, pollen
Clarkia pulchella, honey
,, elegans, honey
Œnothera Lamarckiana, pollen and honey
Epuilobium angustifolium, honey
Spiræa hypericifolia, honey
,, chamædrifolia, honey
Rubus odoratus, pollen
Rhus typhina, pollen
Balsamina hortensis, honey
Linum perenne, honey
Melianthus major, honey
Lavatera trimestris, pollen
,, thuringiaca, pollen
Kitaibelia vitifolia, pollen an honey
Kœlreuteria paniculata, honey
Reseda odorata, honey
Hesperis matronalis, honey
Bunias orientalis, honey
Macleya cordata, pollen
Delphinium ajacis, honey
,, grandiflora, honey
Nigella sativa, honey
,, damascena, honey
,, hispanica, honey

Dr. Münter makes one more period—namely, from the middle of September till October, and includes the Colchicums as well as some of the foregoing plants,—so much depends upon the weather after the beginning of September as to what bees will do.

Natural History.

Snakes (*concluded from p.* 490).—The size of the viper is usually inferior to that of the harmless snake, and it is of a thicker and more abrupt make, but exceptionally the size is so large that it cannot be trusted to as a characteristic. The case of the viper which bit Mr. Carew a year or two ago in Devonshire (the viper is now preserved in the Natural History Museum at Torquay) is an example of the enormous size attained occasionally by this species, and about ten years ago a similarly unusually large specimen appeared about harvest time in West Gloucestershire, and was a constant source of alarm to the labourers near its haunts. They said it flew at them, and a most inconvenient superstition began to attach to it, till some one, with fewer fears, chancing to see about a foot of the centre of the reptile exposed from under a bush, bestowed a successful blow, and nothing more was seen of it. I never was fortunate enough to see the whole length of this specimen, but, from the enormous girth of the part visible on this occasion, it was probably a female, and the dimensions exceeding those of any I ever noted.

The viper, as its name imports, is viviparous, or viviparous would, perhaps, be the best expression, as it appears to be only in the very act of exclusion from the parent that the membrane of the egg is ruptured (Bell's *Brit. Reptiles*, p. 63); up to that time, though thin and soft, the membrane appears to continue unbroken with the little viper tightly rolled up within. On exclusion the young are able to crawl about, and (if the much-disputed accounts of their powers is well founded) must be endowed with no small amount of instinct, and other very peculiar gifts, to enable them, when alarmed, to dive in a family party down the maternal throat, set wide open expressly for their reception, and to remain within the abdomen unscathed till the danger is past. Whatever the fact may be the idea is of old standing, for in Holinshed's *Chronicle* the writer of the natural history part, vol. i., p. 35, appears to restore the well-grown young not only to the parent's body, but also into the egg membrane—"I did see an adder once myself that laie (as I thought) sleeping on a moulehill, out of whose mouth came eleven young adders of 12 or 13 inches in length a peece, which plaied to and fro in the grasse one with another till some of them espied me. So soone therefore as they saw my face they ran again into the mouth of their dam, whome I killed, and then found each of them shrowded in a distinct cell or pannicle in hir bellie much like vnto a soft white jellie; which maketh me to be of opinion that our adder is the viper indeed."

How eleven adders or vipers of over a foot long could be reaccommodated inside the parent, one is at a loss to tell; but the subsequent discovery of young inside, each in a separate cell, somewhat resembling jelly, seems to explain the tale in this case very fully and suggestively. My own impression is that the explanation is to be found in the female viper being surprised so near the time of the birth of the young that she is indisposed to move, and that the apparent vanishing of the brood down her throat is simply the protrusion and retraction of the forked tongue under fear. I have never had an opportunity of watching this in the viper, but in the common snake the movement so exactly gives the appearance of the exit down the mother's throat of the black thread-like brood as to be liable to deceive all but the most careful observers. This, however, is mere conjecture; it is much to be wished that a live viper which has been considered to swallow her young should be secured, and with her throat tied to prevent their escape, be forwarded to some able anatomist, uninjured by blows, spade cuts, or other rough handling. The uninjured condition is essential to any certainty in the observations, for, as has been pointed out repeatedly in notices of the subject in the *Gardeners' Chronicle*, any injury which would rupture the internal divisions would of course give means for the young, after bursting the membrane of the egg, to stray from their prescribed locality.

The poison apparatus consists of two long tubular teeth in the upper jaw movable at pleasure, and when at rest laid back in the jaw, and covered with a fold of skin. When irritated the viper, by a muscular apparatus, throws the tooth upright, then strikes the victim, and the pressure on the tooth forces a small quantity of the poison contained in the tube through the slit-like orifice on the concave side of the tooth into the wound. The supply of poison is contained in a sac in which the base of the fang is imbedded, and the effect of the poison is found to diminish in a succession of wounds, as if the secreting power of the reptile was exhausted by its repeated attacks either as regards the quantity or the strength of the poisonous matter.

The bite is said not to be dangerous save when the patient is in delicate health or the bite in some susceptible part, or the reptile much irritated, but the very large margin of possibilities suggests the prudence of not meddling with doubtful snakes. In one case coming under my knowledge a spaniel which was bitten on the nose by a viper died before the following morning. Other dogs moving about in the haunts of the reptiles were bitten from time to time, and sometimes with serious effects, but only in the instance mentioned so as to cause death, and probably the peculiar position of the bite, and the animal being in weak health at the time might have had much to do with it killing her.

The convulsive movements of the snake after (so-called) death are usually attributed to mere muscular movement; but on one occasion a small portion of a viper recalled to movement under peculiar circumstances took such a decided aim at my face, that I have felt since then that whilst power of movement remained caution in handling was still necessary. I had "killed" a specimen, and, wishing to electrotype the head, cut it off, with a few inches of body. After a time, the bit showing no signs of life, I laid it on my modelling board, and began coating it with hot wax, the operation not eliciting any movement till I touched the head, when it reared itself and struck at

* We have not repeated the same names, although many continue in flower.

me, but, being fixed by the wax at the cut extremity, it could only rise a little way; and another application of hot wax produced the same result. Not wishing to proceed under the circumstances, I left the piece of viper untouched for three or four hours, and then found it completely unsusceptible.

The viper frequents heaths and dry waste places, and is not as partial to water as the common snake, but, like it, may be found during the winter in parties, twisted together in some secure place.

The blind-worm or slow-worm (Anguis fragilis, Linn.) is popularly considered as a snake, but differs materially in structure from the serpent tribe, being, in fact, a link in the chain of variation between the Saurian and Ophidian type—a stepping-stone, so to say, between the lizards and the snakes. One of the most marked of the differences consist of the bones of the head and also of the jaws being consolidated; the gape of the jaws is small, and the reptile is possessed of shoulder bones, sternum, and the rudiments of the pelvis.

In size it is inferior to the adult English snakes, averaging about 12 inches in length, and is of almost equal breadth throughout, but tapering slightly towards the tip of its blunt tail. The colour is of a kind of silvery grey with darker marking, and a most beautiful metallic or glassy glance, the abdomen bluish black. The eyes are small, and the eyelids resemble those of the lizard.

Though perfectly harmless, and from the small size of the teeth and the absence of poison-fangs without power to do injury, even if it had the inclination, the blind-worm has a popular reputation of being venomous, which, if possible, it would be interesting to trace to its source. Rural philosophy in West Gloucestershire occasionally invests it with mystery from its rudimentary limbs, which it is (or was) supposed will develope into a pair of forelegs, if the animal be taken early in the morning and laid before a warm fire; and possibly this imaginary alteration, and also the extraordinary leaps and capers of the tail when severed from the body (as described by Wood in his *Natural History of Reptiles*), may have something to do with its uncanny character.

The food of the blind-worm appears to be various, including insects and earthworms and small slugs, and it sheds its skin, when at liberty and in health, in a piece, like the true serpents. Like the viper, the blind-worm is ovo-viparous, the young being supposed to rupture the membrane of the egg during parturition, and the brood after birth appear to have some instincts of affection, remaining even after they have attained some size in company with the mother. On lifting a stone I have found a family party comfortably together, and not greatly alarmed at the disturbance. The specific name of the blind-worm, A. fragilis, is given from its peculiar power of stiffening itself so as to be easily broken by an attempt to bend it; but here, I fancy, much depends on the method of handling.

Its powers of vitality appear quite as great as those of the common snake, including wonderful power of endurance of internal injury. On one occasion, wishing to note some peculiarity in the heart after death, I chloroformed a specimen, and, believing it to be dead, laid it open, with the heart exposed and the reflexed portions pinned firmly back so as to allow of the full observation I needed. Next morning, to my great annoyance, signs of life reappeared, and, of course, I released my specimen from its troubles at once.

During hybernation (which is not usually continued to so late a date with the blind-worm as with our true snakes) it may be found under leaves or under dry earth, or snugly secured in the soft wood and rubbish of some decayed tree stump.

Just a word or two more may, perhaps, be permitted with regard to popular misconceptions on the subject of snakes. They are not slimy, quite the reverse. They do not progress by a series of upright curves, as often delineated in old woodcuts, but, though able to raise the head, the rest of the snake follows (assisted by the power of the ribs) in graceful curves along the surface of the ground.

Also, though it is well to get rid of the viper on every opportunity, yet, with regard to the common snake, when not over numerous or its presence very distasteful, it might sometimes be spared in consideration of its powers of clearing mice and small vermin; and the harmlessness of the blind-worm, as well as its usefulness in its diet, might beg it a still more extended immunity. *O.*

Spruce Chermes.—If I might add a few words to the advice given by "M." at p. 499, regarding a remedy for the havoc caused by the Spruce Chermes, I should like to suggest going a little further: not merely cutting off the infested branches, but, where the attack is among young growing woods, cutting down the infested trees.

In one particular case in Gloucestershire, some trees in a plantation of some thirty years' standing were so entirely sinking under Chermes' attack as to be past all hope, as far as beauty or use were concerned, yet being allowed to continue standing year by year, they formed a centre of evil apparently influencing the neighbouring trees to no inconsiderable extent.

Of course it often happens that a tree cannot be spared, and in a wide-spread trouble like that caused by the Chermes, the matter cannot be thoroughly met; still, where trees stand near together, and some of them are obviously much infested, their removal would be such an absolute and certain diminution of the insect pests, both present and prospective, that I should much recommend it, in addition to the removal of the infested branches in cases of less general attack. *O.*

Wasps.—Wasps are notoriously carnivorous, as well as fond of fruit and sugar. Possibly they prefer meat that is naturally or artificially sweet. In a butcher's shop I lately saw a sheep's liver half devoured by wasps, who were cutting into it in all directions. The butcher told me that he left it there purposely, in order to attract them away from his primer meat. Would the sweet meaty juciness of a piece of liver, hung up amongst Peaches and Grapes, indoors or outdoors, divert those ravagers from their onslaughts on fruit? I have not tried the experiment myself, because, not being troubled with wasps, I don't want to teach them the way to my garden. *E. S. D.*

Notices of Books.

The Bulletin Mensuel de la Société d'Acclimatation for July

Contains some interesting notes by M. Maumenet on the naturalisation of various plants at Nismes. The climate of many parts of the South of France is eminently favourable to the success of numerous Australian, South American, Cape, Chinese, and Japanese plants, which are too tender to bear our winters, even in the mildest parts of Britain, and the introductions of the last twenty years have quite changed the aspect of the vegetation of some localities. But Nismes is not so favourably situated as many other places farther eastward in the Gulf of Genoa. Several of the extra-tropical Bamboos, Palms, and Gum-trees are amongst the more conspicuous of these introductions.

Respecting Bamboos, M. Maumenet says that Bambusa mitis is one of the best, and thoroughly hardy. Last season this species threw up stems more than 26 feet high and 6 inches in circumference. B. nigra is equally hardy, and its stems would do well for umbrella sticks. B. verticillata forms very slender stems 2 to 3 yards long. B. spinosa has withstood two winters, but requires further trial.

His experiments with Gum-trees (Eucalypti) and Palms seem to indicate that the climate of Nismes is similar to that in the south-west of England, at least in so far as the minimum winter temperatures are concerned. All attempts to naturalise Eucalyptus globulus have proved fruitless. Two specimens lived for three years, and attained a height of 30 feet, and a girth of 10 inches. These were growing in a sandy soil, whilst the others were in chalky soil. E. Gunnii, a Tasmanian species, has passed its third winter unscathed, and will probably succeed at Nismes. Several others have been tried, but the results are not encouraging.

Several of the older specimens of Chamærops humilis were killed during the winter of 1870-71, whilst the younger ones escaped uninjured. This was also the case with C. excelsa. C. tomentosa has stood several seasons, but it makes scarcely any growth. Rhamnus utilis, the shrub that yields the famous green dye, the Lokao of the Chinese, known in this country as Chinese green indigo, is perfectly hardy; and M. Maumenet thinks its cultivation might probably prove remunerative, and help to replace the Vines destroyed by the Phylloxera, if the means of extracting the dye were discovered.

Andropogon squarrosus, an exceedingly fragrant grass, has withstood the most vigorous seasons. Laurus Camphora, after giving hopes, has proved too tender. Rhus succedanea, Japan Wax-tree, has braved six seasons, though it has been cut down to the ground by the frost more than once. Phytolacca dioica bears mild winters in warm situations, but will not form a tree at Nismes. The Sweet Potato yields a satisfactory crop, but some difficulty has been experienced in preserving the tubers from year to year. The Chinese Yam answers very well, but the difficulty of digging it up has caused its culture to be abandoned. The Gobbo, Hibiscus (Abelmoschus) esculentus, and several Chinese esculents, will do very well; but they do not suit European palates.

Pharmacographia; *a History of the Principal Drugs of Vegetable Origin met with in Great Britain and British India.* By Friedrich A. Flückinger and Daniel Hanbury. Macmillan. 8vo, pp. 704.

The authors of the present treatise have already earned for themselves a high reputation, and this publication not only shows that that reputation was well founded but it will, if we mistake not, very materially enhance it. Judged from the authors' standpoint we have nothing but praise to bestow on their work, at the same time we may express our regret that the plan followed by our authors did not comprehend a little more detail. We should, for instance, have preferred that a reference at least to the book or books containing the best or most recent descriptions of the plant treated of should have been invariably added, and specially that indications of the works in which the plants in question are figured should have been given in all cases. It is to us also a matter of regret that reference to the European and American pharmacopœias should, as a rule, have been designedly omitted, though it is possible that the present volume may indirectly be a means of furthering that very desirable object, a uniform pharmacopœia for the civilised world. Again, we do not in all cases understand what principles have guided the authors in their admission or rejection of particular substances. We were not greatly surprised to find no mention of Condurango, though it would have been, perhaps, preferable to have inserted a reference to it. We were, on the other hand, surprised to find so little said as to the properties of the Eucalypti and the oils and tinctures derived from them. At Bologna is a factory where both the oil and a liqueur made from Eucalyptus are largely manufactured, samples of which were exhibited at the Florence Exhibition, side by side with the plants producing them. While a mere reference is made to Eucalyptus, a separate article is devoted to the little known Ispaghul seeds (Plantago decumbens), but this is to be accounted for probably by the fact that the latter drug is inserted in the Indian pharmacopœia while the former is not. That pharmacy proper, or the preparation of drugs and therapeutics, or the mode of their administration by the physician, should have been omitted, is not so much to be regretted. Both are specialities which may be well be dispensed with in such a volume, and so perhaps are detailed botanical and chemical descriptions.

When, after thus alluding to what appears to us to be defects in the authors' programme, we turn to the consideration of what they have laid before us, we have only to express our admiration at the thoroughness, originality, and research which they have manifested throughout. Each substance is described and its history given in a terse clear style, which comes from fulness of knowledge and abundant personal experience. The plan adopted by the authors is, first to give the Latin and English name of each drug, with a selection of the more important synonyms in various languages. Then follows a paragraph devoted to the botanical source of the drug under consideration, and the locality of its growth or production. This is succeeded by a section devoted to the history of the several substances—a paragraph, we may say in passing, usually displaying the most extensive and conscientious research. The mode of secretion and of collection follows, and then a description of the drug itself, together with its microscopical appearances and chemical composition. Notes on the commerce of the several drugs, and on the substances used to adulterate them, or which are used as substitutes for them, complete the history.

The whole work bears throughout the clearest indications of original treatment and thorough research, and we would fain hope that a work of a similar character on economic products generally may be forthcoming from the same pens.

—— The number of the *Journal of the Linnean Society* just issued is entirely filled with a series of short papers entitled "Contributions to the Botany of the Expedition of H.M.S. *Challenger*," and comprising lists of the plants collected in various stations. The fungi are described by Mr. Berkeley, the algæ by Dr. Dickie, the diatoms by Mr. Archer, and the lichens by Dr. Stirton; while the general notes on the botany have been supplied by Mr. Moseley, the naturalist of the expedition. We have already alluded to some of these memoirs at the time when they were first laid before the Society, and we shall probably have occasion hereafter to allude more at length to some of the more important and interesting results chronicled by Mr. Moseley.

HAPPY FLOWERS.

Pale Mayflower, eager to run
Thy race in the world's early prime;
With no pain when thy journey is done,
Though thou die in the glory of time.

Blue Cornflower, lingering still,
If thou miss thy sun's beauty and heat,
The frost which breathes over the hill
Bids thee follow his vanishing feet.

Oh, sweet simple lot of the flowers,
To live—to be fair—and to die,
Smiling on through the rich summer hours
To the last with a smile, and no sigh.

Tinsley's Magazine.

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. JAMES FRASER, HORTICULTURAL and AGRICULTURAL VALUER and AUCTIONEER, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

SIMPSON'S RED SPIDER and THRIPS, &c., ANTIDOTE.—*Bonâ fide.* See former advertisements. Prepared by JOHN KILNER, Wortley, Sheffield.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under twelve, £2 15*s*
For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

TO BE DISPOSED OF, the WHOLE or PART of an OLD-ESTABLISHED NURSERY BUSINESS, in good working order, within easy distance of London by rail. Principals only dealt with. Apply to HORTICULTURIST, *Gardeners' Chronicle* Office, W.C.

SALES BY AUCTION.

Spring Flowering Bulbs for present Planting, just received direct from well-known Farms in Holland, consisting of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, GLADIOLI, LILIUM, &c., in lots to suit large and small growers.

MR. J. C. STEVENS begs to announce that he will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY during October, at half-past 12 o'Clock precisely each day.
Catalogues forwarded on receipt of a stamped envelope.

Sale of Flowering Orchids.

MR. J. C. STEVENS has received instructions from Messrs. James Backhouse & Son, of York, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, October 30, at half-past 12 o'Clock precisely, a collection of 250 Established ORCHIDS, of which fully 150 are either in bloom or showing flower. Amongst them are Odontoglossum Roezlii; a fine lot of the gay Lælia autumnalis, all with spikes; a blooming Barkeria, allied to B. elegans; Cattleya exoniensis, Mesospinidium vulcanicum, fine Pleiones, many Odontoglossum Insleayi, var. leopardinum; Oncidium tigrinum, &c.; also well-grown examples of the rare and beautiful Mormodes luxatum, var. eburneum; Oncidium zebrinum, &c.; and an importation of Anæctochilus Dawsoni, in fine condition.
On view the morning of Sale, and Catalogues had.

Tooting, S.W.

IMPORTANT SALE of THRIVING NURSERY STOCK, in fine condition for removal.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. R. Parker to SELL by AUCTION, without reserve, on the Premises, the Exotic Nursery, Tooting, Surrey, on MONDAY NEXT, October 26, and two following days, at 11 for 12 o'Clock precisely each day, a large quantity of extra NURSERY STOCK, remarkably well grown, and in excellent condition for removal, comprising 7000 choice Evergreen and Coniferous Shrubs, in specimen borders, admirably adapted for effective planting; also a great number of handsome specimen Coniferæ, beautifully grown and symmetrically formed; large quantities of fine Spruce Firs, 2 to 6 feet; Thuja aurea, fine for potting; Caucasian and common Laurels, Thujas of sorts, bushy Arbutus, Yews, large Pinus, 500 bushy Pontica and hybrid Rhododendrons, well set with bloom-buds; a splendid assortment of Ornamental and Forest Trees, including several fine Acacia inermis and Variegated Acers, Scarlet and Horse Chestnuts, &c.; 500 Standard and Dwarf Roses, fine clean grown Fruit Trees, in bearing condition; Hardy Climbers and Herbaceous Plants in pots. Stone Paving, Pebbles, &c.
May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Sunningdale Nursery, Bagshot, Surrey.

One month allowed for the clearance of the Stock, which can be transmitted from Sunningdale Station to any part of England, Scotland, and Wales, without change of truck.

MESSRS. PROTHEROE AND MORRIS beg to remind Noblemen, Gentlemen, and Others engaged in Planting, that this gigantic nine days' unreserved clearance SALE by AUCTION, of beautifully-grown NURSERY STOCK, covering 45 acres of ground, commenced on the Premises, as above, on MONDAY LAST, and will continue for seven following days, at 12 o'Clock punctually each day. The Nursery Stock embraces some millions of Coniferæ, Evergreen, and Deciduous Shrubs, Rhododendrons, and other American Plants, Ornamental, Fruit, and Forest Trees, &c. Trains leave Waterloo 9.30 and 11 A.M. Nursery close to railway Station. Refreshments and luncheon provided on the Premises.
Catalogues had of the Auctioneers and Estate Agents, 98, Gracechurch Street, City, E.C., and at Leytonstone, E.

Brixton, S.W.

IMPORTANT SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. Ponsford & Son to SELL by AUCTION without reserve, on the Premises, The Nursery, Loughborough Park, Brixton, Surrey, on THURSDAY and FRIDAY NEXT, October 29 and 30, at 11 for 12 o'Clock precisely each day, a large quantity of valuable NURSERY STOCK, particularly adapted for planting in the London suburbs, comprising 3250 fine bushy Aucubus, 1 to 4 ft.; 3000 Green and Variegated Euonymus, 2000 Ligustrums, 1000 Box, 1 to 4 ft.; farge quantities of Arbor-vitæ, Green and Variegated Hollies, 1000 choice named and hybrid Rhododendrons, Thuia semperaurescens, elegantissima and aurea; also 1500 Mulberry trees, some of which are fine specimens; 6000 fine Limes and Poplars, 500 extra size specimen Limes, also a great number of specimen Shrubs and Trees in borders, fine Espalier and Standard Fruit Trees, the whole of which have recently been transplanted; 500 Hardy Climbing Plants in pots, Box edging. &c.
May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers.

Stoke Newington, N.

CLEARANCE SALE of NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Albion Nursery, Albion Road, Stoke Newington, N., on SATURDAY, October 31, at 11 for 12 o'Clock precisely, by order of Mr. J. Kirtland, without reserve, the land having been sold for building purposes, the whole of the valuable NURSERY STOCK, consisting of Evergreen and Coniferæ Shrubs, including Aucubas, Laurels, Hollies, Chinese Arbor-vitæ, Cedars, Magnolias, Laurustinus, Andromedas, Ribes, &c.; Ornamental and Forest Trees, including 1000 Limes, 3 to 8 feet; fine Chesnuts, &c.; together with 600 fine Fruit Trees; 500 Standard, Dwarf, and Climbing Roses, in all the leading varieties; Hardy Plants in pots, and several choice Border Shrubs.
May be viewed the day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers.

Tunbridge Wells.—Nov. 2, 3, and 4.

Without Reserve. Thirty Acres of Land must be Cleared.
GOLDSMITH PARK NURSERIES, GROOMBRIDGE, TUNBRIDGE WELLS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Edwin Hollamby to SELL by AUCTION, without reserve, on the Premises, as above, many thousands of beautifully grown specimens of WELLINGTONIA GIGANTEA, THUJOPSIS BOREALIS, THUJA GIGANTEA, CUPRESSUS LAWSONIANA, THUJA AUREA, RHODODENDRONS, 3 to 5 feet, well set with bloom; Hardy Ornamental TREES and SHRUBS, Standard and Dwarf ROSES (the whole having been recently transplanted would produce an immediate effect), &c., too numerous to name. The Nurseries are situate within five minutes' walk of Groombridge Station.
Plants carefully packed and forwarded to all parts of the world.
Descriptive Catalogues may be had by post, or at the Nurseries, and at the Parade, Tunbridge Wells.

Wandsworth Common, S.W.

Eight days' Unreserved Sale of beautifully-grown Nursery Stock.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Robert Neal to SELL by AUCTION, without reserve, on the Premises, The Nursery, Wandsworth Common, Surrey, S.W. (five minutes' walk from Wandsworth Common Station, and ten minutes' from Clapham Junction), on MONDAY, November 2, and seven following days, at 11 for 12 o'Clock precisely each day, a portion of the land being immediately required for building purposes, an unusually large quantity of valuable NURSERY STOCK, consisting of a very extensive and particularly useful assortment of Evergreen and Coniferæ Shrubs of luxuriant growth and in fine condition for removal, comprising 22,000 variegated and green Hollies, 5000 bushy Aucubas, 5000 common Laurels, 3 to 5 feet; 10,000 Pines and Spruce, 1000 Cedrus atlantica and Deodara, 2000 Arbutus, thousands of Rhododendrons, Box, Arbutus, Arbor-vitæ, in variety; Cupressus, of sorts, and numerous other shrubs, many of which are handsome specimens; also 200,000 Ligustrum ovalifolium, 20,000 deciduous Shrubs, 500 specimen Weeping Trees, 5000 fine Limes, 6 to 10 feet; 1000 Planes, and 10,000 other ornamental Forest Trees, 10 to 12 feet; 10,000 Ivies, and other Hardy Climbers, in pots; 10,000 clean-grown Fruit Trees, of sorts; 3000 Deutzia gracilis, for potting; 5000 standard and dwarf Roses, &c. The Stock, on account of its extent, variety, aud unsurpassed growth, is well worth the attention of the Trade and others largely engaged in planting.
May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, E.

Preliminary Notice of

FORTHCOMING SALES, by PROTHEROE AND MORRIS.

NOVEMBER 11.—EAST DOWN NURSERY, Lewisham, S.E. By order of Mr. B. Maller. A quantity of well-selected Nursery Stock.

NOVEMBER 12 and 13.—HORNSEY, Middlesex, Mr. Cleall's Nursery. Clearance Sale of General Nursery Stock, the New River Company requiring the land to be immediately cleared for the construction of their new works.

NOVEMBER 16.—WHITCHURCH RECTORY, Edgware. By order of the Rev. J. B. Norman. A choice assortment of Coniferæ, Evergreens, Fruit Trees, and Roses.

NOVEMBER 16, 17, and 18.—THE NURSERIES, Loughton. By order of Mr. W. Paul. Many thousands of Coniferæ and Evergreen Shrubs, Fruit and Ornamental Trees, Roses, &c., in fine condition.
Catalogues of the above Sales may be had (when ready) on application to Messrs. PROTHEROE AND MORRIS, Auctioneers, Estate Agents and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Sale of Orchids, Stove and other Plants, &c.

MESSRS. GILLOW AND CO., have been favoured by instructions from T. R. Tuffnell, Esq., who is leaving Belmont, to SELL by AUCTION, on the Premises, as above, near Uxbridge, on TUESDAY, WEDNESDAY, and THURSDAY, October 27, 28, and 29, at 12 o'Clock at Noon each day, the whole of the valuable HOUSEHOLD FURNITURE and General Effects, including Rare Oriental, Dresden, and other China, together with the Stock of Choice ORCHIDS, STOVE and Other PLANTS.
Catalogues, price 6*d.*, can be obtained of the Auctioneers, 176, Oxford Street, London, W.

Spring Grove Nursery, Isleworth, Middlesex.

ANNUAL SALE of a fine and varied assortment of Dwarf and Standard FRUIT TREES, ROSES, Choice EVERGREENS, FOREST TREES, &c.

MR. T. WOODS will SELL by AUCTION on WEDNESDAY NEXT, October 28, at 12 o'Clock by order of Mr. John Trotman, on the Premises (five minutes from the Isleworth Station), the well-grown NURSERY STOCK of dwarf and standard hybrid perpetual Roses, Fruit Trees, Araucaria, Deodara, Wellingtonia, golden Arbor-vitæ, green and variegated Hollies, Portugal and other Laurels, Japan and oval-leaved Privets, English and Irish Yews, fine ornamental Forest Trees in all the usual varieties, Jasmines, Ivies, Climbers, &c., all in prime condition for removal.
May be viewed two days prior. Catalogues on the Premises and of the Auctioneer, Hounslow.

Turville Park, Oxon, near Henley-on-Thames.

SALE of CHOICE FERNS, AZALEAS, CAMELLIAS, STOVE and GREENHOUSE PLANTS, &c.
Alteration of Day of Sale.

MR. W. T. HEWS is instructed by J. Scholefield, Esq., to include in the SALE of the OUTDOOR EFFECTS at Turville Park, on THURSDAY, October 29, a very fine collection of Tree and other valuable FERNS, AZALEAS, CAMELLIAS, STOVE and GREENHOUSE PLANTS in great variety, and including some very choice specimens.
May be viewed prior to the Sale, and Catalogues had of Mr. W. T. HEWS, Auctioneer, Henley-on-Thames.

Potter's Bar.—Valuable, Extensive, and Thriving NURSERY STOCK.

Worthy the attention of those Stocking or Contemplating Planting.

MR. F. W. SEARLE will SELL by AUCTION, by order of Mr. James Butterfield, at Osborne Nursery, near the station, Great Northern Railway, on WEDNESDAY and THURSDAY, October 28 and 29, at 11 o'Clock each day, in 800 lots, the STOCK, including 3000 Gold and Silver HOLLIES, Oakleaf, Yellow berry, Scotch, and other green Hollies; 3000 Rhododendrons, Standard and bushy Portugal and common Laurels; Laurustinus, specimen Araucarias, Thuja aurea, Lobbii, chinensis; Thujopsis, Taxodiums, Phillyreas; Flowering SHRUBS in variety, Standard, Dwarf and Climbing ROSES, clean-grown FRUIT and FOREST TREES, about 200 lots of young Shrubs suitable for the Trade, &c.
Purchasers will be allowed one month to lift the stock.
May be viewed any time prior to Sale, and Catalogues obtained at place of Sale, at the usual Inns in neighbourhood, Green Dragon, Bishopsgate; and of the Auctioneer, Tottenham and Enfield.

Extensive Sale of Large Exhibition and Half-specimen SHOW PLANTS.

MESSRS. OLIVER, NEWBOLD, AND OLIVER have received instructions from Mr. George Cooper, of Rose Hill Nurseries, Derby (who contemplates giving up exhibiting), to SELL by AUCTION, on MONDAY and TUESDAY, October 28 and 29, the whole of his valuable Collection of SHOW PLANTS, containing a large quantity of very fine Ericas, of the best varieties, from 2 to 4½ feet diameter; Hedaromas, the finest in England; Azaleas, splendid plants, from 4 to 6 feet; Eriostemons, of different kinds; Stephanotis, Bougainvilleas, Rondeletias, 4 by 3 feet; Alamandas, Crotons, Cycas revoluta (a grand plant), Palms, Ferns, Ixoras, &c. The whole of the above are good specimen plants. Also the large Show Van, 16½ feet by 8 feet, water-proof top, nearly new, to run by road or rail.
Sale each day at 10 for 11 o'Clock. Catalogues may be had from the Auctioneer's Offices, Wardwick, Derby.

Extensive Sale of Forest Trees, Evergreen Shrubs, And FRUIT TREES, at the NURSERIES, ELGIN.

MESSRS. TROTTER AND MUNRO, Inverness, are instructed by Mr. R. Morrison, of the Elgin Nurseries, to OFFER for SALE, by PUBLIC AUCTION, at his Grounds, Elgin, on THURSDAY and FRIDAY, October 29 and 30, a Selection of EVERGREEN SHRUBS, CONIFERÆ, FRUIT TREES, ROSES in pots of varieties sent out during 1872 and 1873. Dwarf and Standard Roses of all the finest sorts, Seedling and Transplanted Forest Trees, &c.
Catalogues and full particulars to be had of Messrs. TROTTER AND MUNRO, or of Mr. R. MORRISON.
Sale to begin each day at 10 o'Clock, and Purchases made at Sale will be delivered free of charge at Railway Station, Elgin, and through rates are allowed to all Stations.
7, Academy Street, Inverness.—October 5.

Gravesend, Kent.

IMPORTANT SALE of VALUABLE NURSERY STOCK.

MR. J. GOULD is instructed to SELL by AUCTION, on the Premises, The Gravesend Nurseries, Gravesend, Kent (five minutes' walk from the railway station), on WEDNESDAY and THURSDAY, November 4 and 5, at 11 for 12 o'Clock precisely each day, without reserve, by order of Mr. Eves, extensive alterations necessitating an immediate removal of a large quantity of beautifully grown NURSERY STOCK, comprising a great number of magnificent specimen Coniferæ and Evergreens (many of them used for decorating the Gravesend Railway Station on the occasion of the recent Royal visit), such as Thuja aurea, Thuja gigantea, Thujopsis, Piceas, Lawsoniana, large Scotch and Spruce Fir, green and variegated Box, Fruit, Forest, and Ornamental Trees, Pampas-grass, Tritoma Uvaria, Ivies in pots, Grape Vines, Flower roots, Box edging, standard and dwarf Roses, &c.
May be viewed any day prior to the Sale. Catalogues on the Premises, and of the Auctioneer, Parrock Street, Gravesend.

Sale of Nursery Stock.

MESSRS. BALLANTYNE AND SON, Dalkeith, N.B., beg to intimate that, owing to a considerable portion of their Nursery being required for a Cemetery, they have resolved to SELL by AUCTION, on NOVEMBER 5 and 6, most of the NURSERY STOCK standing on said ground. The following forms part, and is worthy of attention:—130 Araucarias, 3 to 5 feet, transplanted 1873; 35 Cedrus Deodara, 6 to 12 feet, most of them transplanted this spring; several hundred Cupressus Lawsoniana stricta and fragrans, 3 to 5 feet; 100 Cupressus Lawsoniana stricta viridis; 80 standard Portugal Laurels, with fine heads and capital roots; several thousands of common Holly, 2 to 3 feet, all of which have been recently transplanted, or prepared in August, 1873, for that purpose; 300 to 400 common Laurels, 80 large Rhododendrons, 400 large and handsome specimen English and Irish Yews, admirably adapted for decorating cemeteries, for forming hedges and evergreen screens, or for planting singly in shrubberies, &c. Catalogues on application.
Nursery and Seed Warehouse, Dalkeith, N.B.

NOTICE.—A SERIES of PORTRAITS of NOTEWORTHY HORTICULTURISTS and BOTANISTS is being published in the "GARDENERS' CHRONICLE." The following have already appeared, and separate Copies (price 6d. each), on tinted paper, may be had on application to the Publisher, viz. :—

DR. HOOKER, C.B., Pres. R.S.	JAMES BATEMAN, F.R.S.
W. WILSON SAUNDERS, F.R.S.	BERTHOLD SEEMANN, Ph.D.
Rev. M. J. BERKELEY, F.L.S.	ARCHIBALD F. BARRON.
M. DECAISNE.	Hon. MARSHALL P. WILDER.
G. F. WILSON, F.R.S.	JOHN GIBSON.
Dr. MOORE, of Glasnevin.	Professor ASA GRAY
Professor REICHENBACH.	I. ANDERSON-HENRY.
Rev. S. R. HOLE, M.A.	Professor KARL KOCH.
E. J. LOWE, F.R.S.	Baron VON MUELLER.
JAMES MCNAB.	JOHN SMITH (Kew).
ROBERT HOGG, LL.D.	Professor WESTWOOD.
Dr. REGEL.	Dr. THWAITES.
	Professor PARLATORE.

Published by WILLIAM RICHARDS, 41, Wellington Street, Covent Garden, W C.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. for 12 months, including postage to—
AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10s. 4d. for 12 months, including postage to—
AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14s. 8d. for 12 months, including postage to—
RUSSIA, ITALY, DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 24, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Oct. 26	Sale of Extra Nursery Stock, at the Exotic Nursery, Tooting. Sale of 1000 lots of Dutch Bulbs, at Stevens' Rooms.
WEDNESDAY,	Oct. 28	Sale of Camellias, Azaleas, Palms, Dutch Bulbs, &c., at Stevens' Rooms.
THURSDAY,	Oct. 29	Sale of Nursery Stock, at Loughborough Park, Brixton.
FRIDAY,	Oct. 30	Sale of a Collection of Orchids, at Stevens' Rooms.
SATURDAY,	Oct. 31	Clearance Sale of Nursery Stock, at the Albion Nursery, Stoke Newington. Sale of Dutch Bulbs, at Stevens' Rooms.

THE study of the distribution of plants over the surface of the globe, or, as it is termed in short, PHYTO-GEOGRAPHY, can scarcely be considered complete apart from the kindred subject relating to the origin of species. No matter what views we may entertain respecting the appearance of vegetation in the beginning, very little practical experience is necessary to convince us that it has undergone great changes, and is still subject to modifying influences, in some cases acting rapidly, and in others almost or quite inappreciably. That the climate and the physical conformation of a country determine to a great extent the nature and comparative richness of its flora is incontestable, but yet we cannot discover the existence of any universal laws to account for the presence or absence of certain families in this or that region, any more than we can for the association of very distinct or closely related types in a limited area.

The theory that would hold good for some groups of plants is entirely upset by the facts offered by other groups of equal importance. Such natural families as the Cruciferæ, Papilionaceæ, Compositæ, Umbelliferæ, Gramineæ, &c., are found in nearly all parts of the world, at all events in the most distant and under the most diverse conditions. Bringing the degree of variation within a narrower compass, we have such well-defined genera as Ranunculus, Senecio, and Euphorbia, represented in almost all regions where plants will grow ; and to make the illustration as comprehensive as possible, we may cite the following widely diffused species, namely, Ranunculus aquatilis, Alchemilla vulgaris, Montia fontana, &c. On the other hand some families are exclusively confined to certain countries, for example, Calycereæ, Bromeliaceæ, Mayaceæ, and Cactaceæ (except Rhipsalis), to America and its islands ; Bruniaceæ and Penæaceæ to South Africa ; and Stackhousiaceæ, &c., to Australia and the neighbouring islands. The number of genera and species of very restricted area is very large, and it would be superfluous to enumerate examples, but we may mention that this obtains to a much greater extent in the southern hemisphere. Groups presenting absolutely peculiar types of structure have often a wider range of distribution than many of those less distinctly isolated from all others. The Coniferæ, for instance, are scattered almost all over the world, and Orchids, again, are found in all temperate and tropical regions.

Some of the smaller groups of remarkable structure, such as the Burmanniaceæ, Rafflesiaceæ, and Balanophoreæ, occur in the tropics of both the Old and New Worlds, whilst members of the curious Podostemaceæ have recently been discovered both in Africa and Australia. We may call attention to a few other interesting facts relating to the distribution of plants. The large genus Begonia, so abundantly represented in tropical America, Africa, and Asia (especially in the eastern peninsula), has not, so far as we are aware, been detected in Australia ; Fuchsias, with the exception of three or four in New Zealand, are all American ; the vile-smelling Stapelias are all natives of South Africa, except one found in the south of Europe ; and our modest Sundews are represented by numerous handsome species in extra-tropical Australia. There is one more circumstance to be mentioned, which brings us back to the origin of species. It is this : in America and Europe or Asia Minor there are representatives of the following genera so closely allied that some of them would undoubtedly be considered by many botanists as varieties or races of the same species if not so widely separated, and some hold this view in spite of the difficulties in the way :—Liquidambar, Platanus, Celtis, Ostrya, Fagus, Corylus, Acer, &c.

Since the appearance of Darwin's famous work on the *Origin of Species*, many other writers on the same subject have come before the public, some in support of his views, or at least in support of a theory which differs in degree only from his, whilst others as strongly condemn his writings and hold out stoutly for originally created species unchangeable throughout all time, save within definable limits.

It does not come within the limits of a short article to enter into the merits of either party ; we simply wish to say a few words respecting an inquiry that Professor CASPARY has taken up on the origin of species or varieties in the midst of the area of distribution of the parent plants. His investigations relate more especially to the variety of the Spruce Fir usually called monstrosa in this country, and the pyramidal variety (fastigiata) of the common Oak, Quercus pedunculata. Two opposite theories have been advanced respecting the conditions favourable to the development or evolution of new forms—namely, isolation and association of individuals of a certain species. This must be regarded as an open question at present, we think, for the subject has not been properly studied out. Indeed, years must elapse before trustworthy and convincing data can be adduced in support of either argument. A beginning is something, and we hail with delight any records of observations bearing upon the subject.

Professor CASPARY distinctly states that he does not believe in the origin of new species from the transformation of others. Nevertheless, he admits of the possibility of new varieties originating, and he adds that, perhaps his ideas of a variety may differ from those held by some other writers on this subject. Whether species or varieties, the importance attaching to their origin is the same. Everything relating to the subject should be carefully investigated, and every addition to our previous knowledge carefully recorded. There is a wide difference in a sterile, abnormal, or monstrous variety, and one which will produce seed transmitting its peculiar characteristics in a more decided form, or simply showing a reversion to its parent. The almost endless variety in the forms of the Spruce Fir are familiar to nurserymen, and many of them are well-known to amateurs ; but the origin of the most interesting of these varieties has not been put on record.

We need only mention such diverse looking things as the varieties pygmæa and monstrosa. If these reproduced themselves from seed, and we had no clue to their origin, they would indubitably pass as distinct species. Of course there may be thousands of fertile wild forms that have originated as seminal variations, which we, in our ignorance, must call species. So far as convenience goes it matters little if we are able to distinguish, but with reference to the origin of species it is of more moment.

It is with the history of the Serpent Spruce, or Spruces, as they are called in Germany, that Professor CASPARY busies himself. It is as yet uncertain whether there are several distinguishable forms, or whether the names virgata, denudata, monstrosa, horizontalis, &c., apply to the same thing. It seems probable, however, that there may be slight variations, though the general tendency is the same. We join Professor CASPARY in the request that our correspondents will furnish us with any information they may possess relating to the origin of the varieties cultivated in British gardens. In many parts of Germany, Bohemia, &c., Professor CASPARY has seen or received authentic information of the existence of the Serpent Spruce.

We may briefly describe the peculiarity of their growth, because many of our readers have rarely had an opportunity of seeing them. It is simply that they branch very little, and usually grow only from the terminal buds, hence we have long naked branches extending several yards in each direction. Sometimes the leading branch will make a long shoot, but generally the few lateral branches grow much faster, and consequently the trees are much broader than high. This peculiar variety is met with here and there, under widely different conditions of soil, &c., in the Spruce forests of Germany, &c., and is undoubtedly of seminal origin. So much is clear, but what percentage of seed would develope in this way, and many other interesting questions, cannot be answered at present. There is, however, this important thing to note, that the oldest trees known do not bear cones, and reproduce themselves. Professor CASPARY minutely describes and figures several remarkable trees of this sort in the *Schriften der Physick.-Œkon Gesellschaft zu Königsberg*, 1873. We can only repeat here what he says in reference to the proof of the constancy of certain varieties from seed—that we must be sure that the females are not fertilised with pollen from the normal form, and we must also ascertain whether all the progeny retain the character of the variety, or at any rate do not revert to the parent. This last sentence applies more particularly to the upright Oak mentioned above, respecting the history of

which he gives us some interesting details; but we have already extended this article to an undue length, and must therefore reserve them for another occasion.

In these days, when so much attention is paid to the reciprocal Relation of Plants and Animals, it may be well to call attention to some remarks of M. Van Hulle in a recent number of the *Bulletin d'Arboriculture*, a Belgian periodical of great value to horticulturists. M. Van Hulle, alluding to the various means that have been adopted, with more or less success, to ward off insects or to obviate their ill effects, calls attention especially to the cultivation of plants which are noxious to insects—insectifugal plants, as he calls them. "All plants," says he, "exhale various gases, and some are well known for their powerful fragrance. This odour is sometimes very attractive to animals, as in the case of Nepeta Cataria and Teucrium Marum, so attractive to cats. To these we may also add the common Valerian, as every Curator of a botanic garden knows to his cost.

M. Van Hulle further tells us that on visiting an orchard in East Flanders, he was informed that Apple trees might be protected from the onslaught of American blight by simply sowing seeds of Tropæolum majus and allowing the plants to twine up the stem. This is certainly worth a trial, though we are sceptical as to the results. *Apropos* of this subject, M. Jacquemyns affirms that in some parts of Belgium it is the custom to plant here and there among the Cabbages a plant or two of Hemp to ward off caterpillars. Again, at Lootenhulle, M. Van Hulle saw in a vinery some plants of Tomatos placed against the walls between the Vines. These Tomatos had been placed in that situation not so much for the sake of the fruits as for the purpose of keeping off wasps. Tomatos are commonly enough grown in similar situations in this country, but we do not remember to have heard previously that the scent of these plants was distasteful to wasps. We give these statements of M. Van Hulle as we find them, having no reason to doubt that they contain sufficient truth to render it desirable that the subject should be fully investigated.

—— With our number for next week we propose to present to our subscribers a special supplement devoted to the illustration and description of the Royal Gardens, Frogmore, and of Windsor Park. The illustrations, which are numerous, have been specially prepared by Mr. Worthington Smith. We are desired by the Publisher to intimate that those of our readers desirous of having extra copies should make early application.

—— The Chrysanthemums in the Inner Temple Gardens are this season very much earlier than usual, and will be in good condition for inspection in the course of a few days. There is a good show of colour in the well-known structure even now, but it will take a few more days of fine weather to bring the larger flowers fully out. The best of the early blooms of the quaint Japanese varieties will be found on plants of Red Dragon, Garnet, James Salter, and Fair Maid of Guernsey. Of the large-flowered varieties, such as Empress of India, Jardin des Plantes, and Bronze Jardin des Plantes, Guernsey Nugget, Golden Beverley, The Globe, Mrs. Brunlees, Elaine, Golden John Salter, Princess of Wales, Prince of Anemones, Mrs. George Rundle, and the new George Glenny, will be found in the best condition at the present time. While other famous City "institutions" are being erased from sight and memory, it is a real pleasure to know that the Temple Chrysanthemums are still to the fore; and Mr. Newton must be congratulated on his success in providing for his patrons and the public a display which promises to be of more than average excellence. In the Middle Temple Gardens the flowers are about a fortnight later, which, as a means of extending the season of flowering, must be considered a direct gain to the public.

—— The current number of the *Builder* has some remarks on the Planting of Public Squares which are deserving of all attention, especially with reference to Trafalgar Square. We agree with our contemporary that "the whole character of the Square is so entirely architectural that little in the way of flowers or gardening could find appropriate place. Art has its own province, and cannot delegate its functions to another source of beauty without derogation of dignity, and to eke out its own shortcomings by an appeal to Nature is after all but to expose its poverty. The principle is an unsound one. Where Art is dominant Nature is but subservient and ornamental, and *vice versâ*. Among the streets and buildings of a great city it is Art which has to gain a victory in beauty, however pleasingly relieved by Nature." To make a garden of the irregular style in Trafalgar Square would be a ridiculous absurdity, but at the same time some grass plats would wonderfully improve the architectural features if judiciously placed and carefully kept; and a careful planting of trees or shrubs of forms suitable to the surroundings might readily be made, to the great improvement of the Square, and without the evils complained of by the *Builder*. We should decidedly object to plant shrubs between the projecting processes of the base of the Nelson Column. These are questions wherein neither architect nor landscape gardener can afford to disregard the other's work, but both should work together.

—— The Peach Harvest at Montreuil has, says the *Moniteur Horticole Belge*, been exceptionally abundant, and the gross produce has been estimated at two millions of francs. There are at Montreuil 600 growers, who have gathered sixty millions of Peaches. During one month, 500,000 Peaches arrived every morning at the Halles Centrales of Paris.

—— A male plant of Dion edule is now in bloom at the Jardin des Plantes, Paris. Its cone in described in the *Revue Horticole* as cylindrical, 24 centimetres long, 9—10 wide, and slightly attenuate at the two ends.

—— Erythrochiton hypophyllanthus, from New Grenada, is producing a few flowers in the Palm-house at Kew. It is interesting from the inseparation of the peduncle from the petiole and midrib. The flowers are borne on the under side of the leaf, and vary in position: sometimes they are near the petiole, but usually about half-way between the base and apex. They are sometimes subtended by a second leaf, in the place of which, when absent even in a young state, a scar may be seen with the help of a glass. Other instances of plants bearing flowers on the midrib are Helwingia japonica of Japan and the Himalayas, growing on one of the walls, and Phyllonoma (Dulongia) acuminata, a Mexican plant. The common Thyme is another instance: all have them on the upper surface. All belong to distinct natural orders, Rutaceæ, Araliaceæ, Saxifrageæ, and Tiliaceæ. The peculiarity is not of generic importance, as Erythrochiton brasiliense bears flowers in the usual way.

—— Dasylirion acrotrichum has lately been in flower in the collection of Joshua Saunders, Esq., of Clifton, and it so rarely flowers that I thought it worth a record. When I saw it last week it was no longer in flower, but was covered with thousands of its curious triangular transparent winged seed-vessels. In that stage it looked like a gigantic ear of Wheat. The plant was about 8 feet high from the pot, is supposed to be about twenty years old, and one of a batch of seedlings raised by Mr. Saunders' brother, Mr. W. Wilson Saunders. I should think there are some parts of England where the Dasylirion would be hardy. The plant is figured in *Bot. Mag.* v., 84, 5030, but the plate scarcely conveys a full idea of the plant when in blossom. *E.*

—— Aster grandiflorus is just opening in the fine collection at Kew. It is very distinct and desirable, without which no collection can be complete. The stems are stiff and twiggy, with small leaves that pass almost without change into the bracts of the involucre, which spread so as to give the buds a peculiar appearance. The flowers are purple, and nearly 2 inches across. A. sikkimensis is very handsome, and quite distinct. A. puniceus is worth attention as a tall-growing kind with white flowers. Few things now in flower surpass the annual Cuphea silenoides. The flowers are plentiful, of a rich red-purple colour; it has been flowering for several months. The plant is covered with hairs, which secrete at the point a globule of clear sticky matter. They are chiefly developed on the stems and calyces, where small flies are numerously caught, whether to any purpose cannot be said without investigation. It is a native of Mexico. It may, perhaps, be worth attention in company with Azalea viscosa (mentioned at p. 432), and similar cases.

—— Mr. Dickens (says the *Sunday Times*) has much to answer for. The beautiful sentiment in his Christmas book has not only preserved from destruction the "Cricket on the Hearth," but also many other noxious inhabitants of our kitchens, conservatories, and wine cellars. It is time for the sentiment to die out, for the nuisance of cockroaches, beetles, crickets, and other insects is felt by every housewife. Various and curious have been the nostrums advertised for their destruction, but really nothing has hitherto tended to their much desired extermination. Now, however, there has been invented a poison which is not only thoroughly effectual in destroying these domestic pests, but also in clearing the house of rats, mice, and all other noxious vermin (to say nothing of creatures less familiar to ears polite). This invaluable exterminator, which goes by the Greek-sounding name of Cantharikopho, is manufactured by Messrs. Rollisson & Sons, of Tooting, a neighbourhood in which they also possess one of the most extensive and beautiful flower nurseries in the county.

—— Begonia geranoides, a very choice and small-habited species, is flowering at Kew in the house devoted to the genus. It has light green, very slightly oblique leaves, and red petioles. The flowers are pure white, freely produced on light green stalks neatly above the foliage. It has a tuberous root-stock, but is not sufficiently hardy for companionship with B. boliviensis, B. Veitchii, and their numerous descendants; though flowering on the rockwork it is much stunted. The free blooming and neatness of habit would recommend it for hybridising purposes. It was introduced by Messrs. Backhouse from Port Natal, and was figured in the *Botanical Magazine* of 1866.

—— Anything that will furnish Materials suitable for Paper-making, especially if it can be procured in quantity at a cheap rate, is eagerly sought after. It is a question now in France whether Ferula communis and F. tingitana can be utilised for this purpose. To this end M. Rivière contributes an article on the cultivation of these plants to the *Bulletin de la Société d'Acclimatation*. It does not look like a promising idea, for four or five years must elapse before the first stem is formed. Possibly, however, heavy crops in succeeding years might recoup the previous outlay.

—— The mountaineers and dalesmen of the southern slopes of the Tyrol are complaining, aparently not without reason, says the *Academy*, of the injurious results of the wholesale Destruction of the Forests on the Italian Frontiers, where the woodland districts have been handed over to companies by the communes to which they belong, and trees have been cut down without the slightest regard to the effects of the sudden and complete denudation of large tracts of land. No season on record can show such a fatal list of destructive landslips, falling of rocks, overflowing of streams, and other disastrous disturbances as the past summer; and those who are acquainted with the injury produced by the removal of large masses of trees, as witnessed in Southern France and Northern Italy, will have no difficulty in appreciating the force of the complaints made by the Tyrolese. Trees bind the soil together by their roots, and thus tend to keep detached masses of rock *in situ*, while by their powers of absorption they constitute the very best means for preventing undue distribution of water, which without such natural channels either accumulates at individual points where the soil is not specially porous, or drains through loose earth, leaving it dry and unfruitful.

—— In the rich Orchid collection of Mr. William Bull may be seen at the present time a variety of Odontoglossum Roezlii, with flowers of a pure white colour, with a few purple spots on the lip. The variety in question is very beautiful.

—— Among the Orchids flowering at Kew we observe the new Cypripedium Roezlii; it is very near C. longifolium. An extra fine variety of Miltonia Clowesii is still beautiful, after having been open for several weeks. A pan of Pleione Wallichii is very attractive. P. maculata is also pretty. There is a good variety of Oncidium crispum. Others are Odontoglossum Uro-Skinneri, Mesospinidium vulcanicum, and Rodriguezia secunda, with flowers of the same red colour; Phalænopsis amabilis, P. grandiflora, P. rosea, and the curious Gongora galeata, besides many of botanical interest. Calanthe vestita and C. Veitchii are placed for effect throughout the house.

—— We glean from the pages of the *Builder* the following structural details relating to the improvements now in progress in Covent Garden Market, and only regret that they were not carried out earlier, and on a much more extensive plan:—

"An improvement, which has long been desired, both on the part of the public and the market tradesmen, is now being carried out at Covent Garden Market. The spacious open area of the south side of the market, extending from east to west, to the extent of nearly 200 feet in length, and about 60 feet in width, is receiving a

roof, which will promote the convenience and comfort of those using the market. The contractors who are executing the work, which is being carried out at the cost of the Duke of Bedford, the owner of the market, are Messrs. Cubitt & Co. The covering consists of a roof formed of iron and glass, in a single semicircular span of about 80 feet in width and upwards of 50 feet in height from the ground to the apex. The covering is carried on twenty circular ribs of iron, springing from iron columns on each side of the market, 20 feet in height. A framework of iron, 10 feet in height, above the market walls, in divisions 4 feet in width, with a circular head, is also carried up above the columns. This space will be left open for ventilation purposes, and the roof will lap over it on each side to the extent of 4 feet. The glass covering, of which the roof will be largely composed, will give light to the interior of the market. The work is being prosecuted without at all interfering with the business of the market, by the aid of a travelling stage, moving on wheels, and along a tramway, which has been erected on the spot for the purpose. Four of the circular iron arches or spans have already been fixed in their places, and the work is being rapidly carried forward."

—— The frequent diseases of the silkworm, says the *Academy*, it is well known, induce silk-growers to alter the breed from time to time by getting eggs from elsewhere. We learn from Antioch that an English proprietor of extensive Mulberry plantations near there imported some from China a few years ago, which have succeeded so well when other proprietors were losing their yield of silk through sickness of the worms, that there is now a demand for the silkworm eggs of Antioch. It was exported thence in 1873 in fifty-five packages, valued at £7600; with what result it is not yet reported.

—— We learn that Mr. Woodford is about to leave the gardens at Eastwell Park, now in the occupation of H.R.H. the Duke of Edinburgh, and it is to be hoped that he will speedily be in charge of an establishment better suited to his abilities than Eastwell, which has, owing to peculiar circumstances, been long in an impoverished condition.

—— It has been decided, on the recommendation of the Parks, Commons, and Open Spaces Committee of the Metropolitan Board of Works, that "the Fountain in Leicester Square be closed until May 1 next." The water bill for supplying the fountain for three months, when it was playing for six hours a day, was £250, and to work it for four hours per diem per annum would require the sum of £1000. If it were abolished altogether no great harm would be done.

—— We learn that Mr. W. H. Smith, M.P., will preside at the anniversary festival of the Newsvendors' Benevolent and Provident Institution in January next.

—— The *Academy* says that the question of the despatch of a Government Arctic Expedition will be discussed and decided at the first meeting of the Cabinet.

—— Two of the most striking of several bold groups of plants in the sub-tropical garden at Heckfield were planted, one with Solanum Warscewiczii, the other with Acacia lophantha. The growth of these two plants was something remarkable, seeing that they were raised from seed only in February last. The plants of the Solanum averaged 6 feet in height, the leaves of great size, and, by reason of their brown leaf-stains and spiny surface, were very effective. The plants of Acacia lophantha averaged 8 feet in height, and were finely clothed with leaves from base to tip. If any place in the country may be said to have suffered from drought this season, it is Heckfield, for so much was the park dried up that no attempt was made to mow the grass for hay. Had the summer proved wet, there is no doubt but that the above-named plants would have attained to much finer proportions. Another conspicuous feature in the subtropical garden was Dracæna Draco, occupying a place in the centre of a bed, plunged in a 16-inch pot, the fine pendulous body of leaves measuring fully 4½ feet in diameter. Centaurea Clementii, raised from seed, had produced a number of most incongruous types, scarcely one like the parent, and all useless for bedding purposes, being mostly green. Do seedlings of this Centaurea always come more or less confused in character?

—— The double form of the Tree Violet (V. arborea) deserves a notice because flowering so freely during the month of October in the open ground. Well-established plants are loaded with flowers at this season of the year, richly fragrant, and of a clear purple colour.

—— One of the most useful hardy plants to grow for cutting from at this season of the year is Anemone japonica Honorine Jobert (japonica alba). Well-established plants flower with great profusion; the flowering stems bear a large number of snow-white blossoms, that last a long time in water. Buds only just expanding will completely open in water, and nearly reach the wonted size of the flowers. It is a continuous blooming plant also, and it is unsurpassed by any late summer-flowering plant for the pearly whiteness of the blossoms.

—— In many of the suburbs of London, trained to verandahs on the south or sunny aspect, may now be seen Passiflora cœrulea, making vigorous growth, and freely flowering at the present time. Lonicera aureo-reticulata, often growing by the side of it, has mingled its golden branches with the blossoms of the Passion-flower, and worked out a pleasing effect.

—— The *Farmer*, in its number for October 19, has done us the honour of extracting our article, occupying four columns, relating to the Folk Lore of Nuts, but probably by accident it has omitted to state whence the article was derived. Much as we appreciate the compliment, we could well have dispensed with it, unless the customary acknowledgment had been made at the same time.

BRITISH GARDENERS.—IV.

Thomas Bailey.

Those who were in the habit of attending the metropolitan shows some few years since, will not have forgotten the magnificently grown and exquisitely-flowered Pelargoniums shown by Mr. Bailey, of Shardeloes, whose name is, moreover, familiar as a

most successful exhibitor in other departments of horticulture.

Mr. Bailey was born at Croydon on October 13, 1806. He received his first horticultural lessons at home, in a market garden, where he remained until sixteen years of age, and thence removed to Addington Park, where he remained for two years, under the direction of the gardener, Mr. Buckwell. On leaving Addington he went to Althorp Park, under his uncle, who was for many years park steward and gardener there.

The next situation upon which he entered was that of head gardener at Delapré Abbey, the seat of the late Edward Bouverie, Esq., where he remained for eleven years; from whence he removed to his present situation as gardener at Shardeloes, the seat of Thomas Tyrwhitt Drake, Esq., and which in March next he will have held for thirty-seven years. As regards matters of practice, Mr. Bailey writes in reply to our inquiries, "I think my most successful points have been fruit culture and Pelargonium culture."

THE OLD WALLS AT KEW.

(*Continued from p. 496.*)

In the first place let me correct one or two typographical errors that occurred in my last paper, due, doubtless, to my bad writing. Under Ceanothus, where speaking of the origin of its name, χεανωθος, the word spring, instead of spiny, has crept in and destroyed the sense. The inverted commas at the end of the article should come in immediately before the reference to Porcher's *Resources of Southern Fields and Forests*, otherwise the gentleman quoted is made to write about things that happened years after he wrote.

I have already gone pretty fully into the merits of Euonymus japonicus, but when alluding to the species or variety called radicans I omitted to notice its peculiar claim to recommendation. I have frequently observed that when grown as a bush it has by no means an ornamental appearance, but plant it against a wall and you have at once supplied the principal condition conducive to its perfect development. Like the Ivy, this shrub possesses the power of forming adventitious roots on its young wood, and of attaching itself to a wall or other support. For covering a dwarf wall, rockwork, or similar purposes, this shrub is really a great acquisition, and I strongly advise those who have not tried it this way to do so forthwith. There are several varieties of this form, the one I have in view is named argenteo-marginatus.

Another valuable evergreen shrub is the Japanese Privet, Ligustrum japonicum. It does not need the protection of a wall south of London, and forms an exceedingly ornamental bush. It has broadly ovate-lanceolate, coriaceous, glossy, dark green leaves, and terminal panicles of small white flowers. Of the numerous species and varieties from China and Japan this is the hardiest and the best. It was introduced as long ago as 1845, but does not appear to have been propagated very extensively till within the last ten years. Another strong point in its favour is, that it will flourish admirably in the vicinity of the sea. Indeed, it may be reckoned amongst the best for that purpose in the south and west. Like the common Privet, it will bear the knife well. I may add that there is a handsome variety with variegated foliage.

Camellia japonica requires no more than a simple mention. Everybody knows a Camellia, though most people call it Camèlia, which is rather inexcusable, because it is not, like some unfortunate names, subject to the rules of pronunciation of the language from which they are drawn, or modified to agree with English sounds, according to the fancy of the speaker. The Camellia was first sent to this country in 1739 by a Jesuit missionary, Father Camellus, after whom it was named. It is essentially a greenhouse or conservatory shrub, and as such has made the fortunes of some enterprising growers. There is something warm and cosy about a fine bush of this in full flower in the midst of winter, especially the dark-flowered varieties; and Flora's treasures offer no purer white than is to be found in this genus; whilst for elegance of form a double Camellia is perhaps unequalled amongst all the double flowers known. But a Camellia flower does not unite all the excellencies, as it is deficient in fragrance. Few plants, however, show so brilliant a contrast of flower and foliage. I have said that it is essentially a greenhouse shrub, but, as is well known, it flourishes in the open air where the Myrtle would die, though it is only in the south-west that it will bloom in perfection. And it is chiefly the single flowered variety that is seen out-of-doors. Yet it is not so hardy as some other Japanese shrubs, the Aucubas, for example.

A small plant of Heteromorpha arborescens gives me an opportunity of mentioning a curious phenomenon not very uncommon in the vegetable kingdom, but rarely to the same degree as we find it developed in this and a few other plants. I allude to the great diversity in the shape and size of the leaves of the same species. It will be remembered that we have both simple and trifoliolate leaves on the same shoots of Forsythia suspensa; and the common Ivy furnishes us with another instance of considerable diversity in the outline of the leaves. But in Heteromorpha arborescens, Karivia (Zehneria) umbellata, a Cucurbitaceous plant native of India, Populus euphratica, some of the Crotons, and other plants, we have a most marvellous and perplexing variety of form in the foliage, sometimes on the same plant and sometimes on different plants known to belong to the same species. In some genera the shape of the leaves serves to distinguish the species, and the characters afforded by the leaves are often constant even down to slight differences in form. Karivia umbellata is perhaps the most remarkable of variable-leaved plants. Wallich says of it, "*species vere pantomorpha;*" and in Wight and Arnott's *Prodromus* it is stated that is quite impossible to separate it into varieties for there are scarcely two leaves alike on the same plant. It is a fact that almost every form of simple leaf distinguished by botanists may be found in a set of a dozen specimens. I have brought this under the reader's notice to show the fallacy of depending too exclusively upon the characters afforded by one set of organs as indicative of specific difference. Indeed, the utmost uncertainty prevails as to what organs should be taken for characters to define species, and in practice we find that in one genus it will be the floral organs, whilst in a neighbouring one it will be the foliage that supply the distinctions. Heteromorpha arborescens is an Umbelliferous plant closely allied to Bupleurum, of which I have described one species. This, likewise, is a shrub or small tree. It is a native of South Africa, and will require considerable protection in severe weather.

A truly wild species of the genus Pyrus next demands a word. I have purposely stated truly wild,

because there is so much uncertainty respecting the native country of the originals of our Pears and Apples, notwithstanding that we find apparently wild Apples and Pears in this country. Our species is called P. variolosa, and its leaves exhibit a tendency to diversity in form, from ovate-lanceolate to pinnatifid. It is a native of North-West India, where it grows to a moderate-sized tree, and furnishes a hard, durable timber, not easily destroyed by insects. This species is quite hardy in England, and bears fruit, but its fruit has little to recommend it. In shape it resembles a Chissel Pear, and in flavour it is nasty and harsh. It is never eaten until partially decayed, like a Medlar, and even then it is much more unpalatable than the latter fruit.

Forestiera pubescens is a North American shrub of more botanical than horticultural interest. It has inconspicuous apetalous flowers, and a drupaceous fruit. The genus is now referred to the Oleaceæ.

A Holly with thick glossy leaves, from 6 to 9 inches long, and beautifully serrated on the margin, should form a handsome shrub, one would imagine, though it is difficult to judge from the specimen against the wall at Kew, and I have not met with it elsewhere. The plant is Ilex latifolia, from Japan, reported to be hardy in this country, and introduced in 1840; but I have no experience of its constitution. If really hardy, it is a matter for surprise that it is not commoner, as it would most likely graft on the common Holly. It certainly has a good appearance.

(*To be continued.*)

Home Correspondence.

Vicomtesse Hericart de Thury Strawberry.—I can fully endorse all that Mr. Holliday says respecting the above Strawberry. This spring I forced a quantity of it, which gave every satisfaction. In place of planting them out in the open (after being forced) I kept them in the same pots, well watered, all summer, behind a Beech hedge. The consequence was they showed a magnificent bloom about the middle of September. I then put them on the shelf of a vinery, with a little fire-heat, and at the present time there are from ten to twelve splendid ripe fruit on each plant. I have sent a few for your inspection. *A. Donaldson, Latimer, Oct.* 15. [Very good fruit indeed. Eds.]

Prize Vineries.—Would any of your Grape growing readers be disposed to enter the lists for the best cropped vinery, say, next September? I just throw out the hint, and, as a gardener, am willing to subscribe £1 towards a fund for the purpose, if all England is allowed to compete, or if I should happen to be within the district when the prizes are offered. Perhaps the Royal Horticultural Society would take the initiative in the matter, and get subscriptions for the purpose. I would suggest that the prize be given to the best general crop, taking into consideration the available cropping area in each case; competitors to be allowed to enter one or more vineries, as they like; but perhaps a class for Muscats and another for Black Hamburghs would be enough at first. *York.*

Fruit Trees: "Digging about them, and Dunging them."—We may reasonably suppose from the fact that the Great Teacher Himself used the parable of digging about the fruitless Fig tree to illustrate His relation and love to man when He became man's Intercessor before God, that the practice of examining the roots of fruit trees was common in those days, and further, that such practice in some instances bore good results. In giving, therefore, a little experience of such work, very likely nothing new will be advanced, but it may serve as an encouragement to others to try the experiment on any fruitless trees they may have existing. The season of the year for such operations is come again. Change of gardeners is also common at this time of the year. If this should meet the eye of any young gardener who has just entered into a situation where he finds himself in an old garden, and feel for the first time, it may be, the weight of responsibility which connects itself to one who is looked up to for the production of fruit—ay, and crops of fruit—which the proprietor expects from it, it may lead him to examine the fruit tree borders, and the soil and roots of fruit trees in general. He may be told that twenty or thirty years ago the garden was very fruitful, but now, from some cause or other, very few fruits are seen. Such was something like the experience of the writer now nearly twenty years ago. He had to begin with an old Peach tree border the first season. The trees for many years yielded but few fruit; the tops of the trees were patchy—sickly and rampant growth on one tree, gum more or less protruding on all. We set to work first of all to remove all the soil above the roots to some little distance, then we began with care to search for the roots. We had to dig and dig to follow up the long, knotted, rope-like roots which had gone in search of food. The roots were here and there sending up bundles of suckers, and had on them besides large, warty, sappy excrescences at every few inches. All the small roots we could find—and they were not many—were carefully preserved. Now the question arose, what was to be done with such old trees with such roots as described? It was previously hinted that no young trees were to be forthcoming until it was seen that some skill was shown in bettering the old ones. Well, we resolved to cut away the worst of the roots altogether, leaving what we considered sufficient to keep the trees alive. After securing them we dug down and cleared out another 6 inches of old soil. This had incorporated into it decayed vegetable matter, which had generated fungus, some of the soil being white with it. This soil was taken out of the way altogether. We now had to look about for fresh soil. Permission was granted to plough, or rather skim, a furrow of turf about 2 inches thick, and at intervals of 2 feet, in an old pasture. Where we took in the turf we loaded back with the old soil, or some from a rotten rubbish heap, to make good the pasture—and it may be here said that we found the pasture was improved as well as the border by this practice. The cattle for years after were seen grazing at that spot in preference to any other. We have adopted the same plan since when in want of turf. We packed this turf, grass downwards, under and beyond the roots of the Peach trees, until they were at that level where the roots could be evenly placed over them. We then placed some fine soil over and between the roots, which had been separately laid in their places. Then we began with turf again, filling the crevices at the base of the stem with fine soil, until we got to within a few inches of where the surface of the old border stood; we spread some of the best of the old soil at the top and smoothed it all over. When pruning time came round the top of the trees had attention. We cut out the old wood where a supply of young wood would allow it. We left but little young wood but what was necessary to form the tree, as we did not want fruit, nor should allow any the first year. In a year or two they began to have a very different appearance, most of them became healthy and fruitful; a few, owing to old age and bad constitution—some of the stems were partly rotten—in a short time had to be removed. They were said to have been planted at first in the year 1792. The young trees planted since in the same border have had no other preparation for them than a little additional fresh loam at planting, and have all done well. The Pear trees were next attended to. Root-lifting and root-pruning, and "dunging" with turf, became general. We boldly went to work on espaliers, standards, Vine borders, until all had a turn, and with good results. Had the trees been left to live out a miserable existence, without an effort to improve them, I should not have held the situation long, nor gained such faith in "digging about and dunging" fruit trees. Ah! I like the parable of the fruitless Fig tree, but we are all interested in it. *H. M.*

A Large Gourd.—I see, at p. 465, an account of a large Gourd grown at Frome; perhaps it will interest the gentleman and his gardener to hear of my success in that way. Nearly a quarter of a century ago I came as foreman to this place, and had a fancy to grow a large Gourd. I sowed the seed of Ohio Squash the first week in April, and planted it out under a hand-glass the third week of May in a compost of half-decayed leaves and loam; it grew away finely, and I took good care to "set" the first blossom so as to give it a long summer: fortunately it took all right, and I could soon see my Gourd was to be large. I dosed it constantly with liquid manure, and suspended a mat over it to keep the sun from ripening it till I thought proper. By September few men on the estate could lift it; on October 1 it was quite ripe, and measured 7 feet 6 inches in circumference, and weighed 164 lb. I published an account of it in the *Midland Florist* (just started then). It was given to Mr. Cripps, nurseryman in this town, in whose window this "claimant" claimed the attention of passers by all through the winter. Your correspondent will see that this Gourd was 45 lb. heavier than the one described at p. 465. *J. Rust, Eridge Castle, Tunbridge Wells.*

—— At p. 465 "J. F." says he has got an American Gourd which weighs 119 lb. I have frequently seen the Mammoth Gourd much larger. When foreman to Mr. Blair of Shrubland we grew such things on the manure and leaf-mould beds every season. The largest that I remember turned the scale at 152 lb. *A. F. G.*

Nertera depressa.—One of the most attractive plants at present on the rockwork at Kew is a fruiting specimen of Nertera depressa, Banks. It has slender densely matted pilose or glabrous creeping stems, with small leaves varying from ovate to cordate-reniform in shape, and from ⅛—¼ inch in length, on short petioles; the plant forms dense cushion-like tufts. The flowers are sessile in the axils of the leaves and very inconspicuous, and it is to the berries alone that all that can be said in favour of it is due; these are about the size of a Pea, and of a brilliant orange-red colour. When the berries are produced in abundance, as on the specimen at Kew, contrasting with the dark green foliage, the plant presents a very charming appearance, and is a valuable acquisition in any rockwork. I am informed that it is not often the plants produce berries in anything like abundance, and other plants of it at Kew, that were kept in the frames during the winter, have not produced a berry. The one in fruit was merely plunged in peat during that season, and, without taking it out of the pot, was afterwards planted on the rockwork, where it may now be seen in full perfection. Nertera depressa belongs to the natural order Rubiaceæ; it is figured at tab. 5799 of the *Botanical Magazine*, and is a native of the Andes of South America, Australia, New Zealand, and some of the Pacific Islands. *N. E. B.*

Arlington Tomato.—This new Tomato is a great advance on any variety yet introduced. It is very prolific, the finest flavoured, perfect in form, being quite round and free from sutures when well grown. I saw it in the nursery of James Dickson & Sons, Newton, Chester, where it was very extensively grown, both on walls and in a cold pit trained to short stakes. It was certainly the finest Tomato I have yet seen, and I can strongly recommend it where quantity and high flavour are required. *Ebor. Aberia, October* 20.

A Tall Wallflower.—There is growing in the garden here a Wallflower which commenced flowering in February and which has continued in flower up to the present time—eight months. The stem is 6 feet 6 inches high, and has been a continuous spike of flower. Perhaps some of your correspondents will kindly say whether it is usual for Wallflowers to attain such a height, and to last so long in bloom. *W. Gearle, Easby Abbey, Richmond, Yorkshire.*

Heavy Crop of Grapes.—It seems to have surprised Mr. Muir, p. 498, that I have taken from 60 lb. to 70 lb. of Grapes off a rod. I do not think it is anything wonderful, or more than others can do. The variety which carried that weight was the Black Hamburgh; each cane had from twenty-five to thirty bunches a rod, averaging 2½ lb. a bunch, some more and some less, though there was but little variation in the size and weight of the bunches. This I attribute to the regular form of stopping, which diffuses the sap regularly over the plants, and gives the laterals a uniformity of strength from top to bottom. The treatment they receive is the same as other Vines get. The borders receive a heavy coating of manure inside and out, giving the inside ones well decayed dung, while the outer receive it new. When the buds begin to push the inside borders get a heavy watering over the manure, which tells upon the shoots immediately, and is continued and increased as the crop advances, till the Grapes begin to colour, when they receive an occasional dressing of artificial manure, and so on to the end. I think I have now told Mr. Muir all about them, and if he should think of trying the same plan I shall be happy to hear of the result. *Wm. Paul. Edinburgh.*

Carpet Beds versus Pelargonium Beds.—On October 1 I suggested to my employer that the time was come to take away the summer bedders from the flower garden, to make way for the spring flowers. The reply was prompt and decisive:—"You may take away all the Pelargoniums, Verbenas, &c., but not a carpet-bed must be touched until frost cuts them up, for they are too beautiful to part with even at the risk of losing a few spring flowers." Now with us, until I introduced the carpet-beds, spring flowers and beds of scarlet Pelargoniums were in the ascendant. Here, then, is a lesson for those gardeners to learn who have thrown cold water on the carpet-bedding system. Depend upon it, judiciously used it is one of the most satisfactory of all flower garden decorations, but it must not be allowed to elbow out all other flowers; at least such is the opinion of *A Gardener Down West.*

Fruiting of Hoya carnosa.—The fruiting of the plant known under this name in gardens is probably not so rare an occurrence as has been imagined. I have frequently seen plants in fruit, and I particularly well remember some old plants that were kept in an intermediate vinery where they fruited regularly without artificial impregnation, at least so far as the hand of man was concerned. I do not know what the exact nature of its habitat is, but it struck me that the shade of the vinery favoured its growth. *H.*

Peaches and Nectarines.—I must apologise for my bad eyesight and bad writing; till I get into print I cannot discern my errors. At p. 497 for "good crops of thirteen" read "fourteen;" and instead of "Pitmaston Orange for small gardens" read "Rivers' Pine-apple." *W. F. Radclyffe.*

The Old Pink Celery.—At p. 435 mention is made of the many varieties of Celery on trial at Chiswick. I shall be curious to know if the true old Pink Celery is among them. The one now

called by that name is not the same. I used formerly to grow this fine keeping Celery, and then got out of it by growing other sorts. When I again got a Celery under this name it had not the same hardiness and keeping qualities as my old friend, for in our rich, heavy soil we could not keep it from rotting, and after Christmas we could hardly get more than one head in six fit for use. Some few years ago I was turning out a drawer and found the remains of a packet of old Celery seed, marked Ivery's Pink. That must have been there more than ten years. I was highly pleased to find my old friend again, and thought if time had not destroyed the growing powers of the seed we would not part company again in a hurry. The seed was in a very dry place, and every one grew. I provided myself with plenty of seed, and have grown this Celery ever since, and find that it stands the damp and frost better than any other that I have tried. It is solid, crisp, and fine in flavour, but not so coarse in growth as others that I grow. *William Culverwell, Thorpe Perrow.*

Autumn-bearing Raspberries.—This autumn the following varieties of Raspberries have done well here, namely, the large Orange, the Autumn Black, and the October Red and Yellow. I had these varieties from Mr. Rivers some years ago, and find them very useful for supplying in favourable seasons like the present nice dishes either for the dessert or for making Raspberry ices. The Autumn Black comes true from seed, and is chary in making suckers. In cultivating them the best way is to cut them down in March, and in May, when they begin to make shoots, to thin all out except two or three of the strongest canes. The plants require liberal treatment by top-dressing the ground with a quantity of well rotted manure. One of the most useful autumn-fruiting bushes is the Parsley-leaved Bramble or Blackberry, which I have grown for the last four or five years in the same way as Raspberries. The fruit makes an excellent preserve if mixed with a few good sauce Apples. The plants came originally from Fisher & Holmes' nursery, Handsworth, near Sheffield. The fruit is far larger and finer than the common Bramble, and the plants never fail in bearing well. *W. Tillery.*

—— Your correspondent on the Cotswold Hills mentions an autumn-bearing Raspberry, which does not succeed with him. Nearly twenty years ago Mr. Rivers sent out his "perpetual flowering" sort, and which I think for autumn fruiting is well worth growing, as, according to circumstances in pruning, you have it either early or late. I gathered it about July 20, and shall yet have a few dishes (October 19). If wanted early retain the old (last year's) wood, as in the ordinary way, but if late cut it down to within 2 feet of the ground, which allows the young wood to become strong and produce fruit the same season. *R. Farquhar, Gr., Fyvie Castle.*

Heavy Crop of Potatos.—I was interested in reading the notice of a heavy crop of Potatos at Kew in your columns a fortnight since, and it may be worth while to record a similarly remarkable crop in a field of recently reclaimed land on the farm of Fairnington near Jedburgh. The whole crop is uncommonly good, but as a specimen I give the produce of two shaws, one of them of the rock species, at which were no fewer than fifty-nine well formed Potatos, the total weight of which was upwards of 17 lb. The other shaw was a Paterson's Victoria, which yielded fifty-two Potatos, nearly all of a moderate size, but the weight of which was not tested. *T., Roxburghshire.*

—— I observe in your last that "A. D.," writing under the head of "Large Crops of Potatos," remarks that he has heard of 1 cwt. of tubers being produced from 1 lb. of seed of Vermont Beauty. I obtained 1 lb. of this variety (three tubers) last spring, and the produce thereof, which I have lately lifted, weighed 234 lb., all sound, fair-sized tubers; the heaviest Potato weighed 1 lb. 12 oz., but the average would be about 14 oz. each. Perhaps some other of your correspondents (who have grown this variety) will be able to favour your readers with the result of their experience. *G. A. Marris, Clerk and Steward, Borough Lunatic Asylum, Humberstone, near Leicester.*

—— In reference to the remarks made by "A. D." in the *Gardeners' Chronicle* of the 17th inst., as to what 1 lb. of cut sets of the Potato will produce, I, as well as others, was dubious as to the fact of our American cousins obtaining 511½ lb. from 1 lb. of Compton's Surprise; so to put it to trial I obtained this spring 1 lb. of that sort, which I cut into forty-six eyes, and planted them 1 foot apart on March 20. The result was 135½ lb. The stems were 6 feet and 8 feet long, so that had they been layered as they do in America, and my distance 2 or 3 feet instead of 1 foot, the weight would have been much greater. As to Brownell's Beauty, I had one Potato under 8 oz. over from America this spring, which I also cut into ten eyes, and the produce was forty-nine tubers, of the average weight each of from 9 to 10 oz., and well shaped. So that, taking into consideration the soil and climate of America, the results are quite attainable. *R. Farquhar, Gr., Fyvie Castle.*

Pampas-grass.—The character of the Pampas-grass is so fully established as a nearly hardy, ornamental plant, that to say anything in its favour appears like endorsing a Bank of England note, but to all who have not yet seen it in its natural beauty, and where it is most effective, I would say plant, if possible, in such situations as it is in at Orwell Park. It is almost impossible to put a plant of such graceful beauty and easy outline as this Pampas in the wrong place, but planted as it is at Orwell Park, near the margin of a placid-looking lake, where all the surroundings are in character, and associated as it is there with American and other plants, it helps to make up one of the most pleasing and natural bits of scenery I have seen for a long time. The Pampas-grass is sufficiently hardy to stand an ordinary winter in sheltered situations without any protection; but severe winters like 1861 make sad havoc amongst them, and it is, therefore, advisable to protect any choice specimens by shaking a little half-rotten leaf-mould round the collar of the plant, as it is less unsightly than straw or fern, and a better non-conductor. Arundo conspicua is another plant of almost equal grace and beauty, and as it flowers much earlier than the Pampas-grass, that is an additional recommendation, and adds much to its value as an autumnal-blooming plant. *J. Sheppard, Woolverstone Park.*

—— It would be prudent to speak of the hardiness of Gynerium argenteum with a reservation. Indeed, knowing whence it comes, we might wonder at its turning out so hardy as it is. In the South of France and at the foot of the Pyrenees, as at Tarbes and Pau, it attains magnificent proportions; in the North-east of France, whose climate differs little from that of the South-east of England, it does well, although less luxuriant, and gets through ordinary winters uninjured; but in extraordinary winters it is killed. In that of 1870-71, for instance, plants protected with a covering of straw survived, while those left unprotected perished. I do not say that no uncovered plants escaped, but enough were destroyed to make gardeners cautious. And as we cannot yet tell beforehand what the winter will be, it may be wise (except in mild localities, such as the South-west of England and Ireland) to protect in December, every winter, such plants of Pampas-grass as their owner sets a store by. A commercial horticulturist once remarked to me of the Gynerium, "This is one of the plants we like. It is hardy enough to make people careless about it. When they little expect it, there comes a combination of wintry effects—frost without snow, or thaws and re-freezings—which cuts them off by scores and hundreds, and then they have to come and buy fresh plants of us. I protect all my Gyneriums every winter, in order to be able to meet the possible demand." *E. S. D.*

Paterson's Victoria Potato.—To "C. C.'s" query respecting the specks he finds in the tubers of this variety, I reply that it is undoubtedly the disease with which we are too familiar, but seen only in a mild form. I have frequently found the same appearance this season in tubers of Dawes' Matchless, Regents, and other soft-fleshed kinds, whilst the skins have been apparently perfectly clean; and it is not peculiar to any one variety. I have no doubt that but for the forbearance of the elements the disease in all the tubers so affected would have been most virulent, and that complete rottenness would have then resulted. One of the peculiarities of the disease is its diverse forms of appearance in different sorts of Potatos. Thus in some it is found wholly in the flesh, and not observed in the skin. In others it appears in blotches in the skin, chiefly at the extremity of the tuber; whilst in others—the Lapstone family—the disease is found entirely at the end of the tuber that is attached to the root. In spite of the comparative immunity from disease that our present season's crops have enjoyed, I hear of disease in many quarters, and in varieties that are esteemed anything but delicate. Curiously enough, however, there are large breadths of Regents being lifted in the market gardens here now, in the middle of October, giving a fine crop, but with scarcely a diseased tuber to be found, and yet the Regent is usually the first to exhibit evidences of disease. Owing to the extent and general goodness of the crop, lifting goes on but slowly, as Potatos are now very cheap, and within the reach of the very poorest; and as the price of bread is also considerably reduced, poor indeed must be the person who cannot get a good hearty meal of wholesome food. *A. D.*

Large Warner's King Apple.—I was shown an Apple, Warner's King, by Mr. Mein, of Kelso, grown by Mr. Atkinson, of Beadwell, Northumberland, that weighed 24 oz. This variety is synonymous with Hawick King, Baltimore, and Gloria Mundi. Which is its proper name? It is a splendid kitchen Apple and a good cropper, succeeding the Ecklinville, in use always with us. *H. K.* [What we know as Warner's King and Gloria Mundi are quite distinct varieties. Eds.]

Viburnum Awafurki. — Your correspondent, "W. E. G.," writes of the beautiful autumn colouring of this plant, which is very fine at present. It is one of those shrubs that ought to have a more extensive cultivation, for it cannot be too highly spoken of for early forcing, for cut flowers, or conservatory decoration. The profusion and purity of its flowers make it quite a ladies' favourite, and will well repay the cultivator by its attractiveness. *W. F. Bowman, Leybourne Grange, Kent.*

Outdoor Autumn Flowers.—I have now blooming freely on a south wall Abutilon Duc de Malakoff, a grand variety, the flowers being very large and handsome. It stood out last winter quite unprotected, and I am hopeful that it will remain so during the ensuing winter. Salvia patens, that most richly coloured of all blue flowers, is also blooming abundantly. So also are spring sown East Lothian Stocks, and even if killed by the winter's frost they will have proved invaluable for the bloom they now yield. Then the Pentstemons that have once been cut over continue to throw up freely medium sized spikes of flower, that are most acceptable either for nosegays or in vases. Also the Antirrhinums are blooming most profusely from side shoots, and are invaluable. Not least valuable is a bed of late sown Mignonette, from which handfuls of sweet-scented flowers can be cut in abundance. These are all anybody's flowers. *A. D., Middlesex.*

Mesembryanthemum cordifolium variegatum.—It may not be generally known that spring-struck cuttings of this excellent bedding plant will develope three times as much growth and vigour during the ensuing summer as will autumn-struck plants. A knowledge of this fact may be useful where it is desired in the one case to get extra strong growth, or in the other rather less of it. I could show a good example of these results here in the edging to a walk, where in the one case the plants have covered a width of 6 inches only, and in the other case have grown to a width of 18 inches. This variegated plant is a capital thing to cover slopes, and makes a splendid carpet, especially for dark foliaged plants. It has been well remarked of this Mesembryanthemum that it is the best variegated-foliage bedding plant of the present day—easy to propagate, easy to grow, and most effective in its results. *A. D.*

A Cheap Convertible Lamp.—I must plead guilty to a weakness in favour of anything that embodies in it the principle of convertibility. The wooden chair, which turns over and changes into library steps, found and still finds in me a great admirer. A desire to learn something more about illumination of rooms, induced me to visit the show-rooms of Dietz & Co. (Carter Lane, St. Paul's), who are wholesale lamp manufacturers, and there I saw some prettily-formed vases, suitable for holding a small quantity of tall and bold flowers and foliage, but which were primarily intended by their makers for use as lamp-stands, for which purpose they answer equally well. The lamp, which dropped into the top of the vase, was of the size, and something like the form, of a broth basin with its cover on; upon this were the brass fittings of the burner, with its chimney and globe. The same lamp might be placed in a wire-suspender hung from the ceiling, or in one of the brackets used in greenhouses for putting pots upon the walls, hung on a nail. The spirit burned in it is the best mineral oil; and the editor of the *Field* has reported respecting the lamp, that it will give the light of twenty to twenty-three candles for seven to eight hours, at a cost of one-third of a penny per hour. The makers say that it will burn without trimming for twenty-four hours, and that the cost of the oil consumed in this time will be about 6*d*. Finding, as might be expected, that this volume of light is accompanied by a considerable emission of heat, it occurred to me that it would be a wonderfully economic arrangement if I could, on a cold night, hang this lamp in my greenhouse from 8 P.M. to 8 A.M., and keep out the frost for 3*d*.! Your correspondent, "R. D.," has, I think, somewhere mentioned that the burning of good mineral spirits does not injuriously affect plants, provided that combustion is perfect. I purpose trying one of these lamps in the greenhouse this winter, and will endeavour to arrive at as correct a return of their heat-giving power as the *Field* in February last gave of their light-giving properties. *W. T. P.*

Suspended Animation in Hollies. — With this note I send you two samples of Hollies. In the spring of 1873 I obtained from Messrs. Veitch & Son a lot of Hollies, comprising fifty-five varieties. They were planted in a border that is much overshaded by trees, and, with a few exceptions, they did well. In the excepted cases they did not do ill, for the excepted plants lived, though strangely. The two samples sent are the

varieties catalogued as doningtonensis and Hodginsii. Now, what do you see on those little twigs? You see old leaves that were formed in the spring of 1872, and new leaves that began to grow on September 20, 1874. From the time these shrubs were lifted until now they have stood still, and of course lost their beauty, but on September 20 last they began to shake off their old leaves, and put on new ones. They have had a hibernation of about twenty-eight months. *Shirley Hibberd, Stoke Newington.*

Cassia corymbosa.—I have rarely met with this grand old plant, which, however, only wants to be seen to be more generally grown. I grow it rather largely here as standards in raised circular beds on the lawn, and the effect is very striking. This season they have been very greatly admired. One of the plants I have had here the last fifteen years now measures—height of stem 36 inches, 8 feet through the head, 6 inches girth of stem. It is at present (October 19) one mass of golden blossom. The culture is very simple, viz., when the frosts set in I have them taken up, the branches cut back to the hard wood, and the plants put into large pots. They are then placed at rest in a late Peach-house, where the frost is just kept out. About the end of April they are turned out under a slight protection until danger from frosts is over, when they are planted out. The plants begin to bloom directly, and keep on until taken up, wind or wet having but little effect on them. *Oliver Goldsmith, Polesden, Dorking.*

Tropæolum canariense and Œnothera macrocarpa versus the Calceolaria as a Bedding Plant.—In hot, dry summers like the last the Calceolaria cannot be kept alive here, but Tropæolum canariense has done well with me, and made most beautiful yellow lines where the Calceolarias failed. I peg the plants down and stop them about 8 or 10 inches from the ground, and they are soon covered with their beautiful yellow bird-like flowers. They require stopping and pegging down once or twice a week. I would recommend those with whom the Calceolaria does badly to try the Tropæolum canariense by planting a few with the Calceolaria, or to keep a few in small pots in case of failure. The Œnothera macrocarpa has done well here, and flowered all through the season. It is easily raised from seed, and cuttings strike freely in the spring. *Wm. Smythe, The Gardens, Elmham.*

The Royal Horticultural Society's Fruit Show.—Will you allow me, through the medium of the *Gardeners' Chronicle*, to ask whether the Council of the Royal Horticultural Society will take into consideration the desirability of adding another day to the fruit exhibition to be held on Wednesday, Nov. 11? From the liberal prizes that are offered in the schedule there will no doubt be a large number of entries, and some splendid collections of fruit will be the result; and after the enormous amount of trouble and expense in preparing for the show, it would seem a pity to limit its duration to about three or four hours on a dull November day. I would suggest that on the following day the public should be admitted at 1*s.*, as I believe, if properly advertised, it would add to the Society's exchequer, and give much pleasure to the public. I also think it worth considering whether a horticultural dinner might not be organised. With a popular man as chairman, a very pleasant evening would be spent with our country horticultural friends. *F.*

Late Peas.—We have been gathering good Peas of the old Blue Scimitar up till now (Oct. 19). The Prince and Veitch's Perfection are also just now coming in in fine condition. All these three kinds were sown on June 22, in rows, one running through a quarter of Savoy, another through a Strawberry bed, and so on, giving at once a maximum amount of light and air. We have for a long time ceased to grow our Peas in a mass in one quarter of the garden, and have adopted the plan of casting rows through all the quarters of the garden—the half one year facing east and west, and another year north and south, and *vice versâ*; and in this way we never fail to have plenty of Peas, for the line running east and west, though of the same variety as that placed north and south, will be earlier or later according to aspect. Our earliest are always Maclean's Dwarf and Beck's Dwarf, sown at the bottom of a south wall, and when about 6 inches high a few sprays are placed along neatly, on which the Peas, when podded, lie. A string of tar-cord also answers the purpose well, and is a clean, tidy plan. We gathered our first last year on June 4, of Maclean's and Beck's a few days later. *H. K.*

Galvanism and Fungi.—Some time since I sent you some notes on "Galvanism in Plant-cases," and the principles indicated therein. I have applied the same to plant culture generally, with very fair results; but in the case of an old vinery the success has been very striking. An old narrow house was so infested with mildew that the Grapes were scarcely fit to eat, and the nurseryman said that cutting down and re-working was the only thing likely to do any good. The gardener said the border ought to be re-made as the only chance. I, however, took the matter into my own hands, and the first year scarcely a trace of mildew appeared, and this year not a vestige of it has been seen. I beg your acceptance of a few small bunches, as a sample of size and flavour, off four different Vines, and a fair specimen of the general run, although some bunches are from ¾ to 1 lb. in weight. [Very good under the circumstances. Eds.] They have had no fire-heat, and the border has not been touched, but it has been accomplished by special treatment in the way of manuring and ventilation. My Rose beds were equally free until, as an experiment, I had recourse to former treatment, and in a few days they were covered with mildew, and have not been free since. I tried the same on one Vine last year, and two days afterwards the leaves began to spot, but I reversed the treatment directly I had obtained evidence, and there was no more of it. The best way of using sulphur is to dust the upper surface of some of the leaves directly under the glass at the lowest edge of the roof, and the vapour is then driven off by the sun, and ascends among the rods where it is wanted. *W. K. Bridgeman, Norwich.*

The Double Blue Lobelia.—There has been a good deal said of late respecting this novelty. The last account I saw described it as a "Jack in Green," but I must call out Queen in Blue, for it is such with me. It is, in my opinion, one of the finest dwarf blue bedding plants we possess at the present time, and it puts all the other Lobelias on one side for beauty. In a season like the one we have just passed through I have it bedded by hundreds, and, all being well, I intend planting thousands next season. I inclose a plant for the Editors' inspection. At this date (Oct. 14) it is quite one mass of blue, and has been so since the end of June; therefore I recommend those who have been disappointed this season to give it another trial and use less water on their flower beds. *T. H. S.* [The specimen sent was really good, which is more than we can say of the plant in most places this year. Eds.]

The Pelargonium Society.—May I suggest for the consideration of the Pelargonium Society at their forthcoming meeting that in any schedule they may issue for the guidance of exhibitors a list of sorts be inserted, from which the kinds to be exhibited should be selected? Say, for instance, that fifty names of what may be termed florists' varieties be given, as many of what are termed nosegay and hybrid nosegay varieties. The great advantage of such an arrangement would be, that there would be no room for dispute as to what section any doubtful variety should be referred. I would suggest that each of the individual varieties of the two fifties should be sorts within everybody's reach; and if they are good sorts, let it be of no consequence whether they are common or old. Among the hybrid nosegays more particularly there are some varieties that come so near to florists' varieties that unless some definite arrangement of the kind above suggested is adopted, considerable misunderstanding might ensue at the time of exhibition. It would very much enhance the value of such lists as above suggested if the names of, say, three or four well-known pelargoniologists [oh!] were appended to them, thus giving them an authority which every right-minded intending exhibitor would defer to. The same stringency need not be applied in the case of the thirty to be shown in smaller pots, the selection of which might be safely left to the discretion of competitors, though it would most likely be found that each collection of thirty would be selections from the authorised lists given as suggested. *William Chitty, Stamford Hill.*

The Red-skinned Flourball and Hundredfold Fluke Potatos.—I can endorse all that "J. B. C." says about the Red-skinned Flourball Potato. I planted a row of it this season, 35 yards long, which I had taken up and weighed on October 1; they weighed 224 lb., and only four Potatos were diseased: six of them weighed 11 lb. I also planted a row the same length of the Hundredfold Fluke, which weighed 220 lb., quite free from disease. Both varieties are equally good when cooked. Paterson's Victoria growing alongside of them were about one half diseased and about half the crop. *John Malcolm, The Gardens, Cholmondeley Castle.*

Belladonna Lilies.—We have a border of the above in front of a plant-house here so thick with bloom this autumn as to induce me to have them counted. The length of the border is 39 feet 6 inches, width of ditto, 2 feet 6 inches, and there are at the present time 380 spikes, carrying about 2300 blooms. Some years since I had the border specially prepared for them, by digging out the soil 2 feet 6 inches deep, and placing nearly a foot of broken bricks for drainage, shaking over these a good layer of half-decomposed manure, and then filling up with good sandy loam. The bulbs were planted singly, about a foot apart, but they had so increased as to form a compact mass. During winter I have them protected by shaking 2 or 3 inches of half-decomposed leaf-soil over them, as they have pushed each other very near the surface, and these half-rotten leaves being capital nonconductors prevent injury to the bulbs by frost. The most successful method of flowering the Belladonna successfully is to encourage plenty of growth of leaf during the summer months, and to have a good dry bed for the bulbs to rest in during the winter by having the border well drained. This attended to, success is certain. *J. Sheppard, Woolverstone Park.*

A Word for the Robin Redbreast.—I had occasion to-day to put a young man in the plant-stove to remove scale from a Croton. Upon my entering the house, a short time after, the young man in question called my attention to a companion he had, and upon looking I was astonished to see a robin at his feet picking up every scale that dropped, and occasionally taking a flight and alighting upon his shoulder, as if to express its gratitude for such an enjoyable feast. Have any of your correspondents witnessed such a thing before? *C. E. S.*

The Season.—Four months ago we anticipated that unless the late months of summer and the early months of autumn were unusually wet the soil and springs would get dried to a serious extent in the month of October; and now we are able to look back so as to note the result. In the month of June we had 2.93 inches of rain at Kelso, which is just 2 inches more than last year, but in the same month there was only 1.75 inches in the Merse of Berwickshire. In July we had 2.93 inches at Kelso, which was rather less than last year, and 2.89 inches in the lower district of Berwickshire. In August the fall was 3.47 inches at Kelso, being nearly an inch more than last year, and 5.60 inches in the same part of Berwickshire. In September there was 2.22 inches at Kelso, and 2.06 inches in Berwickshire. The fall for the first eight months of the year has been at Kelso 20.28 inches, which is 3.42 inches more than it was for the same period last year. As a natural result we have now abundance of moisture for all purposes, and for Potato-lifting a good deal too much. West from us the rainfall has been prodigious, but the heaviest has been since the month of October began. On the night of October 6 and the morning of the 7th, the floods in Dumfriesshire were very high, but at Carlisle the Eden overflowed its banks to an extent unknown for twenty years, and at Kendal the flood was the highest that had been in the recollection of any person now living, the rainfall having been about 5 inches in twenty-four hours. Toward the east coast there is a different state of matters. In the east of Northumberland there is too little rain. Springs and streams are either dry or extremely low, and land is too dry for autumn ploughing. The reason is, that all the rain has come from west or south-west, while the east coast seldom gets rain except from the south-east. Though the autumn has been dripping, it has been remarkably mild. Trees have slowly put on their autumnal hues because it is the season, but there has been no frost, nor any low temperature. Autumn flowers are standing uncommonly long in bloom, and Primroses are coming into flower. *T., Roxburghshire.*

Vermont Beauty Potato.—Last spring we purchased some seed of this new Potato, and in the month of May planted 2½ lb. weight in ordinary land alongside of such varieties as Paterson's Alexandra and Victoria; we lifted them about three weeks ago, when the total produce was 198 lb., the largest tuber weighing just 3 lb. 2 oz. We confess to being slightly prejudiced against new American Potatos, more especially as far as regards their cooking properties; but this variety we find to be an exception, as we feel confident that a better cooking Potato was never grown, being beautifully white and perfectly dry and mealy. We have also grown extensively Paterson's Victoria Improved, which we consider to be the best Potato in cultivation for general use, as we can use it all the year round, the old Potato being perfectly good when the new Victorias are ready to lift. *W. Barron & Son, Seedsmen, Derby and Nottingham.*

Forestry.

Notes on Indian Forest Produce (*concluded from p.* 491).—In the Central Provinces the Boswellia trees, which yield the fragrant gugal or gum olibanum, are common; it is estimated that 10,000 tons could be procured annually from Chanda and the Nerbudda valley. Sal resin is collected chiefly in Bengal and Madras. The gum of Vateria indica forms a large proportion of the copal, as seen in the Bombay market; it comes chiefly from Canara, Malabar, and Travancore, and is distinct from the true or fossil copal, which is brought in quantity from Zanzibar, and is produced by Trachylobium Hornemannianum. In the Central

Provinces, Madras and Bombay, the red astringent gum of Pterocarpus marsupium, known as Indian kino, is produced. "The blood-red juice which flows from incisions in the thick grey bark is collected in vessels, in which it is dried in the sun," and is used in medicine as an astringent. In Burma large quantities of lac varnish are prepared from Melanorrhœa usitatissima, which is used extensively as a kind of lacquer, while Dipterocarpus grandiflora yields abundance of a thick semi-fluid resin known as dammar, and D. alata supplies a wood oil used for torches and for general waterproofing purposes.

Lac, so generally used in this country in the manufacture of sealing-wax and in the preparation of red dyes, is largely procured from Ficus indica and F. religiosa; these are the lac-producing trees of Assam, but many other Indian trees yield a similar product, such as Butea frondosa and Zizyphus jujuba in Northern and Central India, besides which are Schleichera trijuga, Vatica laccifera, Feronia elephantum, Inga dulcis, Aleurites laccifera, &c. The best lac is said to be the produce of Siam, that of Assam ranking next, then that of India, and Burmese lac the most inferior. It "is gathered in March and October, so as to secure the cells being full of the colouring matter which yields a valuable dye; if picked later, the young insects have consumed a quantity of the red colouring matter and pierced the cells."

With regard to india-rubber, an important product chiefly of Assam, and furnished by Ficus elastica, it is stated that a tree tapped in August will yield 50 oz of milk, giving 15½ oz. of pure caoutchouc. Its supply is less abundant during the cool season from October to March. The india-rubber after it has solidified is put in baskets made of split rattan, weighing about 3 cwt. each, and is then ready for shipment. "It is, as a rule, badly prepared and mixed with sticks and dirt. The best Assam rubber has realised only 2*s.* 3*d.* per pound, while Para caoutchouc fetched 3*s.* 1*d.* But 2*s.* 3*d.* is a very high rate, and Assam rubber does not usually sell for more than 1*s.* 8*d.*, and often as low as 1*s.* 4*d.*" It was with the view of improving the preparation and yield of Indian caoutchouc that the recent report on caoutchouc was drawn up by Mr. Collins for the Indian Government, and the introduction of the Para rubber plant (Hevea brasiliensis) has been attempted.

Amongst spices and condiments, which include Cassia bark, Cinnamon, Pepper, &c., the most abundant of true forest products are the Cardamoms, of which there are several kinds, all growing in moist evergreen forests, where there is deep shade. Some interesting details on the growth of these fruits are given in the report on which these notes are founded. The flowers of Bassia latifolia, under the name of mohwa, constitute an extensive article of internal trade in India. "They are sold in the North-Western Provinces, Oudh, Central Provinces, Bombay, and Madras. The large fleshy flowers are eaten, but are especially in demand for distilling a spirit or arrack. In the Central Provinces about 10,000 rupees are realised by the sale of the right to collect the flowers. A single tree will yield from 200 lb. to 400 lb. of flowers. In Guzerat and Rajputana every village has a spirit shop for the sale of the distilled liquor of the flower. In the island of Caranja, opposite to Bombay, the Government duty on spirits distilled (chiefly from this flower) amounts to at least £60,000 per annum. The spirit is said to be like good Irish whiskey, but it requires to be kept some time."

Fibrous products and dye-stuffs are largely produced in India, amongst the former many of the Sterculiaceæ and Tiliaceæ are important plants, but they are too numerous to consider in detail; the same may be said of the dyes, some of which have already been referred to, such as the Kamala, Rottlera tinctoria; the Red Sanders wood, Pterocarpus santalinum; the Sappan wood, Cæsalpinia Sappan; besides which are the woods of species of Hedyotis, Morinda, and the roots of Rubia cordifolia. The multitudinous uses of the Bamboo have been so often referred to by writers on tropical vegetation, that little, perhaps, can be added to what has been already written. All over India these stems are most important for house-building, mat-making, buckets, water-troughs, pipes, boxes, and, indeed, for numerous other appliances. Millions are annually cut in the forests of Madras, and quickly utilised. Burmah stands unrivalled by any other province in the production of Bamboos, twenty-eight varieties are known to the Burmese, who are most ingenious in their numerous manufactures from these stems. "They weave slips of it into boxes, mats, and baskets, floor their rooms with flattened pieces of Bamboo, and weave fine slips into boxes, which are then lacquered, and, but for their beautiful elasticity, would never be supposed to be made of Bamboo mat-work as a basis." On the whole, the several species of Bambusa and Dendrocalamus may be classed amongst the most important plants of India.

Reports of Societies.

Darlington Gardeners' Institute: *Oct.* 16.—The anniversary *soirée* of this Society was held at the Mechanics' Hall on the evening of the above date, when about 130 sat down to tea. Over the after-proceedings Alderman Luck presided. There were also present the Rev. T. Hodgson, Vicar; Rev. G. L. Betts, and Messrs. J. and G. Wilson, Bousfield, W. Hodgson, Bell (Branson House), Wadham, &c.; and gardeners, of whom may be mentioned Messrs. Hunter, Lambton Castle; Westcott, Raby Castle; Graham, Pierremont; Black, Southend; Lazenby, Woodside; Pierson, Grange Road; Noble, Woodburn; Holliday, North Lodge; Green, North Road; Casson, Blackwell Hall; Hobman, Elm Ridge; Dickinson, Hummersknott; Wrather, Flora Cottage; Waud, Brinkburn, &c. The Secretary (Mr. Kent), to whose able management much of the prosperity of the Institute is due, made his report, from which we make the following extract:—

"The committee have great pleasure in submitting their first annual report and balance-sheet of a satisfactory kind. It was seen at the general meeting held last month that there was a balance in the treasurer's hands of £11 5*s.* 3*d.*, but had it not been for the kindness of Mr. E. Pease in providing suitable rooms free of cost, we should not now have had a balance in hand, and very probably the Institute would never have existed. The Institute is but in its infancy, and the committee have no doubt that it will develope its usefulness as it becomes wider known. Gardeners generally round this town and neighbourhood have largely availed themselves of the many advantages it possesses, the number of members for the past year being upwards of ninety, irrespective of honorary subscribers. The library contains 150 volumes of rare and valuable works, and on the table are found the various weekly horticultural papers and monthly magazines. There is one important feature in connection with this Institute, and that is, the weekly meetings of the Fruit and Floral Committee, held every Thursday evening for the purpose of naming such specimens of fruits, plants, or flowers, as may be submitted. These meetings are open to all who choose to avail themselves of them. There is another notable feature, and one which I am sorry to say has received very lukewarm attention from the members, and which is not less important. I refer to papers being read on subjects connected with horticulture. Three essays are given by various gentlemen last season, all of which were highly appreciated. The after discussions were invariably interesting, and much valuable information is derived from them. I trust therefore members will come forward, and not be so uncharitable as not to give us the benefit of their experience, or the proper mode of treatment which they find most suitable for the successful cultivation of any plant. We should be glad, for example, to have a paper from Mr. Hunter, and hear by what magic wand he produces such wondrous bunches of Grapes—one in particular, a Black Hamburgh, having attained the unprecedented weight of 21 lb. 12 oz."

Helensburgh Horticultural Association: *Oct.* 9.—The ordinary proceedings of this Society were varied on this occasion by an exhibition of the herbaria and plans competing for the prizes offered by the Association, through the generosity of Alex. Breingan, Esq., President; Walter Ure Waddell, Esq., Vice-President; and John Frew, Esq., of Elmwood. Arrangements having been made to present the prizes on the above night, the members were nearly all present, and also a number of visitors—W. U. Waddell, Esq., officiating as chairman. The different herbaria and plans entered for competition being exhibited on the walls, were closely inspected by the members. The Secretary intimated that the Directors, after carefully examining the different exhibits, had adjudged the prizes as follows:—Handsome silver medal, presented by Alex. Breingan, Esq., President, for "the most complete, correctly named, and best preserved, mounted, and arranged herbarium of the flora of Dumbartonshire, arranged according to the natural orders, as adopted in Kennedy's *Clydesdale Flora*, and giving the habitat of each plant"—awarded to Mr. Joseph Simpson, assistant gardener, Cairndhu. Handsomely bound copy of Anderson's *New Practical Gardener*, in two volumes, presented by W. U. Waddell, Esq., Vice-President, for the "best plan for kitchen garden of 1 acre in extent, with all necessary accompaniments, and instructions for cropping of same throughout the year"—awarded to Mr. George Hunter, gr., Broomfield. Handsome silver medal, presented by John Frew, Esq., Elmwood, for the "best plan for villa garden and grounds forming parallelogram of 1 acre in extent, both included"—awarded to Mr. Joseph Simpson, Cairndhu. At the request of the members Mr. Galloway described the leading features of the plants included in the two herbaria exhibited, in which there were 243 correctly named species shown as indigenous to the county. These represented 153 genera and 56 natural orders. The prizes were then presented by the Chairman, who in a few graceful remarks complimented the winners on their success, and expressed his conviction that the Association had been enabled to do a good work in originating a competition of the kind, calling forth, as it had done, great perseverance, close observation, and careful research on the part of the competitors. Messrs. Simpson and Hunter, in suitable terms, thanked the Association for the prizes awarded them. The Association expressed its gratitude and thanks to the donors of the handsome prizes, and after considering some other business, the meeting separated, all the members expressing themselves delighted with the proceedings.

Law Notes.

Stealing Belladonna.—Alfred Barber, Charles Barber, and Edwin Ayres, of Tring, were charged with stealing a quantity of Belladonna, growing in a field, the property of Mr. Albert Mead, of Northchurch, on September 16. Cyrus Timms, of Tring, said he bought all kinds of herbs, and that he had purchased herbs of Barber two years before. On September 16 he was called up by Alfred Barber between five and six in the morning, who, with Charles Barber and Edwin Ayres, had a quantity of Belladonna, about 3½ cwt., tied up in a bundle. Barber said he had been out nutting, and found the Belladonna growing in a dell. All three defendants helped to carry it into his shed, and he paid Barber 4*s.* per cwt. for it. F. Dell, Sergeant Aldridge, police-constable Brown, and police-constable Oakley gave evidence connecting the herbs with the man Alfred Barber. The other two said they had nothing to do with it, but that they helped Barber push his truck to Timms'. The Bench gave them the benefit of the doubt, and they were discharged. Barber was ordered to pay £3 2*s.* 6*d.*, or be imprisoned for six weeks. The above is a cutting from the *Herts Mercury* of October 10. I do not know whether the Belladonna is cultivated about Tring, or whether it was the wild plant, which is not uncommon in that neighbourhood. Should this last be the case, the decision of the Bench would not be without interest to the botanist as well as to the simpler, as there seems to have been no question of trespass. Could the plant have been the real Atropa? Three hundredweight would represent a very large number of individuals. *R. A. Pryor.*

Crease *v.* Davenport.—This was an action brought against a salesman in the Borough Market in the Southwark County Court, on the 19th inst., to recover the sum of 10*s.* for loss sustained by the non-delivery of eight sacks of Peas which the plaintiff had purchased of the defendant. The plaintiff stated that on the morning in question he had purchased the Peas, and, as his cart was some fifty yards away, the defendant refused to load them, and that, when he got a man to do so, found that the Peas he had bought had been sold and inferior Peas substituted for them, which the plaintiff refused to take, and, as the Peas had "gone up" within ten minutes after he had purchased them, he now sought to recover the loss he had sustained. The defendant's son said that it was the custom of the market that purchasers should take care of their purchases, and the defendant might have employed one of their own porters to remove them had he wished to do so, but as the defendant did not return for nearly an hour afterwards, the Peas were sold in the *interim*.—By the Judge: You had surely no right to sell goods to one party, and to resell them in ten minutes afterwards.—The defendant called his book-keeper, who corroborated the statement that an hour had elapsed before the plaintiff returned, and that there had been no rise in Peas that morning, and said that if 10*s.* was not paid the plaintiff said he would make a day's work out of them.—The learned Judge thought that the plaintiff had not sustained any loss whatever, and should, therefore, only give him the nominal damages of 1*s.*

The Farm.

On the Utilising of Diseased Potatos.—There can now be no doubt that the Potato crop of the present season is extensively diseased, and as we have already had several anxious inquiries as to what to do with the affected tubers, we deem it proper to state our own practice and experience upon this important matter.

We are this year reminded, in a painful though practical way, that besides the usual small Potatos which we have been called upon to utilise, the largest and finest grown tubers have succumbed to the fell disease; and as we estimate the loss at as much as two-thirds of the entire crop, it will be seen that a large mass of matter has to be dealt with, and that quickly, or rottenness and comparative inutility will be the result.

Now, as farmers, we are constantly reminded that there are many things which would otherwise be waste that may yet be made available for farm feeding purposes, such are cavings—tail corn, and even the seeds

of many weeds, which, being ground, are found to be good and wholesome for different kinds of cattle; and as an evidence of the latter we would adduce that common weed, Scandix Pecten-veneris, the seed-vessels of which are called "Shepherd's Needles" as seen growing, and as found in threshed corn "Crow-pecks" and "Pranes;" and it is a Western saying that—

"Two Pranes are as good as an Oat;"

and they are used either ground or boiled for horses.*

Well, diseased Potatos may now be reckoned as a product either to be used or wasted, and, as we prefer the former, we shall now state our manner of proceeding with them.

Finding that we had a large proportion of diseased, as well as a few small, Potatos, we washed them together, and boiled them in a copper with only a little water at the bottom. When done, they are put into a potato gribble, which mashes them into a pulp. This is stored in a large stone trough, each layer being treated with a sprinkling of salt; and this, covered over to keep out wet, keeps dry and sweet and good for a very long time. A little of this Potato paste mixed with wash was found to get the pigs on so rapidly, that we bought up all the diseased Potatos we could, not only those belonging to our men, but many from our neighbours also; and with these, treated as above, and mixed with a little barley-meal, we are now forcing on a lot of pigs at a rapid and cheap rate.

The price we have paid has been 9*d.* for a 60 lb. basket, but so much disease has been about in some districts that we have heard of their being sold at as little as 6*d.* per basket.

In an article on "Potatos" in Morton's *Cyclopædia of Agriculture* we are told that good Potatos at 3*d.* per stone are economical for cattle-feeding. Now, we have not tried the diseased tubers for cattle, but if they are found to agree with beasts at 9*d.* for 60 lb. it would be still cheaper. The writer of the same article tells us that "diseased Potatos are not good feeding for horses, whether steamed or raw, but pigs thrive well on them in the former state, and cattle eat them readily uncooked, provided they are not in a forward state of decomposition. For pigs, Potatos should always be steamed, in order to withdraw as much of the black bitter juice as possible, and if mixed afterwards with a little bran, bean, pea, or barley-meal, they will be found to improve rapidly."

There is great reason for steaming the faulty Potatos at once, as their further decay is arrested, and though in some matters it would seem that they greatly suffer, for example, in the production of starch; yet, taken as a whole, we have reason to conclude that they are both wholesome and cheap feeding for pigs, and we have every reason to think cattle would get on well with cooked Potatos. We cannot even at best recommend them for horses, as these latter are not required to be fat, and therefore fat-forming substances, however good, are not best adapted to their needs. Potatos are confessedly low in those principles which restore and make muscle. Let then any diseased or small tubers be cooked and gribbled, and prepared as dry as may be, pressing layer upon layer with the sprinkling of a little salt between, and we will answer for the aid it will render in fattening up pigs either for pork or bacon.

* The seeds of Corn Cockle, Agrostemma Githago, are not objected to in corn, as they are known to be nutritious; and even the brewer does not object to them in Barley, as they are said "to make the ale sparkle."

The Villa Garden.

Clearing Flower-beds.—If there is any one task in connection with the garden that one shrinks from as an unpleasant duty, it is that of clearing the flower-beds at the end of the summer. It is like giving up summer as a General would give up an important strategical position that is no longer tenable, and coming to terms with winter where capitulation is the only course open. Old Winter, cold, icy, and pitiless as he is represented to be, is very merciful indeed this season, and the flower-beds, in some years rendered desolate by frost ere the month of September has come to a close, are yet gay and even effective, and the mixed border is still pleasant, inviting, and attractive. Heavy rains are doing more damage to the flowers than frost, but a sunny day repairs innumerable breaches the battering rain has made on the floral rockworks. Truly "the grace and beauty of summer," as an old writer puts it, is preserved to us much longer than usual, to our great and unspeakable gratification.

How seldom are Dahlias, Nasturtiums, Heliotropes, the sweet Cherry-pie that one used to see in our gardens some years ago, but now, unhappily, seldom met with—the homely Tropæolum canariense, Balsam, and other tender plants, seen fully in flower at this season of the year? Dahlias are still flowering profusely, the tints expressed with much brightness of hue. Walking along a country lane a few days ago we came upon a cottage, the front wall of which was covered in part with Jasminum nudiflorum, already covered with many pale citron-coloured flowers; and right in front of it, forming a striking foreground, was a brilliant scarlet Dahlia, flowering with great profusion. It was somewhat of an unusual combination for the third week in October.

Any beds in the flower garden that have become rough and untidy had better be cleared of their contents at once. Cuttings of Pelargoniums and Calceolarias should have been taken long since, and there will be no necessity for saving the old roots. Let them go away to the rubbish heap, which will be receiving much accumulation of decaying vegetable matter just now, and all of which will come in very handy by-and-bye. As it happens frequently that a Villa Garden is circumscribed in extent, and the rubbish heap has to be close to the dwelling-house, it is a good plan to keep a little slaked lime on hand in a dry state, and throw some of it over the heap at intervals, together with any soot and fine ashes taken from the fire-grates. On sanitary grounds this is a good and commendable practice, and it serves to keep the heap from becoming colonised with vermin. Petunias, Phlox Drummondi, dwarf Nasturtiums, Verbenas, and such like, can all be carted away to the rubbish-heap. It is a waste of time to pot-up any of them, and cuttings of any varieties it is desirable to save should have been taken in August. The beds thus cleared, let them be dug up and allowed to lie rough for several days. This will serve to sweeten, dry, and pulverise the soil, and render it more workable for any winter arrangements that may be resolved upon. If the beds are edged with grass let them be trimmed with shears, or cut in evenly with an edging-iron; and when this is done well sweep and thoroughly roll the grass, and then have it mown, and the flower garden will thus be neat and tidy for a time.

Grass Lawns should be well swept and rolled at this season of the year—the former to get rid of worm-casts and leaves, the latter to get the grass level while in a soft and yielding state, and so fill up all inequalities.

The Mixed Border requires different treatment, for, unlike the ordinary flower-beds on the grass lawn, it is always tenanted by plants and flowers in many stages of development. While some plants are decaying, having completed the task Nature set them for the summer, others are now flowering or coming into flower. The foliage of all perennial plants should be cut away as it decays. It is not wise to do this immediately the plant has flowered, as, for instance, in the case of the Delphinium, among others. Ripening their growth appears to be as important a part in the economy of Nature as developing the flowers, and an intelligent gardener will bear with decaying flower-stalks for a time till the ripening of the growth is perfected; and then, as in the case of some hardy herbaceous plants, a slight growth comes up from the plant and remains all the winter—who knows but as a natural protection to the plant during the cold season of the year?

There are some plants of a tender character that should never be absent from the mixed border, because of the peculiar and beautiful hue of their flowers. One of these is Salvia patens, a plant that yields the richest hue of blue of all outdoor plants. Owing to the absence of frost it is flowering unusually late this season. In the early part of the summer it makes a free, vigorous growth, all of which goes to the production of flowers. There is scarcely another plant that throws such a number of individual flowers, and so continuously, as this grand old Mexican Salvia. In the autumn the foliage dies down, and the root is too tender to be left entirely to the mercies of our English winter. The best plan is to lift it, and put the root in a box with a little soil about it, and keep it in a cool part of the greenhouse, where it can be preserved from frost. By-and-bye, in the spring, it will throw up young shoots, and if these are taken off and inserted in pots, and put in a gentle bottom heat, they will readily take root and make nice plants for the summer, but they are late in coming into flower. If the plant is left in the open ground let it be covered up with a good heap of coal ashes, and unless the frost is unusually intense, it will survive the winter's excessive damp; other causes also sometimes injuriously affect the plants.

The mixed border should now be cleaned out by removing decaying branches, leaves, &c., and, where it can be done, slightly forked. All the plants ought to be so marked or labelled as to indicate their whereabouts. Spaces will be left through lifting some tender plants, and through the decay of some annuals. A few Hyacinths, early Tulips, &c., can take their places, and they, in their turn, can by-and-bye be removed, when they have done flowering, to make room for the border plants for another season's service. Many late flowering plants will yet be gay in the mixed border, as the late-blooming perennial Asters, the strong scarlet Phygelius capensis, Anemone japonica and its white variety, Pentstemons, Phloxes, and others. The mild weather that now prevails has pleasantly prolonged the season of flowering, much to the enjoyment of those who love a garden. In December, during the kind of pause that occurs, when the summer and autumn-flowering plants have ceased to perform their allotted functions, and the earliest spring-blooming plants are unobtrusively hastening on to gild the opening year with doubly welcome blossoms, then let the border receive a good surface-dressing of leaves, manure, and, in fact, the accumulations of the rubbish heap, put on to the depth of 3 or 4 inches, but reducing the quantity towards the edge of the border, so as not to bury the dwarfer plants, such as Daisies, Hepaticas, Primroses, Dianthus, &c. Never mind though it may give the garden an unsightly appearance for a time, the dressing will do good service in two ways—it will greatly nourish and invigorate the plants, resulting in a fine growth, and beautiful flowers in summer; it will also afford them protection during the severest part of the winter, and, when that is past, and the gentle spring rains fall, the dressing will unite with the surface soil, and give tone and vigour to the plants.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, October 21, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
Oct.	In.	In.	°	°	°	°	°	°			In.
15	29.31	−0.39	66.7	55.7	11.0	59.3	+ 9.0	57.5	94	S.S.E.: S.	0.29
16	29.59	−0.11	58.6	52.5	6.1	54.1	+ 4.1	54.0	100	S.: N.N.E.	0.08
17	29.71	+0.01	60.0	46.4	13.6	53.1	+ 3.3	49.3	87	S.W.	0.00
18	29.80	+0.10	63.3	49.0	14.3	53.6	+ 4.0	51.7	93	WSW: S.W.	0.01
19	29.77	+0.07	60.6	45.6	15.0	52.2	+ 2.9	47.2	83	S.W.	0.01
20	30.08	+0.37	56.0	39.4	16.6	47.2	− 1.9	43.0	85	WSW	0.00
21	29.43	−0.28	57.5	41.5	16.0	48.5	− 0.4	46.4	92	WSW: WNW	0.06

Oct. 15.—Generally overcast. Rain fell frequently. Lightning was seen in the evening, and distant thunder was heard occasionally.
— 16.—Overcast. Very gloomy in the morning. Occasional rain.
— 17.—The amount of cloud was large throughout the day. A little thin rain fell in the afternoon.
— 18.—Foggy in early morning, and a little rain fell; the amount of cloud was variable. A fine day.
— 19.—A fine day; partially cloudy. A slight shower of rain about 8 A.M.
— 20.—Light clouds were at times present, and the weather was very fine. Lunar halo between 8 P.M. and 9 P.M.
— 21.—Heavy gale till afternoon; rain between 1 P.M. and 3 P.M.; very gloomy between 2.30 P.M. and 3 P.M.; cloudless and very fine at night.

—— In London and its vicinity the reading of the barometer, at the level of the sea, increased from 30.15 inches at the beginning of the week to 30.19 inches by 10 P.M. on the 11th, remained nearly stationary till shortly after 9 A.M. on the following morning, then decreased to 29.47 inches by the afternoon of the 15th, and increased to 29.93 inches by the end of the week. The mean reading for the week was 29.88 inches, being 0.06 inches higher than that of the week ending October 10, and the same as the average of the correspond-

ing period, as deduced from eighteen years observations.

The highest temperatures of the air at 4 feet above the ground ranged from 58¼° on the 16th to 67¼° on the 13th, with a mean value of 63°. The mean of the several low night temperatures of the air was 51°, the extreme readings being 46½° on the 17th and 55¾° on the 15th.

The mean daily temperatures of the air were all above their averages, the values being as follows:—11th, 55°.5; 12th, 55°.8; 13th, 57°.7; 14th, 55°.9; 15th, 59°.3; 16th, 54°.1; 17th, 53°.1; and their departures in excess of their respective averages were 4°.1, 4°.6, 6°.8, 5°.3, 9°., 4°.1, 3°.3. The mean temperature for the week was 55°.9, being 5°.3 higher than the temperature of the corresponding period, as deduced from fifty years' observations.

The highest readings of a thermometer with bulb in vacuo, placed on grass in the sun's rays, were 104½° and 103¾° on the 12th and 15th respectively, and the mean of the seven highest daily readings of this instrument was 87¾°. The lowest reading at night of a thermometer on grass with its bulb fully exposed to the sky was 38° on the 17th, and on the other days the minimum temperature on grass did not fall below 40°.

The most prevalent direction of the wind was S.W., but at times N.E. and S.E. winds were experienced. The strength of the wind was gentle throughout the week.

The weather was generally dull and cloudy, the sky from the 14th to the 17th being, with slight exceptions, overcast.

Rain fell on four days; the amount collected was 0.58 inch. Vivid lightning was seen, and distant thunder heard on the evening of the 15th. On the 16th the weather was very gloomy, and the air was saturated with moisture during the entire day.

In England, the extreme high day temperatures ranged between 72° at Sunderland, and 62° at Wolverhampton, Sheffield, and Bradford; the general average over the whole country was 65¼°. The extreme low night temperatures varied from 48° at Norwich to 36° at Hull, the general average being 42½°. The mean range of temperature in the week was 22¾°. The mean high temperatures observed by day ranged from 64¾° at Sunderland to 58¾° at Liverpool, with an average value of 60¼°. The mean low temperatures observed by night varied from 51° at Blackheath to 46° at Hull, with a general average of 48°. The mean daily range of temperature was 12½°, the highest, 17¼°, being at Sunderland, and the lowest, 10½°, at Liverpool. The mean temperature for the week was 53¼°; the highest occurred at Blackheath, 56° nearly, and the lowest at Hull, 51½°. The fall of rain varied from nine-tenths of an inch at Portsmouth on five days, to eight-hundredths of an inch at Norwich on one day, the general average fall over the country being four-tenths of an inch.

The weather during the week was dull and overcast.

Lightning was seen at Portsmouth on October 14 and 15.

In Scotland the highest temperatures ranged from 63° at Leith, to 57° at Greenock. The lowest temperatures varied from 38° at Leith, to 33¼° at Aberdeen, their respective averages being 59° and 36°. The mean range of temperature was 23°. The mean temperature for the week was 48½°, the highest being at Leith, 50½°, and the lowest at Aberdeen, 47¼°. The amount of rain measured during the week varied from 3½ inches at Greenock, to a little more than half an inch at Aberdeen, the average fall being 1¾ inch.

At Dublin the highest temperature was 62¾°, the lowest 40°, the mean 52½°; and the rainfall 1 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

PLANT STOVE.—The usual custom with plant-growers is once a year to wash the whole of the glass inside and out in the different houses, both such as are devoted to the culture of stove plants and also the cooler structures: yet it is much better to repeat this washing oftener than yearly—more particularly in the case of such houses where heat is constantly employed, and especially in the neighbourhood of towns or other smoky places, where the glass gets foul with soot and dust, in addition to the slime and conferva that accumulate on the inside of the glass, inseparable from the confined humid atmosphere required to be kept up for stove plants, and which excludes that most essential element to plant life—light. Another important reason why all possible light should be given to the inhabitants of the stove, is the more or less continuous growth going on with a portion of the plants in this department, even in the dull autumn and winter months. Consequently it is much better to wash the houses several times during the year, especially betwixt the present time and the spring; and the darker the houses are, through their construction, or the position they occupy, the more necessary it is to carry out this light-admitting operation. Many careful stove plant-growers in smoky neighbourhoods regularly wash the outside of the houses every month through the dull season, and find it much to the advantage of the occupants to do so. Plants that are so treated, other matters in their cultivation being equal, will far outstrip in general appearance, more especially in their flowering capabilities, such as are grown under less favourable conditions as to the admission of light.

Azaleas.—The early flowering *vittata* will now shortly commence to open its flowers, which it will do more freely and of larger size if kept a little closer than the ordinary greenhouse temperature. This variety pushes a second lot of flowers from the points of the strongest shoots later on, through the winter, if the wood is not cut with the first blooms, consequently no more than is unavoidable should be removed early in the season. This plant, although now for many years in this country, is seldom met with, its cultivation not being nearly so general as it deserves. It will flower consecutively for four months during the winter without any forcing; the flowers, some white-striped, others spotted, and a few wholly coloured purple, will last long when cut—ten days, if attended to with water. It differs in its habit of flowering from all other *Azaleas*, being in this so far like a *Camellia* that if the growth and buds are set early it will flower without any heat, even as early as September, in which month it has been seen freely opening them out-of-doors. Any one who could raise a pure white variety with the habit of flowering possessed by this plant would do a service to all who require winter flowers. Some of the earliest flowering plants, especially the old white sorts (*A. alba* and *A. Fielderi* are the best), if their growth has been well managed, will now be in condition to place in heat. These will come in without much excitement or high temperature, which will add to their powers of endurance when required for cutting. The general stock, where any trace of thrips has existed, should now be well washed with tobacco-water, wetting the whole surface of the leaves and wood, leaving the solution to dry on, which will effect the destruction of the mature insects, and also their eggs that are sealed up under the small varnish-like spots on the leaves and young shoots, ready to come into active life, either through the sun's influence in the spring, or earlier if the plants are subject to heat.

Heaths.—Specimen plants that were potted last month will now be taking to the soil, for when in good health, they root freely at this season, and so soon lay hold of the fresh material. When these plants are newly potted, and the soil well rammed in, they give little warning by merely sounding the pots when water is required, consequently they must be closely examined as to their condition in this respect. Give them now a fair supply of air day and night, when there is no danger from frost, but when such does appear take it off at the side ventilators. The plants are all the better for being kept as cool as possible, and will bear anything short of actual frost. A portion of roof-air should be at all times left on so long as there is no danger from too great a depression of the temperature. They should now be tied, commencing with the earliest flowering varieties; they must be laid down on their sides, all the old dead foliage removed from the wood and surface of the soil, as far as possible, inserting the new sticks in the places the old ones have been removed from, so as to damage no more roots than is unavoidable. When all the sticks are removed from a plant, the centre shoots should be so far lowered that there will be enough fresh, green, leaf-clad shoots to cover the surface down to the pot. This, of course, applies to all plants. By this means their appearance is rendered satisfactory, otherwise if bare at the bottom they are intolerable amongst a collection where good cultivation is attempted. Winter-flowering Heaths that are coming into bloom should have a good, light, airy situation, and not be overcrowded. The treatment these plants receive through the winter in being crowded thickly where things could scarcely exist that are not nearly so impatient as even the freest-growing Heaths are, has something to do with their seldom living to flower a second time.

SOFT-WOODED GREENHOUSE PLANTS.—*Solanums*, although not impatient of a few degrees of frost, should now be taken inside; such as have been grown out in the open borders and from thence transferred to pots a short time ago, will now have begun to root, and must be well supplied with water, for, if ever allowed to get dry, the leaves will flag, and partially fall off or turn yellow, either of which spoils the appearance of the plants. These are exceptionally moisture-loving subjects, the quantity of water indispensable to them would be death in a very short time to the majority of plants. See that they are quite free from aphides, or when inside they will come to life and increase apace. If required early, and their berries are now beginning to colour, they may be quickly brought on by placing them in a little heat. *Clianthus Dampieri.*—This gorgeous-flowered plant should now receive a little more warmth than the temperature of the greenhouse; keep it near the glass and away from cold, cutting winds. It is a subject that does best grown on the one-shift system, owing to its dislike to the slightest interference with its roots, but if plants are in pots too small to support them up to the flowering state and through it, they should now be removed to larger, but this must be done with great care, so as to avoid disturbing the roots. Do not move the crocks from the ball, but transfer all entire to the new pot, and press the soil carefully down. *Rochea falcata*, when out of flower, should have the main stem cut back, the leaves removed singly from the stem, using a sharp knife for the purpose, so that a clean cut may be made—if bruised they will rot; insert these either in small well-drained pots filled with sandy peat, or put them round the sides of 5 or 6-inch pots, and afterwards transfer them when rooted singly to small ones. Place them on a shelf near the glass in a house where there is a temperature in the night of 50°, here they will soon root if the soil is kept from getting quite dry, but it must receive less water than would be required for almost any other description of plant, or these leaf cuttings will rot. It is a most useful autumn plant, and deserving of more general cultivation than it receives. *T. Baines, Southgate, N.*

FRUIT HOUSES.

PINES.—The prevailing temperate condition of the weather is such as to be most beneficial to Pine-apples which are swelling off; under these advantages continue to fruiting plants the temperature and treatment as indicated in the last fortnight's Pine Calendar; should adverse circumstances exist a fall of about 5° should take place. Plants in which fruit is now appearing will be ripe at a time when other kinds of fruit are scarce and expensive, therefore such plants should be afforded a good position in the fruiting department, where every artificial and natural advantage may be obtained. It is not usual at any time to wet the fruit during the process of flowering; it may not be very detrimental to do so during arid, sunny weather, but through the sunless months it is a different matter, and should not be done. Queen plants do not generally start into fruit so readily as some other varieties, but this matter is reduced almost to a certainty if the plants, after having made a growth, are submitted to a comparative state of rest for a time. The advantage of compartments for this purpose is here again plainly indicated. Plants which may be expected to show fruit early in the ensuing year should now be treated accordingly, which necessitates careful management. Let the temperature at the roots fall gradually to about 70°, and that of the house to 60° at night and about 65° in the day-time. Abstain altogether from sprinkling those houses which are naturally moist, and only water the plants when absolutely necessary, which will not often be the case with plants which are plunged in fermenting beds, and ventilate at about 70°, and do so liberally above that degree, and close the house at 70°. The lights of all Pine structures should now be washed, and be kept free from whatever may obstruct the access of light and sunshine to the plants. *G. T. Miles, Wycombe Abbey.*

VINES.—Those who have followed my articles upon the Vine will have discovered that I look upon the formation and after-management of the borders as the mainspring of success in Grape culture. Formerly the making a new border was looked upon as a formidable and expensive piece of work, and it frequently happened that disappointment followed, in proportion to the outlay. In many places, where the natural soil is cold, heavy, and unfavourable, the range of the roots must be circumscribed. Where this is the case, the borders should be made piecemeal, say 6 feet to begin with. When well filled with roots, the addition of 2 feet annually, combined with rich top-dressings, will be found ample for the production of excellent Grapes. A profusion of healthy roots will always be ready to seize upon the fresh soil they are constantly receiving, and the expense, by extension over a number of years, will be trifling. When the allotted space has been filled up and the Vines require fresh food, instead of allowing the roots to pass out of the border, take out a trench along the front, 3 feet in width, shorten back the strongest, and relay in new compost. The above is an outline of the system followed here, and I am well satisfied with the result. I use turf, bones, lime rubbish, and garden refuse burnt with wood, but no animal manure. With foliage still hanging on the Vines the mild damp weather is unfavourable to the

keeping of autumn Grapes, particularly large bunches of Hamburgh, and the more delicate thin-skinned white varieties. Look them over three times a-week for decaying berries. Ventilate freely with fire-heat on fine days, and keep the house close and cool when the atmosphere is damp. *H. Coleman, Eastnor.*

Peaches and Nectarines.—All the trees in the earliest forced house may now be pruned, if not already done, then dressed with the mixture and tied to the trellises for an early commencement of forcing next month. Protect the outside border from being deluged with the cold rains or snows of autumn, which will soon be due. The trees in the latest houses will be now gradually parting with their leaves, and the latest may be dislodged with a light broom. Give plenty of air at all times, except in very rainy weather, when the top and lower sashes may be shut up to keep the inside borders from getting too wet. Some of the latest Peaches have been very fine with me this year, especially Desse Tardive, Lord Palmerston, and the latest of all, Princess of Wales and Lady Palmerston. Of the yellow-flesh late Peaches, Exquisite is by far the best flavoured, but the Salway is a useful variety for cooking, or for bottling for winter use: it is likewise an excellent bearer, which Exquisite is not. *William Tillery, Welbeck.*

Cucumbers.—If not already done, get the winter fruiters out forthwith, and plant them on raised hillock as near to the glass as the nature of the house will permit. Those who have not the convenience of a Cucumber-house proper might utilise the roofs of Pine-stoves or other heated structures to produce a winter supply, where such practice would not unduly interfere with existing arrangements, and where the proper subjects of such structure are not likely to suffer in consequence. We have many times grown very good supplies in pots and boxes through the winter, and trained the plants over the pathways of a fruiting Pine-stove. It is clearly the duty of every gardener to make the most he can of every available inch of heated space at his command, and the private grower, for the most part, has yet something to learn from the market grower in this direction. Let the autumn fruiters be regularly cut over once a week, at the same time removing all the male blossoms which are likely to generate damp and canker in the older growths. Maintain a night temperature of about 73°, a day temperature, with the sun-heat, of from 80° to 86°, and give a little air at the top at every favourable opportunity. The evaporating troughs may still be charged, and the floors gently damped about 7 A.M. and 3.30 P.M. Reduce the supply of water at the roots, but do not permit flagging. Dispense with the use of the syringe from henceforth, and employ a liberal dusting of flowers of sulphur about every ten days. Keep the glass thoroughly clean, to admit all the light possible. *T. Simpson, Broomfield.*

HARDY FRUIT GARDEN.

The gathering of *Apples* and *Pears* should now be completed as soon as possible, as well as that of *Quinces, Medlars, Walnuts, Filberts*, &c. Some varieties of *Pears* may have their ripening season considerably prolonged by gathering a portion of them at different periods, but when allowed to hang after they are fairly ripe it is necessary to net them in order to protect them from insects and birds, and also to prevent them being bruised when they happen to fall from the trees. All *Apples* and *Pears* which have been gathered some time should be occasionally examined, and all decaying fruits at once picked out; and the fruit storeroom should always be provided with top ventilation to carry off exhalations from the fruit, and as a means of regulating the temperature of the room, which should at present be kept as cool as possible. Where it is intended to form fruit tree borders, or to renovate existing ones, the first step to take is to secure the necessary supply of sound, healthy loam, with the turf upon it; and if this is of a very heavy or retentive nature it may be improved by having a portion of sand, road scrapings, or other gritty matter added to it; while if the loam is of too light or sandy a character, it may be improved by the addition of burned clay or the runnings of a clay pit. If likely to be necessary (which is not always the case), the borders should by all means be efficiently drained with pipes or otherwise, to carry off any excess of water which may exist or be likely to accumulate; and if intended for wall-trained trees the bottom of the border should have a considerable fall from the wall to the walk or extremity of the border, and at least a foot of rubble—such as broken bricks, flints, or boulders—placed under the soil composing the border, and this should be covered with littery matter of some sort to prevent the soil from mingling with it and preventing it acting as drainage. For fruit trees of nearly all sorts the border should seldom be of a less depth than 2 feet, and prepared as early as possible during the winter, by being frequently turned, &c. The trees should be planted early in spring; or, if such borders are already prepared, the trees may with advantage be planted at once, but defer nailing or tying them to the walls until somewhat late in spring, when the soil will be thoroughly settled down. Fruit trees of any sort which may be growing too luxuriantly to be productive may, if not too large, have this tendency counteracted by being carefully lifted and replanted; but if too large to be thus operated upon they may, nevertheless, have a portion of their roots carefully raised and pruned, and the remainder left nearer to the surface of the soil. In preparing sites for plantations of *Gooseberries, Currants*, and *Raspberries*, &c., drainage should in the first place be attended to, if considered necessary, and the ground heavily manured and trenched afterwards. *P. Grieve, Culford, Bury St. Edmunds.*

KITCHEN GARDEN.

The Mushroom House.—If the necessary materials have been properly prepared as previously suggested, and laid in the bins, there should now be a revival of the fermentation, which was interrupted, and put an end to more or less, by removal. As soon, then, as the materials again commence sweating, let them be trodden, if it is possible to do so, and subsequently beaten down with a rammer, or mallet, as hard and firmly as it is possible to do so. In order that the warmth from this revived fermentation may not exceed a proper limit wherein the spawn when introduced can live and grow, the bed, so beaten down and prepared for its reception, should lie for a week or so, that this point may be tested and determined. Should it rise unduly, it may have another good beating down, as it will admit of this, and continue to settle more closely as the process of fermentation progresses. Besides, by continued compression the heat is more or less dispelled, and the end is arrived at by double effect. As soon as a mean of 85° is secured within the general body of the materials, the spawning process may be safely advanced a stage. Let shallow holes be now bored over the whole surface of the bed, with a very stout, blunt dibble, kept for the occasion, these holes so made as that a medium-sized Apple could be placed into them, having the upper surface about a quarter of an inch below the mean or average surface of the bed, and about 5 or 6 inches apart from each other. If a moderate heat only exists, and one that is not in excess of that given above, or, as I have suggested, is likely, owing to the moisture that may be in the materials, to rise eventually above such, they may be spawned forthwith. This is done by simply breaking the spawn bricks into pieces about the size of green Walnuts, or larger, and inserting each piece firmly into one of the holes previously made. Press the materials around these pieces firmly, place a very thin layer upon or above them, and again ram the beds, or beat them down as firmly as possible. They may remain thus for a week, or, as some growers do, and it is an equally successful one, for about a month, and until it is seen whether the spawn runs or no, when they may be soiled over. The best possible yellow loam, fibrous and somewhat tenacious or unctuous, suits them best, and might be procured in readiness. To the latter process I shall again refer shortly. *William Earley.*

Variorum.

A HISTORY OF THE TURNIP.

The Turnip was known to the Greeks, who called this vegetable Gongyle, from the roundness of its roots. It is said to have been introduced into Greece and Italy from Gaul. The ancient Greeks appear not to have used it much as an article of diet, but more as a medicine, or cataplasm, and as an external application to recover frozen or benumbed feet, being first boiled in water and then applied as a fomentation. Democritus, the celebrated philosopher of Abdera, who lived in the fifth century B.C., banished Turnips altogether from the table, on account of their engendering flatulency; while Diocles, a physician of the next century, on the other hand, extolled these roots as much as the former philosopher had condemned them. By the Romans they were much esteemed. Cato mentions them as being cultivated at Rome in his time; Pliny, in his *Nat. Hist.*, writes thus of the Turnip, which he says is pretty nearly the same in nature as the Rape (Brassica Napus), and thrives equally well in a cold soil. The proper time for sowing both kinds is the period that intervenes between the festivals of the two divinities Neptune and Vulcan (July 23 and August 23). It is said, too—and it is the result of very careful observation—that these plants will thrive wonderfully well, if they are sown as many days after the festival of Neptune as the moon was old when the first snow fell the previous winter. They are sown in spring as well, in warm and humid localities. The more careful growers recommend that the ground should be turned up five times before putting in the Turnip, and four for Rape, care being taken in both cases to manure it well. Rape, they say, will thrive all the better if it is sown together with some chaff. He also states that the sower ought to be stripped, and that he should offer a prayer while sowing, and say, "I sow this for myself and my neighbours."

From all that can be gathered from the writings of the ancients, it is probable that the Turnip occupied nearly the same place in Roman culture as it does in the British husbandry of the present day. Columella recommended that the growth of Turnips should be abundant, because those which were not required for human food could be given with much advantage to cattle, and both Pliny and he concur in their testimony that this produce was esteemed next to corn in utility and value. Columella states that Turnips were particularly abundant in Gaul, and that the inhabitants fed their cattle with them. The best Turnips, according to Pliny, grew in the country of the Sabines, and were worth at Rome a sestertius, or 2*d.* each. It is related that when the Samnite ambassadors visited Manlius Curius they found him cooking Turnips by the embers of his watch-fire, and when they displayed the treasures which were intended to bribe him, this great man, pointing to the pot in which his vegetables were boiling, answered with contempt, "I prefer my earthen pots to all your vessels of gold and silver; and it is my wish to command those who are in possession of money, while I am deprived of it and live in poverty."

It is most probable that the garden culture of this vegetable was introduced into this country with some others by the Romans, but I do not find any mention of it until the sixteenth century; and it has been disputed whether the cultivation of it was revived by Nature, industry, or introduced at that period by the Flemings.

In the time of Henry VIII. they were eaten baked, or roasted in the ashes, and the young shoots were used as a spring salad. During the reign of Elizabeth boiled Turnips were a favourite dish. Shakspeare makes mention of them in the *Merry Wives of Windsor* (act iii., scene 4), where "Sweet Ann Page," while resisting Master Slender's suit, appeals to her mother thus: "Good mother, do not marry me to yond fool. Alas! I had rather be set quick i' the earth and bowl'd to death with Turnips."

From the remarks of Gerard, it would appear that Turnips were not much grown in his time, except for domestic purposes. He says of this root, "It groweth in fields and divers vineyards or hop gardens in most places of England. The small Turnip groweth by a village near London, called Hackney, in a sandy ground, and are brought to the Cross in Cheapside by the women of that village to be sold, and are the best I ever tasted. The bulbus or knotted root, which is properly called rapum or Turnip, and hath given the name to the plant, is many times eaten raw, especially by the poor people in Wales, but most commonly boiled." Cogan, in his *Haven of Health*, published in 1597, says, "that although many men love to eat Turnips, yet do swine abhor them." Parkinson, who wrote in 1629, mentions them as vegetables cultivated in gardens only. In 1668 Worledge published the *Mystery of Husbandry*, in which he says, "that although Turnips be usually nourished in gardens, and be properly a garden plant, yet are they to the very great advantage of the husbandman, sown in his fields in several places in England, not only for culinary uses, as about London and other large cities, but also for food for cattle." Miller, in his *Gardeners' Dictionary*, published in 1737, describes two kinds of round Turnip, one with white and the other with purple roots; also a yellow and long-rooted sort, which, he says, was formerly more cultivated than at present, for it is now very rare to see either of these brought to the markets, though some years since they were sold in as great a plenty as the commoner kind. *Science Gossip.*

Pocket Postal Weights.—Those who are in the habit of writing letters to any extent, whether in respect of home or foreign correspondence, must sometimes feel at a loss as to the number and value of the stamps to be put upon them. Weighing balances exist in most offices and studies, no doubt, but weights get mislaid or lost, and then the writer is in a difficulty. Now, most correspondents have some money in their pockets, and this may be made a substitute for weights if people only know how to use them for the purpose. Let it be our task to tell them. As the commonest pocket weights, bronze coins may be mentioned; they are generally at hand. At the Mint one pound weight of bronze is cut into forty-eight pence. Sixteen ounces go to a pound, and, therefore, three penny pieces go to an ounce, and for home letters thee pennies in weight equal one penny stamp. One pound of bronze, again, is cut into eighty halfpence, therefore five halfpence weigh one ounce exactly, and in the scale would show that a penny stamp was needed to carry a letter of that weight or less. Ten farthings (a coin now seldom seen) are just as good. Standard silver coins are all made at the rate of sixty shillings to the pound troy. Thus five shillings weigh just below the ounce, if in good condition. Ten sixpences do the same, and the half-crown weighs a trifle less than half an ounce. Here, again, are ready-made weights for postal duty. Sovereigns are within a shade of a quarter ounce each

in weight—for foreign correspondence, then, a sovereign is just the thing. Two half-sovereigns weigh also very nearly the quarter ounce, and they meet the requirements of foreign letters too. If these facts be borne in mind no one need be long in trouble about the weight and proper number of stamps to be put upon letters. To sum up briefly the foregoing, we give the following table:—Three pennies, 1 ounce, equal to one penny postage stamp; five halfpennies weigh 1 ounce, one penny postage stamp; ten farthings, 1 ounce, one penny postage stamp; five shillings, 1 ounce, one penny postage stamp; one half-crown, ½ ounce, one extra halfpenny stamp; ten sixpences, 1 ounce, one penny stamp; one sovereign, ¼ ounce, one foreign stamp; two half-sovereigns, ¼ ounce, one foreign stamp. *London Iron Exchange.*

AMERICAN GOVERNMENT SEED BAGS.—Well, here is a "go," surely! Mr. Vick, the "irrepressible people's favourite," is authority for this statement:—"We had a laugh—how could we help it?—when we read in an order sent by the Great American Government to a seed house in London special directions to 'put the seed in papers as unlike those of American seed dealers as possible,' and 'to be sure and give the package a foreign aspect.'" These directions were thrice repeated. This is a pretty hard dose for American vanity, but here is a worse one. A few years ago the Government would select some political favourite desirous of a trip to Europe, give him several thousands of dollars for expenses, and something more to invest in seeds. This American seed ambassador on the way, or on reaching Europe, would inquire for a leading seed house, tell the proprietor he had a certain amount to spend for seeds suited to American culture, look over a seed catalogue for half an hour, leave his money, order the seeds to be shipped to Washington as soon as ready, and then leave for a good time on the Continent. A story is told in London that one of these Government seed buyers entered a London seed shop while smoking a cigar, and rather lazily lounged on the edge of an open barrel of onion seed, when, happening to cast his eye down, he started in alarm, exclaiming, after a word or two that we shall not print, "I didn't know you kept gunpowder exposed in this careless way." Things now are a little different. The leading English, and some of the French seed houses, send over what we call "drummers," but what they call commercial travellers, to solicit orders; and the first point these men make for on their arrival is the Government seed shop at Washington, where they expect to make a good trade. *American Horticulturist.*

Answers to Correspondents.

MOLES AS VEGETARIANS (Q. 14, p. 471).—I have known moles eat up through the stem of Savoys into the heart of the head in severe winters, before the head was cut, the hole in the stem upwards being as evenly bored as the barrel of a gun. I know of no other instance of their eating vegetables. *A Gardener Down West.*

BOOKS: *Old Subscriber.* Apply to some second-hand bookseller, such as Quarritch, Piccadilly, or Wheldon, Great Queen Street. The book is now scarce.

CHRYSANTHEMUM SPORTS: *H. M. T.* There is nothing unusual in your white variety showing a rosy pink flower on the same shoot. Few plants are more addicted to "sporting" than the Chrysanthemum.

CURRANTS: *E. Turner.* Any time between now and Christmas will suit well for planting Currants. The two best black varieties are Lee's Prolific and Black Naples, but there is not much distinction, and the same may be said of the red. As you ask for variety, however, we name the following:—1, Wilmot's Large Red; 2, Knight's Large Red; 3, Orangefield; 4, Raby Castle; 5, La Versaillaise; 6, Red Dutch.

DARJEELING TEA: *Pelargonium.* Try Fortnum & Mason's, in Piccadilly.

EARLY SMYRNA GRAPE: *A. B. P.* The small berries have not been set, *i.e.*, fertilised, and consequently have not swelled or become properly developed. A little more care in setting the flowers, in applying pollen with a camel's-hair brush, or something of that sort, and you will overcome this difficulty.

ESCALLONIA AND EUONYMUS: *Sigma.* Propagate the Escallonia by cuttings taken off in autumn, when the wood is ripe, and inserted in sand under a bell-glass. Treat the Euonymus in the same way.

FUNGUS: *Amptill.* Only Scleroderma vulgare, very ripe and very mouldy. It is a common terrestrial fungus, and not subterranean.—*J. Horwood.* Peziza aurantia.

GROS COLMAN GRAPE: *A. B. P.* This is a late variety, and takes long to colour and ripen. A little more heat would assist it, or it may be too heavily cropped. Too much fruit for the quantity of leaves.

HORTICULTURAL SOCIETIES: *G. G. G.* All depends upon the rules made for the regulation and management of exhibitions, but the Society is bound in honour to take every reasonable care of the exhibits.

INSECTS: *J. B.* The insects which have proved so injurious to your Wheat ricks are the well known Noctua (caradrina) cubicularis. It would be beneficial to subject the grain to the action of heat, a plan which has proved of great service against the corn weevil. Of course the Wheat should not be allowed to stand long in stack after being harvested. *I. O. W.*

MUSHROOM SPAWN: *One of Our Readers.* We are afraid you would have to make a market for it by advertising in the horticultural papers.

NAMES OF FRUITS: *R. W. B. Apples:* 3, Franklin's Golden Pippin; 4, Red Astrachan; 5, Rosemary Russet.—*H. Raymond Barker. Apples:* 1, Scarlet Nonpareil; 2, King of the Pippins; 3, Cat's Head; 5, Margil; 9, Blenheim Orange. *Pears:* 12, Franc Real d'Hiver.—*Walter Dawson.* 1, Emperor Alexander; 25, Fearn's Pippin; 29, Burr Knot; 31, Blenheim Orange; 33, Cellini.—*Brownslade.* 1, Nonsuch; 2, Ribston Pippin; 3, Hollandbury; 6, Gravenstein; 7, Hawthornden; 10, Emperor Alexander.—*Fawcett.* 6, Gravenstein; 4, not known.—*J. G.* 1, Beurré Rance; 2, Duchesse d'Angoulême; 3, Beurré Diel; 4, Gansel's Bergamot; 5, not known, a very poor sort; 6, Beurré Hardy.—*G. F. Apples:* 2, Scarlet Nonpareil. *Pears:* 1 and 3, Glou Morceau; 2, Beurré Rance; 4, Passe Colmar; 5, Calebasse; 6, Bergamotte d'Esperen.—*George A. Clark. Apples:* 2 and 3, Blenheim Orange; 5, Scarlet Nonpareil; 6, Cornish Gilliflower. *Pears:* 1, Grosse Calabasse; 4, Napoléon.—*J. Innis. Apples:* 6, Augustus Pearmain; 7, Golden Harvey; 9, Hawthornden; 10, Ribston Pippin; 15, Mère de Ménage. *Pear:* 13, Beurré de Capiaumont.—*J. E. H.* 2, Minchull Crab; 2, Court-pendu Plat; 6 and 10, Dumelow's Seedling; 49, Broad Winter Nonsuch.—*F. Miller. Apples:* 1, Court of Wick; 2, not known; 3, D'Eclat; 4, rotten. *Pear:* Winter Crassane.—*C. H. B.* 1, Vicar of Winkfield; 2, Knight's Monarch; 6, Glou Morceau; others not known.—*W. D. Pears:* 1, Beurré Clairgeau; 3, Beurré de Capiaumont; others not known.—*M. & K. Apple:* Gloria Mundi.—*R. H. V.* Your seedling Apple is considered very poor, and very similar to Mank's Codlin.

NAMES OF PLANTS: *J. A.* 1, Gardenia citriodora; 2, Cyrtoceras reflexum.—*J. D.* Cistus albidus var.—*J. M.* Pittosporum tenuifolium.—*W. Clarson.* Nyssa multiflora.—*J. H.* 1, Bryonia dioica; 2, Ceanothus azureus; 3, Sedum sp., indeterminable without flowers; 4, Euonymus radicans variegata.—*J. W. Shaw.* Salvia fulgens.

PASSION-FLOWERS: *Constant Reader.* P. cœrulea. P. Newmanni is also very good for the purpose.

ROSE SEED FROM ITALY: *S. G.* You cannot do better than sow your Rose seed in January, in a border, or bed, out-of-doors. It is very unlikely that the offspring will be the same as the parent. Should it prove so, you may increase it by budding, after flowering. To be sure of obtaining the identical sort from which the seed was gathered, you should obtain plants, or buds, or grafts, as seedling Roses diverge widely from the parent.

SYCAMORE: *E. Sang & Sons.* Your Oak (not Sycamore) leaf is covered with spangles, which are commonly met with, and are the work of insects.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

CATALOGUES RECEIVED.—H. Lane & Sons (The Nurseries, Great Berkampstead, Herts), Catalogue of Roses, Fruit Trees, American Plants, Deciduous and Evergreen Trees and Shrubs, Camellias, &c.—L. Jacob-Makoy & Co. (Horticulturists, Liége, Belgium), Price List of New and Rare Plants, Orchids, Palms, Azaleas, Camellias, Liliums, &c.—Jean Verschaffelt (134, Faubourg de Bruxelles, Ghent, Belgium), Supplement and extra Catalogue of Plants.—William Knight (Hailsham, Sussex), General Catalogue of Nursery Stock.—George Prince (14, Market Street, Oxford), Descriptive Catalogue of Roses grown on the Cultivated Seedling Briar.—J. C. Wheeler & Son (Gloucester, and 59, Mark Lane, London, E.C.), Descriptive Catalogue of Roses, Fruit Trees, and Evergreen Shrubs.

COMMUNICATIONS RECEIVED.—C. C. H. G.—J. C.—J. C. E.—A. G.—A Subscriber.—W. T. P.—J. Gray.—J. E. H.—E. W.—J. E. E.—H. Bryant.—W. H. B.—D. A.—W. Young.—G. L. S. (we must ask your indulgence for a week or two).—Inquisitive.—J. S.—T. G.—G. T. (Antibes).—R. T. S.

Markets.

COVENT GARDEN, October 22.

We have nothing fresh to report, business being still very languid, and a good supply of both foreign and English produce prevents any advance in prices. Large stocks of Portugal Grapes are accumulating, and should they keep in fair condition, promise low figures during the winter. *Thos. Taylor, Wholesale Apple Market.*

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Asters, per doz. bun.	4 0– 6 0	Mignonette, 12 bun.	2 0– 6 0
Camellias, doz. bun.	4 0–12 0	Pelargoniums, per 12 sprays	0 6– 1 0
Carnations, doz. bun.	6 0– 9 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Corn-flower, doz. bun.	3 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Dahlias, p. doz. bun.	3 0– 6 0	— Outdoor, do.	0 4– 1 0
Eucharis, per doz.	4 0– 9 0	Spiræa, per 12 sprays	1 0– 2 6
Eschscholtzia, 12 bun.	2 0– 6 0	Stephanotis, 12 sprays	5 0– 9 0
Gardenias, p. doz.	3 0– 9 0	Tuberoses, p. doz.	1 0– 2 0
Gladiolus, doz. sprays	1 0– 2 0	Violets, p. doz. bun.	0 9– 1 6
Heliotropes, per doz. sprays	– 0 6		

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Asters, per dozen	4 0– 8 0	Fuchsia, per dozen	4 0–12 0
Begonias, do.	6 0–12 0	Heaths, in var., do.	12 0–30 0
Bouvardias do.	9 0–18 0	Liliums, in var., each	1 0– 3 6
Coleus, p. doz.	3 0– 9 0	Mignonette, per doz.	4 0– 6 0
Chrysanthemums, p. dozen	4 0– 9 0	Myrtles do.	3 0– 9 0
Cyperus, per dozen	6 0–12 0	Pelargoniums, dble., per doz.	4 0– 9 0
Dracæna terminalis	12 0–30 0	— Scarlet, per doz.	3 0– 9 0
— viridis, per doz.	12 0–24 0	Primula sinensis	4 0– 8 0
Ficus elastica	1 6– 7 6	Solanums, per doz.	6 0–18 0

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Oranges, p. 100	10 0–15 0
Filberts, per lb.	1 0– 1 6	Peaches, p. doz.	8 0–15 0
Grapes, English, p. lb.	2 0– 6 0	Pears, p. doz.	2 0– 3 6
— Muscats, do.	2 6– 6 0	Pine-apples, p lb.	3 0– 6 0
Lemons, per 100	10 0–15 0	Plums, ½-sieve	2 0– 3 6
Melons, each	2 0– 6 0	Walnuts, p. bush.	16 0– ..
Nuts, Cob, p. lb.	1 0– 1 6		

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Beans, Scarlet, bush.	3 0– 5 0	Mint (green), p. bun.	0 6– ..
Beet, per doz.	1 0– 2 0	Mushrooms, per pott.	1 0– 2 6
Broccoli, p. bundle	0 9– 1 6	Onions, young, bun.	0 4– 0 6
Brus. Sprts., p. bush.	5 0– ..	Parsley, per bunch	0 4– 0 6
Cabbages, per doz.	1 0– 2 0	Parsnips, p. doz.	0 9– 1 0
Carrots, new, p. bun.	0 4– 0 6	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	— black, Turnip, do.	– 0 6
Celery, per bundle	1 6– 2 0	Shallots, per lb.	0 3– ..
Cucumbers, each	0 6– 1 0	Salsify, per bundle	1 6– ..
Endive, per doz.	1 0– 2 0	Spinach, per bush.	2 0– 3 0
Herbs, per bunch	0 2– 0 4	Tomatos, per doz.	1 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Turnips, per bundle	0 3– 0 4
Leeks, per bunch	0 2– 0 4	Veg. Marrows, doz.	1 6– 2 0

New Potatos:—Round, 60s. to 90s. per ton; Kidneys, 90s. to 120s. per ton.

SEEDS.

LONDON: *Oct.* 23.—Our seed trade remains in pretty much the position noted in our last, the business doing being very limited. Clover seeds of all kinds are at present quite neglected. Occasional orders drop in for winter Tares, which are executed at full rates: the supply is now very nearly exhausted. Canary seed, notwithstanding its high price, continues in good request. For Hemp seed we have a moderate demand. White Mustard shows no change since our last; brown seed, however, meets with an improved inquiry. Windsor Beans are scarce, and experience a ready sale. Of Long Pods the samples offering are very fair in quality, and the prices asked moderate. English Linseed now excites more attention. Rape seed keeps steady at the low values lately reached. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

The demand for Wheat at Monday's market was inactive, at previous prices. Foreign was rather firmly held, but not a ready sale. The flour trade was dull, and the rates about the same as before. Grinding Barley was rather lower on the week; secondary malting also easier, but prime steady. Beans were firm, at late rates; Peas in steady request; Oats in moderate sale, at about last Monday's rates; Maize quiet and unchanged.—Business in Wheat remained dull on Wednesday; the show of English was comparatively small, and there was a slight downward movement perceptible in foreign. Barley was not readily dealt in, and inferior kinds were rather weak. Malt was weaker, and the few dealings that occurred in Oats and Maize, Beans and Peas, were at the rates current on Monday. Flour was quiet, though a little steadier in tone.—Average prices of corn for the week ending October 17:—Wheat, 43*s.* 10*d.*; Barley, 42*s.* 8*d.*; Oats, 27*s.* 2*d.* For the corresponding week last year:—Wheat, 60*s.* 2*d.*; Barley, 43*s.* 1*d.*; Oats, 24*s.* 2*d.*

CATTLE.

At the market on Monday there were but few really prime beasts, and they sold steadily. Middling and inferior stock met an extremely dull sale, but showed no appreciable change in value. A moderate demand prevailed for sheep, at better prices than on Thursday last. The number of calves was small, and made slightly better prices, but not without difficulty. Quotations:—Beasts, 4*s.* to 6*s.* 4*d.*; calves, 4*s.* to 5*s.* 4*d.*; sheep, 4*s.* 10*d.* to 6*s.*—On Thursday a clearance of beasts was readily effected, at fully Monday's quotations. Trade in sheep was not very brisk, but prices did not alter. Good calves were scarce and dear. For milch cows trade was dull, at late rates.

HAY.

The supply of meadow hay at Whitechapel market has been short, and the value of that class of fodder advanced 2*s.* per load, but no change occurred on other descriptions. Prime Clover made from 100*s.* to 130*s.*; inferior do., 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 112*s.*; inferior do., 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load. Cumberland Market quotations:—Superior meadow hay, 115*s.* to 123*s.*; inferior do., 90*s.* to 105*s.*; superior Clover, 120*s.* to 130*s.*; inferior do., 90*s.* to 108*s.*; and straw, 38*s.* to 43*s.* per load.

POTATOS.

The arrivals of Potatos at the Borough and Spitalfields markets have increased, and a fair business is doing at the former prices:—Regents, 70*s.* to 90*s.*; rocks, 60*s.* to 70*s.*; and kidneys, 100*s.* to 120*s.* per ton. The imports into London last week amounted to 4140 bags from Antwerp, 10 baskets from Rotterdam, 18 Hamburg, 100 Brussels, and 577 bags from Ternenzen.

NEW ROSES for 1874, GLADIOLI, &c.—The following varieties of Roses, all of the first order, are from the Nurseries of the Horticultural Establishment of EUGENE VERDIER, FILS AINÉ, and selection can be made from a stock of nearly 25,000 plants :—

H.P. Bernard Verlot
,, Frederick Wood
,, Henry Ward Beecher
,, La Souveraine
,, Mdlle. Ilona de Adarjon
May Turner
,, Monsieur E. Y. Teas
H.P. Princesse Antoinette Strozzio
,, Souvenir de Charles Sumner
,, Souvenir de Duche
H. (not P.) Mdme. Rivière (gratis).

All other French varieties are also to be obtained.

CATALOGUES, with names, descriptions, prices, and mode of forwarding, will be sent, together with a Special CATALOGUE of GLADIOLI (which are sold by the hundred or thousand of each variety), post free, to all who may apply to

EUGÈNE VERDIER, FILS AINÉ, Horticulturist, 72, Rue Dunois, Gare d'Ivry, Paris.

French Roses.—6000 Paul Neyron Roses for Sale.

L. PAILLET, NURSERYMAN, Chatenay lez Sceaux, near Paris, established 1827, begs to offer a splendid lot of the fine ROSE, PAUL NEYRON, at the following prices :—Standards, £6 per 100, £55 per 1000 ; Half or Dwarf Standards, £5 per 100 ; Dwarfs, £4 per 100, £35 per 1000.

L. PAILLET begs also to offer for the present season a very large stock of ROSES of every kind, at the following prices :—Fine Standards, £5 per 100, £45 per 1000 ; Half or Dwarf Standards, £4 per 100, £35 per 1000 ; Dwarfs, £2 per 100, £19 per 1000 ; own roots, 1-yr., £1 15s. per 100, £16 per 1000 ; own roots, 2-yr., fine, £2 5s. per 100, £20 per 1000 ; own roots, Souvenir de la Malmaison, strong, £1 15s. to £2 5s. per 100, £16 to £20 per 1000 ; Bengals, assorted, four of the best sorts, £6 per 1000. L. PAILLET will deliver any of these free to London, packing included, for cash on delivery, for an additional 10s. per 100 for Standards and Half or Dwarf Standards, and 6s. per 100 for Dwarfs and own roots.

Large quantities of FRUIT TREE STOCK, such as Quince, Pears, 1 and 2-yr., Apples from seed, Doucin and Paradise Apple, Plums, Mahaleb, Cherry stocks ; also large quantities of ORNAMENTAL TREES and SHRUBS. Prices and Catalogues sent on application.

ACACIAS, 1 and 2-yr., in large quantities.
POTATO, Early Rose, £6 12s. per 1000 lb.
WELLINGTONIA GIGANTEA PENDULA, new varieties, from 16s. to 28s. each.

Orders must be sent to

L. PAILLET, or to his Agents, Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.

JACKMAN'S LIST of FRUIT TREES.

JACKMAN'S LIST of ROSES.

JACKMAN'S LIST of AMERICAN PLANTS.

JACKMAN'S LIST of CONIFERS.

JACKMAN'S LIST of HARDY SHRUBS.

JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.

JACKMAN'S LIST of CLEMATIS (Special Catalogue).

JACKMAN'S LIST of TRANSPLANTED FOREST TREES.

JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.

GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality :—

MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 ft.
CHESTNUTS, Common Horse, and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.

Woking Nursery, Surrey, S.W.

LANDSCAPE GARDENING.—Pleasure Grounds and Parks LANDSCAPED to the best advantage. Neglected Gardens Re-modelled in a Natural or Formal Style according to the taste of the owner. Large or small places undertaken on the same terms, which are moderate. A visit of one day only made, if wished, for giving Suggestions prior to the Alteration of any Grounds. A New Principle of Garden Arrangement advocated in a Treatise just published, free.

HENRY W. COOPER, F.R.H.S., Flutter's-hill, Chertsey.

WANTED, on LEASE or OTHERWISE, within a few miles of London, a PIECE of LAND and a good Range or Ranges of GLASS-HOUSES suitable for Fruit Growing. Apply, stating full particulars, to

A. D., 16, Queen Adelaide Road, Penge, S.E.

Evening Lectures to Working Men.

ROYAL SCHOOL of MINES.—The FIRST COURSE of the Session, consisting of SIX LECTURES, by Dr. Frankland, F.R.S., "On the First Principles of Chemistry," will be delivered at the South Kensington Museum, and will be commenced on MONDAY, November 2, at 8 o'Clock. Tickets may be obtained at the Geological Museum, Jermyn Street, by Working Men only, on Monday Evening, October 26, from 7 to 10 o'Clock, on payment of 6d. Only one ticket can be issued to each applicant, who is requested to bring his name, address, and occupation written on a piece of paper, for which the ticket wil be exchanged.

TRENHAM IREEKS, Registrar.

JOHN WEST, DECEASED.—Pursuant to the Act of Parliament, 22d and 23d Victoria, c. 35, intituled "An Act to further Amend the Law of Property, and to Relieve Trustees," NOTICE IS HEREBY GIVEN that all the Creditors and other Persons having any Claims, Debts, or Demands against or affecting the Estate of JOHN WEST, late of Green Lanes, Stoke Newington, in the County of Middlesex, Nurseryman (who died on the 7th day of July, 1874, and whose Will was proved on the 9th day of October, 1874, in the principal Registry of Her Majesty's Court of Probate, by Samuel Woolcott and John Whitcher, the Executors therein named), are hereby required to send in to the Executors, at the Office of the undersigned Thomas Gregory, the Solicitor of the said Executors, situate at No. 18, Clement's Inn, Strand, London, on or before the 28th day of November, 1874, the full particulars in writing of their Claims against the Estate, and of their Securities (if any) held by them ; and that the said Executors will, after that day, proceed to distribute the Assets of the said deceased amongst the Parties entitled thereto, having regard only to the Debts, Claims, or Demands of which the said Executors shall then have had Notice ; and that they will not be liable for the Assets, or any part thereof so distributed, to any Person of whose Claim the said Executors shall not then have had Notice.

Dated this 17th day of October, 1874.

THOMAS GREGORY,
18, Clements Inn, Strand, London,
Solicitor for the said Executors.

Loam, Loam, Loam.

THE TOP SPIT of a MEADOW, delivered at Bexley Railway Station, at 5s. per yard. Sample and Testimonials on application to

J. ELLINGHAM, Bexley Heath, Kent.

THE LONDON MANURE COMPANY (ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

Autumn Sowing.

ODAMS' MANURES, Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.

Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

MILDEW

May be entirely prevented as well as cured by

EWING'S INFALLIBLE COMPOSITION. Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1s. 6d. p. bottle, with full directions for use.

Russia Mat Merchants.

MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., IMPORTERS of ARCHANGEL MATS. Large stock of heavy ST. PETERSBURG and close-woven MATS now arrived.

N.B.—Heavy St. Petersburg are best for coveting purposes.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100s. ; Petersburg, 60s. and 80s. ; superior close Mat, 45s., 50s., and 55s. ; packing Mats, 20s., 30s., and 35s. per 100 ; and every other description of Mats at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton, and the late Professor Lindley, &c., &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.

PROTECTION FROM COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 4d. per yard.

"FRIGI DOMO" CANVAS.

Two yards wide	1s. 10d. per yard run.
Three yards wide	3s. per yard.
Four yards wide	3s. 10d. per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E. ; and of all Florists and Seedsmen. All goods carriage paid to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

GARDEN TARPAULINGS, 24s. per dozen ; size, 6 by 4 ; with cords and eyelet-holes. Other sizes at the rate of 9d. per square yard. They are made from second-hand railway-truck covers, and are re-dressed. Excellent POLICE CAPES, 36s. per dozen ; DRIVING APRONS, 8s. ; Large WATERPROOF CAPES, 4s. 6d. ; LEGGINGS, 2s.

R. RICHARDSON, 99, Euston Road, N.W.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application ; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Manures, Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of

POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of

CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C. ; and Steam Plough Works, Leeds.

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior ; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	3s. 4½d.
3-inch Pipe, per yard	2s. 8½d.
2-inch Pipe, per yard	1s. 8d.

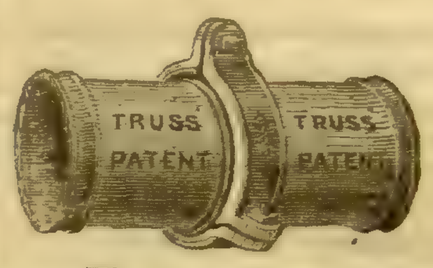
Connections at proportionate prices.

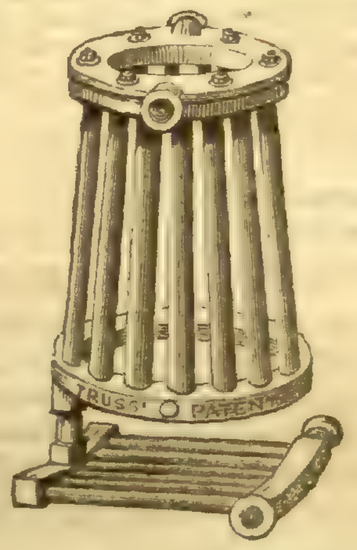
Illustrated Price List free on application to

T. G. MESSENGER, Hot-water Engineer, Loughborough.

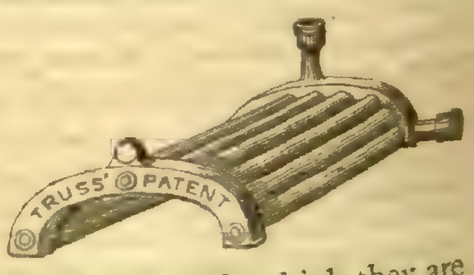
HOT-WATER APPARATUSES.

CONSERVATORIES,
HOTHOUSES, CHURCHES,
PUBLIC BUILDINGS,
PRIVATE RESIDENCES,
&c.,





HEATED WITH
TRUSS' PATENT PIPES
AND BOILERS,
Complete with Universal, Flexible, and Leakless Joints.

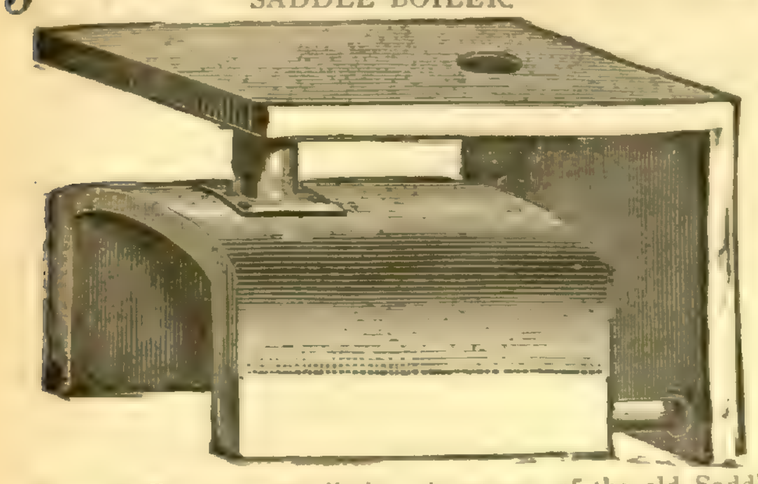


The prominent advantages of these Pipes and Joints are the rapidity with which they are fixed, dispensing entirely with the tedious, expensive, and insecure socket or flange jointing, the facility for alterations or removal of apparatus, with a considerable saving in cost in comparison with any other system.

First-class Workmen kept for Fixing Apparatus complete in any part of the Kingdom.

SOLE PROPRIETORS AND MANUFACTURERS—
C. AND F. SANDERSON, IRON and BRASS FOUNDERS, MANSFIELD, NOTTS.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0
30 ,,	30 ,,	72 ,,	2,600	35	0	0
36 ,,	36 ,,	96 ,,	4,500	50	0	0
48 ,,	48 ,,	108 ,,	7,000	75	0	0
48 ,,	48 ,,	144 ,,	10,000	100	0	0

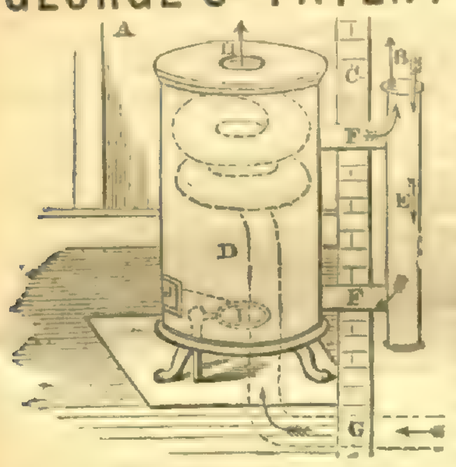
And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

GEORGE'S PATENT CALORIGEN,

FOR WARMING AND VENTILATING.



COAL CALORIGEN, £6 6s.
Height, 36 inches; diameter, 21 inches.
GAS CALORIGEN, £3 3s.
Height, 28 inches; diameter, 14 inches.

The only Gas Stove which retains the whole of the heat given off by the gas without vitiating the atmosphere. The "Coal Stove" consumes the smallest amount of Fuel—*ad.* per diem being the average cost. It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).

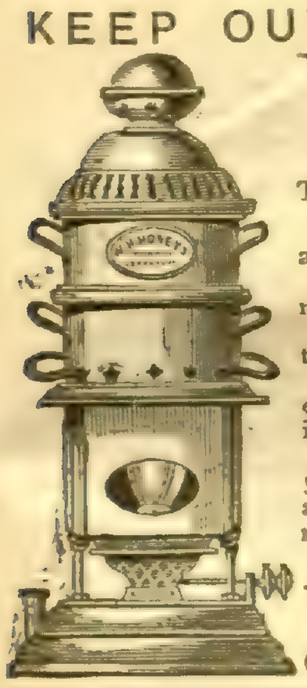
Illustrated Prospectuses and Testimonials on application.

J. F. FARWIG AND CO., 36, Queen Street, Cheapside, E.C.

This Stove introduces a strong current of warmed (not burnt) fresh air.

ESTABLISHED 1856.

KEEP OUT THE FROST.



WILLIAM H. HONEY'S PORTABLE VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

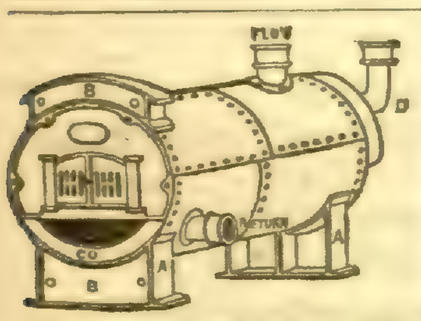
They will not injure the most tender exotics, nor are they in any way injurious to the health.

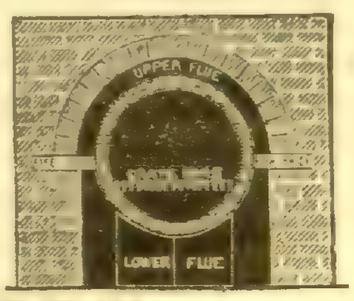
Prices, in block tin, 30s.; in copper, 50s. Copper, with glass, to give light and heat, 55s. Either will be sent on receipt of Post-office Order.

To be seen in operation at

WILLIAM H. HONEY,
263, REGENT STREET, W.

Catalogue free. No agents appointed.





STEVENS' TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

W. H. LASCELLES, HORTICULTURAL BUILDER,

Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS,

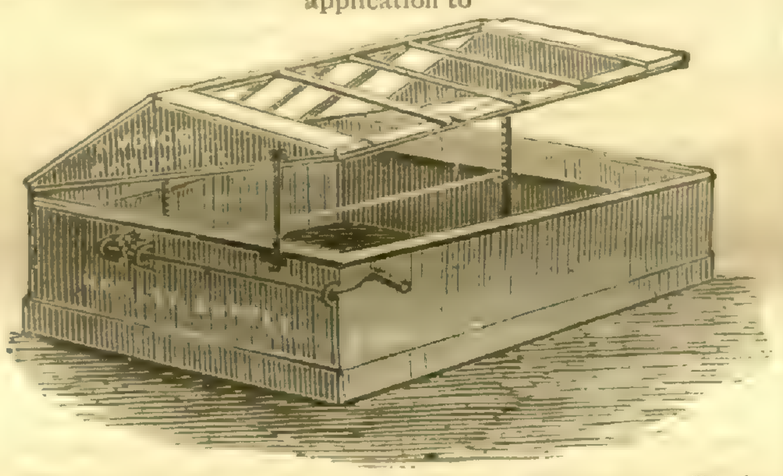
353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

GALVANISED WROUGHT IRON

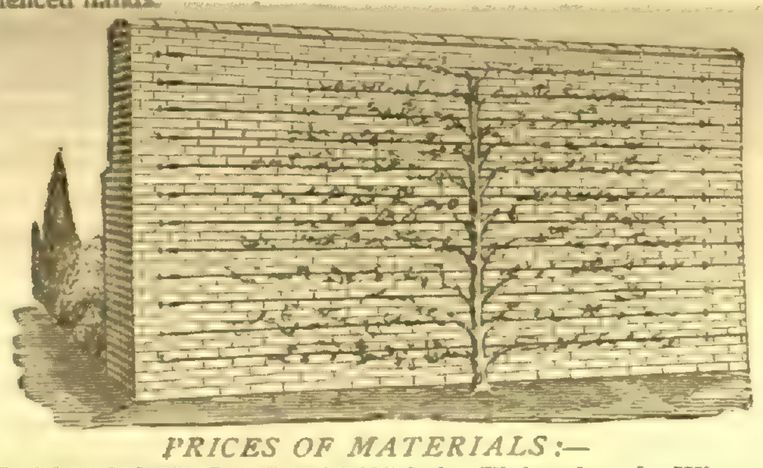
FITTINGS for WIRING WALLS,

For the Purpose of Training Fruit Trees

ON THE FRENCH SYSTEM,

and as recommended by Mr. W. ROBINSON, F.L.S., in his new work, "The Parks, Promenades, and Gardens of Paris."

By this system nails and shreds are entirely dispensed with, the walls are not injured, and no harbour is afforded to small insects. The Tying of the Fruit Trees is effected in one-fifth of the time required by the old system. The arrangement is so simple, that it can easily be applied to any Walls by inexperienced hands.



PRICES OF MATERIALS:—

GALVANISED RAIDISSEURS for Tightening the Wires. One of these required for each Line of Wire.

No. 900. 4s. per doz.

GALVANISED WALL EYES, 6*d.* per dozen.
GALVANISED TERMINATING HOLDFASTS, 2s. per doz.
GALVANISED WIRE, 2s. 6*d.* and 3s. per 100 yards.

ILLUSTRATED LISTS, with full particulars of the above, and of FITTINGS for ESPALIER TRAINERS, on very economical principles, free on application to

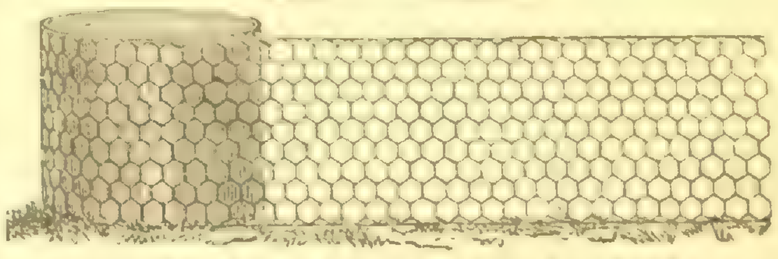
BARNARD, BISHOP & BARNARDS,
NORFOLK IRONWORKS, NORWICH.

Messrs. J. B. Brown & Co.'s VIENNA PRIZE WIRE NETTING.

THE MEDAL FOR MERIT
At the Vienna Universal Exhibition, 1873,

Was awarded to Messrs. J. B. Brown & Co., for "excellence and perfection in material and

workmanship, large extent of production, and cheapness of produce."



Prices per Lineal Yard, 24 inches high:—

Size of Mesh.	Mostly used for	Gauge.	Or Light Quality.		Gauge.	Or Medium Quality.		Gauge.	Or Strong Quality.	
			s.	d.		s.	d.		s.	d.
2 in.	Dogs or Poultry	19	0	3¾	18	0	4½	17	0	5¾
1⅝ in.	Small Rabbits, &c.	19	0	4¼	18	0	5¼	17	0	6¼
1½ in.	Smallest Rabbits	19	0	5¼	18	0	6¼	17	0	8

*** Circulars, with Prices and further particulars of Wire Netting, also of Iron Fencing, Espalier and other Materials for Wiring Garden Walls for Fruit Trees on the French System, on application.

Messrs. J. B. BROWN & CO.,
Offices—90, CANNON STREET, LONDON.

Garden Wall Wiring.

R. HOLLIDAY, PRACTICAL WIREWORKER,

2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.

For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.

Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

Labels—Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3s. 6*d.* per 1000, or 30s. per 10,000; if eyeleted, 4s. per 1000. Vellum Cartridge, 4 inches long, 3s. per 1000 for 10,000. Sample Labels sent on receipt of Postage Stamp. Orders delivered free in London.

JOHN FISHER AND CO., Label Works, Boston.

SPECIAL NOTICE.

F. K. BELL'S

IMPERISHABLE METAL LABELS FOR HORTICULTURE, WINE BINS, ARBORICULTURE AND MACHINERY.

THE ORIGINAL MANUFACTORY

of these Labels (which have given such general satisfaction throughout the United Kingdom) has been removed ENTIRELY from Stratford-on-Avon to

EASTBOURNE, SUSSEX,

Where all Orders should be addressed, and shall receive prompt attention. Catalogues and samples on application.

F. K. BELL,
LABEL FACTORY, EASTBOURNE.

The Improved Imperishable Labels!!!
IMPORTANT NOTICE.

J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.

J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose. The Labels are made of a white metal with RAISED BLACK-FACED LETTERS.

All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars, and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.
HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

GREENHOUSES ERECTED in any part of England, including Brickwork and Hot-water Apparatus complete. *No extras.* Plans and estimates free on receipt of size required, to R. STEVENS, Horticultural Builder and Hot-water Engineer, Bromley, Kent.

The Royal Pottery, Weston-super-Mare.

UNDER ROYAL PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.

JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS's Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,
THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

AGRICULTURAL LOCOMOTIVES,

STEAM PLOUGHING MACHINERY,
ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES,
STEAM ROAD ROLLERS.

For Prices, Description, and Reports of Working, apply to the Manufacturers,

AVELING & PORTER,

ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents,
59, Fleet Street, E.C.

Every Saturday, price 4d., by Post, 4½d.

NOTES AND QUERIES:

A MEDIUM OF INTERCOMMUNICATION FOR LITERARY MEN, ARTISTS, ANTIQUARIES, GENEALOGISTS, &c.

Edited by Dr. DORAN, F.S.A.

"When found, make a note of."—CAPTAIN CUTTLE.

CONTAINING EVERY WEEK AMUSING ARTICLES ON SOME OF THE FOLLOWING SUBJECTS:—

ENGLISH, IRISH, and SCOTTISH HISTORY, Illustrated by original Communications and inedited Documents.
BIOGRAPHY, including unpublished Correspondence of eminent Men, and unrecorded Facts connected with them.
BIBLIOGRAPHY, more especially of English Authors, with Notices of rare and unknown Editions of their Works, and Notes on Authorship of Anonymous Books.
POPULAR ANTIQUITIES and FOLK LORE, preserving the fast-fading relics of the old Mythologies.
BALLADS and Old Poetry, with Historical and Philological Illustrations.
POPULAR and PROVERBIAL SAYINGS, their origin, meaning, and application.
PHILOLOGY, including Local Dialects, Archaisms, and Notes on our old Poets.
GENEALOGY and HERALDRY, including Histories of Old Families, Completion of Pedigrees, &c.
MISCELLANEOUS NOTES, QUERIES, and REPLIES, on points of Ecclesiastical History, Topography, Fine Arts, Natural History, Miscellaneous Antiquities, Numismatics, Photography, &c.

NOTICE.—The FOURTH SERIES is now complete, in Twelve Volumes. A New Series, the FIFTH, commenced with SATURDAY, January, 3, 1874. As many of the Numbers are scarce, subscribers desirous of completing their Sets should order at once the Numbers required.

GENERAL INDEX to the Second Series may be had, price 5*s.* 6*d.*
GENERAL INDEX to the Fourth Series, price 6*s.*, now ready.
COVERS for BINDING now ready, 1*s.* each; by post, 1*s.* 2*d.*
Vol. I., Fifth Series, JANUARY to JUNE, 1874, price 10*s.* 6*d.*, cloth.

Published by JOHN FRANCIS, at 20, WELLINGTON STREET, STRAND, W.C.,
And may be had by Order of all Booksellers and Newsmen.

THE AGRICULTURAL GAZETTE,
SATURDAY, OCTOBER 24, 1874,

Contains—

ORIGINAL ARTICLES on Fatting Cattle—Mangels—A "Commended" Farm—Scab in Sheep—The Cattle Diseases Act—Agricultural Machinery (Illustrated)—Selection of Poultry for Stock and Show—Cruelty to Poultry—Introducing Ligurian Bee Queens—Honey Extractor (Illustrated)—Care of Stock—Advice to Labourers—Beet Sugar in France—Ditches and Drains (Illustrated)—Agricultural Labourers in Devonshire—Coursing—Shorthorn Breeding—A Cool Dairy (with Illustrations)—"Poor Permanent Pasture"—Farming in Wales (Cow Plots)—A Plea for Fresh Air, &c.

HOME AND FOREIGN CORRESPONDENCE on the The Contenst of the *Agricultural Gazette*—Steam Ploughing—Tenant Right—Farming in Wales—Steam Cultivation (the Contract System)—"A Tenant-Right Bill"—Emigration to Canada—Notes from Germany, &c.

FARM NOTES AND MEMORANDA from various Counties in Great Britain.

REPORTS OF SOCIETIES, FARMERS' CLUBS, &c.

ALSO—

The Veterinarian—The Poultry Yard—The Garden of the Farm—The Beekeeper—The Weather—Reports of Markets, Notices of Books, &c.

Price 4*d*.; post free, 4½*d*. Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

New Works by the Rev. J. G. Wood, M.A.
Author of "Homes without Hands," &c.

OUT of DOORS; a Selection of Original Articles on Practical Natural History, uniform with "Strange Dwellings" by the same Author; with Six Illustrations from Original Designs engraved on Wood by G. PEARSON. Crown 8vo. Price 7*s*. 6*d*. cloth. [*On November* 2.

INSECTS ABROAD; a Popular Account of Foreign Insects, their Structure, Habits, and Transformations. With 600 Figures by E. A. SMITH and J. B. ZWECKER, engraved on Wood by G. PEARSON. Forming a Sequel or Companion Volume to "Insects at Home" by the same Author. 8vo. Price 21*s*. cloth. [*On November* 2.

London: LONGMANS AND CO.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

Just Published.
How, When, and What to Plant.

"THE HEATHERSIDE MANUAL," being an Alphabetical Catalogue of all the Hardy Trees and Shrubs most worthy of Cultivation, containing ample instructions as to How, When, and What to Plant. By AUGUSTUS MONGREDIEN, Author of "Trees and Shrubs for English Plantations." 115 pages. 8vo. Price 1*s*.; post free for 13 stamps.

London: Heatherside London Depot, 28, Queen Victoria Street, E.C.

On October 10, Fifth Edition, considerably Extended, with 40 Wood Engravings, Frontispiece, and 8 new Panoramic Maps, post 8vo, 12*s*. 6*d*.

WINTER and SPRING on the SHORES of the MEDITERRANEAN; or, the Rivieras, Italy, Spain, Greece, Constantinople, the Archipelago, Corsica, Sicily, Sardinia, Algeria, Tunis, Smyrna, with Biarritz and Arcachon, as Winter Climates. By Dr. HENRY BENNET.

J. AND A. CHURCHILL, New Burlington Street, W.

Belgian.

BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAICHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid 10*s*. per annum.

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d*. per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

VACANT.—The PROFESSORSHIP of NATURAL HISTORY at the Agricultural College, Cirencester. The Professor will have to Lecture on Botany and Geology, and to assist in the Discipline of the College. The duties will commence in the second week of February, 1875.—Apply to the Rev. the Principal.

H. APPLEBY begs to inform the numerous Applicants for the FOREMAN'S SITUATION at DENBIES, that Mr. MALVON, late at the Gardens, Poles, has got the appointment.—H. APPLEBY, Box Hill Nursery, Dorking.

WANTED, a GARDENER (HEAD) for a moderate-sized place; a middle-aged Man, married, and without family, preferred. Wages 25*s*. per week, free house and coals.—Apply, with full particulars and references, to Messrs. F. AND A. DICKSON AND SONS, Seed Merchants, &c., 106, Eastgate Street, Chester.

WANTED, next month, a Married Man, under 40 years of age, as HEAD GARDENER, who thoroughly understands the Flower and Vegetable Garden; his Wife as LAUNDRESS. None need apply whose characters will not bear the most searching inquiries as to honesty, sobriety, and general competency.—WILLIAM PAUL, Paul's Nurseries, Waltham Cross, Herts

WANTED, by a Gentleman, as GARDENER, a single Man, not under twenty-three, who has been in a Gentleman's Garden, and who understands thoroughly the Management of Flower and Kitchen Gardening and Greenhouse. One Man kept under the Gardener. No Vineries. State wages received.—Apply by letter only to Mr. G., Lord's Library, Gloucester Road, South Kensington, W.

WANTED, an energetic, industrious Man as FOREMAN in a Market Forcing Garden, near London, where only Vines are Forced. Good character indispensable.—Apply (if by letter, state age and wages required) to C. W. ALDERSON, Langley Lane, South Lambeth, S.

WANTED, an energetic, sober, and honest MAN for a Seed Shop; he must be a good Salesman.—Apply to MARTIN AND SON, Hull.

J. H. LEY is in WANT of a NURSERY CLERK; one having some knowledge of the Seed Trade preferred.—Apply by letter to the Royal Nursery, London Road, Croydon.

Seed Trade.

WANTED, a JUNIOR CLERK; must write a good hand, and have some knowledge of the business.—Apply by letter to Messrs. MINIER AND CO., 60, Strand, W.C.

WANTED, an active young Man, age about 18, as an ASSISTANT in the SEED DEPARTMENT. Must write a good hand.—Apply in own handwriting to B. S. W., *Gardeners' Chronicle* Office, W.C.

To Nursery Hands.

WANTED, a Married MAN, without incumbrance preferred. Comfortable apartments and all found.—Forward testimonials and wages required, to A. B., Stansfield's Library, 67, High Street, Peckham, S.E.

Seed Trade.

WANTED, as SECOND SHOPMAN, a young Man who understands the Retail Trade in all its branches, of good appearance and address, energetic, pushing business habits. Character must bear the strictest investigation.—ALPHA, Hurst & Son, Seedsmen, Leadenhall Street, E.C.

WANTED, a single Man as GARDEN LABOURER, and to make himself generally useful. Wages £1 per week.—Address, with reference and when at liberty, to the GARDENER, Moor Lodge, Newcastle-on-Tyne.

WANTED, in a Gentleman's Family residing 30 miles from Town, a steady, respectable single Man as INDOOR SERVANT (SINGLE-HANDED). One accustomed to Hunting Things preferred.—Address, stating full particulars as to wages, references, &c., to B. B. H., Berkhampstead, Herts.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD), where two or more are kept.—Thoroughly understands Fruit, Flower, and Kitchen Gardening. Stove and Greenhouse Plants. Seven years' first-class character.—F. F., H. Low & Co., Clapton, E.

GARDENER (HEAD).—Age 24, single; understands the Management of Flower and Kitchen Gardens, Forcing of Flowers, Fruit, and Vegetables. Good character from late employer. Ten years' experience.—W. G., 1, High Street, Epsom, Surrey.

To Noblemen and Gentlemen.

GARDENER (HEAD).—CHARLES HIGGS, The Gardens, Caversham Park, Oxon, can with confidence recommend his Foreman, Thomas Elisha, to any Lady or Gentleman requiring a first-rate Man. Well up in all branches of the profession.—Address as above.

GARDENER (HEAD), age 24, single.—The Advertiser, late Foreman at Farnham Castle, requires a good Single-handed place, or where one or two are kept. Seven and a-half years' experience. Good recommendation.—G. HEASMAN, The Gardens, Crowborough Warren, near Tunbridge Wells, Kent.

GARDENER (HEAD), to any one requiring the services of a thoroughly efficient Gardener.—Age 28; has previously had the Management of an Establishment. Can be highly recommended by past and present employers.—H. S., Llanaway House, Godalming, Surrey.

To Noblemen and Gentlemen.

GARDENER (HEAD), to any Nobleman or Gentleman requiring the services of an efficient Gardener.—W. FARR, Owlpen Park, Dursley, Gloucestershire, will be disengaged on December 11. Four years' good character, with references as to ability.

GARDENER (HEAD, WORKING).—Age 32, married; thoroughly practical in all branches of Early and Late Forcing of all kinds of Fruits and Vegetables. Seventeen and a half years' experience.—J. C., Mere Old Hall, Knutsford, Cheshire.

GARDENER (HEAD, WORKING).—Age 32, married; has a good practical knowledge of Gardening in all its branches. Five years' good character from present employer.—H. W., Post Office, Weybridge Station, Surrey.

GARDENER (SINGLE-HANDED), or where one or two are kept.—Age 31, single; seventeen years' practice. Understands Gardening all its branches. Would not object to work in the House. Good character.—WILLIAM GIBSON, Vernon House, Bath Terrace, Low Harrogate.

GARDENER (UNDER), in a Nobleman's or Gentleman's Garden.—Age 22; steady, industrious. Seven years' experience. Good character.—Address, stating wages, G. L., 21, Pickering Place, Royal Oak, Bayswater, W.

GARDENER, under a Foreman in a large Establishment.—Age 21. Four years' character.—J. S., Shirley's, Broadway, Tooting, S.W.

FOREMAN, in a first-class Nobleman's or Gentleman's Establishment.—Age 23. Good references.—L. M., the Post Office, Worksop, Notts.

To Nurserymen and Growers for Market.

FOREMAN (GENERAL).—A Man of considerable experience in the London Trade. Within 25 miles of London preferred. Good references from previous employers.—F. D., Gregg Street, Rèddish, near Stockport, Lancashire.

TO LANDED PROPRIETORS.—The Advertiser is desirous of meeting with an engagement where his general knowledge of Gardening, Management of Arable and Grass Land, Timber and Planting, Making of Plans for, and carrying out of, Groundwork and Buildings, may be available. Would be found competent to Plan and Lay-out a New Garden. Good testimonials.—X. Y., *Gardeners' Chronicle* Office, W.C.

PROPAGATOR (GENERAL), or to take Charge of an Indoor Department in a large Nursery.—Great experience in Propagating Hard-wooded Plants. First-class testimonials and character.—F. L. M., *Gardeners' Chronicle* Office, W.C.

SHOPMAN (HEAD), or SHOPMAN and CLERK.—Age 27; highly recommended by present employer. State salary.—Y. R., Post Office, Waltham Cross, London, N.

Seed Trade.

SHOPMAN.—Well experienced, with good references.—A. B., Mr. Richardson, Butler, M'Culloch & Co., Covent Garden, W.C.

TRAVELLER, or ASSISTANT TRAVELLER, to Work Seeds, Manures, Feeding Stuffs, Agricultural Implements, &c.—Age 21; bred to the Nursery and Seed Business.—AGER, Messrs. Downie, Laird & Laing, 17, Frederick Street, Edinburgh.

BUDDER, GRAFTER, &c.—A person with fourteen years' experience, a successful Budder and and Grafter, well up in Seed-shop and Office, and thoroughly acquainted with Nurserywork generally, wishes for a situation of Trust.—A. Z., Post Office, Lichfield.

IMPROVER, in a Nobleman's or Gentleman's Garden.—Age 19; has a fair knowledge of Flower and Fruit Forcing. Good character.—W. S., 4, Oak Cottages Upper Teddington, Middlesex, S.W.

IMPROVER, in a first-class Garden, or FOREMAN in a smaller one.—Age 23; eight years' experience. Good testimonials as to ability and steadiness of character. North of England preferred.—SHOCK, Batheaston, Bath.

To Seedsmen and Nurserymen.

CLERK and SALESMAN, or MANAGER.—The Advertiser, who has had almost 11 years' experience in the Seed and Nursery Trades, will be at liberty about six weeks hence to engage with any good firm as above.—Full particulars of experience, and first-rate references, may be had on applying by letter to J. B. S., 175, Seymour Street, Euston Square, N.W.

CARPENTER, PLUMBER, PAINTER, &c., on an Estate. Is a useful Man.—X., 24 A., Charles Lane, Portland Town, London, N.W.

GOVERNESS.—A young Lady, with some years' experience and unexceptionable references. Competent to undertake the Teaching of English, French, German, Music, &c.—K., *Gardeners' Chronicle* Office, W.C.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Lea & Perrins' Sauce,

THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.

ASK FOR LEA AND PERRINS' SAUCE.
BEWARE OF IMITATIONS,
and see the names of LEA AND PERRINS on all Bottles and Labels.

Agents—CROSSE AND BLACKWELL, London; and sold by all Dealers in Sauces throughout the World.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

CURES of old-standing ASTHMA, COLDS, &c., by Dr. LOCOCK'S PULMONIC WAFERS.—From Mr. ROBINSON, Chemist, Trinity Street, Hull:—"In all affections of the Chest, old-standing Asthma, and neglected Colds, they seem to act like a charm." In Coughs, Colds, and Rheumatism, they give instant relief. Sold, at 1*s*. 1½*d*. per box, by all Druggists.

SEVEN INTERNATIONAL MEDALS AWARDED TO

JAMES GIBBS AND COMPANY,

SOLE MANUFACTURERS OF THE

PATENT AMMONIA-FIXED GUANO,

The Cheapest and Best Manure in use. Consumers are warned that none is genuine unless the Bags bear the Trade Mark, and are secured with a Leaden Seal.

ALSO BONE AND SPECIAL MANURES,

OF THE BEST QUALITY, AND IN THE HIGHEST CONDITION.

PARTICULARS OF

JAMES GIBBS AND COMPANY,

Works—Victoria Docks, London, E., and Cattedown, Plymouth. Offices—16, Mark Lane, London, E.C.

MONRO'S DUKE OF EDINBURGH CUCUMBER.

First-class Certificate Royal Horticultural Society, Sept. 3, 1873.

J. MONRO, POTTER'S BAR, N.,

Has much pleasure in informing the Horticultural World that he has succeeded in saving Seed of the above-named Cucumber, which he intends offering to the Trade.

A Plate from photograph, with copies of First-class Certificates and Testimonials, will appear in the *Gardeners' Chronicle* next week—October 31.

THE ROYAL GARDENS,

FROGMORE,

AND

WINDSOR GREAT PARK.

THE "GARDENERS' CHRONICLE" *for next Saturday,* Oct. 31, *will contain a Special Supplement, uniform with that already published of* Hatfield, *and consisting of Eight Pages of Original Illustrations and Letterpress description.*

Price Fivepence; Post Free, Fivepence-Halfpenny.

PUBLISHED BY W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.

Advertisers desirous of having extra space in this Number are particularly requested to communicate at once with the Publisher.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, October 24, 1874.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 44.—Vol. II. { New Series. } SATURDAY, OCTOBER 31, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

☞ With this Number is issued, Gratis, an EIGHT-PAGE SUPPLEMENT, descriptive of The ROYAL GARDENS, Frogmore, and WINDSOR GREAT PARK.

CONTENTS.

Alternanthera	558	Law notes	555
Aster pendulus	558	Ligustrum japonicum	560
Begonia Frœbelii	552	Lobelia, the double blue	595
Books, notices of	555	Marigold, the African	558
Caradoc Field Club, the	557	Moles as vegetarians	559
Caution, a	555	Mulberry, an old	559
Chrysanthemum, the	551	Munich, Bavaria	555
Climatal changes	559	Passion flower fruit	557
Digging and dunging fruit borders	560	Pelargonium Society, the	559
Farm, the	560	Pentstemon antirrhinoides	558
Fasciation in the Fir (with cut)	558	Physalis edulis	559
Florists' flowers	555	Plants, new garden	558
Garden operations	561	Reidia glaucescens	558
Grimston, Vine-growing at	560	Scottish Arboricultural Society	557
Herbaceous plants, on the best way of arranging	554	Stigmaphyllum ciliarum	559
Ilex latifolia	560	Venn's Black Muscat Grape	560
Jerusalem Artichoke, the	558	Vermont Beauty Potato	559
Lamington House (with cut)	552	Vicomtesse Héricart de Thury Strawberry	559
Large Pears	559	Villa garden	561
		Weather, the	561

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is $6.30 gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth*, 16*s*.
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

SCOTTISH ARBORICULTURAL SOCIETY.—The Twenty-first Annual General Meeting of this Society will be held in the Lecture-rooms at the Royal Botanic Garden, Edinburgh, on WEDNESDAY and THURSDAY, November 4 and 5, at 12 o'Clock noon each day; Hugh Cleghorn, M.D., F.R.S.E., President, in the Chair.
Edinburgh, Oct. 21. JOHN SADLER, Secretary.

Great International Fruit and Flower Show at EDINBURGH, in 1875.

THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY propose to hold a GREAT INTERNATIONAL FRUIT and FLOWER SHOW in Edinburgh, on SEPTEMBER 15 and 16, 1875, when £700 will be given in prizes.
Schedules will be issued at an early date, and can be had on application to the Secretary,
WM. YOUNG, 33, South Bridge, Edinburgh.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

TO THE TRADE.—PEAS: Laxton's Superlative, William the First, Omega, Popular, Fillbasket, Griffin's and Suttons' Emerald Gem. CABBAGE: Cocoa-nut. CAULIFLOWER: Veitchs' Autumn Giant. LETTUCE: Sugarloaf Cos. ONIONS: New Queen, Newnham Park.
JAMES CARTER AND CO. have surplus quantities of the above to offer at reasonable prices, all true to name, and nett seed of the current season's growth.
238, High Holborn, London, W.C.

Exhibition of Chrysanthemums.

CHARLES TURNER invites an inspection of his COLLECTION, now in fine bloom.
The Royal Nurseries, Slough.

To the Trade.

CENTAUREA RAGUSINA CANDIDISSIMA COMPACTA, new seed, by the 1000 or ounce, of CHARLES YOUNG, The Nursery, Balham Hill, S.W.

PINES (Queens)—about 100 strong, healthy, Fruiting and Succession. Any reasonable offer will be taken. Apply to
Mr. WOOKEY, Heybridge, near Maldon, Essex.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete ever published.
Hale Farm Nurseries, Tottenham, London, N.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s*. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Dutch Bulbs direct from the Grower.

HYACINTHS for Pots or Glasses, 16*s*. per 100; Bedding, 12*s*.; TULIPS, 6*s*.; CROCUS, 1*s*. Other Bulbs equally cheap. CATALOGUES ready. Address,
S. HARVEY, Popham Street, Nottingham.

Large Dutch Crocus.

WILLIAM HOOPER has just received a Consignment of the above, of good quality and condition. Price 15*s*. per 1000; 1*s*. 6*d*. per 100. Yellow, Blue, White, Striped, or Mixed. CATALOGUES on application.
Florist and Seedsman, 88, Oxford Street, W.

New Grape.

VENN'S SEEDLING BLACK MUSCAT.—Good Planting Canes, Two Guineas each, delivered to order on receipt of Cheque or Post-office Order on Horfield, Bristol, payable to
WILLIAM DODDS, Gladstone Villa, Bishopston, Bristol.
Testimonials of Merit to be had free on application.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s*. to 60*s*. per dozen. Extra strong Fruiting Canes, 7*s*. 6*d*. to 10*s*. 6*d*. each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s*. each.
RICHARD SMITH, St. John's Nurseries, Worcester.

GRAPE VINES.—A fine stock of all the leading sorts; strong, well-ripened short-jointed Canes. Extra fruiting size, in 11-inch pots; smaller plants, in 6-inch and 9-inch pots. Prices from 3*s*. 6*d*. to 10*s*. 6*d*. each. Free from any kind of disease.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

Vines.

B. S. WILLIAMS has a large and fine stock of FRUITING and PLANTING CANES, of all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, N.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three, and four years old.
Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

MANETTI STOCKS—13,000, full of Cuttings, strong, 25*s*. per 1000. GIANT ASPARAGUS, 12,000, 3-yr. old, 15*s*. per 1000.
THOMAS READE, Beach Nursery, Southend, Essex.

NEW STRAWBERRIES, Exquisite and Traveller (First-class Certificate).—The best for flavour and transmission. See advertisement in *Gardeners' Chronicle* of the 8th ult. Strong plants now ready. Particulars post free, from W. AND J. BROWN, Stamford.

STANDARD TRAINED PEACHES, NECTARINES, and APRICOTS, fine Trees of the hardiest and best sorts, with all other forms of Fruit Trees in great variety. Descriptive Price Lists gratis.
RICHARD SMITH, Nurseryman, Worcester.

Johnstone's St. Martin's Rhubarb.

EARLIEST and BEST in CULTIVATION for open ground; it has a splendid colour, and excellent for forcing. Strong roots, 1*s*. each. Trade price on application.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

WANTED, strong Standard Victoria PLUMS, and Lord Suffield APPLES; also strong Dwarf-trained PEACHES, NECTARINES, and APRICOTS.
E. COOLING, Mile Ash Nurseries, Derby.

To Nurserymen and Others.

WANTED, about 5000 COMMON HOLLIES, 2½ feet high. Send price, &c., to the GARDENER, Manley Hall, Manchester.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

WHOLESALE CATALOGUE of TREES, SHRUBS, CLIMBERS, &c., free on application.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

LAURUSTINUS.—An immense quantity of very healthy plants, 12 to 18 inches high, can be supplied at very moderate prices by
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

AUCUBA JAPONICA.—Thousands of strong and very bushy plants, from 1 to 3 feet. Prices on application.
WM. RUMSEY, Joyning's Nursery, Waltham Cross, N.

ALTERNANTHERAS.—Very fine stock plants of amabilis, amabilis latifolia, magnifica, paronychyoides major and minor, and amœna, 4*s*. per dozen.
ECHEVERIA SECUNDA GLAUCA, 7 inches in diameter, 6*s*. per dozen.
W. H. WHEELER, Florist, &c., Farnham, Surrey.

FOR SALE, through being grown too large for the house, a large specimen plant of STEVENSONIA GRANDIFOLIA, in fine health; would make a fine Palm for exhibition purposes. Full particulars on application to
J. HUDSON, Gr. to J. C. Imthurn, Esq., Champion Hill, S.E.

LEE'S "VICTORIA REGINA" VIOLET.—Small Plants, 12 for 6*s*., post free; 40*s*. per 100. Strong Plants, 12 for 10*s*., post free; 70*s*. per 100. Extra strong, 12*s*. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

FOR FORCING.—LILY of the VALLEY, 1000 roots, 30*s*.; 100 clumps, 46*s*. SPIRÆA JAPONICA, 100 strong clumps, 26*s*. Delivery against Bank Post Bill.
D. JACOBSON, Haarlem, Holland.

CAMELLIAS.—English-grown; nice healthy Plants, well set with buds, 10*s*. 6*d*., 15*s*. and 21*s*. each.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

WHOLESALE CATALOGUE of ROSES, FRUIT TREES, &c., free on application.
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey.

New Climbing Rose.

JULES MARGOTTIN, 3*s*. each, 30*s*. per dozen. The old favourite Rose in all respects, except in being a free climber.
RICHARD SMITH, Nurseryman, Worcester.

Early Planting.

DAVISON AND WHITTEM'S CATALOGUE of all the Best and Newest ROSES is now ready. Also a GENERAL CATALOGUE of CONIFERS, FOREST, FRUIT, and other TREES. Post free on application. White Cross, Hereford.

A BARGAIN.—HORSE CHESTNUT TREES, 5 to 6 feet, 3*s*. per 100; fine WALNUT TREES, 4 to 5 feet, 4*s*. per 100; OAKS, 4 to 5 feet, 2*s*. per 100. For Cash. WILKIN, Tiptree, Kelvedon.

Special Offer to the Trade only.

LARCH (Scotch), ELMS, LIMES, SYCAMORES, ROSES (Standards), OAKS, &c., APPLES, PEARS, GOOSEBERRIES, &c. Prices on application to
JOSEPH GREEN, The Nurseries, Garforth, near Leeds.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

Nurseries, Dundee, Scotland.

PRICES of SEEDLING and TRANSPLANTED FOREST and ORNAMENTAL TREES, SHRUBS, &c., may be had on application.
W. P. LAIRD AND SINCLAIR.

BEECH, 3 feet, very fine and well rooted, 7*s*. 6*d*. per 1000.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

STRAWBERRY PLANTS, for Forcing.—Seven hundred fine Plants of PRESIDENT, in pots, well rooted, and ready for forcing: the best of all sorts for the Greenhouse. Must be Sold, owing to removal of forcing-house. Apply at
Gifford Lodge, England Lane, Haverstock Hill, N.W.

FRUIT TREES.—One hundred thousand strong Standard and Pyramid Cherries, Apples, Pears, and Plums, from 75*s*. per 100. Gooseberries, 3-yr., from 10*s*. per 100; Currants, 3-yr., from 6*s*. per 100. CATALOGUES on application to
T. EVES, Gravesend Nurseries.—Established 1810.

COCOA-NUT FIBRE REFUSE, invaluable for Forcing, Plunging, and Resisting Frost and Cold. Price 9*d*. per bushel; 20 bushels, 5*d*.; 100, 4½*d*. per bushel.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

Hyacinths, Tulips, Crocus, &c.

The best material in which to grow the above is COCOA-NUT FIBRE REFUSE.—Price 1*s*. per bushel, or 6*d*. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

ROSES.—Fine strong Dwarfs on Manetti, 30s. per 100, £12 10s. per 1000; Standards, 80s. per 100; Half-standards, 60s. per 100.
MAURICE YOUNG, Milford Nurseries, Godalming.

QUICKS.—Good strong Quicks, 6s. to 8s. per 1000, or £25 per 100,000; extra do., 10s. 6d. to 15s. per 1000, or £45 to £55 per 100,000.
MAURICE YOUNG, Milford Nurseries, Godalming.

Epidendrum vitellinum majus.

MR. WILLIAM BULL has received a large importation, in splendid condition. Price, 10s. 6d., 15s., and 21s. each.

Good ORCHIDS, Six Guineas per dozen. By sending names of those already possessed, different varieties can be given, and purchasers will have a good selection made for them.
ESTABLISHMENT for NEW and RARE PLANTS, King's Road, Chelsea, London, S.W.

LAURELS.
COMMON LAUREL, 2 to 3 feet, 16s. per 100, £7 per 1000; 3 to 4 feet, 25s. per 100, £10 per 1000.
COLCHIC LAUREL, 3 to 4 feet, 30s. per 100; 4 to 5 feet, 42s. per 100.
PORTUGAL LAUREL, 1½ to 2 feet, 34s. per 100.
Good, bushy, well-grown plants.
RICHARD SMITH, Nurseryman, Worcester.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6s., 9s., and 12s. per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40s. cash. Baskets and Packing included.
Crown Nursery, Reading.
N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1s. per packet, post-free.

Ericas.

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester, beg to offer to the Trade strong PLANTS of ERICA GRACILIS AUTUMNALIS, in flower and coming into flower, suitable for market purposes. Price on application.

Carnations and Picotees.

To AMATEURS and the TRADE.
J. BOOTH, FLORIST, Failsworth, Manchester, is now offering the above in all the choice named exhibition varieties.
CATALOGUES and price on application.

To Nurserymen and the Trade.

SEAKALE ROOTS for Forcing (very fine), 9s. per 100, 80s. per 1000. ASPARAGUS ROOTS, 2-yr. old, 3s. per 100, 25s. per 1000. Terms, cash on delivery.
SAMUEL ALLAWAY, Earl's Court Farm, Old Brompton, London, S.W.

PLANTS for WINTER FORCING.—Any one desirous of Successfully Forcing Flowering Plants during the coming Winter Months, should apply at once to JOHN STANDISH AND CO. for a LIST of their PLANTS specially prepared and adapted for this purpose.
Royal Nurseries, Ascot, Berks.

Dutch Bulbs.

JOHN AND CHARLES LEE have received their annual supply of HYACINTHS and other Dutch Roots, in fine condition. Early orders are requested.
CATALOGUES post free on application.
Royal Vineyard Nursery and Seed Establishment, Hammer-Smith, London, W.

SPRING GARDENING PLANTS.—500,000 DAISIES, PANSIES, PRIMROSES, SILENES, FORGET-ME-NOTS, and all the most useful sorts for the above purpose, from 4s. per 100. See Catalogue of above and ROSES. Post free.
J. MOORE, Nurseryman and Seedsman, 52, Market Place, Warwick.

Roses—Vines.

JOHN KEYNES, Castle Street, Salisbury.
The above are of the usual first-rate quality.
CATALOGUES ready. Every attention paid to Orders.
Salisbury, October 14, 1874.

To the Trade Only.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers (samples on application):—
GUNNERA SCABRA, 40s. per 100.
SPIRÆA ARUNCUS, 25s. per 100.
WAHLENBERGIA (Campanula) GRANDIFLORA, 25s. per 100.
AILANTUS GLANDULOSA, 1-yr., 4s. per 1000.
ROBINIA PSEUD-ACACIA, 1-yr., 3s. per 1000.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

Rose Catalogue.

WM. PAUL, Paul's Nurseries, Waltham Cross, Herts, has just published the New Edition of his ROSE CATALOGUE, which he will be happy to forward, free by post, on receipt of Postage Stamp.

FIBROUS PEAT.—Brown Fibrous Peat, best quality, for Orchids, Stove Plants, and Potting, £6 6s. per 6-ton truck load. Black Fibrous Peat, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5s. per 6-ton truck load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

SPHAGNUM or PEAT MOSS.—Fresh Sphagnum Moss, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,

SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.
First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; hardy, strong and vigorous, producing flowers on every shoot; as an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, price 7s. 6d. each.

NEW HYBRID PERPETUAL ROSE,

CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3s. 6d. each; 30s. per dozen.

CLIMBING PERPETUAL ROSE,

CLIMBING JULES MARGOTTIN (Cranston's).

A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3s. 6d. each.

Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

ROSES.

CHARLES TURNER'S CATALOGUE

IS NOW READY.

STANDARD ROSES.

These are grown in great numbers, they are very fine this season, with well-ripened wood, and are now ready for removal.

DWARF ROSES

Are also grown most extensively, and can be had on the Manetti and Briar Stocks, or on their Own Roots.

ROSES IN POTS

Are a speciality at the Royal Nurseries, where a fine stock can be seen of extra strong TEAS and HYBRID PERPETUALS, grown especially for early forcing.

☞ *The CATALOGUE also contains full Lists of FRUIT TREES, CONIFERÆ, EVERGREEN and DECIDUOUS SHRUBS, &c., and can be had on application.*

THE ROYAL NURSERIES, SLOUGH.

PLANTING SEASON.

SEEDSMEN TO THE QUEEN.

LITTLE & BALLANTYNE,

THE "KNOWEFIELD NURSERIES," CARLISLE,

RESPECTFULLY INVITE INSPECTION OF THEIR

LARGE COLLECTION OF FOREST TREES

Suitable for Hill Land or Low Land Planting,

GAME COVERT PLANTS, FRUIT TREES, ROSES, DECIDUOUS AND EVERGREEN SHRUBS, AVENUE and PARK TREES, &c.

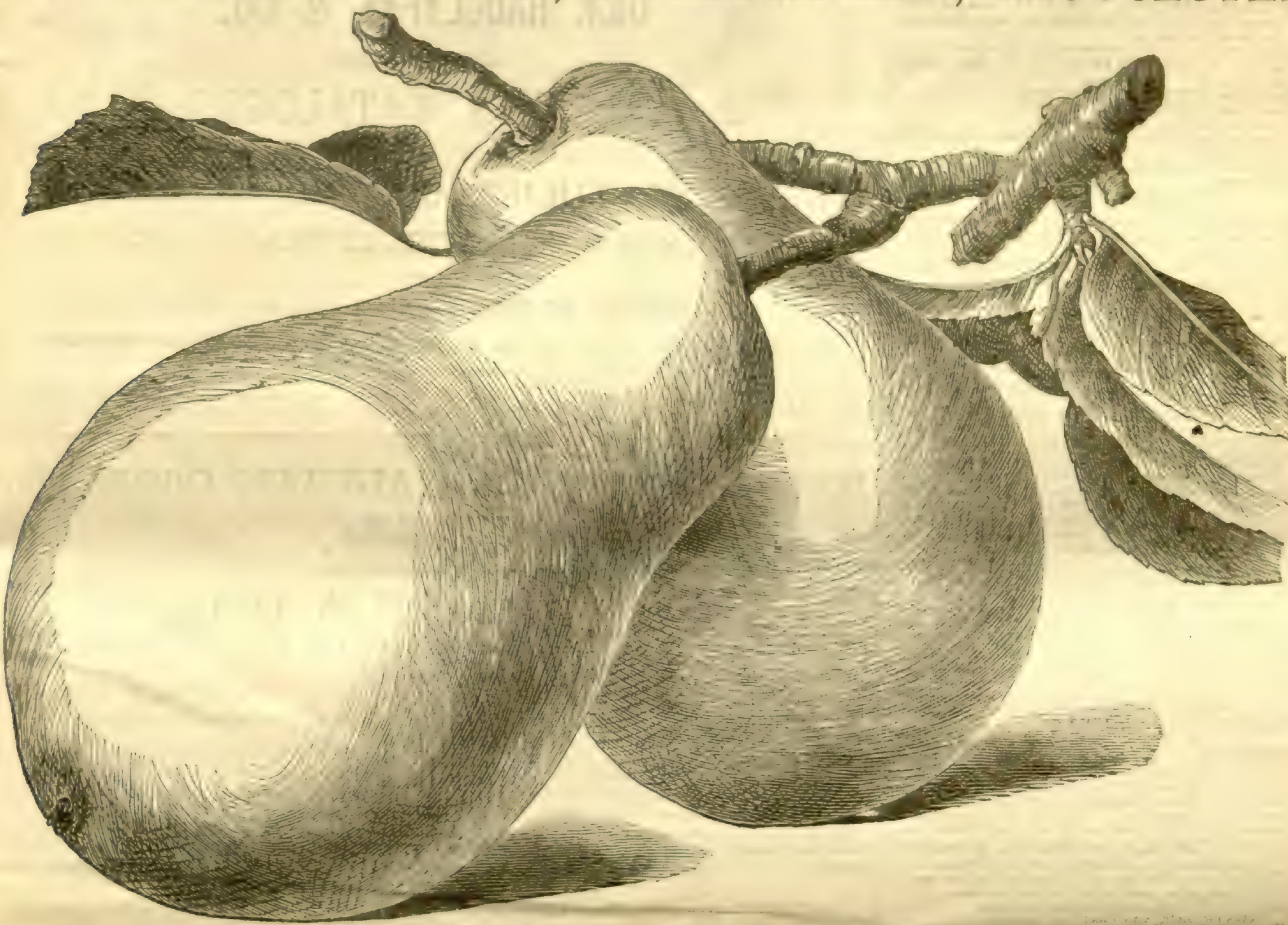
The above can be safely recommended to remove well to any distance; they are grown in a Northern Climate, in Open Unsheltered Ground, and are perfectly Hardy.

Priced Catalogues Post Free on application.

L. & B.'s Complete Descriptive List of Fruit Trees Cultivated in the United Kingdom will be issued in a few days, price 1s.

LITTLE & BALLANTYNE,
SEED MERCHANTS AND NURSERYMEN, CARLISLE.
(ESTABLISHED 50 YEARS.)

J. C. WHEELER & SON, NURSERYMEN, GLOUCESTER.



BROCKWORTH PARK PEAR.

The fruit of this remarkable Pear is very large, the flesh is juicy, melting, and of exquisite flavour; it ripens the end of September or beginning of October. The tree is hardy, of ornamental growth, and a very free bearer: young pyramids bearing as many as twenty fine Pears each. The colour is yellow, richly dotted, slightly crimson next the sun. We exhibited it before the Fruit Committee of the Royal Horticultural Society, September 21, 1870, and were awarded a First-class Certificate of Merit. It somewhat resembles the Louise Bonne of Jersey, but is larger. This handsome Pear well deserves a wall. The original tree at Brockworth Park is trained against the house, the aspect being east.

J. C. WHEELER AND SON are now in a position to offer Trees of the Celebrated BROCKWORTH PARK PEAR at low prices, viz.:—

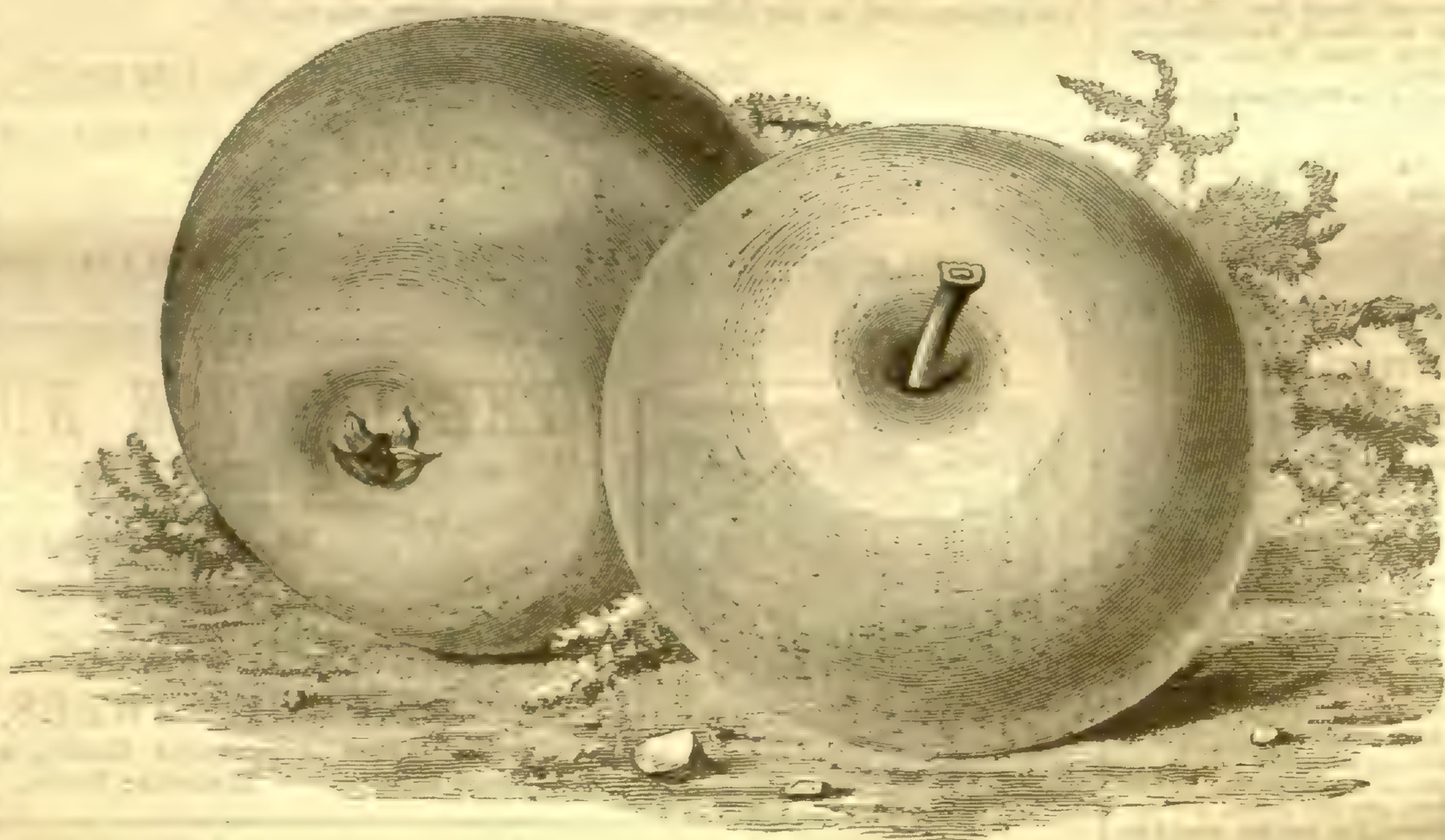
Dwarf Trained, for Walls, 4s. each. Pyramids, 3s. each. Maidens, 2s. each.

Hitherto the comparatively high prices charged for this exceedingly valuable Pear has kept it in few hands, but at the present very moderate prices it should find its way into every good Fruit Garden and Orchard in the Kingdom.

ASHMEAD'S KERNEL APPLE.

"This delightful Apple was raised at Gloucester, about the beginning of last century, by Mr. Wm. Ashmead, High Sheriff of that city in the year 1747. The original tree existed within the last few years in what had originally been Mr. Ashmead's garden, but was destroyed in consequence of the ground being required for building. It stood on the spot now occupied by Clarence Street.

"It is difficult to ascertain the exact period when it was raised; but the late Mr. Hignell, an eminent orchardist at Tewkesbury, in Gloucestershire, informed me that the first time he ever saw the fruit of Ashmead's Kernel was from a tree in the nursery of Mr. Wheeler, of Gloucester, in the year 1796, and that the tree in question had been worked from the original, and was at that time upwards of thirty years old. From this it may be inferred that the original tree had attained some celebrity by the middle of last century. The Ashmead's Kernel has long been a favourite Apple in all the gardens of West Gloucestershire, but it does not seem to have been known in other parts of the country. Like the Ribston Pippin it seems to have remained long in obscurity before its value was generally appreciated; it is not even mentioned in the catalogue of the extensive collection which was cultivated by Miller and Sweet, of Bristol, in 1790. I find it was cultivated in the Brompton Park Nursery, in 1780, at which time it was received from Mr. Wheeler, Nurseryman, of Gloucester, who was author of the *Botanists' and Gardeners' Dictionary*, published in 1763, and great-grandfather of the present proprietor of the nursery."—*Journal of Horticulture* September 17, 1874.



Ashmead's Kernel Apple, Fine Espalier Trees, 3s. 6d. each. Pyramids, 2s. each.

J. C. Wheeler & Son's Descriptive Catalogue of Fruit Trees, Roses, Ornamental Trees, and Evergreen Shrubs will be forwarded, Post Free, on application.

J. C. WHEELER & SON, NURSERYMEN, GLOUCESTER.

LONDON ADDRESS: 59, MARK LANE, E.C.

Camellias.

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester, have to offer a large stock of English-grown CAMELLIAS; strong, healthy, plants from 1 foot up to 5 feet in height, well set with flower-bud. Prices on application.

NEW CATALOGUES for 1874.

A Descriptive CATALOGUE of ROSES.
A Descriptive CATALOGUE of FRUITS.
A Descriptive CATALOGUE of BULBS.
A General CATALOGUE of GENERAL NURSERY STOCK. Address
WM. WOOD AND SON, The Nurseries, Maresfield, near Uckfield, Sussex.

Seedling H.P. Rose,

DUCHESS of EDINBURGH: First-class Certificate from Royal Horticultural Society. Standards, 7s., Dwarfs, 6s. each.
A fine stock of H.P. ROSE, CAPTAIN CHRISTIE, in pots, well hardened, 3s. each. Trade price on application.
H. BENNETT, Manor Farm Nursery, near Wilton, Wilts.

Turf, at 4d. per Square Yard.

J. CHEAL AND SONS, of Lowfield Nurseries, Crawley, can supply TURF of excellent quality at the above price, delivered in trucks at Crawley Station. The Ground must be cleared in a few weeks to make room for extending the Nurseries.
Priced CATALOGUES of TREES and SHRUBS free by post

Bouvardias—Vreelandii, jasminiflora, &c.

MESSRS. JOHN STANDISH AND CO.'S Stock of the above beautiful Winter-flowering Plant is exceptionally fine this season. 15s. to 18s. per dozen, fine plants.
They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24s. to 36s. per dozen.
Royal Nurseries, Ascot, Berks.

To Gentlemen, Market Gardeners, and Others.

MITCHELL'S CHAMPION of ENGLAND BROCCOLI.—J. MITCHELL, retiring from the Business, has a small quantity of NEW SEED to DISPOSE OF—the Best Late White ever grown. Will be sold in ¼ lb., ½ lb., and 1 lb. packages, at One Guinea per pound. Sent to any part of the world on receipt of Post-office Order made payable to
JOHN MITCHELL, Ponder's End, Middlesex.

Eltham Nursery, Kent, S.E.

One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.

THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c.
Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

LAURUSTINUS, 2 to 3 feet, 6s.; 3 to 4 feet, 9s. per dozen, fine, in bloom, planted last Spring.
LAURELS, 2 to 3 feet, 12s. 6d.; 4 to 5 feet, 25s. per 100.
LARCH, 2 to 3 feet, 30s.; 3 to 4 feet, 40s. per 1000.
PINUS INSIGNIS, 3 to 4 feet, 9s. per dozen.
" AUSTRIACA, 3 to 4 feet, 25s. per 100.
DEODARA, 2½ to 3 feet, 18s. per dozen.
ARAUCARIA IMBRICATA, 1½ to 2 feet, 18s. per dozen.
DAVISON AND WHITTEM, Hereford.

Trade Notice.

NURSERYMEN having a SURPLUS STOCK to DISPOSE OF should send particulars of the Goods, and Lowest Prices for Cash, to the New Nursery Establishment of
Messrs. GRANT AND CO., Park Nursery, Portadown.

WANTED.—HOLLY, FRUIT TREES and FRUIT TREE STOCKS, MANETTI STOCKS, RHODODENDRONS, HERBACEOUS PLANTS, &c.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum).—SEEDS of the Blue Gum, and other Tasmanian and Australian Forest Trees and Shrubs, can be obtained of
C. F. CRESWELL, Wholesale and Retail Seed Merchant, Hobart Town, Tasmania; or at his Branch Establishments, 478, George Street, Sydney, New South Wales; and 37, Swanton Street, Melbourne, Victoria.
Price LISTS sent gratis to any part of the World on application.

New Rhododendrons.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to announce that they are now sending out the undermentioned Hardy RHODODENDRONS, price 21s. each. The usual Discount to the Trade.
MRS. RUSSELL STURGIS.
MRS. JOHN KELK.
HELEN WATERER.
JOHN WALTER.
JAMES MASON.
FREDERICK WATERER.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.
Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

FOR AVENUES and ORNAMENTAL PLANTING.
ABIES DOUGLASII, 10 to 12 feet, £3 per dozen.
CEDAR, Mount Atlas, 10 to 12 feet, £8 8s. per dozen.
CHINESE JUNIPER, 5 to 6 feet, 30s. per dozen, £10 per 100; 6 to 7 feet, 30s. per dozen, £12 10s. per 100; 7 to 8 feet, 42s. per dozen, £15 per 100.
PICEA NORDMANNIANA, 3 to 4 feet, 42s. per dozen, £12 10s. per 100; 4 to 5 feet, 60s. per dozen, £20 per 100.
PICEA PINSAPO, 6 to 7 feet, £6 6s. per dozen; 7 to 8 feet, £8 8s. per dozen.
THUJA LOBBII, 12 to 15 feet, £4 4s. per dozen.
WELLINGTONIA GIGANTEA, 5 to 6 feet, £5 per dozen.
All well grown and recently transplanted. For full descriptions see LIST of the EVERGREEN FIR TRIBE.
RICHARD SMITH, Nurseryman, Worcester.

LONDON. *Now Ready, Gratis and Post Free,* VIENNA.

DICK RADCLYFFE & CO.'S

ILLUSTRATED

AUTUMN CATALOGUE

OF

HYACINTHS, TULIPS, CROCUS, NARCISSUS, &c.

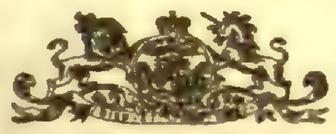
FRUIT TREES, & HORTICULTURAL ELEGANCIES.

COLLECTIONS OF DUTCH BULBS, 10s. 6d. to 63s. each.

For DETAILED LIST see D. R. & CO.'s ILLUSTRATED CATALOGUE.

DICK RADCLYFFE AND CO., 129, HIGH HOLBORN, LONDON, W.C.

NEW GRAPE VINE, WALTHAM CROSS (True).



WM. PAUL,

PAUL'S NURSERIES, WALTHAM CROSS, HERTS,

Respectfully solicits Orders for this magnificent new late amber-coloured Grape. As the introducer he holds by far the largest and finest stock of vigorous well-ripened Canes.

Dr. HOGG says of it—"No doubt it is the grandest of all the White Grapes, except the Muscat of Alexandria."

Mr. BARRON of Chiswick says—"It is certainly the most noble and most handsome Late White Grape in cultivation."

Mr. RUTLAND of Goodwood says—"I believe it will be one of the greatest acquisitions to our vineries we have had for some years past."

Mr. COX of Redleaf Gardens says—"It will be a valuable acquisition as a Late White Grape."

Mr. DOUGLAS of Loxford Hall Gardens says—"I think it a great acquisition."

Mr. EARLEY, of Valentines Garden, Ilford, says—"The best white or I should say amber-coloured Grape we possess next to the Muscat of Alexandria."

PRICES—Fruiting Canes (stock limited), 42s. each; Good Planting Canes, 21s. each; Smaller Ones, 10s. 6d. each.

VINES

Grown from the celebrated Lambton Castle Eyes.

S. BIDE can now supply good, short-jointed, clean-grown VINES in POTS of all the leading kinds, from the above celebrated and well-known Stock (a list of which may be had on application), at the following moderate prices, viz.:—

Single Plants, 5s. each; 6 for 21s.; 12 for 36s.

Mr. Hunter has grown this year Bunches of the Black Hamburgh weighing 21 lb. 12 oz. being the heaviest on record.

S. BIDE, ALMA NURSERY, FARNHAM, SURREY.

THE LAWSON NURSERIES,

EDINBURGH.

The Extensive Stock of

Seedling and Transplanted Forest Trees, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, &c.,

Is this Season in Splendid Health, and will be Sold at Moderate Prices.

Catalogues on Application, and Special Offers will be made for Large Contracts.

THE LAWSON SEED AND NURSERY COMPANY, LIMITED.
EDINBURGH AND LONDON.
LONDON ADDRESS: 106, SOUTHWARK STREET, S.E.

(View of Mr. Monro's Flat Cucumber-houses, from a Photograph.)

MONRO'S DUKE OF EDINBURGH CUCUMBER.

First-class Certificate, Royal Horticultural Society, September 3, 1873.

Report in Journal of Horticulture, *August* 21, 1873, *of Fruit Committee Meeting.*

"A Cucumber was received from Mr. J. Monro, Little Heath, Potter's Bar. A very handsome Cucumber (Improved Rabley), a foot long, of dark green colour, and with a small white spine. It was highly approved, and, as Mr. Monro intends sending it to the September meeting, a decision was left for further information."

Report of Fruit Committee of the Royal Horticultural Society, August 23, 1873.—Gardeners' Chronicle.

"Mr. Monro showed several specimens of the Improved Rabley Cucumber, a variety which comes nearer to our ideal of a table Cucumber than we have yet seen. In length the fruit measures from 12 to 14 inches, and in circumference is about the size of a new penny piece, with but the slightest indication of a shoulder. The Committee were much pleased with it, and will see it again at the next meeting."

Report in Garden *of Royal Horticultural Society, September* 3, 1873.

"A very nice Cucumber came from Mr. Monro, Potter's Bar, Herts, named Duke of Edinburgh: its chief peculiarity is its extremely short neck, and if it is a prolific bearer it will, doubtless, be invaluable for market purposes."

Report of the Fruit Committee, Royal Horticultural Society, September 6, 1873..—Gardeners' Chronicle.

"Mr. Monro, Potter's Bar, Herts, again staged his seedling Cucumber named Monro's Duke of Edinburgh, which is an exceedingly beautiful one, possessing really no 'handle,' and being a good winter variety. It received a First-class Certificate."

Editors' remarks in Gardeners' Chronicle, *Jan.* 10, 1874, *on new vegetables of* 1873.

"In Cucumbers we are indebted to Mr. Monro for the Duke of Edinburgh. This is one of the finest Cucumbers, a free bearer, of medium length, fine deep green colour and spiny, with scarcely any neck."

Osborne Park, October 20, 1874.

"In May last I saw Mr. Monro's new Cucumber, the Duke of Edinburgh, and certainly it is the handsomest fruit I have ever seen, and will, I feel assured, have great demand when known. "Fred. Glenton, L.R.C.P. & C."

Notice to Correspondents, Gardeners' Chronicle, *January* 17, 1874.

"Cucumber Duke of Edinburgh: C. M. & Co. You will see by advertisement in another column that Monro's Duke of Edinburgh Cucumber (mentioned by us at p. 48) is not the same variety as the one advertised under the same name in our last."

"I have this day seen the house of Cucumbers, Duke of Edinburgh, and consider it to be a first-rate Cucumber in every respect, being very prolific and handsome.—F. H. Fitt, *Gr. to* C. W. Wilshere, Esq., *The Frythe, Welwyn, September* 17, 1874."

Report of Fruit Committee, Royal Horticultural Society, March 21, 1874.—Gardeners' Chronicle.

"To show the great fruitfulness of the Duke of Edinburgh Cucumber, Mr. Monro of Potter's Bar exhibited cut branches off which they had gathered over 1300 fruits since January last; there were 200 plants in the house."

Dyrham Park, September 11, 1874.

"I have this morning had an opportunity of seeing a house of Mr. Monro's Duke of Edinburgh Cucumber, grown at his nursery, Potter's Bar. Such a sight I have not seen before; looking from one end the eye is soon arrested by a solid mass of fruit—one must stoop down to see any distance in the house. It is, indeed, a first-rate Cucumber. "D. Buchanan."

Advertisement in Gardeners' Chronicle, *January* 17, 1874.

"Monro's Duke of Edinburgh Cucumber, First-class Certificate, September 3, 1873.—The raiser of the above Cucumber begs to inform the numerous applicants for seed, that it cannot be sent out before January, 1875, and that the Cucumber called Duke of Edinburgh, advertised in to-day's paper, is not his. See Editors' remarks in to-day's *Gardeners' Chronicle* on new vegetables of 1873, p. 48.—*Potter's Bar, N., January* 10, 1874."

Leading Article, Gardeners' Chronicle, *February* 7, 1874.

"Our attention has been called to an infraction of the rules of priority in the case of the Cucumber named Duke of Edinburgh. On September 3, 1873, Mr. Monro of Potter's Bar obtained a First-class Certificate from the Royal Horticultural Society for a Cucumber with the above name; some time subsequently Messrs. Daniels Brothers, Norwich, advertised a different Cucumber under the same name; unless this latter firm can show that they published the name previously to Mr. Monro, we think they ought in fairness either to withdraw the name altogether, or so to modify it that no risk of misapprehension may be incurred."

"Dear Sir,—Accept my best thanks for the great pleasure given to me by the view of your Cucumber-house. Before I saw it I had no idea of the perfection to which this fruit can be brought, nor of the grandeur of the aspect of such culture. The house alone is worth a long journey to see.—Yours, obediently, Dr. F. Chrysander, *Bergedorf, near Hamburgh.*"

"*To* Mr. John Monro, *Potter's Bar.*

"There is no doubt about your 'Duke of Edinburgh' being a saleable Cucumber. It has every qualification of a good market one. I can sell it in any quantity. I have sold, as you know, over 1200 in one market morning before 8 o'clock.—George Monro, *Fruit Salesman, Covent Garden, October* 20, 1874."

"I have seen the Cucumber at Mr. Monro's, Potter's Bar, for the last five years, but never have seen anything like his large house, 'Duke of Edinburgh,' saved for seed. They have now been bearing for six months, and never had the least bottom-heat.—J. Wright, *Gr. to* H. Parker, Esq., *Parkfield, Potter's Bar, September* 17, 1874."

"*The Gardens, Hatfield Park, Herts, September* 21, 1874.

"To Mr. Monro.—Dear Sir,—I look upon your house of Cucumbers—the Duke of Edinburgh, now hanging for seed—as one of the most novel, and certainly one of the most extraordinary sights to be seen just now in the horticultural world. The form of the house is novel in itself, being quite flat, 150 feet long, and 24 feet wide; and the vast quantity of fruit now hanging in it is truly extraordinary. I have not witnessed anything to please me so much since I called to see your house of Little Heath Melons two years since. I happenedto be present the day you were planting out these Cucumbers, and have seen them since several times, and I feel convinced the Horticultural Society did no more than justice when they awarded it a First-class Certficate. Many of the fruit now hanging are models of perfection. Could you not favour the world with a treatise on Cucumber-growing so as to avoid the disease so much talked about, and which appears to be a total stranger in your establishment? Few besides yourself would think of cutting Cucumbers in February grown without bottom-heat. I am sorry to hear you have lost your beautiful variegated variety.—Yours truly, Ed. Bennett, Gr. to the Marquis of Salisbury."

Rabley Garden, September 26, 1874.

"Dear Sir,—I am much pleased to see your house of Cucumbers you are seeding in such capital order; it is worth going to see. Such a sight of excellent fruit I should not like to have missed, for it is the best I have ever seen; and I think such a capital variety as it is cannot fail to give every satisfaction wherever it may be grown. Wishing you every success, yours truly,
"Mr. Monro. W. Shorten."

Gardeners' Chronicle, *September* 9, 1874.

"Monro's Duke of Edinburgh Cucumber, which has gained all the highest awards offered. A house of the above Cucumber saved for seed (150 feet long, 24 feet wide) may now be seen at J. Monro's Forcing Gardens, Potter's Bar. This house has had no fire, no water, or any attention for the last two months. J. Monro has cut for market this year upwards of 17,000 fine fruit, and he will be glad to show the above house for the next two weeks to any one that may favour him with a visit."

September 10, 1874.

"I have seen Mr. Monro's house of Duke of Edinburgh Cucumber, and I have no hesitation in writing about it as the most productive, the most handsome, and the best market Cucumber in cultivation. As a market gardener and practical man, I am—as I know many more are—very glad that Mr. Monro has had the good fortune to save so many seeds, so that all gardeners may hope to share in his monopoly (as at present).—Peter E. Kay, *Nurseryman, Finchley.*"

"*To* Mr. John Monro, *Potter's Bar.*

"Sir,—I saw your crop of Cucumbers in the end of May and June, and it was simply wonderful, and that wonder was increased when I saw the material in which you grew them. As you have been successful in saving seed, I hope it will receive that patronage it so richly merits. Yours faithfully, S. Wells, *Osborne Park Gardens, Middlesex, September* 10, 1874.

TO THE TRADE ONLY.—Seeds of the above Cucumber will only be sent out to the Trade from J. MONRO himself. Orders will be sent off same day as received, till stock is exhausted—Carriage paid. Orders must be accompanied by Cheque or Post-office Order on Potter's Bar, N. Price per 100 Seeds, £1; 500 Seeds, £4 10; 1000 Seeds, £9. To show that the above Cucumber is all that it is represented to be, J. MONRO will at the Provincial Exhibition of the Royal Horticultural Society in 1875, give in prizes, £3 for the best brace, £2 for the second best brace, and £1 for the third best brace, for the benefit of horticulturists and the public. List of Firms Purchasing Seeds will be published in the Last Number of the *Gardeners' Chronicle* for 1874.

JOHN MONRO, POTTER'S BAR, N.

STRONG AUTUMN SOWN CABBAGE PLANTS can now be supplied of the undermentioned kinds (all true to name):—
EARLY BATTERSEA, ENFIELD MARKET, NONPAREIL } at 3s. 6d. per 1000.
ROBINSON'S DRUMHEAD, at 3s. per 1000.
W. VIRGO AND SON, Wonersh Nurseries, Guildford.

SHRUBS and TREES.
Large quanties for Sale, Cheap.
Privets, Aucubas, Euonymus, Hollies, Laurels, Lilacs, Limes, Planes, Laburnums, &c., for planting now; also some hundreds of fine AZALEA INDICA (best sorts), and DAPHNE INDICA RUBRA. Prices on application to
RICHARD J. WOOD, The Bedford and Haverstock Nurseries, Haverstock Hill, N.W.

WELLINGTONIA GIGANTEA and PICEA NORDMANNIANA.
Wellingtonia gigantea, 1½ foot, 18s. per dozen.
Picea Nordmanniana, 4 feet, 5s. each; 3 feet, 3s. 6d. each; 2 feet, 2s. each; 1 foot, 1s. each. All removed last year and perfect specimens.
WALKER AND CO., Farnborough Station, Hants.

New Apple, Lady Henniker.
EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now Booking Orders for this splendid Novelty, which obtained a First-class Certificate from the Royal Horticultural Society at South Kensington, on November 12, 1873. Circulars with full particulars will be forwarded gratis and post-free to applicants. The price for strong maidens on and after November 1 next, is 7s. 6d. each, or three for 20s. The usual discount to the Trade.

J. SCOTT'S FRUIT TREES cover many Acres, and form the most complete Collection in the World, consisting of 2200 sorts of Pears, 1400 sorts of Apples, and other kinds in proportion, amounting in the whole to over 3000 sorts. CATALOGUES, gratis, sent to all applications; or SCOTT'S ORCHARDIST, post free, for 5s. 6d., the most complete work upon Fruit Trees in the English Language.
Merriott Nurseries, Somerset.

J. SCOTT'S TREE and SHRUB CATALOGUE is replete with information about Trees, &c. It enumerates the names and gives descriptive notes of one of the best and well-grown Collections in the West of England. Parties intending to Plant should send for a copy, supplied gratis, as are also the SEED and BULB CATALOGUES; and SCOTT'S ORCHARDIST, at 5s. 6d., free by post.
The Nurseries, Merriott, Somerset.

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS and CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.
Wandsworth Common Nursery, Surrey, S.W.
The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 6 to 7 feet, 60s. per 100.
SIBERIAN ARBOR-VITÆ, 5 to 6 feet, 100s. per 100.
CHINESE JUNIPER, 5 to 6 feet, 150s. per 100.
COLCHIC LAUREL, 6 to 7 feet, 100s. per 100.
ENGLISH YEW, 3 to 3½ feet, 120s. per 100.
THUJA LOBBII, 4 to 5 feet, 90s. per 100.
RICHARD SMITH, Nurseryman, Worcester.

Nursery Stock.
JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, **Chester.**

The Planting Season.
THE BROUGHTY FERRY NURSERIES, covering an area of over 45 acres, are well stocked with every variety and size of FOREST and ORNAMENTAL TREES and SHRUBS, ROSES, FRUIT TREES and BUSHES, CLIMBING, HEDGING, and EDGING PLANTS, HERBACEOUS and GREENHOUSE PLANTS, &c., all healthy and well-rooted, and in a fit state for removal. Prices very moderate. CATALOGUES may be had on application. Special quotations for quantities.
JOHN STEWART AND SONS, The Nurseries, Broughty Ferry. Seed Warehouse, 21, Nethergate, Dundee.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

M. Souchet's New Gladioli.—Gladioli, New Roses, &c.
EUGÈNE VERDIER, FILS AINÉ, HORTICULTURIST, 72, Rue Dunois, Gare d'Ivry, Paris, has the honour to announce to his numerous friends that his SPECIAL CATALOGUE of GLADIOLI is now to be had, free of charge, on application by letter (post paid); also that relating to the NEW ROSES of 1874.
The GLADIOLI will be sent out in the Autumn, in 50, 100, and 1000 of each variety, at the lowest possible price (for which, and conditions, see Catalogue).

ORCHARD PLANTING.—Stong Standard APPLES, strong Standard Table and Perry PEARS, Pyramid and Dwarf-trained PEARS. A choice Collection of ROSES; strong Common, Colchic, and Portugal LAURELS; LAURUSTINUS, BOX, YEW, and other Evergreens; Evergreen and Deciduous Flowering SHRUBS; Scotch and Spruce FIRS; CHESTNUT, LIMES, and other Forest Trees, up to 22 feet. Prices on application.
CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

TREES for AVENUES, PARKS, and ROADSIDES.

WILLIAM PAUL

Has a splendid Lot of LARGE TREES, in fine condition for removal, including

LIMES, PLANES, HORSE CHESTNUTS, POPLARS, SYCAMORES, ELMS, NORWAY MAPLES, TURKEY OAKS, PURPLE BEECH, ACACIAS, ASH, BIRCH, PYRUS of Sorts,

10 to 20 feet high, proportionately stout, and very handsome.

PRICED LISTS ON APPLICATION.

All Goods placed free by own waggons on any London Railway.

PAUL'S NURSERIES, WALTHAM CROSS, HERTS.

TO THE TRADE.

KING OF THE BROCCOLIS.

Electrotypes of this block, 3s. 6d. each.

Price to the Trade on application.

1s. 6d. per Packet.

This magnificent variety comes in for cutting from the beginning of May to the first week in June, and is undoubtedly the finest late Broccoli in cultivation. It is of a fine dwarf habit, and being well protected is exceedingly hardy. Its heads are remarkably fine, close, and white, and of enormous size, and cannot fail to prove a great acquisition to the kitchen garden.

Messrs. HURST & SON are pleased to announce to the Trade that the entire disposal by wholesale, of this fine Broccoli, has been placed in their hands by Messrs. Daniels, Brothers, Norwich, but regret that, in consequence of their limited supply, they are only able to offer for the coming season, in sealed packets, retail, 1s. 6d. each. Early orders solicited. A List of those firms from whom "King of the Broccolis" can be obtained will be published shortly.

HURST & SON,
SEED MERCHANTS, 6, LEADENHALL STREET, LONDON, E.C.

WINTER APPROACHES.

BOILERS AND HEATING APPARATUS
OF THE BEST DESCRIPTION.

HOT-WATER PIPES AND CONNECTIONS

And a variety of the best Boilers always kept in stock.

PRICES AND ESTIMATES ON APPLICATION.

HENRY ORMSON,
Horticultural Builder and Hot-Water Apparatus Engineer,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

RENDLE'S PATENT SYSTEM OF GLAZING,

By Her Majesty's Royal Letters Patent.

RENDLE'S PATENT PLANT HOUSES,

ORCHARD-HOUSES, GREENHOUSES, CONSERVATORIES, &c.

A Medal has been awarded by Her Majesty's Commissioners, at the International Exhibition, 1873, to Mr. WILLIAM EDGCUMBE RENDLE, 3, Westminster Chambers, Victoria Street, London, for his PATENT ORCHARD HOUSE, Erected for the Commissioners, to illustrate the growth of the Tobacco Plant, in connection with the Exhibition.

PATENT PORTABLE

GREENHOUSES, ORCHARD-HOUSES, &c.

The Patentee is now in a position to Contract for and Build any description of Greenhouses, Orchard-Houses, or Conservatories of all sizes and dimensions.

The New Patent System of Glazing is the cheapest and most perfect ever introduced.

The Houses are built on Wooden Framework, with Zinc or Galvanized Iron Grooves; the Glass slides in the grooves, and the most complete plan of ventilation is secured. No paint or putty is required, and the Zinc and Glass are the only materials exposed to the action of the atmosphere. When the system is known and understood, it will become universal.

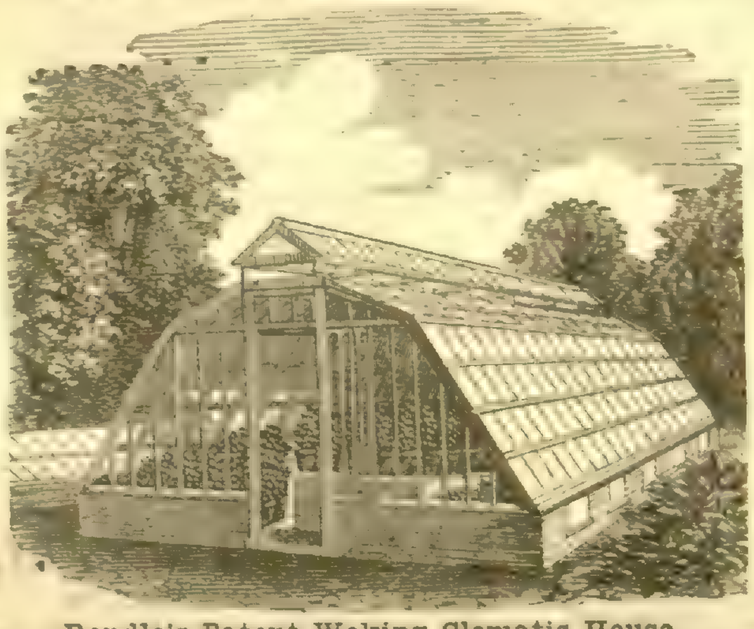
A Span-Roof Orchard-house complete, 12 feet wide and 30 feet long, from £52 10s.

A Span-Roof Orchard-House, 40 ft. by 15 ft., for £75.

A Lean-to Greenhouse, 30 feet long and 10 feet wide, from £33 10s.

These Houses are all portable, and can be removed and fixed again in a few hours.

These are the Cheapest Glass structures ever introduced, and intending purchasers of Greenhouses should compare the above prices with others.



Rendle's Patent Woking Clematis House.
Prices on application.

Extract from "The Times."

Royal Counties Show at Reading, June 27, 1874.

"To Horticulturists the specimens of Rendle's Patent System of Glazing and the Portable Glass Protectors for walls proved attractive.

"Their distinctive features are that all the work is done Without Putty.

"It is asserted that 1500 square feet of Glass can be put in the building in one hour by one man, and any damaged glass can be replaced without calling in the aid of a Glazier.

"All the Wood and Paint are covered by the Glass, and the system was well and satisfactorily tested by the heavy showers on Wednesday, there not being the slightest leakage of water to the interior."

Important Testimonial

From JAMES LITTLE, Gr. to Major BRIDSON, Rockend, Torquay.

"Rockend Gardens, September 1, 1874."

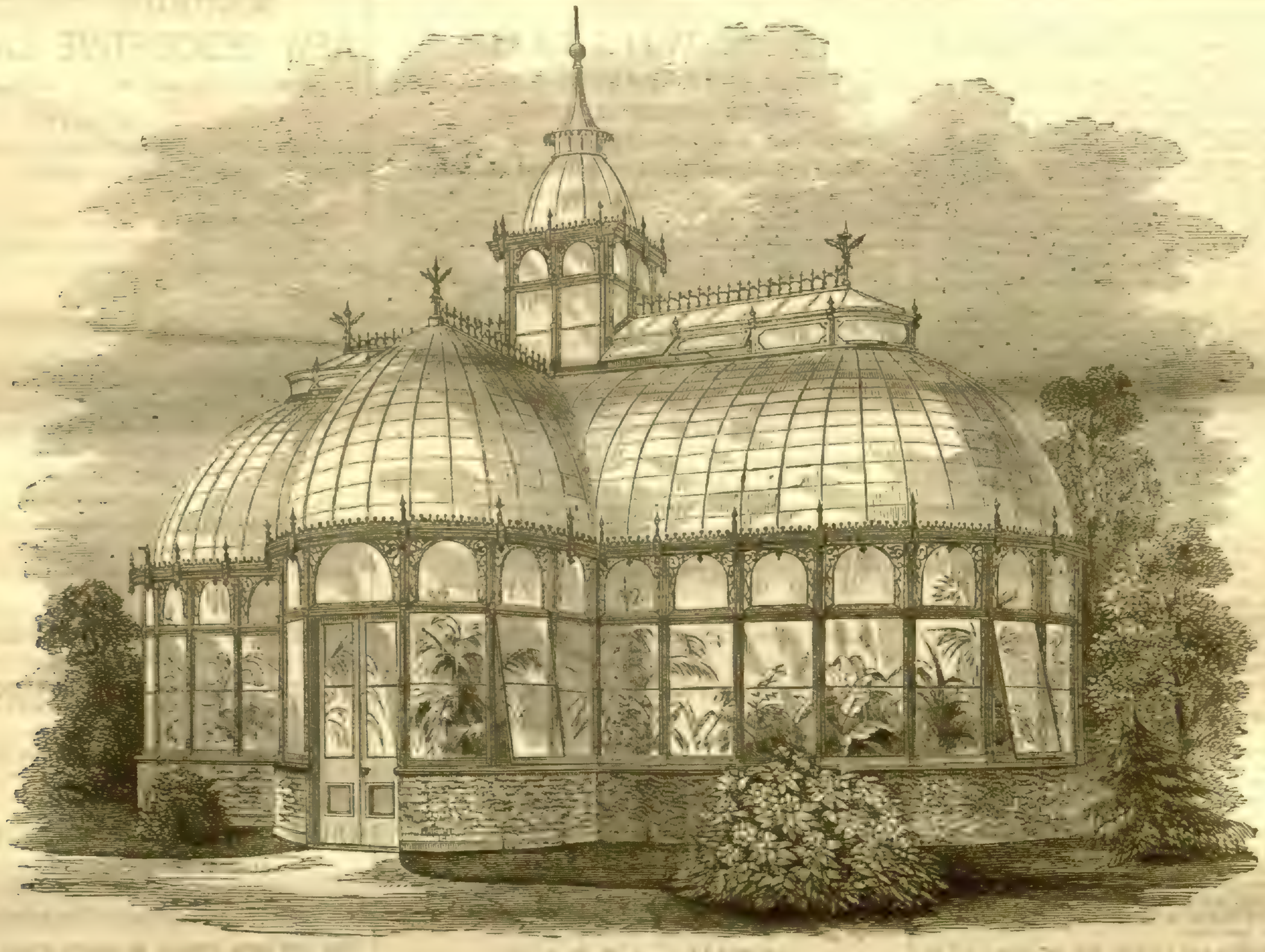
"The Houses you have put up for Major Bridson have given the highest satisfaction, and do you much credit.

"Last night we had the roughest night we have had for the last six months, the wind has been blowing a gale all night, and yet not a square of glass has been moved, nor has a drop of water come in. You will never have a more severe test than this, because, as you well know, Rockend is on very high ground fully exposed to all the south-western gales."

Illustrated CATALOGUES and BOOKS of DESIGNS, with One Hundred First-class Illustrations, can be had on application to the Patentee and Inventor,

Mr. WILLIAM EDGCUMBE RENDLE, 3, WESTMINSTER CHAMBERS, VICTORIA STREET, LONDON, S.W.

The New Edition for 1874 is now ready, and all who have Gardens should send to the Patentee for a copy.



LASCELLES' PATENT CURVED STRUCTURES

Are Constructed entirely of Wood, Bent on his Patent Principle, whereby each Bar forms a complete Truss.

THEY ARE STRONG, LIGHT, CHEAP, AND DURABLE.

DRAWINGS AND ESTIMATES, WITHOUT CHARGE, ON APPLICATION TO THE PATENTEE,

W. H. LASCELLES,

121, BUNHILL ROW, FINSBURY, LONDON, E.C.

Melbourne, near Derby.

S. ROBINSON, late of Shaw House, begs to inform his old Customers and others, that in consequence of being obliged to clear the ground by February 1, 1875, he has the following FOREST TREES, &c., to dispose of. If not sold by private contract, they will be offered by Auction in November.

15,000 to 20,000 OAKS, 4 to 5 and 5 to 8 feet.
18,000 to 25,000 SCOTCH FIRS, 3 to 4 and 5 feet.
25,000 to 30,000 LARCH, 4 to 5 feet.
A large quantity of HOLLIES, from 2 to 4 feet, and from 4 to 7 feet; the large sizes, growing singly, are fine specimens for ornamental planting.
500,000 to 600,000 QUICKS, partly 1-yr. bedding and 2-yr. transplanted, and 3-yr. bedding. 20,000 to 30,000 4-yr. transplanted, clean grown and very strong.
About 8000 2-yr. transplanted PRIVETS.
Smaller quantities of LIMES, 5 to 7 feet.
ALDERS, 7 to 9 feet.
SPANISH CHESTNUTS, 4 to 6 feet.
Ornamental SPRUCE, 5 to 7 feet.
BOX TREES and FILBERT NUTS.

The Nurseries, Reddish, near Stockport.

SPECIAL OFFER to the TRADE.

B. WHITHAM begs to call attention to the subjoined LIST of TREES and SHRUBS, all fine, bushy plants, many times transplanted:—

AREA THEOPHRASTA, 4 to 6 feet, 20*s.* per 100; 6 to 8 feet, 30*s.* per 100.
ASH, Mountain, 6 to 8 feet, 12*s.* 6*d.* per 100; 8 to 10 feet, 25*s.* per 100; 10 to 12 feet, 40*s.* per 100.
BEECH, 3 to 4 feet, 8*s.* per 100; 4 to 6 feet, 16*s.* per 100; 6 to 8 feet, 30*s.* per 100; 8 to 10 feet, 50*s.* per 100.
CHESTNUT, Horse, 2 to 3 feet, 6*s.* per 100; 3 to 4 feet, 8*s.* per 100; 6 to 8 feet, 25*s.* per 100; 8 to 10 feet, 50*s.* per 100.
LIMES, 2 to 3 feet, 8*s.* per 100; 3 to 4 feet, 14*s.* per 100; 4 to 5 feet, 20*s.* per 100; 5 to 6 feet, 25*s.* per 100; 6 to 7 feet, 40*s.* per 100; 7 to 9 feet, 60*s.* per 100.
PINUS AUSTRIACA, 2 to 3 feet, 12*s.* 6*d.* per 100; 3 to 4 feet, 25*s.* per 100.
POPLAR, Lombardy, 4 to 6 feet, 8*s.* per 100; 6 to 8 feet, 16*s.* per 100.
POPLAR, Ontario, 4 to 6 feet, 8*s.* per 100; 6 to 8 feet, 15*s.* per 100.
PRIVET, 2 to 3 feet, 15*s.* per 1000.
ARBOR-VITÆ, American, 2 to 3 feet, 20*s.* per 100; 3 to 4 feet, 25*s.* per 100; 4 to 5 feet, 35*s.* per 100; 5 to 6 feet, 50*s.* per 100; 6 to 7 feet, 75*s.* per 100.
ARBOR-VITÆ LOBBII, 2 to 3 feet, 30*s.* per 100; 3 to 4 feet, 50*s.* per 100; 4 to 5 feet, 75*s.* per 100.
BERBERIS AQUIFOLIA, 9 to 15 inches, 5*s.* per 100; 12 to 18 inches, 6*s.* per 100; 1½ to 2 feet, 12*s.* 6*d.* per 100.
BERBERIS DARWINII, 2 to 3 feet, 40*s.* per 100.
DOGWOOD, strong, 4 to 5 feet, 12*s.* 6*d.* per 100.
LAUREL, Common, 4 to 6 feet, 25*s.* per 100.
LAUREL, Portugal, 6 to 12 inches, 10*s.* per 100; 12 to 18 inches, 25*s.* per 100; 18 to 24 inches, 40*s.* per 100.
RHODODENDRONS, 6 to 9 inches, very bushy, 60*s.* per 1000; 9 to 12 inches, 20*s.* per 100; 1 to 1½ foot, 25*s.* per 100; 1½ to 2 feet, 40*s.* per 100; 3½ to 4½ feet, extra strong, £10 per 100. Best named varieties, fine bushy plants, £7 10*s.* per 100.
YEWS, English, fine, 6 to 12 inches, 10*s.* per 100; 12 to 18 inches, 20*s.* per 100; 1½ to 2 feet, 30*s.* per 100; 2 to 3 feet, 60*s.* per 100.
YEWS, Irish, 3 to 4 feet, 18*s.* per dozen.
CHERRIES, extra strong, 5 to 7 feet, 12*s.* per dozen.
CHERRIES, Pyramids, 4 to 6 feet, 50*s.* per 100.
CURRANTS, Red, strong, 7*s.* per 100.
CURRANTS, Black, strong, 10*s.* per 100.
GOOSEBERRIES, best Lancashire show varieties, 20*s.* per [100.
STRAWBERRY, Yates' Seedling, 15*s.* per 1000. One of the best in cultivation, very prolific; no grower should be without this variety.

To the Trade.

JOHN PERKINS AND SON beg to offer the following, which are all in the finest possible condition for removal:—

APPLES, Standard, 60*s.* to 70*s.* per 100; 2 years, untrimmed, 50*s.* per 100; Dwarf-trained, 15*s.* to 18*s.* per dozen
APRICOTS, Dwarf-trained, 24*s.* to 30*s.* per dozen; Dwarf, 1-yr. cutback, 10*s.* per dozen
PEACHES, Dwarf-trained, 24*s.* to 30*s.* per dozen
NECTARINES, Dwarf-trained, 24*s.* to 30*s.* per dozen
CURRANTS, Red, fine, 60*s.* per 1000
CHESTNUT, Horse, 5 to 6 feet, 40*s.* per 1000
ELM, Huntingdon, 8 to 10 feet, 50*s.* per 100
OAKS, English, fine, transplanted, 3 to 4 feet, 40*s.* per 1000; 4 to 5 feet, 50*s.* per 1000; 5 to 6 feet, 60*s.* per 1000; 6 to 8 feet, 80*s.* per 1000
PRIVET, Evergreen, fine transplanted, 1½ to 2 feet, 15*s.* per 1000; 2 to 3 feet, 20*s.* per 1000
PINUS AUSTRIACA, 1½ to 2 feet, 40*s.* per 1000; 2 to 3 feet, 60*s.* per 1000; 3 to 4 feet, 120*s.* per 1000
WHITETHORN or QUICK, 2 and 3 years transplanted, 8*s.* to 11*s.* per 1000
BLACKTHORN, fine, 2 to 3 feet, 17*s.* per 1000
BERBERIS AQUIFOLIA, 1 to 1½ foot, 18*s.* per 1000; 1½ to 2 feet, 50*s.* per 1000
BOX, Green, fine bushy, 1 to 1½ foot, 80*s.* per 1000; 1½ to 2 feet, 100*s.* per 1000
CEDRUS DEODARA, 1½ to 2 feet, 18*s.* per dozen; 2 to 2½ feet, 21*s.* per dozen; 2½ to 3 feet, 24*s.* per dozen
CUPRESSUS LAWSONIANA, 1½ to 2 feet, 15*s.* per 100; 2 to 2½ feet, 20*s.* per 100; 2½ to 3 feet, 25*s.* per 100; 3 to 4 feet, 30*s.* per 100; 4 to 5 feet, 9*s.* per dozen
JUNIPERUS CHINENSIS, 1½ to 2 feet, 6*s.* per dozen; 2 to 2½ feet, 9*s.* per dozen; 2½ to 3 feet, 12*s.* per dozen
LAURELS, Common, 1½ to 2 feet, 60*s.* per 1000; 2 to 2½ feet, 70*s.* per 1000; 2½ to 3 feet, 80*s.* per 1000
LAURELS, Portugal, 1 to 1½ foot, 70*s.* per 1000; 1½ to 2 feet, 100*s.* per 1000; 2 to 2½ feet, 25*s.* per 100; 2½ to 3 feet, 35*s.* per 100; 3 to 3½ feet, 50*s.* per 100; 3½ to 4 feet, 70*s.* per 100; 4 to 5 feet, 100*s.* per 100
PICEA NORDMANNIANA, 1½ to 2 feet, 10*s.* per dozen
PINUS CEMBRA, 1½ to 2 feet, 20*s.* per 100; 2 to 2½ feet, 30*s.* per 100; 2½ to 3 feet, 40*s.* per 100; 3 to 4 feet, 60*s.* per 100
THUJA LOBBII, 2 to 2½ feet, 40*s.* per 100; 2½ to 3 feet, 50*s.* per 100; 3 to 4 feet, 10*s.* per dozen; 4 to 5 feet, 12*s.* per dozen; 5 to 6 feet, 18*s.* per dozen
THUJA AUREA, 1 to 1½ foot, 12*s.* per dozen; 1½ to 2 feet, 15*s.* per dozen; 2 to 2½ feet, 21*s.* per dozen; 2½ to 3 feet, 36*s.* per dozen
THUJOPSIS BOREALIS, 2½ to 3 feet, 12*s.* per dozen; 3 to 4 feet, 18*s.* per dozen; 4 to 5 feet, 24*s.* per dozen
YEWS, English, 1½ to 2 feet, 20*s.* per 100; 2 to 2½ feet, 25*s.* per 100; 2½ to 3 feet, 35*s.* per 100; 3 to 3½ feet, 45*s.* per 100

Wholesale and Retail CATALOGUES on application to
52, Market Square, Northampton.

PLANTING SEASON.

RHODODENDRONS

WILL BE SUPPLIED,

In Fifty of the most Popular and finest known Hardy Kinds,

Sturdy, Bushy Plants, 1½ to 2 feet high, at

£10 per 100,

Carriage Free to any Railway Station in England.

Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.

A Descriptive Catalogue free on application to

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,
MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

B. S. WILLIAMS,

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON,

Respectfully invites inspection of the choice and very extensive

Stock of Plants which he now has for Sale.

They comprise all the recent Introductions of Merit now to be found in European Gardens, as well as vast quantities of handsome Specimens, both large and small, of CAMELLIAS, AZALEAS, CAPE HEATHS, for Winter and Summer flowering, NEW HOLLAND PLANTS, a large and choice assortment of STOVE PLANTS, both flowering and ornamental leaved kinds, whilst the Collections of ORCHIDS, TREE FERNS, PALMS, and Succulent Plants are unsurpassed in the Trade.

The Cool-house Specimens, both large and small, are this season in splendid condition, and will amply repay a visit from any one about to furnish New Greenhouses or Conservatories; whilst the Stock of Winter Blooming Plants are extra fine, and well set with buds.

CATALOGUES gratis, and post free, on application.

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

ROSES, ROSES, ROSES.

SECOND TO NONE IN THE TRADE.

Extra Strong Plants of the Best Exhibition Varieties of

HYBRID PERPETUAL ROSES

At 9*s.* to 10*s.* per dozen; 60*s.* to 65*s.* per 100.

Catalogues Free on Application.

ALSO, LARGE STOCKS OF
Fruit, Ornamental, and Forest Trees,
In fine Condition.

THE DORSET NURSERIES, BLANDFORD,
H. BLANDFORD, Proprietor.

NEW APPLE.

PEASGOOD'S NONESUCH.

Handsomest, and one of the Largest Autumn Apples in Cultivation.

AWARDED:—

First-Class Certificate at the Royal Horticultural Fruit Committee, September 18, 1872;

First-Class Certificate, Crystal Palace Show, September 8, 9, and 10, 1874.

See *Gardeners' Chronicle* Report, September 12; and Advertisement, September 19.

IN USE, SEPTEMBER TO NOVEMBER.

Strong Maidens, ready in November, 7s. 6d. each.

Trade Terms on Application.

A List of Nurserymen who have Ordered a Supply will be published on Saturday, November 7.

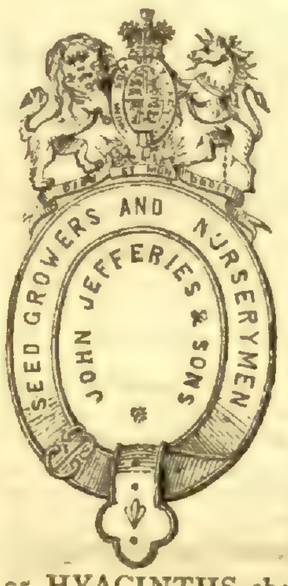
Coloured Plates are now ready, and will be sent Free to all Purchasers.

W. & J. BROWN,
NURSERYMEN, STAMFORD, LINCOLNSHIRE.

TREE FERNS.

THE LARGEST STOCK IN EUROPE,
and at Half the Prices usually charged.

Mr. WILLIAM BULL'S ESTABLISHMENT for NEW and RARE PLANTS,
King's Road, Chelsea, London, S.W.



THE CORINIUM

Guinea Collection of Bulbs,

Suitable for Outdoor, also Conservatory and Greenhouse.

This is the cheapest and contains the best supply of bulbs ever offered, which cannot fail to please purchasers the cost of the same, if each article were ordered separately, would be considerably more than 21*s.*, but owing to the large number we are constantly supplying of the several sorts included in the Collection, we are able to offer the under-mentioned liberal quantity.

25 HYACINTHS, choice, for borders.
6 Ditto, choice, for pots or water.
12 NARCISSUS, for pots.
12 Ditto, for borders.
12 JONQUILS.
25 TULIPS, assorted.
25 RANUNCULUS.
200 CROCUS, assorted.
100 SNOWDROPS.
50 ANEMONES.
4 IXIAS.
6 SCILLAS. [ATA.
6 TRITELEIA ODOR-
50 ACONITES, winter.

Carriage paid to any railway station in England.

JNO. JEFFERIES AND SONS,
Seed Merchants and Nurserymen, Cirencester.

MAURICE YOUNG'S

NEW DESCRIPTIVE CATALOGUE

Is now ready, and may be had on application.

IT COMPRISES:—

HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT,

QUEEN VICTORIA STREET,

CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),
FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to

THOMAS THORNTON,
Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

EVERGREEN SHRUBS for WINTER BEDDING.

	Per doz.—s.	d.
Aucuba japonica, 12 to 15 inches	8	0
Biota elegantissima, 9 to 10 inches	12	0
Double Gorse, 12 to 15 in.	6	0
Erica carnea, dwarf ..	6	0
,, multiflora rubra ..	6	0
,, vagans rubra ..	6	0
Golden Yews, 12 to 15 in.	12	0
,, Vinca, dwarf ..	3	0
Hartogia capensis, 12 to 15 inches	8	0
Japan Privet, 12 to 15 in.	6	0
,, Yews, 12 to 15 in.	9	0
Laurel, willow-leaved, 12 to 15 inches	6	0
,, Portugal, 12 to 15 inches	4	0
Laurel, Caucasian, 12 to 15 inches	4	0

	Per doz.—s.	d.
Laurel, rotundifolia, 12 to 15 inches	6	0
Mahonia Aquifolia, 12 to 15 inches	2	0
Menziesia, dwarf purple	6	0
,, ,, white	6	0
Pernettya angustifolia, dwarf	8	0
Tree Ivy, 12 to 15 inches	10	0
,, ,, Rœgneriana, 12 to 15 inches	12	0
,, ,, yellow berried, 9 to 12 inches	12	0
,, ,, silver striped, new, 9 to 10 in.	12	0
,, tricolor, 9 to 10 in.	12	0
Yucca filamentosa, 12 to 15 inches ..	12	0
,, gloriosa pendula, 12 to 15 inches	12	0

RICHARD SMITH, Nurseryman, Worcester.

ROSES.

Twelve Acres of Standard and Dwarf Roses, all clean, strong, healthy, fully ripened and well rooted.

Eighty thousand choicest Tea-scented and Noisette Roses, in pots for Conservatories, walls, and sheltered situations out-of-doors.

Extra strong Hybrid Perpetual Roses of best sorts, in pots, for forcing.

Climbing Roses in great variety, for quickly covering Rockwork, Pillars, Trellises, &c.

Descriptive Price LIST on application.

R. S. will be happy to give a special quotation for large quantities.

RICHARD SMITH, Nurseryman, Worcester.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers as under, in fine, strong plants:—

TRITOMA UVARIA, 10s. per 100.
,, ,, GRANDIFLORA, 10s. per 100.
SEAKALE, 1-yr. fine, 25s. per 1000.
SEAKALE, 2-yr. fine, 45s. per 1000.

CATALOGUES of NURSERY STOCK now ready, and forwarded on application.

VINES, VINES, VINES—EPIPHYLLUMS, PERESKIA STOCKS.

VINES.—Fruiting and Planting Canes, strong, well ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Buckland Sweetwater, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2s. 6d. to 5s. each; a few extra strong canes, 6s. 6d.

EPIPHYLLUMS.—Good Standards, with nice heads, in twelve best sorts, 9s. and 12s. per dozen.

PERESKIA STOCKS, out of pots, 15s. per 100.

CINERARIA HYBRIDA, fl.-pl., 6s. per dozen.

WM CLIBRAN AND SON, Oldfield Nursery, Altrincham.

WILLIAM POTTEN begs to offer as follows:—20,000 Red and Black GURRANTS, 1-yr. and 2-yr. old, strong trees, including Black Naples, Ogden's Black, Red Dutch, &c.; several thousand GOOSEBERRIES, 1-yr. and 2-yr. old trees, including Whitesmith, Warrington, &c. Prices on application.

W. P.'s LIST of FRUIT TREES, ROSES, &c., will be sent post free to all applicants.

Choice Tricolor, Bronze, Double, and Zonal GERANIUMS, including all the best varieties in cultivation. ALTERNANTHERAS, CINERARIAS, PRIMULAS, CYCLAMEN, SPIRÆA JAPONICA, FERNS, &c., good plants. A LIST of the above post free to all applicants.

The Nursery, Sissinghurst, Staplehurst, Kent.

The Planting Season.

WOOD AND CO., in consequence of having to clear a portion of their Land this season, are prepared to offer, at very reduced prices, a part of their extensive NURSERY STOCK, consisting of some thousands of Fruit and Forest Trees, Conifers, Laurels (Portugal do., handsome specimens), Evergreen Shrubs and Roses; all which are very healthy and in fine condition for removal. Price and all particulars on application. Barbourne Nurseries, Worcester.

Carriage Paid to London.

ROSES.—CHARLES BURLEY will send, package free, Standard Roses, fine heads, 12s. and 15s. per dozen; 12 first-rate Dwarf Roses for 7s., 50 for 26s., 100 for 50s. Maréchal Niel, on own roots, 3s. 6d. per dozen, post free.

PHLOX, best sorts, 2s. 6d. per dozen, post free.

ZONAL PELARGONIUMS, new (sent out in 1873), 12 for 5s.

Paradise Nursery, Brentwood.

From Paris.—Gladioli Seedlings,

per Colour, Mixed Seedlings, and Sorts per name.

LEVÊQUE AND SON, Nurserymen, Ivry-sur-Seine, near Paris, beg to offer, for the first time, SEEDLING GLADIOLI, in separate colours, beautiful, of flowers equal to the collection.

Mixed White, 12s. per 100; do. Red, 12s. per 100; do. Yellow, 24s. per 100, do. Rose, 12s. per 100.

Seedlings, mixed, of all colours, 8s. per 100, £3 4s. per 1000.

Their stock of named sorts is splendid, and cheap.

See the LIST, sent free on application.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.

The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.

Knap Hill Nursery, Woking, Surrey.

Richmond Nurseries, Richmond, Surrey.

(ESTABLISHED 1802.)

To the TRADE and large CONTRACTORS.

G. AND W. STEELL have to offer this season, extra to their usual large stock of ROSE, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN SHRUBS, &c., a large quantity of fine, clean-grown and straight in the stock Standard GOLDEN QUEEN and other varieties of variegated HOLLIES, from 2 to 5 feet in the stem; Pyramid Green and Variegated do., from 2 to 7 feet; also an immense quantity of Hybrid and Ponticum RHODODENDRONS, uncommonly well set with bloom-buds, which they are prepared to supply at extremely low figures. Where large quantities are required special prices will be given.

JULES DE COCK ET SŒUR, The Nurseries, Ledeberg, near Ghent, Belgium, offer to the Trade:—

100 AZALEA INDICA, good size and variety, 90s. to 300s.
100 CAMELLIAS, best variety, with buds, 100s. to 500s.
100 DRACÆNA INDIVISA, 1 foot high, 100s.
100 ,, ,, smaller, 35s.
100 ,, LINEATA, 1 foot high, 125s.
100 ,, ,, smaller, 35s.
100 CHAMÆROPS EXCELSA, or FORTUNEI, 16s.
100 CORYPHA AUSTRALIS, 24s.
100 PHŒNIX PUMILA, 32s.
100 ,, SYLVESTRIS, 32s.
100 ,, RECLINATA, 32s.
100 ,, TENUIS, 16s.
100 SABAL ADANSONI, 20s.
100 SPIRÆA JAPONICA 16s. and 20s.

Four Thousand Double-flowered Chinese Primrose.

E. G. HENDERSON AND SON can now offer of the above, strong healthy New Plants, of 1874 growth, including Atro-rosea, Blushing Beauty, Exquisite, Empress, Emperior, Lilac Queen, King of Purples, Magenta Queen, Magnifica, Mrs. Eyre Crabbe, Pearl Blossom, Princess of Wales, rubra grandiflora, &c. Twelve varieties, from 30s. to 42s. and 60s.

PRIMULA JAPONICA, mixed varieties, 9d. each, 6s. per dozen; in six colours, raised from selected home-grown plants 1s. 6d. each.

AUBRIETIA HENDERSONI, the finest variety in growth and colour, strong plants, 2s. each, 18s. per dozen.

DAISY, Flower of Spring, beautiful and effective, pure white, 1s. each, 9s. per dozen.

PINK, Rosy Morn, 1s. 6d. each.

VIOLETS, White Czar and Victoria regina, 1s. 6d. each.

CYCLAMEN PERSICUM (from 3000 plants), mixed colours, 9s., 12s., and 18s. per dozen; collection to name 21s. and 30s. per dozen.

The Trade supplied on usual terms for all the above.

For full descriptions see CATALOGUE 155.

Wellington Nursery, St. John's Wood, London, N.W.

PRETTY WINTER and SPRING FLOWERS

OF EASY CULTURE.

Carter's

COLLECTIONS OF BULBS

Sent on receipt of Post Office Order.

No. 14—For the Open Ground, adapted for Ordinary Good Garden Soil—Price 21s., contains:—

12 Hyacinths, in three colours.
12 Narcissus, double white.
12 ,, Poeticus, or Pheasant-eye.
25 Double Daffodils.
12 Tulips, extra fine mixed, double.
12 ,, ,, ,, single.
12 ,, finest mixed, late.
12 ,, Duc Van Thol.
6 Campernel Jonquils.
6 Polyanthus Narcissus, fine mixed.
12 Star of Bethlehem.
6 Triteleia uniflora.
6 Dog's-tooth Violets.
25 Crocus, blue.
50 ,, striped.
50 ,, large yellow.
25 Crocus, white.
24 Anemones, extra fine mixed.
12 Iris, extra choice mixed English.
12 ,, extra fine mixed Spanish.
3 Lilium candidum.
3 ,, tigrinum.
24 Ranunculus, extra fine mixed.
50 Snowdrops. 24 Winter Aconites.

Packing and Carriage Free.

Other Collections, price 10s. 6d., 42s., 63s., and 84s. 20s. value Carriage Free.

From the Rev. W. C. PLENDERLEATH, *Calne, Wilts.*

"I was unwise enough to get some Bulbs last autumn from another grower, and your 'Old Bulbs,' saved from forcing the year before, did better than those new ones, so I will not try the experiment again."

CARTER'S, THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

CHRYSANTHEMUM SHOW.

THE PINE-APPLE NURSERY COMPANY

Respectfully invite the Gardening Public to inspect the extensive Exhibition of this splendid Autumn Flower, which will continue during the month of November in their large Winter Garden.

MAIDA VALE, LONDON, W.

SEVEN INTERNATIONAL MEDALS AWARDED TO

JAMES GIBBS AND COMPANY,

SOLE MANUFACTURERS OF THE

PATENT AMMONIA-FIXED GUANO,

The Cheapest and Best Manure in use. Consumers are warned that none is genuine unless the Bags bear the TRADE MARK, and are secured with a Leaden Seal.

ALSO BONE AND SPECIAL MANURES,

OF THE BEST QUALITY, AND IN THE HIGHEST CONDITION.

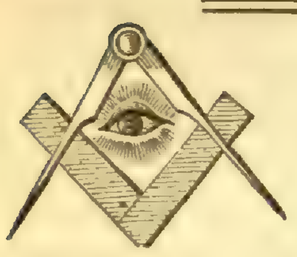
PARTICULARS OF

JAMES GIBBS AND COMPANY,

Works—Victoria Docks, London, E., and Cattedown, Plymouth. Offices—16, Mark Lane, London, E.C.

BY SPECIAL APPOINTMENT TO HER MAJESTY

AND HIS ROYAL HIGHNESS THE PRINCE OF WALES.



JOHN WILLS, F.R.H.S.,

RESPECTFULLY SOLICITS AN INSPECTION OF HIS UNRIVALLED

COLLECTIONS OF HANDSOME FOLIAGE PLANTS, TREE AND OTHER FERNS,

ORCHIDS, NEW PLANTS, &c.,

At his various Establishments, as under:—

I.

THE ROYAL EXOTIC NURSERY AND WINTER GARDEN, ONSLOW CRESCENT, SOUTH KENSINGTON, S.W.

II.

SUSSEX PLACE, OLD BROMPTON, S.W.

III.

THE MELBOURNE NURSERY, ANERLEY ROAD, NORWOOD, (NEAR THE CRYSTAL PALACE).

At this Establishment are to be seen the finest Collection of Dracænas, Crotons, and various New Plants in the country; Pitcher Plants, Ferns, &c., in endless variety; cultivated by Mr. F. Bause, J. Wills' skilful Manager.

IV.

NURSERY FOR ORCHIDS, PALMS, ROSE TREES, SHRUBS, &c., LEWIS PLACE, FULHAM FIELDS, S.W. And

V.

THE BOUQUET GROTTO, EXHIBITION ROAD, SOUTH KENSINGTON, S.W.,

Where Specimens of Rustic Work, Waterfalls, and Rockeries may be seen.

THE MOST MODERATE PRICES, IN ALL INSTANCES, ARE CHARGED FOR PLANTS AND DECORATIONS.

MOST EXTENSIVE FLORAL DECORATIONS in LONDON are ARRANGED under J. W.'s PERSONAL SUPERINTENDENCE.

J. W. is also extensively engaged in the Arranging and Planting of Conservatories, the Construction of Waterfalls, Rockeries, &c., in all parts of the country, and may be consulted in any part of the Kingdom. References are kindly permitted to several large and important Works already carried out. A large Staff of most reliable Workmen are kept.

CATALOGUES OF PLANTS, BULBS, &c., SENT ON APPLICATION.

WEDDING AND OTHER BOUQUETS, CHOICE CUT FLOWERS, &c., CAREFULLY PACKED AND SENT TO ANY PART OF THE COUNTRY ON THE SHORTEST NOTICE.

JOHN WILLS, F.R.H.S.,

(BY SPECIAL APPOINTMENT NURSERYMAN, FLORIST, AND BOUQUETIST TO HER MAJESTY AND THE ROYAL FAMILY).

ROYAL EXOTIC NURSERY AND WINTER GARDEN,

ONSLOW CRESCENT, SOUTH KENSINGTON, LONDON, S.W.

Gold Medal, Royal Horticultural Show, 1872.
London, 1873. Vienna, 1873.

NO BENT GLASS.

FLETCHER, LOWNDES & CO.,

13 A, GREAT GEORGE STREET,
WESTMINSTER, S.W.,

PATENTEES AND MANUFACTURERS OF

WOOD AND IRON

Conservatories, Greenhouses,
Vineries,

And every description of

HORTICULTURAL BUILDING

Constructed on our

PATENT TUBULAR RIB SYSTEM,

EITHER PLAIN OR ORNAMENTAL.

Also of the

PATENT

VENTILATING and VAPORISING
HEATING APPARATUS,

By which Purity of Atmosphere is Secured, and
Great Saving of Fuel Effected.

Churches, Public Buildings, Mansions, and Horticultural Buildings Heated by Hot Water.

FLETCHER, LOWNDES & CO.,
13a, Great George Street, Westminster,
LONDON, S.W.

SATURDAY, OCTOBER 31, 1874.

THE CHRYSANTHEMUM.

THE dreariest time of the year is fast approaching. December, even if, as often happens in these degenerate days, it is mild and damp to an unpleasant degree, has at any rate a traditionary reputation for bright clear frosty days and long cheerful evenings, not to mention that it brings Christmas with it, and all the friendly gatherings and associations which cluster round the great birthday. Then in January, as the carol sings:—

> "Though the cold grows stronger
> Yet the days grow longer,"

and this lengthening of the days and the signs of renewing life which the new year so soon brings with it are in themselves cheerful and encouraging. But November! who shall say a good word for the month of damps and fogs —for the month of cheerless and shortening days—a month so hopelessly wretched that its selection as the "Mois des Morts," as the French call it, seems the most natural thing in the world—the month when the sodden leaves are thick upon the paths, and the dense brown choking fogs hang over cities and rivers like a pall. What shall brighten our gardens, from which the "last Rose of summer" has long disappeared and which boasts a few limp Michaelmas Daisies as a legacy from brighter days? Only one plant comes forward to fill the breach, but it is one which presents us with so much variety in the form and colour of its blossoms that it is a host in itself, and by its brightness and cheerfulness compensates as far as may be for the absence of the brighter flowers of the past season. It is to the Chrysanthemum that we must look to fill the gaps which have been made in our floral ranks, and it will be found well worthy of any confidence which we may repose in it.

Much is said now-a-days in praise of "old-fashioned gardens," and deservedly so. Who that has read Henry Kingsley's delightful sketch of *Hornby Mills Garden* has not longed to construct—or at least to behold—such a pleasaunce as he there describes? (By the way, what a charming old word that pleasaunce is! —as far preferable to any of its modern substitutes as a nosegay is to a bouquet.) "Waterer in those days was a comparatively young man at Bagshot, and Azaleas were hardly invented;" but somehow or other people made a good show without them, and a show which was continuous throughout most of the year. But if we go back in imagination a hundred years or so, and attempt to fill our beds with the flowers then in vogue, we shall find ourselves somewhat puzzled. No scarlet Pelargoniums and yellow Calceolarias, the acme of vulgar modern gardening when placed together; no Beet (except in the kitchen garden); no Lobelia; no "foliage plants" as now employed; no funereal Perilla or pickled-Cabbage-like Alternanthera; no Heliotrope; no Verbenas (they are going out of fashion now, *vice* Beetroot promoted); no Dahlias, and—what is more *à propos* to our present purpose—no Chrysanthemums. Like many other "good old times," such as the "golden age" of Queen Bess, distance, no doubt, lends additional enchantment to the view; still, an old-fashioned English garden is so delightful a thing that we may be excused for wishing that it were more frequently met with. In our public gardens there seems no reason why the bedding system should reign supreme. At Kew, for instance, it would surely be a commendable innovation upon the arrangement of beds in the main walk, which hardly varies from one year to another, if a mixed border of taller herbaceous plants were placed as a background here and there to the flat, oblong beds of Pelargoniums, Calceolarias, and similar flowers. This is certainly one of the things that they manage better in France, especially at the Luxembourg gardens and at the Louvre.

Now that we have somehow or other got back, after this long digression, to the Chrysanthemum, which was intended to be the subject of this paper, we may note a few of the interesting points connected with it and its introduction.

So far as we can ascertain, the Pompon was the first form of the Chrysanthemum which was introduced to our gardens, a specimen which had flowered in the Chelsea Botanic Garden having been presented to the Royal Society as early as 1764. If such was the case, however the plant was soon lost to gardens, and did not obtain anything like general popularity until it was reintroduced by Mr. Fortune under the name of the Chusan Daisy. It is a prim-looking plant, and, to our eyes, by no means so attractive as the more free-growing larger form; but it is useful as a contrast, and as coming at a time when flowers are scarce, and some even prefer it to the latter variety.

The pink-flowered large Chrysanthemum, which is now so common in our London gardens, was introduced to the Royal gardens at Kew, in 1790, from France; it is figured in the *Botanical Magazine* for 1796, from specimens which had flowered at Colvill's nursery at Chelsea. A very good account of its introduction to Europe and the earlier known varieties is given by Sabine in the Horticultural Society's *Transactions*, from which it appears that the introduction of many varieties of the Chrysanthemum to England was mainly due to Sir Abraham Hume. A merchant of Marseilles, named Blancard, introduced these varieties from China to Marseilles in 1789. Two of these died, but the third, the common pink variety above referred to, survived, and was sent to Paris. "Between the years 1798 and 1803 inclusive eight new varieties were imported from China into England, in the following order—the rose and buff together in 1798; the golden-yellow and the quilled yellow together in 1802; the sulphur-yellow at the latter end of the same year; the Spanish brown in 1806, and the quilled white and large lilac together in 1808." From this time the popularity of the Chrysanthemum has steadily increased; the yearly shows in the Temple Gardens have done much to encourage it; and the wonderful variety in form and colour which the plant presents, especially since the introduction of the singular Japanese Chrysanthemums, which have more than once been noticed in these columns, has secured it a permanent place among florists' flowers.

The popularity of the Chrysanthemum among the Chinese and Japanese is well known, and has been referred to by the older writers, such as Rumphius, Loureiro, and Thunberg. No doubt the folk-lore of so favourite a plant is in its own country very extensive; but few details concerning it have reached us. It is said, however, that a liquor is distilled from its flowers which is regarded as an "elixir of life," and this property was accidentally discovered by the natives of a village who employed as their ordinary drink water from a stream which in its course washed the blossoms of the Chrysanthemums which grew in great luxuriance along its course. In the Chinese pharmacopœia various good qualities are placed to its credit; a powder of the flowers is given as a cure for

drunkenness—a hint which may prove useful to our temperance associations; and the general properties of the plant are tonic, sedative, and cosmetic. A curious variety is that known by a name signifying in English "the drunken woman;" this form has small white flowers which droop in the morning, becoming erect during the day, and hanging down again as evening approaches. The Chrysanthemum is also much used in China in room decoration on the occasion of domestic festivities; and the courtyards and windows are often filled with it.

The Japanese have a singular way of employing the blossoms of the Chrysanthemum. Mr. Fortune tells us that, in the tea gardens near Yeddo, the most curious objects are imitation ladies made up out of these flowers. Thousands of blossoms are used for the purpose; and "as these artificial beauties smiled upon the visitors out of the little alcoves and summer-houses the effect was oftentimes rather startling." *B. M.*

New Garden Plants.

Begonia Frœbelii, *A. de C., sp. nov.**

Messrs. Frœbel & Co., nurserymen of Zurich, desirous of knowing the name of a beautiful Begonia, which they had received from the Republic of Ecuador, sent me a plant in full flower. On examination it proved to be a new species, nearly allied to B. cinnabarina, Hook. f., belonging to the section Huszia of the *Prodromus*, and which I propose to call B. Frœbelii. The characters of the species may be given as follows:—

Leaves all radical. Petiole from 5 to 8 c.m. (2—3 in.), more or less red-coloured, nearly smooth at the base, more and more woolly towards the top. Limb 6—10 c.m. long, 5—7 wide. Stipules 5—6 m.m. long (¼ in. about), 3—4 m.m. broad at the base, acute, nearly smooth. Inflorescence red-coloured, 4—6 flowered. Bracts 6—10 m.m. long; the inferior obtuse, denticulated, the superior acute and nearly entire. Pedicels 1—2 c.m. long. Hairs of the scapes, peduncles, and petioles soft, patent, not very long. Flowers of a splendid scarlet colour. Sepals of the male 2 c.m. long, 12—15 m.m. broad; petals nearly equal in length, but narrowed at the base. Stamens springing from a convex thalamus; filaments 3 m.m. long; anthers 3—4 m.m., straight, linear, rather acute at the top. In the female flower there is no bracteole, but five lobes, each about 2 c.m. long. Styles as in B. cinnabarina and allied species, and, probably, persistent. Placentas three, deeply bipartite, bearing ovules on either face of the divisions. Young fruits pubescent, attenuated at the base.

It differs from B. cinnabarina in its more elliptic, more deeply cordate leaves, its less obtuse bracts, the base of its capsule probably acute, but I have only seen it in the young state; from B. Veitchii by its more hairy leaves, and by the hairs of the scape and of the petioles shorter, less patent; from B. Clarkei by similar small differences and by the colour of the flower (not rose but scarlet), and from all these species by the shape of the anthers, which is strictly linear, not obovoid,† a character which appears more constant in this genus than any difference of hairs, shape of leaves, &c. The country also is different, all these species being from Bolivia or Peru, whilst this is from Ecuador; and, generally speaking, Begonias are very local plants. *Alph. de Candolle.*

Sedum pulchellum, *Michx.*‡

A short time since we received from the Rev. H. N. Ellacombe, Bitton, a specimen of this very pretty resumably hardy Sedum, which, though well-nown in America, has not previously, so far as we know, been introduced into English gardens. The habit of the flowering shoot is shown in Mr. W. G. Smith's illustration (fig. 111). The colour of the flowers is pale rosy-lilac.

It is a perennial with trailing, barren, and erect flowering stems. The leaves are alternate, sessile, gibbous at the base, linear, terete, glaucous green, and scarcely half an inch in length. The inflorescence is a 3—4 branched spreading cyme, with the flowers crowded in two rows along the upper surface only, and each provided with a leaf-like bract. Each flower is about half an inch in diameter, has linear-oblong sepals, lanceolate acuminate carinate keeled petals, stamens of unequal length, but all shorter than the petals, and orange-coloured oblong anthers. The carpels are 3—4 in number, greenish, as long as the stamens. The glands at their base are small and emarginate.

Its neat habit and pretty flowers will render this a favourite with lovers of alpine and rock plants. It must not be confounded with the Sedum pulchellum of gardens, under which erroneous name we have met both with S. sexangulare and S. Lydium. *M. T. M.*

Fig. 111.—Sedum pulchellum, natural size; detached leaf and flower magnified.

* Tuberosa; scapis erectis quam folia radicalia duplo fere longioribus, sursum pluries bifidis, ut petioli piloso-lanuginosis; foliis oblique ellipticis, palmatim 7—9-nervis, margine undulatis et crenulatis, supra sparsim pilosis, subtus dense piloso-lanuginosis; stipulis triangularibus; bracteis ovato-acutis, ut pedunculi, pedicelli, floresque externe pubescentibus; floribus coccineis; masc. disepalis, dipetalis, amplis; antheris linearibus, filamento æqualibus; fem. 5-lobis; alis obtusis, una majore

† In the *Prodromus*, speaking of the B. cinnabarina, I said, by error, "antheræ filamento sublongiores," whilst in my specimens from Weddell they are shorter than the filaments. As to the shape it is obovoid, obtuse, not linear.

‡ Stems ascending or trailing (4—12 inches high), leaves terete, linear-filiform, much crowded; spikes of the cyme several densely flowered; petals rose-purple. Virginia to South Illinois, Kentucky and southward. *A. Gray, Manual of the Botany of the Northern United States*, p. 172.

LAMINGTON HOUSE,

The seat of Alexander Baillie Cochrane, Esq., M.P., is situated in the upper ward of Lanarkshire, about 1 mile north-east from the Lamington Station of the Caledonian Railway, and is approached from the high road leading from Edinburgh to Dumfries. Here most extensive improvements have been going on for several years. We were so struck with the general arrangements and alterations at this place since our last visit some ten years ago, that we asked permission to take a few notes of the place. The principal approach from the south is by means of a curiously-wrought rustic oak gate and neat lodge. This road is spacious and well directed by a gentle curve towards the mansion. Each side is kept in short grass, about 15 feet in. Beyond, on either side, are thriving young plantations, principally of Larch and Spruce, with the hardier sorts of Pinus intermixed. The approach from the east is entered by a gate and lodge, in all respects similar to the former—two rows of Limes running its entire length are planted on each side, 20 feet apart. The views from this road are extensive and varied, especially in a westerly direction. The grounds from the house to the east and north-east rise with a gradual slope to a great height. Here along the hillsides there have been laid down over 150 acres of young plantations. The positions those plantations occupy, we understand, were selected by the proprietor himself. The choice of the ground is most judicious, as the sites present great variety of surface, the planting being well adapted to the natural irregularities of the ground. One can imagine what a very interesting and picturesque place this will be after the lapse of a few years, when the plantations have assumed more of their distinctive characters—the outlines of some of them at a distance being little more than visible at present. The conservatory is an exceedingly handsome erection, forming, as it were, a portion of the south side of the house. It is entered from the billiard-room, and is so arranged that a good view of the plants is obtained from a room which adjoins it on the north side, called Wallace's Hall, and wherein is kept Wallace's chair, taken from the old Tower of Lamington. It may be interesting here to notice that Mr. B. Cochrane is the lineal descendant of Wallace, the patriot hero of Scotland, Wallace having married the heiress of Lamington. From this room the whole of the conservatory may be seen at once through three large plate-glass windows. In it is a fine collection of the newer varieties of Zonal Pelargoniums, in remarkably fine flower. At the back of the conservatory, and running the entire length of the house, is a spacious corridor. Here and there on each side are some beautiful China vases. These are filled with cut shoots of the different varieties of Ivy, and though the materials were very simple, the effect was good, and the arrangement showed great taste. The collection of plants here is rather extensive. There are many examples of good culture amongst fine-foliaged plants, as this house is at all times kept gay by plants brought from the other divisions. The back wall is covered with creeping plants of the most approved sorts, amongst which Jasminum grandiflorum, Plumbago

capensis, Lapageria rosea, Viburnum macrocephalum, &c., occupy a large space. One very pleasing feature in this conservatory is a large chandelier suspended from the roof, wholly of glass, the branches entwined with beautiful imitations of foliage and flowers disposed in a most fantastic manner, Convolvulus and Calla æthiopica being predominant On each side hang two neat wire baskets filled with Lobelia Erinus speciosa and variegated Pelargoniums. When this house is lighted up at night the effect is most charming.

To the south-west of the mansion there has lately been laid down a new kitchen garden with a fine range of glass. Entering from the east the first house in the division is the stove, 30 by 16 feet, span-roofed In it is a collection of well-managed plants, particularly the following: — Stephanotis floribunda, Alocasias, Dracæna Cooperi, a grand plant of Eucharis amazonica, Pleroma Benthamiana, Hexacentris rosea, Poinsettias, Æchmea fulgens, Pancratiums, Marantas, Caladiums, Aphelandra Roezlii, Palms, Seaforthia elegans, Areca lutescens, Curculigo recurvata variegata, Adiantum farleyense, Davallia pyxidata, Lycopodium africana and cæsium arboreum, &c. Mr. Robertson, Mr. B. Cochrane's head gardener, turns Epiphyllum truncatum elegans to good account for table decoration, now so much practised. No. 2 is a lean-to vinery, 30 by 18 feet, with a very fine crop, principally Black Hamburgh. No. 3 is a greenhouse, 30 by 18 feet, containing a very choice collection, principally of soft-wooded plants, intermixed with a few very well managed Azaleas and Ericas. No. 4 is a vinery, 30 by 18 feet, a mixed house, with a very fine crop, with large examples of Muscat of Alexandria. No. 5 is a lean-to greenhouse, 30 by 18 feet, facing north, used principally as a retarding house in summer and autumn, and which is found very useful. Last of all, there is at this place about the best potting-shed we have seen. This is a lean-to, 30 by 14 feet, facing north, and covered with rolled obscured glass. There is a late Peach-house in course of erection, 34 by 16 feet. All the above have been erected by Mr. Lowe, Edinburgh.

The flower garden lies to the west of the house, on two flat terraces, approached from a broad walk that runs parallel with it, and is reached by two flights of steps; on the top of each flight are placed two beautiful stone vases. In designing this garden special attention has been paid to make its dimensions proportionate to the position it occupies. The figures are cut out of the grass, and an edging of neat Box is laid just within the turf; then, again, about 15 inches in on the beds is laid another edging of Box, forming, as it were, a small walk round each figure. This is laid with pure white spar, got from the lead mines in the neighbourhood, which gives the beds a remarkably neat and clean appearance. The effect is still more apparent when everything is in full flower. In the flower garden here great attention is paid to the habits of the plants and the arrangement of colours. Mrs. Cochrane's love of, and fine taste for, gardening, aided by the perseverance and good management of Mr. Robertson, her gardener, have been the means of collecting round her residence a gay assemblage of the leading bedding flowers of the day. The lawn extends to a considerable distance beyond the flower garden, and a beautiful stream of pure water runs through it, which is made to fall here and there over artificial rockwork. This is seen from all the windows on the west side of the mansion, and has a very pleasing and pretty effect. Over this stream there has been thrown a neat rustic bridge, from it a winding walk leads for nearly 2 miles into a nicely wooded glen, on entering which there are some grand old Planes on either side of the river, while here and there a bold mass of rock juts out into the mountain burn, giving to the whole a broken and rugged outline. Here is St. Mungo's Well, a place held in great veneration in days of old.

A little to the north from the top of this glen Mr. Cochrane has formed a large artificial lake; the situation has been well chosen, the hills on either side rising to a great height. The plantations seem to be particularly well managed and judiciously thinned out, every tree, as it were, standing on its own feet. The Silver Firs especially promise to be grand objects in time.

The kitchen garden is not large, but particularly well-stocked and scrupulously clean — an essential point in all well-regulated places.

The mansion-house is a beautiful erection, of large dimensions, built in the old English cottage or Tudor style. The interior is admirably arranged and fitted up, and contains excellent suites of apartments, alike large in their proportions and superbly furnished. To the north the most comprehensive view is obtained. From the house in a westerly direction the grounds fall gradually down to the River Clyde, which follows all the western and northern boundaries of the estate. The arable land in this direction is very fertile, although to a certain extent limited. Turning from east to west the surface is hilly, and rises at some points to a great height. Tinto, which lies in a north-westerly direction, about three miles from the house, attains an altitude of 2236 feet. A little to the north-west of the house, on a gentle eminence, there has been erected by Mr. Cochrane, solely at his own expense, a very neat and handsome chapel and parsonage in connection with the Church of England. Mrs. B. Cochrane takes great interest in the education and well-being of the young on the estate. A little distance from the chapel there has been erected a most substantial schoolhouse, where the girls of the poorer classes receive their education free. Further on in the same direction stands the Castle or Tower of Lamington, which was a splendid building in the olden times. Turning to the south the village of Lamington is reached. The houses here have nearly all been recently re-built, and for comfort and convenience surpass the generality of villages of the same description. Each family has a good large garden behind the dwelling, and a tastefully laid-out flower-plot in front. We cannot close this without noticing the two handsome waiting-rooms put up here at the station solely at the expense of Mr. B. Cochrane for the comfort and convenience of the passengers waiting for the various trains. May such kindness and generosity be always appreciated as they deserve. *John Downie, West Coates Nursery, Edinburgh.*

Fig. 112.—Lamington House, Lanarkshire.

NOTES FROM A LANCASHIRE GARDEN.

October 15.—This is St. Luke's summer, or the "Indian summer," as it is called in America. The air is soft and warm and still. The yellow leaves fall from the Beeches in countless numbers, but slowly and noiselessly, and as if reluctant to let go their hold. The rooks come back to us again across the fields, and clamour among the empty nests, which were their homes in spring. The "remontant" Roses are putting out their latest blooms, and the Antirrhinums, Mulleins, and some few other flowers, show themselves "remontant" also. There is an aromatic fragrance everywhere from the withering leaves and from the lingering flowers.

But there is sadness with it all. We cannot deceive ourselves, but we know that all is now over, and that at any moment the frost may come and leave us nothing but decay and death.

There are some lines in Morris' *Earthly Paradise*—the very best lines, I think, in the whole poem—which speak of some old men's last peaceful days as

> "—like those days of later autumn-tide,
> When he who in some town may chance to bide
> Opens the window for the balmy air,
> And, seeing the golden hazy sky so fair,
> And from some city garden hearing still
> The wheeling rooks the air with music fill,—
> Sweet, hopeful music—thinketh, Is this spring?
> Surely the year can scarce be perishing.
> But then he leaves the clamour of the town,
> And sees the withered scanty leaves fall down;
> The half-ploughed field, the flowerless garden plot;
> The full dark stream, by summer long forgot;
> The tangled hedges where, relaxed and dead,
> The twining plants their withered berries shed,
> And feels therewith the treachery of the sun,
> And knows the pleasant time is well-nigh done."

Was picture ever more truly painted?—and any day" may be true for us.

Our Apple harvest has been over for nearly a fortnight; but how pleasant the orchard was while it lasted, and how pleasant the seat in the corner by the Limes, whence we see the distant spire on the green slopes 3 miles away. The grey, gnarled old Apple trees have, for the most part, done well. The Ribston Pippins are especially fine, and so is an Apple which we believe to be the King of the Pippins. On the other hand, we have some poor and worthless sorts—probably local varieties,—which no pomologist, however able and obliging, would undertake to name. One of the prettiest of Apples—and one of the best, too—is the Delaware. It has an orange-red colour, and reminds one almost of an Orange as it hangs upon the tree. It has a crisp, delicious flavour, but requires to be eaten as soon as it is ripe, for otherwise it soon gets mealy. Indeed all eating Apples, with but few exceptions, are best when freshly gathered, or better still when, on some clear soft day, they have just fallen on the grass, and lie there warmed by the rays of the autumn sun.

Of my Pears I have not much to say: the new trees I have planted have hardly come into bearing, and the old ones are of inferior quality. In another year or two, however, I shall hope to be supplied through all the winter months up to the middle of the spring. Plums have done but little, and Damsons, which are supposed to succeed so well in Lancashire, are an absolute failure. I must not forget the Red Siberian Crab, which has been laden with fruit, and one tree of which should find its corner in every garden. Lastly of all, I have to speak of the Barberry. There is a great bush which stands by the grass walk in the walled garden. In the summer it was a mass of scented yellow blossoms, round which the bees were always buzzing. Then, as the year grew older, bunches of bright coral hung over it from top to bottom. We consider our Barberries as not the least important of our fruit crop. We preserve them, some in bunches, some picked like Currants. We crystalise them in sugar, and they become delicious *bonbons*. We steep them in salt and water, and they keep as a gay garnish for cold meat or game. Our Barberry tree is not looking its best at present; a big branch has withered, and I must cut it in.

October 24.—Since I wrote we have had a great gale, which has swept over us, and torn down an Elm in the wood and a fine Chestnut in the croft. I could ill spare either of them, and it is but poor comfort to think that our piled up logs will outlast the winter. It was the "wild west wind," of which Shelley sings, which has done the mischief; and smaller branches lying scattered all over the lawn and walks show us where it passed.

We are now preparing our Mushroom bed, for we shall need it as the green vegetables fail us. I have said but little about the kitchen garden, for I do not suppose it differs much from that of other people. Our Peas have, however, served us particularly well, and we had our last dish on October 1—later than I ever before have known them here. One excellent vegetable I have generally grown, and I would thoroughly recommend it to any one who has space to spare: it is the French White Haricot. It is not often seen with us, though it is so very common in France. It is a species of French Bean, of which you eat the white bean itself instead of slicing up the pod. I suspect that, taking England through, there are very few gardens where the White Haricot is found. [More's the pity. Eds.]

We are now busy with our planting. Some Rhododendrons and Aucubas in the borders near the front gate have been pining away—starved by the Elm tree roots around them. We are trenching up the ground, cutting away what smaller roots we can, and putting in manure and some new shrubs. We are planting a row of Hollies to screen a wall towards the lane. We are moving a Salisburia adiantifolia, with its strange foliage like a gigantic Maidenhair Fern, from a corner into a more prominent place. We shall then set to work to rearrange the rockery. This, I think, I have never mentioned. In the middle of the little wood was once a pond, but I found the stagnant water and the soaking leaves, which fell and rotted there, no advantage to the place; I therefore drained away the water and planted beds of Azaleas and Rhododendrons along the slopes, with Primroses, Violets, and Blue Bells, and in the middle of all I have lately placed a tuft of Pampas-grass. On one slope I have managed a rockery with a stone tank in the centre, where for three summers past has flowered an Aponogeton distachyon. I have means of turning on fresh water into the tank, and I am well repaid for any trouble, as the little white boat-blossoms, laden with delicious spicy scent, rise up to the surface of their tiny lake. The rockery is, however, too much under the shade and drip of trees, and I cannot hope that delicate alpine flowers should grow there. Sedums and Saxifragas, Aquilegias, Aubrietias, the white Arabis, and the yellow Moneywort, besides Ferns of various kinds, all do well. In another part of the wood is a loggery, which I have entirely covered with the large white Bindweed, which rambles about at its own will, and opens its blossoms, sometimes a dozen at a time, all through the summer months. Past that, there is a little patch of Blue Bells, then more beds of Rhododendrons, and then a short walk which takes us by a private path to the village church, and then by another branch returns again towards the house. In this part of the grounds there is still room for planting, and I shall probably try some Tree Rhododendrons. A standard Honeysuckle, which I have endeavoured to grow, has done no good as yet; its shoots get nipped by the north-east winds, but I do not yet despair. The most useful undergrowth I find is the Elder; it thrives wonderfully, and is covered with blossom and with berry. One variety, the Parsley-leaved Elder, is here equally hardy with the common Elder, and much more graceful in its growth.

We have now to take in our tender and half-hardy plants, for fear of a sudden frost. The large Myrtles, which have stood out in their boxes, must be placed in safety, and the Lobelia cardinalis and other bedding plants which we may need next year must be removed.

My further plans for the coming year will properly come into next month's "Note"—the last Note I shall have to write about my garden for this year. *H.*

HERBACEOUS PLANTS.

ON THE BEST WAY OF ARRANGING THEM.

The taste for hardy plants, though still much less general than it was in the days when bedding out and subtropical gardens were unknown, is undoubtedly on the increase; and as the many beautiful plants belonging to this class become better known among gardeners, I have no doubt we shall see a border in almost every garden devoted to them. At present, however, except in a few places where the taste and knowledge of the proprietors demand a corresponding taste and skill from the gardener, hardy plants, if grown at all, are banished to some half-cared-for, out-of-the-way corner in the garden and grounds, where they are passed by without notice by visitors anxious to see the Grapes, Peaches, Orchids, and Pelargoniums, which demand so large a share of the attention of our modern gardeners.

I do not believe, however, that any one really fond of flowers, and knowing the wonderful variety and beauty of a well-chosen collection of hardy plants, will allow them to be absent from his garden on account of the ignorance or prejudice of his gardener. My object in writing this letter is to discuss the best means of arranging them, so that the borders or beds may at all times afford a certain amount of bloom and colour, and that the more delicate and fastidious plants may not be overrun by coarse rampant growers, or torn up and destroyed in winter by the spade of a careless labourer.

In the three best collections of hardy plants I have seen in England, namely, those of Mr. Wilson Saunders, at Hillfield; of the Rev. Mr. Ellacombe, at Bitton; and of Mr. Maw, at Benthall, no systematic plan was followed, plants of the same order and country being scattered through a series of beds and borders with more reference to their size, colour, and cultural requirements than to anything else. Mr. Maw's garden is decidedly the most formal and systematically arranged of the three, and contains the largest collection of plants, many of which, however, are grown by him on account of their associations and botanical interest rather than for their beauty.

Selection rather than collection is the point to be aimed at in ordinary gardens, and when we consider the vast number of plants which have been grown in England during the present century, and the few, comparatively speaking, that can find a place in most private establishments, it is evident that a very difficult task is placed before us. To choose out of at least 5000 or 6000 plants that can be and are grown in the open air the 500 or 600 best; is not to be done in a season, and will entail a good deal of thought and trial by those who have not much experience in them.

If more attention had been paid to this point, herbaceous plants would have a much better reputation, and many straggling and weedy plants which are still in cultivation would be replaced by better ones.

Now, there are many hardy perennials which, having been a good deal hybridised, and improved by florists, should, I think, rather be grown in a border by themselves or with a mixture of half hardy plants, than with the strictly botanical species. Among them I would include Delphiniums, Pyrethrums, Phloxes, Pentstemons, Auriculas, Pinks, Carnations, Asters, Pansies, Anemones, Ranunculus, German Iris; and among bulbs, Hyacinths, Tulips, Crocuses, Spanish and English Iris. These are indispensable, as many of them will vie with the best bedding plants in the brilliancy and endurance of their flowers.

Annuals, if desired, may be grown in the same borders, sowing at times and in places so as to fill up the gaps which would otherwise occur. This is the ordinary gardener's highest idea of a mixed border. Its beauty, if well arranged, cannot be contested by the most determined advocate of bedding-out, and it will endure from April till October. There is, however, another kind of mixed border, which, though not so showy or striking, will have a far deeper interest, and give a pleasurable occupation in collecting, planting, naming, dividing, seed-saving, lifting, and protecting from January till December. In this border, every month and every day will find some new flower out—some fresh and striking beauty, some curious fact or interesting observation will be noted. Here will be placed all the little floral treasures picked up in the course of our travels, whether at home or abroad. Here will be called to mind the thousand incidents connected with their acquisition; here we shall come in the first days of February sure of a bouquet of delicate gems. Here the last days of November will find us lingering over the last Cyclamen, the last Crocus, or protecting with ashes and hand-glass some rare or untried plant. Here will be our first visit on returning home after an absence, to see how that alpine Primula has thriven; whether the last novelty from Backhouse is in flower yet, and if the seeds which some friend in America sent us are up yet.

From this border we shall be able to send our friends away rejoicing, with a basket of gladly spared plants; for who so liberal in this way as the owner of a good herbaceous border? It is no use asking for a bit of that new Masdevallia or a plant of the Croton that we admire in our neighbour's houses. They won't divide—are worth too much money to be given away; but no lover of plants, let him be an old friend or an utter stranger, ever went away empty-handed from the gardens of such men as Messrs. Wilson Saunders, Maw, or Ellacombe.

I must not, however, in expatiating on the pleasures of a herbaceous border, lose sight of my original object, which was the arrangement of it.

In these days few would care to see the plants arranged by their natural orders except in a botanical garden; why then should we not try a new way—namely, to arrange them as far as possible according to their geographical distribution?

In this way we should not only be able to give a fair, though of course very partial idea of the flora of many parts of the globe, but we could, by grouping together plants from the same country, give them such treatment as would suit their peculiarities better than can be done when mixed indiscriminately.

All that is required is a good long border under a wall, or, what would be better, a series of beds in various parts of the garden. The one devoted to Japanese plants would be a sunny sheltered bed, the soil deep and peaty. The one for plants of the Mediterranean region would require a light sandy soil, well drained, in the driest and sunniest part of the garden. The Californian and Cape beds might require to be protected by lights in winter, or have some covering to keep off the heavy rains. The Himalayan bed would have a tiffany shading to protect its inmates against the spring

frosts and parching sun of summer, but the rest would want little more than ordinary soil and treatment.

This kind of arrangement would not be so easy to manage as it would at first seem, but it might I think be carried out with success, if nothing were planted without some previous acquaintance with its appearance and requirements. A trial ground or nursery is certainly necessary in all gardens where the culture of outdoor plants is carried on to any extent; by a careful selection from this, and from the existing borders we should make sure of planting in such a way that nothing would mar the success of the plan. If this idea is thought worthy of notice, I will in a future article give such a selection of plants as my limited experience and knowledge suggests to me. *H. J. Elwes.* [Please do so. EDS.]

Foreign Correspondence.

MUNICH, BAVARIA.—*Exhibition of Fungi.*—The Bairische Gartenbaugesellschaft at Munich arranged a display of fungi in the Crystal Palace, from the 3d to the 11th of October, which was visited by nearly 50,000 persons. It contained a greater number of species and specimens than the exhibition held in 1872. The arrangements for the display were entrusted to Mr. Max Kolb, the Inspector of the Royal Botanic Gardens, and he succeeded admirably. He made an artificial Fir wood, and dressed the entrance with beautiful foliaged plants. The fungi were placed on tables, on a carpet of sap-green Hypnum splendens, mixed with the light Leucobryum glaucum and red Sphagnum. To give it a nice hue, there were blooming plants, as Erica vulgaris, Gentiana asclepiadea and Pneumonanthe, Carlina acaulis, and berry-bearing branches of Atropa Belladonna, Convallaria Polygonatum, Lonicera alpigena and nigra, Solanum Dulcamara, Rosa canina, Rubus fruticosus and saxatilis, Paris, Euonymus, Bilberry, Cranberry, and other plants growing in the neighbourhood of fungi; they also fulfilled the purpose of separating the species or genera.

To keep the fungi in a good state, they were put in pots filled with a mixture of soil and charcoal. The latter had a very good effect, for it not only kept the fungi for a week tolerably fresh, but also prevented the ammoniacal odour which such a great quantity of fungi would have diffused during such a long time.

The botanists, Professor Allescher, Mr. T. Bachmaier, and Dr. Kranz, furnished the materials, and it was no easy task, after a dry period of nearly two months; yet it was found possible to send 141 species in 1033 specimens from the forests of Grünwald and Aubing, near Munich, and from the drifts of the Bavarian alps. We also had a basket sent from Kaiserslautern (Rhine Palatinate), another from Fichtelgebirg—most interesting sorts; and, although they were on the way during two days, they arrived in so good a condition that there is no doubt we could send them to England for the great fungus exhibition at Hereford, native fungi from the Bavarian highlands and the Alps, and that they would keep fresh enough. But in preparation for the voyage they must be collected in a peculiar manner, and be packed with great precaution.

According to our experience, the best method of collecting them is, firstly, not to break them, but to dig them out with the soil or moss in which they grow, and not to remove this basis; secondly, never to take an old specimen, but as young a one as can be got at; it developes during the voyage. In packing them up, one specimen ought not to touch the next one, nor be pressed by the one above it, therefore it would be best to put them into small trunks, or, better, baskets, and to fill up the interstices with nearly dried moss. The covering ought to have holes in it, to give them air.

The arrangement of the exhibition at Munich was a systematical one, and every species had its Latin and vulgar name, and other notes, written on a ticket. It was announced to the public that the eatable fungi had white tickets, the venomous sorts had green ones, and the indifferent red ones.

We observe that in the Catholic parts of South Germany there is peculiar attention paid to the fungi, as they supply the place of meat on the numerous fast days.

There was also a demonstration or lecture held (by a member of the Horticultural Society), about the eatable and venomous fungi, their cooking, and what to do in a case of poisoning by them. It was attended by a great number of ladies and gentlemen.

It was also intended to show the visitors, by cooked specimens, the taste, not well known, of common sorts, as Amanita rubescens, Agaricus mastoideus, eburneus, Columbetta, Prunulus, popinalis, and others, but it could not be done owing to the scarcity of specimens, but we hope that we may be able to do so next year. Joined to the exhibition of fungi there was another of a great many microscopical specimens of parasitical ones, which do damage in the rural economy. Those sketches showed to the public the progress and development of these nearly invisible plants. They were drawn by Professor Dr. Engler.

Subjoined is a complete list of the fungi exhibited:—

Amanita muscaria, L.
,, rubescens, Pers.
Agaricus procerus, Sc.
,, excoriatus, Schff.
,, mastoideus, Fr.
,, granulosus, Batsch
,, robustus, A. et S.
,, melleus, Vahl.
,, equestris, L.
,, auratus, Kr.
,, albo-bruneus, Pers.
,, Russula, Sch.
,, rutilans, Sch.
,, guttatus, Sch
,, Columbetta, Fr.
,, imbricatus, Fr.
,, vaccinus, Pers.
,, terreus, Sch.
,, saponaceus, Fr.
,, sulphureus, B.
,, Pomonæ, Lenz
,, acerbus, Bull
,, nebularis, Batsch
,, laccatus, Sc.
,, radicatus, Relh.
,, butyraceus, P.
,, velutipes, Curt.
,, purus, P.
,, galericulatus, Scop.
,, cervinus, Sch.
,, Prunulus, Sc.
,, popinalis, Fr.
,, caperatus, P.
,, squarrosus, Miller
,, adiposus, Batsch
,, mutabilis, Schff.
,, rimosus, Bull
,, fastibilis, Pers.
,, elatus, Batsch
,, flavidus, Sch.
,, crustiliniformis, Fr.
,, campestris, L.
,, sylvaticus, Sch.
,, lateritius, Batsch
,, fascicularis, Huds.
,, lacrymæbundus, Batsch
,, comatus, Müller
,, micaceus, Bull
Cortinarius varius, Fr.
,, variicolor, Fr.
,, cœrulescens, Fr.
,, purpurascens, Fr.
,, violaceus, Fr.
,, traganus, Fr.
,, cinnamomeus, Fr.
,, bivelus, Fr.
Gomphidius glutinosus, Fr.
,, vescidus, Fr.
Paxillus atrotomentosus, Fr.
Hygrophorus eburneus, Fr.
,, penarius, Fr.
,, fusco-albus, Fr.
,, pratensis, Fr.
,, virgineus, Fr.
,, miniatus, Fr.
,, conicus, Fr.
Lactarius scrobiculatus, Fr.
,, torminosus, Fr.
,, aspideus, Fr.
,, insulsus, Fr.
,, uvidus, Fr.
Lactarius pyrogallus, Fr.
,, piperatus, Fr.
,, vellereus, Fr.
,, deliciosus, Fr.
,, fuliginosus, Fr.
,, volemus, Fr.
,, camphoratus, Fr.
Russula adusta, Fr.
,, emetica, Fr.
,, fœtens, Fr.
Cantharellus cibarius, Fr.
,, aurantiacus, Fr.
,, lutescens, Bull
Nyctalis asterophora, Fr.
Marasmius Oreades, Fr.
Panus conchatus, Fr.
Lenzites betulina, Fr.
Boletus luteus, L.
,, piperatus, Bull
,, subtomentosus, L.
,, calopus, Pers.
luridus, Sch.
,, edulis, Bull
,, scaber, Bull
,, aurantiacus, Bull
,, squarrosus, Pers.
Fistulina hepatica, Fr.
Polyporus ovinus, L.
,, frondosus, Fr.
,, confluens, Fr.
,, giganteus, Fr.
,, versicolor, L.
,, hirsutus, Wolf.
Trametes suaveolens, Fr.
,, cinabarinus, Fr.
Dædalea quercina, P.
Hydnum imbricatum, L.
,, squamosum, Schffr.
,, subsquamosum, Batsch
,, repandum, L.
,, suaveolens, Leop.
,, cinereum, Bull
,, coraloides, Sc.
,, graveolens, Delast.
Irpex paradosus, Fr.
Craterellus clavatus, Fr.
,, pistillaris, Fr.
Clavaria flava, Schffr.
,, Botrytis, Pers.
,, crispa, Schffr.
,, aurea, Schffr.
,, formosa, Pers.
Calocera viscosa, Fr.
,, furcata, Fr.
Spathulea flavida, Pers.
Helvella crispa, Fr.
Morchella patula, Pers.
,, rimosipes, D.C.
,, conica, Pers.
,, esculenta, Pers.
Geaster hygrometricus, Pers.
Lycoperdon giganteum, Batsch
,, cœlatum, Bull
,, gemmatum, Batsch
,, echinatum, Fr.
,, pyriforme, Schffr.
Elaphomyces granulatus, Nees
Tuber cibarium, Sibth.
,, album, L.

Florists' Flowers.

THERE are indications that named varieties of CINERARIAS are, to use a homely phrase, finding their way back to cultivation again. Not that it is to be supposed that they ever went altogether out of cultivation, but, notwithstanding the immense popularity of this fine early spring flowering plant, named varieties did, for a time, become of comparatively little moment. A pinch of ordinary seed, it is frequently said, will produce quite as good flowers as the named varieties, but it is not entirely true. We can now obtain fine types of Cinerarias from seed, but if an improvement is to be effected in any class of plants it must be by means of the painstaking florist, whose constant aim it is to produce the highest results in size, form, and colour. In the case of all new florist's flowers it is the named varieties that reveal the most advanced outcome of the ideal in Nature.

Named Cinerarias are propagated in August and September by means of side shoots thrown up from the roots, which are carefully removed, potted singly in small pots, and struck in a close cold frame. The cultivator shifts his plants as they require it into larger pots, and gives all the air possible to keep them healthy and free from greenfly and mildew.

Now is the time to select specimens for exhibition next year, as well as for conservatory decoration. The stems ought to be strong, as they will require stopping in due season; and if they are lusty and vigorous they will soon throw out a fresh growth. The Cineraria is a plant that keeps growing all the winter, and the rule with cultivators of specimens is to shift these plants into fresh pots as soon as the roots reach the sides of the pots. When the centre stem is about 4 inches long it should be pinched out, and as soon as the stem has broken sufficiently to give forth the promise of strong side shoots, the plants are potted deeply into the flowering pots. A cold frame is the best place to keep the plants in while the weather is mild, but an occasional fumigation is requisite, as the leaves are very liable to become infested with greenfly, especially if, through stress of weather, the lights have to remain closed; and where mildew puts in an appearance on the leaves or stalks also, dust the affected parts with a little dry powdered sulphur. Use for the final potting a compost made of good turfy loam, one half, and decomposed manure and leaf-mould in equal parts to supply the other half, with some sand to keep it open. Every encouragement should be given to effect a healthy, vigorous growth. Keep the plants as near the glass as possible, and while there is no danger from frost give air at night, but keep close if frost appears imminent.

The Cineraria is soon stricken down by frost, therefore it is best to winter the plants in a frame that has a hot-water pipe or two running through it. Air must be freely given on all favourable occasions; mildew and greenfly are the grower's two great foes; the severer the weather the closer must the plants be kept, and the greater the danger of these pests spreading.

The following selection comprises the best of the named varieties now in cultivation:—Adam Bede, rose self; Blue Beard, deep blue self; Crimson Beauty, bright crimson, very fine; Charles Dickens, white, with rosy crimson margin; Flower of Spring, white, with very purple margin and dark disc; Lady Theodore Grosvenor, white, with broad dark blue margin; Lord Amberley, rich deep plum self; Mrs. Lascelles, pure white, with broad crimson margin; Miss Burdett Coutts, white, with narrow margin of blue; Princess Christian, white, maroon margin, dark disc; Multum in Parvo, white, tipped with deep blue; Orb of Day, white, with broad margin of rich glossy crimson, very fine; Reynolds Hole, scarlet-crimson self; and Snowflake, white with the disc.

This is the proper time to get in a selection of named varieties to form a collection. If they have been packed to come a journey, put the plants in a close cold frame to recover themselves, and then grow and shift as above directed. *R. D.*

Law Notes.

A CAUTION.—At the Shropshire Quarter Sessions, held in Shrewsbury on October 21, John Titley was indicted with obtaining, by false pretences, on August 27, at the parish of Shifnal, from John Barnett, the sum of 37*s.*, the property of the SHIFNAL COTTAGERS' HORTICULTURAL SOCIETY. The indictment was of great length, and contained several counts, but they all arose out of the same transaction. On August 27 last there was a flower show at Shifnal, and the prisoner applied to the secretary for permission to exhibit at it, stating that he lived at Gorsey Bank, which was within four miles of the town of Shifnal, to which distance the operations of the Society were confined. Upon the faith of that representation the prisoner was allowed to exhibit vegetables, fruit, and flowers. The prisoner obtained a large number of prizes with those articles, which, he said, had been grown in his own garden, within four miles of the town. When the public distribution of the prizes took place the prisoner did not appear, but afterwards attended at the committee tent and claimed the amount of his prizes (37*s.*), which was paid to him. The secretary of the Society having some doubts, visited Gorsey Bank, and found that the prisoner did not reside there, but at a place called Blymhill Common, which is some distance outside the radius of the Society's operations. The Secretary examined the fruit, flowers, and vegetables in the prisoner's garden, and found that they were of a totally different and inferior character to those which obtained the prizes on the day of the show. The prisoner subsequently refunded 26*s.*, and promised that the remainder should be paid. Mr. Warren, for the prisoner, addressed the jury, advancing, as an extenuating circumstance, that the defendant had been led into it by a man named Edward Burgess, a gardener in the employ of a large farmer in that neighbourhood, who had supplied the articles and received a portion of the money. The jury found the prisoner guilty, and he was sentenced to 21 days' hard labour. *Shrewsbury Chronicle.*

Notices of Books.

THE seventh volume of the *Transactions of the Royal Society of Arts and Sciences of Mauritius* contains, *inter alia*, a very interesting account of the vegetation of Mauritius, by M. L. Bouton, to which is added a complete alphabetical list of the plants known to inhabit the island. As we stated recently, Mr. Baker is commissioned to undertake a Flora of the island on the plan followed in the other colonial Floras.

—— We have received the second series of *Alpine Flowers* (Bell & Sons)—The 5th edition of Dr. Bennet's *Winter and Spring on the Shores of the Mediterranean* (Churchill)—*The Amazon and Madeira Rivers*, by Franz Keller, Engineer (Chapman & Hall)—*Sheep: the History, Structure, Economy, and Diseases of*; by W. C. Spooner, M.R.V.C. (Lockwood & Co.)

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

TO BE DISPOSED OF, the WHOLE or PART of an OLD-ESTABLISHED NURSERY BUSINESS, in good working order, within easy distance of London by rail. Principals only dealt with. Apply to HORTICULTURIST, *Gardeners' Chronicle* Office, W.C.

SALES BY AUCTION.

Tunbridge Wells.—Nov. 2, 3, and 4.

Without Reserve. Thirty Acres of Land must be Cleared.
GOLDSMITH PARK NURSERIES, GROOMBRIDGE, TUNBRIDGE WELLS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Edwin Hollamby to SELL by AUCTION, without reserve, on the Premises, as above, many thousands of beautifully grown specimens of WELLINGTONIA GIGANTEA, THUJOPSIS BOREALIS, THUJA GIGANTEA, CUPRESSUS LAWSONIANA, THUJA AUREA, RHODODENDRONS, 3 to 5 feet, well set with bloom; Hardy Ornamental TREES and SHRUBS, Standard and Dwarf ROSES (the whole having been recently transplanted would produce an immediate effect), &c., too numerous to name. The Nurseries are situate within five minutes' walk of Groombridge Station.

Plants carefully packed and forwarded to all parts of the world.

Descriptive Catalogues may be had by post, or at the Nurseries, and at the Parade, Tunbridge Wells.

Lewisham, S.E.

To GENTLEMEN, BUILDERS, NURSERYMEN, and OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. B. Maller to SELL by AUCTION, without reserve, on the Premises, the East Down Nursery, Lewisham, Surrey, on WEDNESDAY, November 11, at 11 for 12 o'Clock precisely, a large quantity of valuable NURSERY STOCK, including several thousands of Evergreen and Coniferæ Shrubs, comprising quantities of Yews, Cupressus, Aucubas, Arbor-vitæ, bushy Laurels, Ligustrum, Thujas, a fine assortment of well grown Ornamental Trees, amongst which may be found 700 unusually clean grown Horse Chestnuts, also a great variety of selected Fruit Trees, 2000 Standard and Dwarf Roses of the best varieties; 250 Irish Ivies, Virginian Creepers, &c.

May be viewed any day prior to the Sale; Catalogues may be had of Mr. B. MALLER, the Pavement, Lewisham, and of the Auctioneers and Valuers.

Hornsey, N.

CLEARANCE SALE of GENERAL NURSERY STOCK, the New River Company requiring the Land to be Cleared immediately for the Construction of their New Works.

MESSRS. PROTHEROE AND MORRIS have received instructions to SELL by AUCTION, on the Premises, Mr. Cleall's Nursery, Hornsey, Middlesex, N., close to the Hornsey Station, on THURSDAY and FRIDAY, November 12 and 13, at 11 for 12 o'Clock precisely each day, the valuable and thriving NURSERY STOCK, consisting of about 40,000 Evergreen and Deciduous Shrubs, in great variety; 20,000 Ornamental and Forest Trees, Fruit Trees, Hardy Climbers, the whole of the Stools and Layers, &c.

May be viewed three days prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, Essex, E.

Edgware, N.W.

IMPORTANT SALE of CHOICE and WELL-GROWN NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, on the Premises, the Whitchurch Rectory, Edgware, N.W., on MONDAY, November 16, at 11 for 12 o'Clock precisely, by order of the Proprietor, a portion of the Valuable NURSERY STOCK, consisting of a great variety of handsome Lawn Trees, including a large number of choice Piceas, a splendid collection of Evergreen Shrubs, selected Flowering Trees, large Fruit Trees, fine Standard and Dwarf Roses, and many other Trees and Shrubs, in excellent condition for removal, having been frequently transplanted and grown for sale.

May be viewed on the Saturday prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Wandsworth Common, S.W.

Eight days' Unreserved Sale of beautifully-grown Nursery Stock.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Robert Neal to SELL by AUCTION, without reserve, on the Premises, The Nursery, Wandsworth Common, Surrey, S.W. (five minutes' walk from Wandsworth Common Station, and ten minutes' from Clapham Junction), on MONDAY, November 2, and seven following days, at 11 for 12 o'Clock precisely each day, a portion of the land being immediately required for building purposes, an unusually large quantity of valuable NURSERY STOCK, consisting of a very extensive and particularly useful assortment of Evergreen and Coniferæ Shrubs of luxuriant growth and in fine condition for removal, comprising 22,000 variegated and green Hollies, 5000 bushy Aucubas, 5000 common Laurels, 3 to 5 feet; 10,000 Pines and Spruce, 1000 Cedrus atlantica and Deodara, 2000 Arbutus, thousands of Rhododendrons, Box, Arbutus, Arbor-vitæ, in variety; Cupressus, of sorts, and numerous other shrubs, many of which are handsome specimens; also 200,000 Ligustrum ovalifolium, 20,000 deciduous Shrubs, 500 specimen Weeping Trees, 5000 fine Limes, 6 to 10 feet; 1000 Planes, and 10,000 other ornamental Forest Trees, 10 to 12 feet; 10,000 Ivies, and other Hardy Climbers, in pots; 10,000 clean-grown Fruit Trees, of sorts; 3000 Deutzia gracilis, for potting; 5000 standard and dwarf Roses, &c. The Stock, on account of its extent, variety, aud unsurpassed growth, is well worth the attention of the Trade and others largely engaged in planting.

May be viewed any day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, E.

Feltham, Middlesex.

IMPORTANT NOTICE of an EXTENSIVE CLEARANCE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. J. & C. Lee to SELL by AUCTION, without reserve, at their branch Nursery, Feltham, Middlesex, on MONDAY, November 23, and following days, a large quantity of magnificently grown NURSERY STOCK, a portion of the land being at once required for other purposes.
Full particulars will shortly appear.

Lilium auratum.—English-grown Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 5, at half-past 12 o'Clock precisely, about 1000 English-grown Bulbs of LILIUM AURATUM, several of them gigantic bulbs, from 10 to 11 inches in circumference, and including many of the handsomest varieties yet introduced; 1000 CYCLAMEN EUROPÆUM, and a quantity of choice LILIES from California, Japan, and other countries, including the following rare kinds:—

Lilium Humboldtii	Lilium californicum
,, Brownii	,, speciosum atrosanguineum
,, speciosum Krœtzere	,, Washingtonianum purpureum
,, pulchellum	,, roseum
,, dalmaticum Catanii	,, monadelphum Szovitzianum
,, auratum rubro vittatum	,, Kamptschatcense
,, tenuifolium	,, Wilsoni
,, Thunbergianum splendens	
,, tigrinum flore-pleno	

And various others.
On view the morning of Sale, and Catalogues had.

Gravesend, Kent.

IMPORTANT SALE of VALUABLE NURSERY STOCK.

MR. J. GOULD is instructed to SELL by AUCTION, on the Premises, The Gravesend Nurseries, Gravesend, Kent (five minutes' walk from the railway station), on WEDNESDAY and THURSDAY, November 4 and 5, at 11 for 12 o'Clock precisely each day, without reserve, by order of Mr. Eves, extensive alterations necessitating an immediate removal of a large quantity of beautifully grown NURSERY STOCK, comprising a great number of magnificent specimen Coniferæ and Evergreens (many of them used for decorating the Gravesend Railway Station on the occasion of the recent Royal visit), such as Thuja aurea, Thuja gigantea, Thujopsis, Piceas, Lawsoniana, large Scotch and Spruce Fir, green and variegated Box, Fruit, Forest, and Ornamental Trees, Pampas-grass, Tritoma Uvaria, Ivies in pots, Grape Vines, Flower roots, Box edging, standard and dwarf Roses, &c.

May be viewed any day prior to the Sale. Catalogues on the Premises, and of the Auctioneer, Parrock Street, Gravesend.

To Noblemen, Gentlemen, Nurserymen, Market GARDENERS, and all engaged in Planting.

IMPORTANT and UNRESERVED SALE of FRUIT TREES, STANDARD ORNAMENTAL TREES for Park, Avenue, and Hedgerow Planting, EVERGREENS and FLOWERING SHRUBS, and STANDARD and DWARF ROSES, &c.

MR. HALL begs to state that he has received instructions from Messrs. Pennell & Son to submit the whole of their valuable STOCK of TREES, &c., growing in their Hill Side Nursery, at Bracebridge (1 mile from the Midland Railway Station, Lincoln), to PUBLIC AUCTION, on NOVEMBER 10, 11, and 12—Sale to commence each day at 11 o'Clock precisely. The Stock consists of several thousand Fruit Trees of all ages, sizes and forms—of Apples, Pears, Plums, Cherries, Peaches, Nectarines, Apricots, &c.; 1200 Madeira and other Hollies, sorts; 6000 Laurels, 5000 Yews, 3000 Arbor-vitæ, sorts; and several thousands of various Evergreens, Coniferæ, Cedars, Austrian Pines, Cupressus, &c., the whole recently transplanted and in fine condition for removal; 3000 Limes, 5000 Grafted and Budded Elms from 3 to 10 feet, and more than 200,000 Forest Trees, the whole of which must be cleared off in consequence of the Land being Sold.

The above Sale offers advantages to Gentlemen engaged in Planting rarely to be met with.

Catalogues are now ready, and will be forwarded on application to the Auctioneer, Lincoln; or to Messrs. PENNELL AND SON, Nurserymen, Lincoln.

Clearance Sale.—Newell's Nursery,
Nuthurst, about 3 miles from Horsham, Sussex.
IMPORTANT to GENTLEMEN furnishing Grounds, NURSERYMEN and OTHERS.

MR. CHARLES HUNT will SELL by AUCTION, without reserve (the grounds being required for other purposes), upon the Premises, on THURSDAY, November 12, at 11 for 12 o'Clock, by direction of the Executors of the late Mr. Frederick Allman, the extensivse stock of AMERICAN PLANTS, including Rhododendrons in variety, album grandiflorum, fastuosum flore-pleno; Kalmias, Azaleas, Magnolias, Piceas, Pinus, Hollies, Heaths and many others.

Catalogues now ready, and forwarded by post upon application to the Auctioneer, Horsham, or by Messrs. ALLMAN.

GRAND HORTICULTURAL EXHIBITION of CHRYSANTHEMUMS, PALMS, TREE FERNS, CONIFEROUS PLANTS, FLORAL BOUQUETS, will be held in the Royal Pomona Palace on TUESDAY, WEDNESDAY, and THURSDAY, December 1, 2, and 3.

FIVE HUNDRED POUNDS in PRIZES will be awarded for Grand Garden Fruit and Flowers, and will include:—

Foliage and Flowering Plants	Celosia pyramidalis
Greenhouse Palms	Ball Bouquets
Bay Trees	Bridal Bouquets
Ornamental Fruited Plants	Table Floral Design
Roman Hyacinths	Baskets of Flowers
Bunches of Cut Flowers	Drawing-room Plants
Japanese Plants	Hand Bouquets
Tree Ferns	Skeleton Leaves
Golden Yews	Bunches of Grapes
Table Decoration	Apples and Pears.

The Flower Show will be held in the Palace, where the graceful and lovely productions of Nature may be seen with advantage Day and Night.

The Show will be open at 2 P.M. on Tuesday, December 1; on Wednesday and Thursday, December 2 and 3, at 10 A.M.

For the benefit of the working classes, will remain open until 10 o'Clock each evening.

Admission 1s., children half-price. Wednesday, 6d., after 6 o'Clock.

Floral and Musical Promenade.

Prize Lists, and all other information, may be had from Mr. JAMES REILLY, the Proprietor.

FOR SALE, Eleven CAMELLIA PLANTS, in pots: Alba-pleno, Lady Hume's Blush, Henri Favre, Teutonia Valtevaredo, &c., 5 to 8 feet high; One ORANGE, 6 feet high.
DANIEL WOOD, Norwood Nursery, Beulah Hill, S.E.

Catalogues! Catalogues!!

EWING AND CO.'S PRICED, DESCRIPTIVE, and ILLUSTRATED CATALOGUES are now ready. Rose Catalogue, and Fruit Tree and General Nursery Catalogue—both are forwarded gratis and post-free to applicants.

Establishment for Horticultural Specialities.

J. B. DELEUIL, HORTICULTURIST, Traverse du Fada, Marseilles, France.—Special Cultures in AMARYLLIS, BEGONIA, ECHEVERIA, YUCCA, &c.
See CATALOGUE of NOVELTIES, just published.
ECHEVERIA SCAPHYLLA, 300 for Sale, in three lots, at a very low price.

NERTERA DEPRESSA, as described in the *Gardeners' Chronicle* of the 24th inst. Good plants, 12s. per dozen; price per 100 on application.
THE LAWSON SEED AND NURSERY COMPANY, LIMITED, Edinburgh, and 106, Southwark Street, London.

TURF of excellent quality can be put in trucks at the Lea Railway Station, on the South-Eastern Dartford Loop Line, at 9s. per 100 (33 square yards). Apply to Mr. J. POUND, Burnt Ash Lane, Lee, Kent, S.E.

To Curators, Contractors of Parks, and Others engaged in Planting.

TO BE DISPOSED OF, cheap, a quantity of DUTCH FLOWER ROOTS, comprising Hyacinths, Crocus, Tulips, Narcissus, &c., the Property of a Dutch Grower. For particulars and samples apply to
H. ALEXANDER, 299, Goswell Road, E.C.

CHEAP FRUIT TREES.—Fine 4-yr. Pyramid Apples, 9s. per doz., 60s. per 100; fine strong Pears, Plums, and Cherries, 10s. per doz., 80s. per 100; strong Black Currants, 10s. per 100, £4 per 1000; Red Currants, 8s. per 100, £3 per 1000; Gooseberries, 10s. per 100, £4 per 1000; Raspberries, strong, 8s. per 100.
CATALOGUE of TREES and SHRUBS, FRUIT TREES, ROSES, &c., on application.
R. THORNHILL, Bowdon Nurseries, Bowdon, Cheshire.

SCOTCH FIR, 9 to 12 inches, 9s. per 1000; 1½ to 2 feet, 15s. per 1000; 5 to 5½ feet, 40s. per 1000. SPRUCE FIR, 9 to 12 inches, 9s. per 1000; 1½ to 2 feet, 14s. per 1000. LARCH, 2 feet, 25s. per 1000. OAK, 3 to 4 feet, 20s. per 1000. SYCAMORE, BEECH, HOLLY, ASH, &c., all sizes very cheap; well transplanted.
JACKSON, Blakedown, Kidderminster.

Plant at Once.

CABBAGES.—For Ewes and Lambs, Sheep and Cows, or for Garden purposes, nothing can surpass Enfield Market and Robinson's Champion Drumhead. Good plants now ready, at 3s. per 1000, package free. Cash with orders. Large buyers liberally treated with. References given to the leading Agriculturists of the day.
Fine Red Dutch Pickling Cabbage Plants, 5s. per 1000.
F. GEE, Seed Grower, &c., Biggleswade, Beds.

New Variegated Holly.
ILEX MYRTIFOLIA AUREO MACULATA.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has the pleasure of offering to the public this very pretty new Holly. Good grafted plants at 21s. each (free to London), one over when three are ordered.
N.B.—LILIUM LANCIFOLIUM RUBRUM and ROSEUM, strong bulbs, 42s. per 100.
LILIUM POMPONICUM, very pretty, 6s. per dozen.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to
CARTERS', The Royal Seedsmen, High Holborn, London.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong Plants of which are now ready for sending out. List of Varieties and Prices, together with Catalogue of Dutch Bulbs, on application.
Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains 6 pair of choice Show Carnations, 6 pair of choice Show Picotees, 12 pair of Show Pinks, and 12 choice mixed Carnations and Picotees for borders. Carriage and package free on receipt of Post-office Order. Half the above quantities 11s.
Address, ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

SUPPLEMENT TO THE GARDENERS' CHRONICLE.

THE ROYAL PARKS AND GARDENS AT WINDSOR.

IF in the matter of Royal palaces in general we have not much to boast of, we have one which in beauty of situation, dignity of aspect, appropriateness of surroundings, and fulness of associations, extorts from no reluctant lips the opinion that Windsor is a residence worthy the Sovereign of so great a nation—

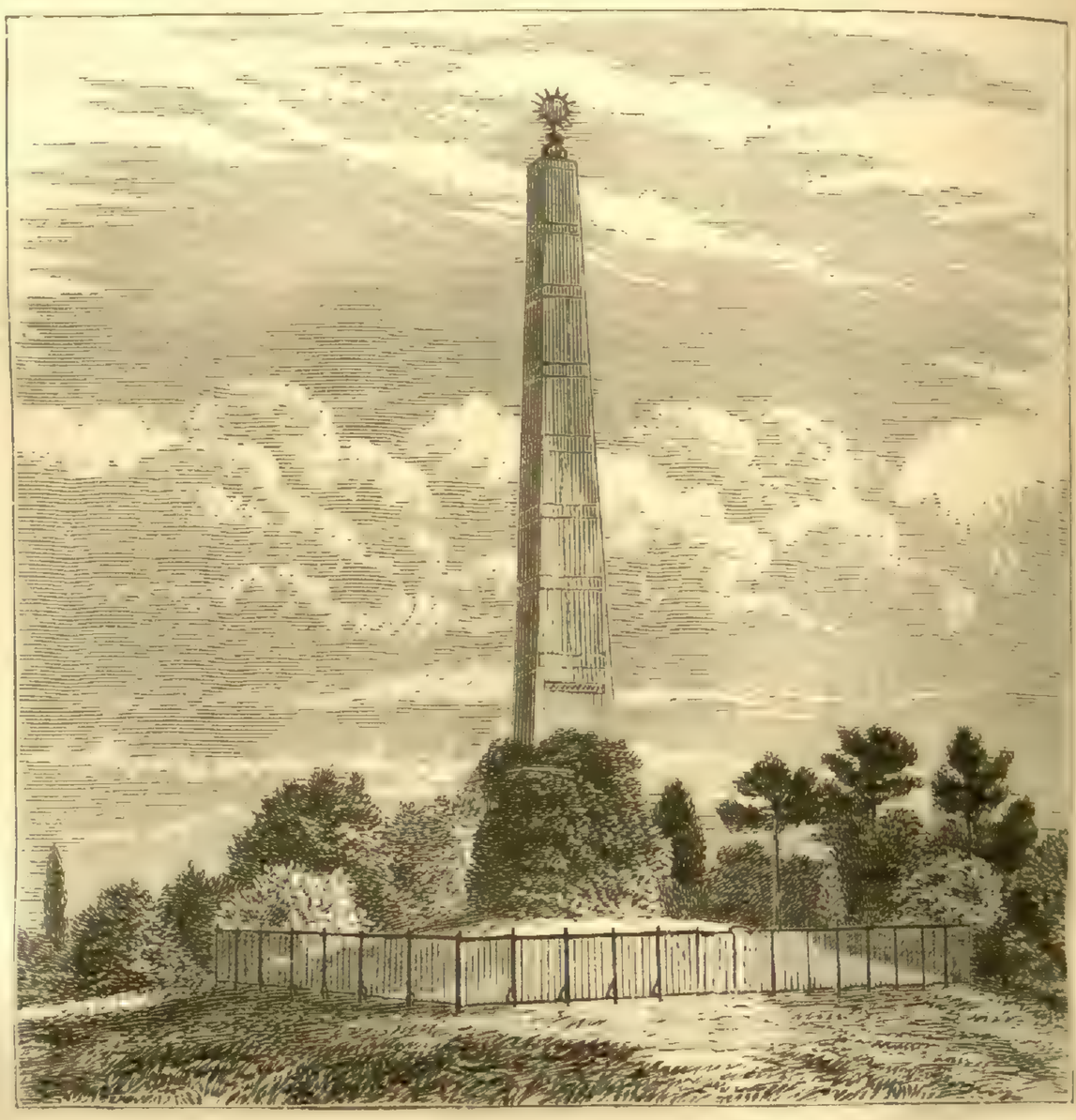
"Worthy the owner and the owner it."

Leaving the reader to glean from histories and guide-books the details relating to the historical associations, the architectural features, and the contained treasures of this noble pile, we must, from the exigencies of restricted space, confine ourselves to scarcely more than an enumeration of those points in the Royal gardens and the adjacent parks most likely to be of interest to our readers.

Like all our great institutions—like human life itself—the history of Windsor presents great contrasts: now a palace and now a prison—at one time the place where the Norman monarchs kept their Whitsun and their Christmas tides, where in the three first Edwards' days great tournaments and revels were held, where Elizabeth kept festival, where Henry VIII., Charles II., James II., Dutch William, Anne, the Georges, and especially George III., passed much of their time, and where in our own times so much that will be historic has taken place. On the other hand, it has its gloomy memories: here prisoners were "miserably famished to death;" here John was almost, if not quite, a prisoner till he signed Magna Charta at Runnymede hard by. The French King John, about a century and a half later, was a prisoner here after the fortune of war at Poictiers had led him to surrender to the Black Prince and his father the third Edward. Here the unhappy James I. of Scotland was imprisoned early in the fifteenth century. Here, two centuries later, Charles I., another of the same ill-fated family, was for a time imprisoned and in 1648 passed his last Christmas; and here another woe-full Christmas tide within our own times was marked by a Queen's anguish and a nation's sorrow. It is impossible to pass these memories, gay and grave, entirely unnoticed, restricted

VIEW OF WINDSOR CASTLE FROM THE THAMES.

THE PRINCE CONSORT'S MAUSOLEUM.



THE CULLODEN OBELISK.

though our space be. Indeed, we have special cause for alluding to James I. of Scotland, because in his poem of "The King's Quhair" occurs the earliest notice we know of concerning the gardens at Windsor, and which we here transcribe. James was a prisoner in England from 1405 to 1424, and his description of the gardens is thus couched :—

"Now was there maide fast by the touri's wall
A garden faire, and in the corneris set
An herbere green with wandis long and small
Railit about, and so with treeis set
Was all the place and Hawthorn hedges knet,
That lyfe was non, walking there forbye,
That myght within scarce any wight espye,
So thick the bewis and the leves grene
Beschudit all the alleyes that there were,
And myddis every herbere myght be sene
The scharpe green swete Jenepere,
Growing so fair with branches here and there,
That as it semyt to a lyfe without
The bewis spred the herbere all about."

It forms no part of our purpose to record the several changes and additions that have been made by various monarchs. Suffice it to say, that many of the most important improvements, begun by George III., and continued by his successors,—such as the kitchen garden at Frogmore—have been completed under the enlightened superintendence of the Prince Consort. Four sets of farm offices were erected, a large quantity of the land drained, new roads made, new planting undertaken, the pasturage improved, cottages and schools built, herds of cattle—such as Herefords, Devons, and Shorthorns, reared; sawmills and steam ploughs set to work, new dairies constructed, and many other works of improvement undertaken. All this and more is told in Mr. Menzies' *History*

RUINS AT VIRGINIA WATER.

CASCADE AT VIRGINIA WATER.

COTTAGE IN THE HOME PARK.

ADELAIDE COTTAGE, FROGMORE.

of *Windsor Great Park*, and in Mr. J. C. Morton's *Report on the Royal Farms* (*Agricultural Gazette*, 1862).

It is convenient for our present purpose to allude to the Terrace Garden, the Home Park, the Kitchen Garden at Frogmore, the Great Park and Virginia Water.

The Terrace Garden.—The sunk flower garden, shown below, consists of 3—4 acres, and was constructed in 1824. It is 12—15 feet below the terrace, and is partly encircled by an orangery, the flat roof of which forms a walk. Groups of statuary are interspersed among the beds. The two marble elephants are trophies of war sent to her Majesty from India. The bedding-out this season was highly successful, the beds being "carpeted" in various manners. The central fountain is too insignificant in design and too small in size for its position. As may be imagined, the view from the terrace over the flower garden and the slopes beyond is very beautiful. In connection with the Castle, it may here be mentioned, on the authority of Messrs. Tighe and Davis, that as late as the reign of George III. a little vineyard existed on the outside of the south wall of the lower ward of the Castle. The Castle itself stands on high ground, which slopes on the one side down to the Thames, and on the other toward the Home Park. In this latter portion of the domain are the "slopes," beautifully wooded, and with well-kept walks and springy turf. Here, too, is a rockery (see p. 4), with a falling cascade, perhaps a little too rigid and artificial to please all tastes, but one in which the plant-lover would delight, as it affords innumerable nooks where the choicest alpines might thrive. This spot was, we believe, a favourite one with the Prince Consort, to whose taste, also, the elegant rustic summer-house shown on p. 4 is due.

The Home Park is studded here and there with avenues of Elms and with other fine trees, among them two remarkably fine evergreen Oaks, the two spreading over 330 feet in circumference (see p. 8). As to which was the veritable "Herne's Oak" there has been much, we think, vain discussion. Very likely Shakspeare had no one Oak in particular in his mind, and unsupported tradition in such a matter is of little weight. Sufficient for us to know there was such an Oak, that several of a like date still exist, and that the one traditionally said to be the tree he intended was blown down in 1863, and its site is now marked by a pillar. Whatever we may think of the *dramatis personæ*, the scene exists still—there is the Park, there are the "Fairy pits," there is the river, there are Datchet Mead and Datchet Lane. The genius and the humour of the great poet have stamped on these places an impress which affects nine-tenths of us to a much greater extent than does, the more remote yet more historic Runnymede itself!

In the Home Park, too, is the elegant little retreat called Adelaide Cottage, illustrated above, with a pretty garden surrounding it. Close by

THE TERRACE GARDEN AT WINDSOR CASTLE.

THE QUEEN'S BREAKFAST-ROOM IN THE HOME PARK.

THE PRINCE CONSORT'S SUMMER HOUSE.

is a Hickory tree with Mistleto growing on it, and some small pits for wintering bedding plants. Here, too, is the Beech known as "Luther's Beech" (see p. 5), the history of which is thus given on a tablet underneath :—

"This tree was raised from the Beech tree near Altenstein in the Duchy of Saxe Meiningen, called 'Luther's Beech,' under which Dr. Martin Luther was arrested and conducted from thence to the Wartburg in 1521. The little offshoot was brought to England from Meiningen by King William IV., when Duke of Clarence, in 1825, and planted by Queen Adelaide near the house at Bushey Park. Her Majesty bequeathed it in her last will to H.R.H. Prince Albert, with the request that it might be transplanted into the enclosure at Adelaide Cottage, Windsor Home Park, which was successfully done in 1850. The original tree was destroyed by lightning, July 18, 1841."

In the Home Park also are situated the dairy, exquisitely fitted up (see p. 5), the kennels, various lodges and residences; and, last not least, the mausolea of the Duchess of Kent and of the Prince Consort. The latter (see p. 2) is in the Italian style, and though plain externally, is most superbly decorated within, with frescoes and "plaques" of coloured marbles. Though so magnificent in its decoration the outlines are simple and even severe, and the whole forms a fitting memorial to one who combined simplicity of taste with a love of the beautiful.

The Kitchen Garden at Frogmore.—It has been claimed for this garden that it is the most perfect of its kind in Europe,

THE PRINCE CONSORT'S ROCKERY IN THE SLOPES.

LUTHER'S BEECH.

THE DAIRY, FROGMORE.

combining a certain beauty of appearance with admirable arrangements for the supply of the Royal tables with the finest fruits and vegetables which skill can produce. Previous to 1848-49, when the garden under notice was completed, the Royal tables were supplied from the old worn-out forcing garden and orchard at Kensington, and the unproductive establishments at Cumberland Lodge, King's Lodge, Cranbourne, Maestricht, Frogmore, and Hampton Court. In accordance with the suggestions of a committee appointed for the purpose, these several gardens were abandoned, and the Royal gardens at Frogmore were formed, at a cost of about £45,000.

Entering the garden on the east side the visitor is at once surprised at its magnitude, and charmed with the beauty of its arrangement and with its perfect keeping. It is 30 acres in extent, and almost square in outline; the fruit and plant houses, sheds, stables, &c., being on the north side, and divided from the vegetable garden by the large range of metallic houses, with the commodious gardener's residence in the centre, an illustration of which is given on p. 8. The vegetable quarters are divided by substantial walls, which, giving a great variety of aspects, are devoted each to some special hardy fruit. In the main division, the outside and cross paths are margined by Apple and Pear trees trained on iron arching frames. The first thing which strikes the eye of the visitor is the splendid range of glass

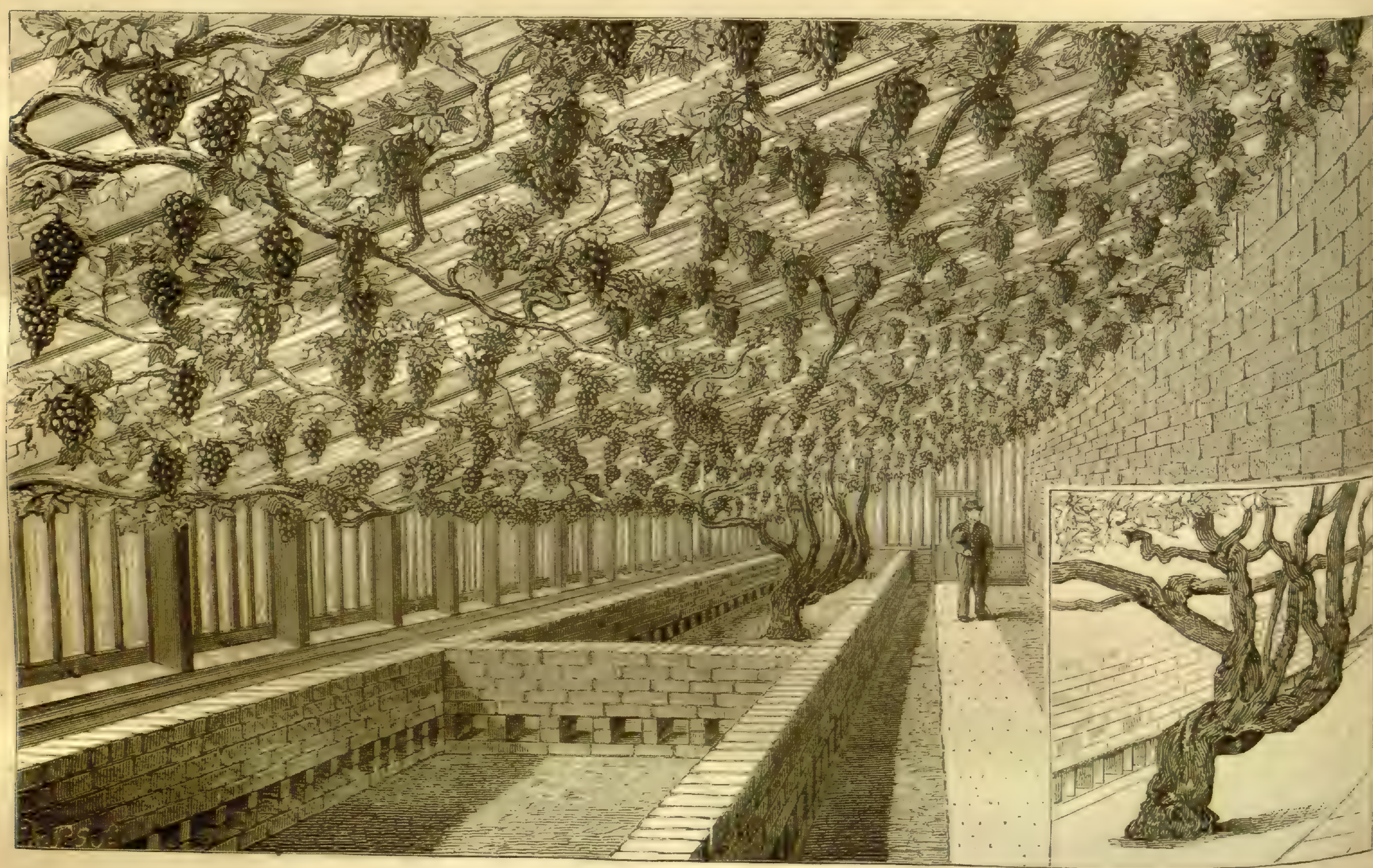
VIEW IN THE GREAT PARK, NEAR ENGLEFIELD GREEN.

QUEEN ELIZABETH'S OAK.

WILLIAM THE CONQUEROR'S OAK.

above alluded to, consisting of fourteen houses of various dimensions, and divided from each other by little corridors 7 feet square. This range extends nearly the length of the walk, running from the east to the west side of the garden, and which is 1132 feet long and 20 feet wide. This irregular range of metallic hothouses was erected in the most substantial manner by Mr. Clark, of Birmingham, and has a practical workman-like air about it, which fully compensates for the plainness of its exterior, which is devoid of any attempt at ornamentation. Entering the range on the west side of the gardener's residence, the first house is found to be devoted to Vines; the second, which is 50 feet long, to early Peaches; the third to Vines again. This latter house is 102 feet long, and the canes are trained 17 inches from the glass and 4 feet apart. This year they carried a crop of 1000 bunches, which were all cut in a month. Medium sized bunches with good berries, and plenty of them, are the great desideratum here. The varieties grown are Foster's Seedling, Black Hamburgh, Trebbiano, Duke of Buccleuch (grafted), and Waltham Seedling, the two latter being recent introductions. The fourth compartment (the third house in the succession) contains Peaches, trained in front within 15 inches of the glass, and which were lifted last spring, and are now showing the benefit of the operation. In number five Peaches are again the occupants, coming in second in the order of succession. The sixth house is the earliest vinery, and consists in the main of Golden Champion, Duke of Buccleuch, White Frontignan, and Muscat of Alexandria; and the endmost (number seven) contains specimens of Camellias, Palms, Coleus, &c., with a fine plant on the back wall of Bougainvillea glabra.

On the east side the arrangement is somewhat similar, but with two compartments devoted to Plums instead of Peaches. On the north side of the range are the young men's



THE OLD VINE AT CUMBERLAND LODGE.

apartments, roomy and comfortable, their reading room and library, workmen's room, the packing and potting sheds, stores, fruit-rooms, seed-rooms, Mushroom-house, &c. In front of these there is quite a village of glass structures, applied to the wholesale production of a multifarious assortment of fruit, forced vegetables and flowers. The larger houses are devoted to Vines, one being filled with white Grapes for cutting in September, another with pot Vines for an early crop, whilst a third is occupied solely with Alicante and West's St. Peter's Grapes, the fruit of which was only commencing to colour at the end of August, and which was intended for the last crop of the season. Then follow pit after pit of Pines of the very finest description, and producing an abundance of fruit of the very best quality. The system of culture which has always been carried out here is the very essence of simplicity. The suckers are merely planted out on ridges over a bed of Oak leaves, 6 ft. in depth, and which furnishes the only supply of bottom-heat. The Smooth Cayenne is the Pine *par excellence* at Frogmore; the number cut during the year runs into four figures, and the weight has been brought up by Mr. Jones from an average of about 7 lb. per fruit to 8 lb.—an excellent illustration of the improvement which may be expected in other departments, and which is already manifest in the case of the Vines and other fruits under glass. Forced Strawberries are required in great quantities, and 9,000 plants have been potted up for next spring's supply, the sorts most in use being Keens' Seedling, Dr. Hogg, President, Vicomtesse Héricart de Thury, and La Grosse Sucrée, the last-named being a great favourite on account of its free bearing character, and the excellent manner in which it bears the vicissitudes of travelling. In the proper season one house—a span-roof—is devoted exclusively to Strawberries, while every suitable place in other houses is similarly occupied.

Dwarf Kidney Beans are in demand all the year round, and are grown in immense quantities; for three months out-of-doors, and for the remainder of the year under glass. They are planted out in frame after frame of considerable size, and in pots on shelves in every conceivable position. The main supply is derived from an old but excellent variety called Mohawk, Fulmer's Early Forcing, and Syon House. There are two Cherry-houses, span-roofed, 10 feet 6 inches high and 16 feet wide. The trees, which are grown in pots, were outside at the time of our visit, and one of the houses was planted with Cucumbers 4 feet apart and trained like Vines. The variety was the Hedsor Prolific, a popular Cucumber in this part of the country, and which is a vigorous grower (some of the leaves measured 18 inches across), and a certain and heavy cropper. Another structure was devoted to Melons, trained in the same way. The sorts most grown are the Royal Ascot and Jobson's Hybrid, a green-fleshed variety of fine quality, which is but little known, though highly appreciated here. Then comes a long vinery devoted exclusively to Burchardt's Prince and Black Prince Grapes for late use; and these are followed by other Peach-houses and by two structures for the growth of Plums.

VIEW IN THE GREAT PARK, NEAR ENGLEFIELD GREEN.

Plant-houses of various kinds follow each other in rapid succession, and so great is the demand for table-plants, cut flowers, and plants for the decoration of the apartments at the Castle, that every available pit and shelf has to be brought into use for their production. For the table small fine-foliaged plants are grown in hundreds, and have one house devoted especially to their culture. In another house are Gardenias planted out and flowering finely, together with neat specimens of Bougainvillea speciosa—a grand plant to cut from for the decoration of vases. All the choicer kinds of free-flowering stove and greenhouse plants, Orchids, florists' flowers and quick-growing Ferns, find a place here if they answer a useful purpose, but not otherwise, for this is no place wherein to ride hobbies.

Before leaving this department we must notice the Asparagus beds, which are made in such a way as to be forced by means of hot water. The beds are made in sunk pits, 4 feet deep, 7 feet wide, and 75 feet long, with a division 20 inches across between each, and along which are conducted a flow and return pipe from a saddle boiler. These divisional spaces are neatly covered with York stone, and when forcing commences the beds are covered with tight-fitting wooden span-roof shutters.

The Vegetable Garden is divided off into compartments, each of which is known by the name of the special kind of fruit cultivated on the walls, as, for instance, the Apricot, Peach, Pear, Plum, and Cherry gardens, &c. The walls are 12 feet high, and provide an immense area for the production of choice fruits. Every wall is well-covered with neatly-trained trees. The produce we should scarcely like to mention; but it is something enormous. It is the same with the standards, bush-trees, and the trees on the wire trellises—only the best sorts and the surest bearers being grown. The soil, which is deep, stiff and rich, suits them well. Of vegetables there is, of course, acre after acre, the demand being unlimited; and the cropping has to be unceasingly kept up to a high pitch of cultivation similar to that practised in a London market garden. To give an idea of the quantities of all kinds of vegetables required, we may instance Peas, a quantity equal to the produce of three miles of rows being consumed within a week, on the occasion of a memorable state visit last year.

We may here remark upon the military precision with which all the operations have to be carried out, and the extreme accuracy with which the garden accounts have to be kept—every pound weight of Grapes or Pines noted; in fact, a strict record of all that is produced in the garden has to be kept, its destination recorded, and a comparison made with the amount of produce of former years, as well as a statement of the absolute and relative cost of production in various seasons. All this entails a degree of labour which few gardeners, even in first-rate situations, can have any idea of. It should be remembered that from Frogmore the requirements of the Court are supplied at Balmoral, Osborne, or wherever it may be.

The admirable arrangements of this vast establishment are, to a large extent, due to the

practical wisdom and forethought of the late Mr. Thomas Ingram, who carried out the works, and subsequently most ably directed the management of the Royal gardens until January, 1868, when he retired, after passing fifty-four years in the service of his Sovereign. Many of our readers will remember that on the completion of his fiftieth year of service, Mr. Ingram was presented with a handsome tea and coffee service, a gold watch, and a purse of 150 guineas; and right well the worthy veteran deserved the honour paid him by his compeers, for, in addition to maintaining the reputation of the Royal gardens in the first rank, we are indebted to him for some new fruits of great excellence, and for a beautiful Rose—Miss Ingram. Mr. Ingram was succeeded in the superintendence of the Royal gardens by Mr. Hector Rose, who for eleven years previously had been gardener to the Duke of Roxburgh, at Floors Castle, Kelso, and who died in June, 1872, after only a few days' illness. Mr. Rose's successor was Mr. Thomas Jones, who for fifteen years was gardener to the late and present Lords Leconfield at Petworth, Sussex, and previously held a similar post in the service of Sir John Kelk, at Stanmore. In Mr. Jones' hands we may be sure, from his high professional character, and from what he has already accomplished in increasing both the quantity and the quality of the products under his charge, that the Royal gardens will be kept well abreast of the times.

VIEW OF THE RANGE OF FORCING HOUSES, AND GARDENER'S RESIDENCE.

The Great Park, the greater portion of which is open to the public, occupies a very large area, is replete with the most delicious "bits" of sylvan scenery, is studded with noble trees, contains numerous thriving plantations, several farms, herds of fallow and red deer and white harts, to say nothing of mouflons and white-haired Angora goats. It offers the very perfection of park and sylvan scenery. Oaks and Beeches abound which may have been saplings seven and eight centuries ago, and which in their present state of antique ruggedness are indescribably picturesque. There are many trees, both isolated and in plantations, which are still in their prime, and which are valuable as showing how fine unpruned trees are, and how superior, in the case of Oaks at least, is the timber obtained from them. Two of these old trees are figured at p. 6. The Oak called "William the Conqueror's Oak," near Cranbourne Lodge, measures 38 feet round at 6 feet from the ground. Some of the plantations are known to have been made in Queen Elizabeth's time, and are interesting as being the only known examples in existence dating back so far. The young plantations, especially of Oak, are some of them models of tree culture, but it must be remembered that the Park is maintained for the Sovereign, and to a large extent for the recreation of the people, without regard to profit.

The magnificent avenue called the Long Walk, which stretches from the Castle to Snow Hill, a distance of nearly three miles, is of Elm. The trees were planted in Queen Anne's time. At the end of this walk is an equestrian statue of George III., and not far from here is Cumberland Lodge, interesting to gardeners on account of the Cumberland Vine, figured at p. 6.

The Old Vine at Cumberland Lodge.—This peculiarly interesting Vine—"The Leviathan of Vines in England"—was originally found about the year 1800 in a small Cucumber-pit. It soon outgrew its limited abode, and the size of the pit was increased. In a few years the operation of extending its quarters again became necessary, and this time the length of the pit was increased to 138 feet, and the width to 16 feet. We have not been able to ascertain the exact date when these alterations were made, but it must have been some years before 1859, for in that season it is recorded that the Vine carried 2000 large bunches of Grapes, described as being as black as Damsons, and its stem measured 2 feet 9 inches in circumference. The old Vine continued to prosper, but its house—or rather pit—became again insufficient in size for the spread of its fruitful canes, and so much wanting in stability that, by the advice of the late Mr. Ingram, a new lean-to house was erected over it of the same length as the pit, but 4 feet wider. This was done in 1857, and the plant soon covered the roof—3000 feet of glass (800 feet more than the space occupied by the celebrated Vine at Hampton Court), and, for many years, it continued to produce excellent crops of first-class Grapes, and does so at the present time. An illustration of the Vine is given in another page, together with an exact representation of the stem, which now measures 3 feet in circumference.

Virginia Water and its surroundings have been unduly exalted by some, and equally unduly appreciated by others. The scenery is delightful, and the lake is a very successful piece of landscape gardening. The soil hereabouts was originally of a boggy character, with standing pools. Paul Sandby, the water-colour artist, and his brother, laid out the plantations, and the first and second Dukes of Cumberland converted the swamp into an artificial lake, the largest, we believe, in the country after that at Blenheim; and so far as picturesqueness and beauty go it is decidedly one of the finest. Near one end of the lake are some remains of Greek and Roman columns brought from Tripoli and erected here (see p. 2). Of course these, like sundry other puerilities about the lake, partake very much of the nature of shams, and here and there strange anachronisms have been committed; still it must be admitted that, on the whole, the effect produced is not so objectionable as might have been anticipated, and from some points of view is really good. On an eminence near the lake is an obelisk erected to commemorate the battle of Culloden, and at a little distance is Englefield Green, from the immediate vicinity of which may be obtained two of the most charming views of the distant Castle that can be had, even in this district of rich and varied beauty (see pp. 5 and 7).

In concluding this very cursory review of some of the main features of Windsor Park and Forest, we have to record our special obligations to the courtesy and assistance furnished us by Mr. Menzies, the deputy surveyor; and Mr. Jones, the superintendent of the Royal Gardens.

EVERGREEN OAKS IN THE HOME PARK.

LONDON: BRADBURY, AGNEW, & CO., PRINTERS, WHITEFRIARS

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM | CANADA, FRANCE | JAMAICA, NEW ZEALAND | WEST INDIES, UNITED STATES

£1 10s. 4d. *for* 12 *months, including postage to*—
AUSTRIA, CHINA | HOLLAND, INDIA | PORTUGAL, PRUSSIA | SPAIN, SWITZERLAND

£1 14s. 8d. *for* 12 *months, including postage to*—
RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, OCTOBER 31, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 2	Sale of Nursery Stock at Goldsmith Park Nurseries, Tunbridge Wells. Eight days' Sale at Wandsworth Common Nursery. Sale of Consignment of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Nov. 3	Sale of 300 Pens of Poultry and Pigeons, at Stevens' Rooms. Sale of Nursery Stock at the Goldsmith Park Nurseries, Tunbridge.
WEDNESDAY,	Nov. 4	Sale of Dutch and Belgian Bulbs, at Stevens' Rooms. Sale of Nursery Stock at the Goldsmith Park Nurseries, Tunbridge Wells. Unreserved Sale at the Gravesend Nurseries.
THURSDAY,	Nov. 5	Sale of Nursery Stock at the Gravesend Nurseries. Sale of Nursery Stock at the Dalkeith Nurseries. Sale of Lilies, at Stevens' Rooms.
FRIDAY,	Nov. 6	Sale of Nursery Stock at the Dalkeith Nurseries.
SATURDAY,	Nov. 7	Sale of Dutch Bulbs, at Stevens' Rooms.

VARIETY at the dessert-table, as elsewhere, is often most desirable. It is for this reason that we counsel those of our readers who may have the opportunity of doing so to make trial of the FRUITS OF THE PASSION-FLOWERS, TACSONIAS, &c., now abundant in many establishments. Beyond all comparison the best and most highly perfumed is the fruit of Passiflora edulis, the purple-fruited Passion-flower. Those, however, who look for solid nutriment will be disappointed, but those to whom delicious flavour and exquisite perfume are agreeable should make trial of this fruit. The edible portion is the juicy pulp surrounding the seeds. Next in order of goodness, to our palate, comes the old P. quadrangularis, with oval fruits of a golden yellow when ripe, and of the size of a swan's egg. After this comes the large Pumpkin-fruited Passiflora macrocarpa, which some consider as identical with P. quadrangularis, but which in flower and fruit is totally different, as any one may see who grows the two plants side by side, as they are at Kew. P. cœrulea, and some of its seedling varieties, often fruit abundantly, but we have not yet tried their edible qualities. The Tacsonias yield similarly edible fruits, some of which are much valued in their native country, where they go by the general name of Curuba. Tacsonia Van Volxemi often produces fruit in abundance in this country, as does also T. mollissima. Through the intervention of Mr. ANDERSON HENRY we lately received from the Lawson Company at Edinburgh a splendid branch of a variety of T. mollissima, laden with apricot-coloured somewhat pyriform fruit, and which had been trained over the rafters of a house. The fruits make almost as fine a display as the flowers.

We may incidentally remark that the variety of Tacsonia mollissima grown by the Lawson Company differs from that in general cultivation in having the upper surface of the leaves quite glabrous. It is, in fact, the T. mollissima var. glabrescens described in the *Flora Brasiliensis*. Owing to this peculiarity, it is likely to be mistaken for T. quitensis, though the shape of the leaves, and specially the floral characteristics, are very different.

As people are very apt to be disappointed with the fruits of Passion-flowers, we may repeat that it is the pulpy matter surrounding each seed which is the edible portion, the fleshy rind of the fruit being often about as palatable as a raw Potato. Another hint we may repeat, and that is, that tasters, to whom the flavour of the uncooked fruit is not agreeable, should not immediately come to the conclusion that the fruit is therefore worthless.

Let the fruits be cooked with sugar, and then tried. If the verdict be still unfavourable, we can say no more—*de gustibus non est disputandum*. We are only anxious that the fruits in question should have a fair trial, and this they will assuredly not get unless they are cooked. Those who tasted the fruits of T. mollissima, to which we have above referred, in the raw state, were not very loud in their praise ; but when the same fruit was cooked, the general cry was "Delicious! Let us have some more." It must, however, be remarked that the flavour is so luscious that a very small quantity suffices for most people. We subjoin a recipe for making a jam of the fruits of P. quadrangularis or P. macrocarpa, and which will apply equally, in the hands of a cook who knows how to modify it according to circumstances, to other fruits of a like nature :—"Cut the ripe fruit into slices, crush the pulp surrounding the seeds with a spoon so as to extract the juice, remove the seeds, boil the slices till tender and pass them through a sieve, mix the juice with the pulp, and add white sugar in the proportion of half a pound to a pound of pulp or thereabouts, and boil down to a proper consistence."

The setting of these fruits is a subject still requiring further inquiry. In our stoves many never set a fruit, others fruit abundantly but do not produce perfect seeds. Others again yield perfect seed as well as ripe fruits. Some will not set with their own pollen, but will do so if fertilised with the pollen from another species. Numerous isolated facts of this character have been recorded, but the observations now require co-relating and reducing to system. We presume from the great abundance of fruit on the Lawson Company's specimen that their flowers were fertilised by insects, or, at any rate, that they did not receive any artificial aid.

Another point on which we have often insisted is the desirability of cultivating a greater number of species in the open air. Several of the Tacsonias grow as high as the snow level on the Andes, and there is no reason to doubt that they would be fully as hardy as the Brazilian P. cœrulea, which is so beautiful an ornament in the suburbs of London from late summer even up to the beginning of winter. At Mr. WILSON SAUNDERS' garden at Reigate we once saw T. Van Volxemi flowering out-of-doors, without even the protection of a wall. Some of our expert grafters or budders should graft or bud some of the reputed tender species on to P. cœrulea as a stock.

—— With the present issue we present to our readers a special Supplement, devoted to the illustration of the ROYAL GARDENS, FROGMORE, and WINDSOR GREAT PARK. The woodcuts have for the most part been taken from original drawings made expressly for us by Mr. WORTHINGTON SMITH, through the courtesy of Mr. MENZIES and Mr. JONES.

—— The twenty-first annual general meeting of the SCOTTISH ARBORICULTURAL SOCIETY will be held at the Royal Botanic Garden, Inverleith Row, Edinburgh, on Wednesday 4th and Thursday 5th November, at 12 o'clock noon each day, HUGH CLEGHORN, of Stravithy, M.D., F.R.S.E., President, in the chair. A large number of new members are proposed for election into this useful Society at the meeting on the 4th prox., when, in addition to the routine business, the following report by convener of judges on the following competitive essays sent in during 1874 will be presented :—Pruning of Timber Trees, considered physiologically ; Literature of Scottish Arboriculture ; Present State and Future Prospects of Arboriculture in Hampshire ; Present State and Future Prospects of Arboriculture in Dumbartonshire ; Conservation of Old and Remarkable Trees in Britain ; Draining by Open and Covered Drains ; Employment of Locomotive Engines in Forestry ; Distances at which Forest Trees should be Planted Apart ; Should Oak Plantations be Grown from Acorns or from Transplanted Trees? the Architecture of Trees ; the Ages of Trees. The anniversary dinner of the Society will be held on November 4 in Robertson's Albert Hotel, 25, Hanover Street, at half-past three o'clock precisely. Professor BALFOUR will act as chairman, and Baillie METHVEN and Mr. WILLIAM THOMSON as croupiers. At the meeting on Thursday, November 5, the President in the chair, papers submitted by members will be read and subjects selected at last annual general meeting discussed, viz.—1, The Planting of Trees for Landscape Effect ; discussion to be opened by Mr. GORRIE. 2, The Injury done to Forest Trees by Wild Animals and Birds ; discussion to be opened by Mr. M'CORQUODALE, Scone. Subjects for discussion at next annual meeting will then be selected, and the President will make some concluding remarks.

—— A meeting of the gardeners of the town and neighbourhood of Sevenoaks, Kent, was held on Monday evening, the 19th inst., to consider the advisability of establishing a GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT SOCIETY. Mr. C. R. C. PETLEY was voted to the chair. The rules and bye-laws of other similar societies were read and discussed, and it was ultimately resolved to establish a society, and that those present should form themselves into a provisional committee, with power to add to their number. The Chairman and Mr. BARNES were asked to prepare a code of rules, and to submit them to a general meeting to be held on the 28th inst.

—— In flower on the rockwork at Kew we observe PENTSTEMON ANTIRRHINOIDES, of stiff twiggy habit, with small leaves and yellow flowers ; P. HETEROPHYLLUS, a very persistent bloomer, with pinkish flowers tinged with blue : it has been very ornamental in the herbaceous ground during the past summer ; SAXIFRAGA FORTUNEI, the flowers of which exhibit a curious disproportion in the length of the petals, one being three times as long as the others ; and PAROCHETUS COMMUNIS, a creeping plant, with brilliant blue Pea-like flowers and delicate Trifolium-like leaves, with a brown bar near the base of each leaflet.

—— During the high wind that prevailed throughout the morning of Wednesday, Oct. 21, the Cathedral Close, at Canterbury, was the scene of an accident that might have been attended with serious consequences. One of the largest of the stately Elm trees that surround the Green Court on all sides, and which flourished in apparent soundness just opposite the house of the Rev. F. ANGEL-SMITH, was broken off by the force of the gale at a height of about 12 feet from the ground, and fell with a tremendous crash upon the roof of Mr. ANGEL-SMITH'S house. It is interesting to note that for the last two years the rooks have declined to build their nests in this tree.

—— We learn from the *Shrewsbury Chronicle* that the last meeting for the season of THE CARADOC FIELD CLUB took place on the 15th inst. The members and their friends met at Church Stretton for the purpose of searching the valleys and rocks of this interesting neighbourhood for lichens, mosses, fungi, and other plants of a low organisation. The weather was not propitious, a dense fog resting on the Caradoc (the mountain in honour of which the Club is named) and the higher parts of the Longmynd on the other side of the valley, added to which there was a cold east wind blowing. Among those present may be mentioned the Revs. W. A. LEIGHTON, F.L.S., J. F. CROUCH, B.D., Rector of Pembridge ; J. E. VIZE, Vicar of Forden ; Messrs. ROWLAND RALPH, Honnington Grange ; A. THOMPSON, Hereford ; DRAKE, F.G.S., Shrewsbury ; SMITH, Worcester. The party returned laden with their treasures to the Raven Hotel, Shrewsbury, where they sat down to an excellent dinner—H. FENTON, Esq., the Vice-President of the Club, occupying the chair. After dinner a *conversazione* took place, during which

the Rev. W. A. LEIGHTON delivered an address on the structure, growth, and mode of reproduction of lichens, which was listened to with much attention. The subject was illustrated by a beautiful series of mounted specimens from his own herbarium, representing the whole of the genera of British lichens with careful drawings and diagrams of each species. The Rev. J. E. VIZE brought a large collection of slides with spores of fungi and other minute vegetable organisations, which he showed by means of an excellent microscope. One table was devoted to a select collection of the larger fungi, in which much interest was displayed by those present. The colours, forms, odours and edible qualities of this class of plants are particularly interesting, and afford a wide and unexplored field of observation and study; and although the collection exhibited was small it served to throw much light on the subject to such as had not before deemed a "toadstool" worthy of examination. On the whole the evening passed off in a very pleasing and instructive manner, and we confidently believe that for the future this will be one of the most popular meetings of the season, and one which the Caradoc Field Club has done well to establish.

—— REIDIA GLAUCESCENS, a very graceful and interesting stove shrub, is cultivated in the Royal Gardens, Kew, from whence it has been distributed for several years; it is nevertheless not common, but from the increased demand it is presumed to be rising in favour. The stems are erect, producing horizontal branches of definite extension, with a regularity of foliage which closely resembles that of pinnate leaves. The leaves are elliptical, light green, and about half an inch long, in their axils are borne the small but numerous flowers. The blossoms are red and neatly fringed, suspended by hair-like stalks, affording a unique and attractive character. There is no difficulty in its propagation from cuttings. It is a native of Java. The genus is allied to Phyllanthus (Euphorbiaceæ), and contains about a dozen species, of which the present is the only one introduced.

—— One of the last PLANTS dreamed of as suitable for CITY CULTURE is the African Marigold, and yet in such an apparently uncongenial spot as Little Moorfields there might recently have been seen some plants of the lemon-coloured variety growing in pots on the outside sill of a first-floor window, and flowering quite freely. Perhaps of the family of annual Marigolds the African might be looked upon as the least fitted for pot culture; but here it was, smoke-dimmed and dust-begrimed, a faint reflection of bright and pleasant gardens a few miles out in every direction. A great deal of loving care must have been bestowed on these plants; and it is satisfactory to note that city gardening, even if some of the attempts be of a rude and elementary character, is clearly extending; and nowhere so markedly as in side streets, darksome alleys, and narrow courts.

—— The terrific gale, which raged over a great part of Scotland on the morning of the 21st inst., caused an immense amount of destruction of every description of property such as has not been experienced since January, 1868. Timber trees of noble proportion and considerable value are from all quarters reported to have been uprooted and destroyed. Amongst the more notable specimens which have succumbed is one of the few remaining old Elm trees referred to in Mrs. MARY SOMERVILLE'S recently published memoirs as towering over the Ivy-covered wall which bounded her garden at Burntisland. Considerable damage was done at the Tweed Vineries in the breakage of glass.

—— From time to time fresh cures for "all the ills that flesh is heir to" find a place in and furnish a paragraph for the daily or weekly press. Condurango for some time occupied a prominent position of this kind, and now BOLDO seems likely to take its place, if we may judge from the following notice of it which appeared very recently in the *Medical Press*:—

"Researches have been made by Messrs. DUJARDIN, BAUMETZ, and C. L. VERNE on this proposed addition to our list of medicines. Boldo is a tree found in Chili, of a height of 5 or 6 feet, isolated on mountainous regions, with yellow blossom and a verdant foliage. Its bark, leaves, and blossom possess a marked aromatic odour, resembling a mixture of turpentine and camphor. The leaves contain largely an essential oil. It contains an alkaloid which is already called 'boldine.' Its properties are chiefly as a stimulant to digestion, and having a marked action on the liver. Its action was discovered rather accidentally, thus:—Some sheep which were liver-diseased were confined in an enclosure which happened to have been recently repaired with Boldo twigs. The animals ate the leaves and shoots, and were observed to recover speedily. Direct observations prove its action. Thus, 1 gramme of the tincture excites appetite, increases the circulation, and produces symptoms of circulatory excitement, and acts on the urine, which gives out the peculiar odour of Boldo."

Two plants are known by the name of Boldo or Boldu, and both are natives of Chili. From the description given above, however, there can be little doubt that in the present instance Boldoa fragrans is intended. This belongs, according to most authors, to the small order Monimiaceæ, from which Dr. HOOKER says it "differs wholly in the geminate ovules, double perianth, and lepidote scales." Other systematists class it with Euphorbiaceæ or Ricineæ. Boldoa agrees with Monimiaceæ in possessing a tonic and stimulating oil in all its parts, and its leaves have long been used to promote digestion in its native country. Its introduction to medicine is comparatively recent. Professor BENTLEY speaks of its employment as a remedy in diseases of the liver. In Chili the tree has many uses: the sugary succulent fruits are eaten, the bark is employed in tanning, and the wood is much esteemed when prepared as charcoal.

—— We are requested by M. A. LAVALLÉE, the Secretary of the Horticultural Society of France, to request nurserymen and others to forward copies of their new catalogues to him at 6, Rue Penthièvre, Paris. We have also to prefer a similar request from S. E. P. WOLKENSTEIN, Secretary, Imperial Horticultural Society of Russia, St. Petersburg.

—— The accompanying illustration (fig. 113) shows a singular growth in a dwarf variety of the common Spruce, sketched during the recent fungus meeting at Hereford in the garden of the Rev. JAMES

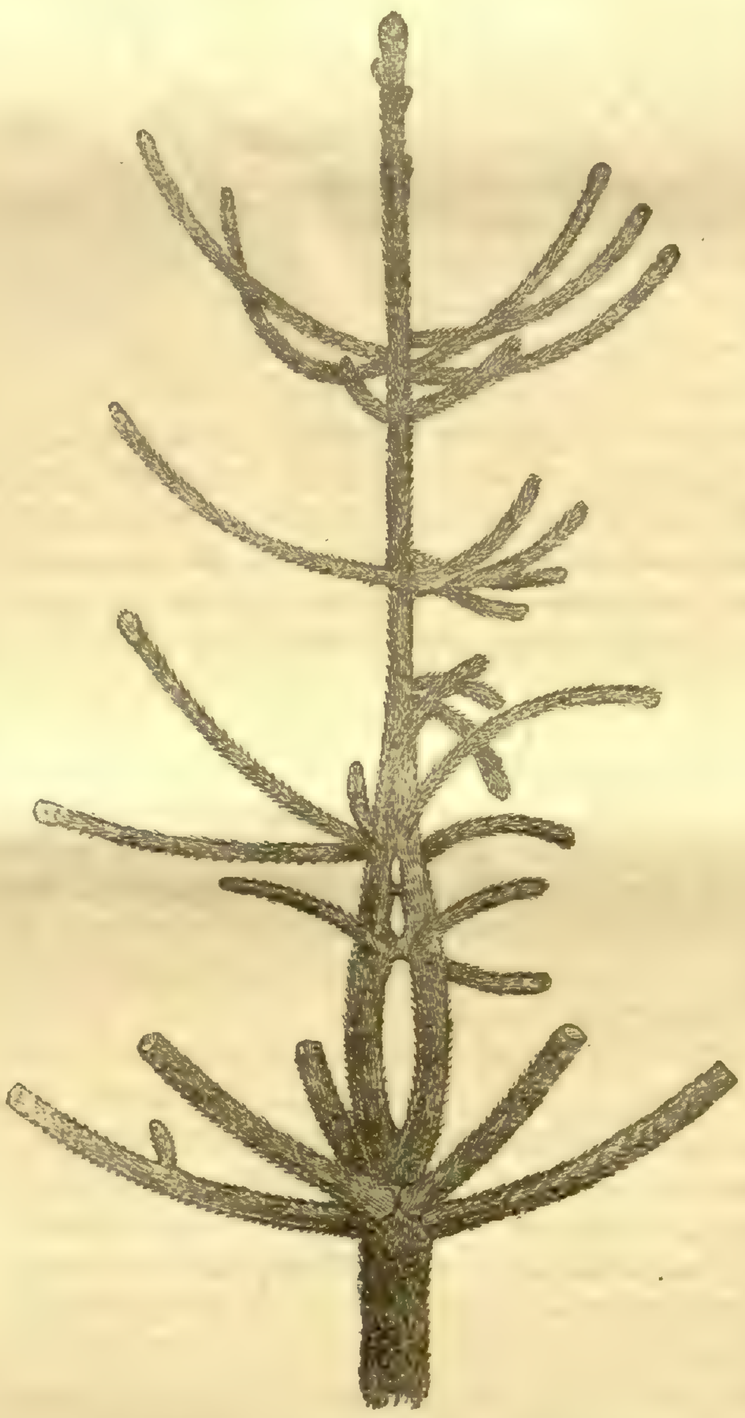


FIG. 113—MALFORMED SPRUCE FIR.

DAVIES, of Moor Court, near Kington, Herefordfordshire, by Mr. WORTHINGTON SMITH. Owing to a slight fasciation two leaders appeared; soon after the two leaders appear (with no external aid whatever) to have naturally inosculated in three places, and to have made one leader again, with no trace of fasciation.

—— The best of the latest-flowering Asters at Kew are A. PENDULUS, the stems of which terminate in a lax panicle, with racemose branches, thickly set with small white and rose capitula; A. ÆSTIVUS, flowers white changing to rose; and A. LAXUS, with lilac flowers, larger than the preceding. NEJA GRACILIS is now very pretty; it has a light and delicate habit, growing about 1 foot high. The leaves are linear and fragile, thinly clothed with fine spreading hair. The flowers are yellow, on long erect stalks. It is a native of Mexico, and appears not to be quite hardy. REINECKIA CARNEA has very pretty rose-coloured flowers, in spikes rising a few inches above ground. It is sometimes known as SANSEVIERA, a genus from which it is quite distinct, and also from Ophiopogon, to which it is more nearly related. The leaves are narrow and light green.

—— The plants figured in the last number of the *Revue Horticole* are Jamesia americana, a half-hardy shrub, native of New Mexico, with opposite stalked ovoid, downy, serrated leaves, and terminal panicles of white flowers. The plant is figured from the nurseries of M. LEMOINE, of Nancy. Actinidia volubilis is a hardy Japanese shrub, formerly considered to belong to the genus Trochostigma. It is described as a climber, with alternate stalked, rugose, hairy leaves of oblong form, slightly cordate at the base. The flowers are axillary and white. The plant is recommended as a useful climber, rather apt to be cut by spring frosts. The coloured figure is devoted to a representation of Echeveria retusa floribunda.

—— Messrs. SUTTON & SONS, Reading, offer for competition at various meetings of the Royal Horticultural Society next year, sixteen gold, silver, and bronze medals, and valuable money prizes, for collections of vegetables (including Potatos), flowers, and fruits. The dates of the meetings selected are June 2 (Peas, Melons, and Cucumbers); July 7 (Peas); September 1 (Asters); and November 10 (Onions, Potatos, and Cauliflowers). Further particulars will be found in our advertising columns.

—— In the garden of H. SMITHERS, Esq., Spring Lodge, Lawrie Park, Sydenham, the beautiful and rare Odontoglossum distans is coming into flower. The flower-spike is 5 feet 7 inches long, and Mr. GRAY, the gardener, believes this is the first time it has shown flower in this country. In the same collection Odontoglossum Roezlii, a fine variety of Cypripedium Roezlii, Dendrobium McCarthiæ, Oncidium Krameri, a fine variety of Masdevallia amabilis, Lælia Perrinii, Oncidium serratum with three spikes, one of which is 7 feet long, and Warrea bidentata, are also in flower now.

—— Among the various forms of the ALTERNANTHERA now in cultivation the palm must be given to A. amabilis latifolia, or, as it is sometimes termed, amabilis bicolor, as a bold growing showy variety. Free in growth, and handsome in colour, standing alike in rain and sunshine, it is also sufficiently hardy in character to stand exposure in positions where others would fail. For massing or working out bold ribbon lines, or central designs, it cannot be excelled. A. paronychyoides is an appropriate companion, colouring well, having a dense tufty growth, and maintaining its character till quite late in the summer. It does well for edgings, small beds, and more elaborate and tasteful designs on a small scale. Given rich moist bottom, and blazing sun overhead, and the Alternantheras just named will grow like weeds, colour like Roses, and surpass any other plant giving the same hues of leaf coloration. It is in the superb embroidery beds that one sees in the matchless terrace-garden at Heckfield that Alternantheras are employed in ways best adapted to show off great decorative value to the best advantage.

—— The want has long been felt of a common centre for all who are interested in horticulture, and various suggestions have from time to time been made on the subject. We are glad to find that at last something is likely to be effected. A NEW CLUB, which will most probably be called "the Loudon," is contemplated. It will be located in some central position near Charing Cross, and will afford to its members the facilities and conveniences of a West-end Club. Matters are so far advanced that several gentlemen well known in the horticultural world have consented to act on the Council, and a meeting to determine rules, &c., will shortly be held. The probable subscription to country members will be two guineas, to town members something more. After the first hundred names are enrolled there will be an entrance fee. Gentlemen wishing to give in their names can do so at once to the following members of the Council:—Rev. S. R. Hole, M.A., Caunton Manor, Newark; Dr. Masters, F.R.S., *Gardeners' Chronicle*; Dr. Hogg, F.L.S., *Journal of Horticulture*; Harry J. Veitch, F.L.S., Chelsea; W. A. Lindsay, Secretary, Royal Horticultural Society; James Cutbush, Highgate; Sir Edward Lee, Alexandra Palace; Thomas Laxton, Stamford; Charles Turner, Slough; or to the Rev. H. Honeywood Dombrain, M.A., secretary, Westwell Vicarage, Ashford, Kent.

—— At Messrs. VEITCH'S establishment, King's Road, Chelsea, may now be seen the rare and beautiful ONCIDIUM ROGERSII, with over one hundred flowers now in perfection; Masdevallia tovarensis, with twenty-seven flowers; and many other varieties.

—— We understand that our correspondent, Mr. R. P. BROTHERSTON, is retiring from the management of the gardens at Argyle Lodge, Wimbledon, and will shortly take charge of the Earl of HADDINGTON'S gardens at Tynninghame, East Lothian.

—— A correspondent writes:—

"'Saturday new and Sunday full
Was never good, and never wull.'

Have your weather-lore readers noted that the current moon ought consequently to be a bad one?"

Home Correspondence.

The Double Blue Lobelia.—I fear your correspondent "T. H. S.'s" commendatory remarks upon this plant for bedding will induce some persons to give it a trial next season, but I would say, "Beware: don't plant too largely," for the chances are ten to one against it. I have nowhere seen it anything approaching what your correspondent describes it to be with him. I was, rather reluctantly, persuaded to give it a trial in the spring, and the results have been anything but satisfactory. In Victoria Park it was bedded rather freely, but proved an utter failure. At the time of my visit a more appropriate name than "Jack-in-Green," could not have been given, for not a vestige of bloom could be seen upon it. I inquired if the same non-blooming character had been maintained all through the summer, and I was told that it had. I was further informed that the whole stock was to be consigned to the rubbish heap. As a pot plant I must speak in its favour; but when we possess such varieties as L. pumila grandiflora and L. Emperor William, our flower beds need not be deficient in blue. *E. Morgan, Harrow-on-the-Hill.*

—— Noticing the remarks made by "T. H. S.," at p. 530, respecting the qualities of this Lobelia as a bedding plant, I must say I have a very different opinion of it. I do not for one moment doubt his word as to its being good with him, but I must say it is the first good account of it I have heard this season as a bedding plant, and from what I have seen of it at different places I could not recommend it as such, unless used individually. It would not do for carpet bedding, as you cannot get it to form a flat surface, each plant growing quite round, like a cricket ball; and it lacks the same property, when planted in rows, either for a ribbon border or as an edging. Another thing, I have never seen it anywhere, in any quantity, large or small, where it has all been in flower; a few plants here and there very gay, the rest full of green buds, and so remaining for months. I have seen it on light sandy soils and on good rich loamy soils, also without any artificial watering, but all with the same result. As a pot plant I consider it a great acquisition. *C. E. S.*

The Pelargonium Society.—To Mr. Chitty's admirable suggestion, respecting the publication of a list of Zonal Pelargoniums, divided equally into the respective classes of "Florists'" and "Decorative" or nosegay forms, I should like to add another, which is, that the *bonâ fide* raiser's name should be given with each variety. Seeing that the Society makes it a stringent condition that the raiser's name should be given with each sort, and seeing also that there are numerous good kinds in commerce, with the names of the raisers of which probably not one half of the growers are acquainted, I think the Society should render such assistance as possible in this direction. Perchance if no private person would care to perform a work so invidious as the publication of selected lists of sorts, it might be done by Mr. Barron, of Chiswick, or through the instrumentality of the Floral Committee, as they have had nearly every good variety in the kingdom submitted to their notice. The main difficulty, I fear, would be to get any two authorities to agree as to which sorts belonged to one section and which to the other. *A. D.*

Warner's King Apple versus Gloria Mundi.—My experience of these Apples for more than twenty years past enables me to verify the editorial note in last week's *Gardeners' Chronicle.* There can be no doubt that these are two distinct varieties. We may occasionally be able to select from the two kinds fruit of a similar character in regard to shape and colour, but let them be minutely examined both as to the general outlines, the insertion of the stalk, its length, the difference in the size of the segments, and there is little difficulty in coming to a decision. Warner's King is of a more spreading habit, less subject to canker than Gloria Mundi, and much more productive. I have for several years past grown an Apple named Nelson's Glory, which approaches nearer to Warner's King than Gloria Mundi, still it is very distinct and hardly so juicy. This kind, I believe, is sometimes cultivated under the name of Nelson's Codlin. These three kinds come into use about the same time, and unless for mere variety unnecessary while we have so good an Apple as Warner's King. *Alexander Cramb, Tortworth.*

The Royal Horticultural Society's Fruit Show.—Is "F." aware that the experiment of a two-days' fruit show in November at South Kensington has been tried and found wanting? Last year, in spite of the combination of flowers, fruit, and vegetables then staged, there were comparatively few persons in on the second day, the meagre attendance being most marked. It may be accepted as evidence that two days' shows don't pay at Kensington, that the great plant show next year is limited to one day only instead of two as before. The gardener from the country who may run up with a few dishes of fruit may not object to spend an additional day in town; but seeing that all those from a distance must be up in town over night to be ready for staging next morning, I imagine that most of these country exhibitors would prefer to return home the evening of the show. To plant exhibitors, and to many of those who exhibit other things, a two-days' show is almost equivalent to doubling their expenses. Whether the shows at South Kensington are patronised by the public in the way that they deserve is rather a question for the Council than for outsiders; but it is certain that it is only the shows held during "the season" that are at all well patronised by visitors. Perhaps the shows might be made more widely known than they are by more extensive and judicious advertising, or perchance the price of admission is too high. At any rate there is a reason somewhere. As to a horticultural dinner, it must be confessed that they are seldom appreciated in London, unless got up for some very special purpose. *D.*

Deodar in the Slopes at Windsor.—The illustration (fig. 114) below represents a Deodar, planted by Her Majesty in the Slopes at Windsor. The elegance of the tree, as well as its general suitability for most places in the country, afford sufficient reasons for its popularity, but, as in all similar cases, judgment in the selection of the site and soil, and care in planting, are required. There can, however, be little doubt

Fig. 114.—Deodar planted by the Queen.

that the Deodar is destined to play a very important part in the future, not only as an ornamental but also as a timber tree.

Large Pears.—From five pyramidal trees that have been planted five years I gathered yesterday fifty-nine fruits, weighing 63½ lb., the largest measuring 14½ inches round, and weighing 1 lb. 11 oz. The variety is Uvedale's St. Germain. I am aware that it grows larger abroad than with us, but is not this large fruit for our changeable climate? *A. Hayter, Gr. to the Earl of Shaftesbury, St. Gyles's, Salisbury.*

Vermont Beauty Potato.—In last week's *Gardeners' Chronicle* Mr. Marris asks those who have grown this variety to give the result of their experience. I obtained 1 lb. of it, with some other American sorts, last spring, and divided them into as many sets as I could, having only one eye in each set. They were a very poor-looking lot, but being determined to make the best of them I had them planted in a piece of land where Potatos had not been planted for some years before. They were planted on April 16, about 18 inches apart; they grew strong, and the stems were from 5 to 6 feet long. Up to the end of August I did not think there was anything under them, but to my surprise, when they were lifted last week I had 269 lb. of good Potatos and 8½ lb. of bad ones, making in all 275½ lb.; twelve of these tubers weighed 23½ lb., and many of them were 2 lb. 4 oz. each. I may add that many of the other sorts have turned out quite as well, and some better. *J. Chapman, The Gardens, Kingston Lacy, Wimborne, Dorset.*

Physalis edulis is grown rather extensively in pots by Mr. Blair, at Shrubland. The *modus operandi* adopted is as follows:—They are annually raised from seed, which is sown about the middle of February in heat. In due time they are potted off singly into 60's, and are placed in an intermediate house near to the glass; ultimately they are potted into 32's, and again into 10-inch pots, in which size they fruit freely, and are gradually inured to a cool treatment. I visited Mr. Blair about the middle of August, the plants were then in a cool orchard-house, and were covered with fruits. Later on they are again introduced into gentle heat—a dozen or more at a time—and by this means Mr. Blair manages to send them to table the greater part of the autumn and winter, and it is needless to say that they thus contribute variety to the dessert at a time when it is most welcome. *Thos. Simpson, Broomfield.*

Old Mulberry.—A fine old Mulberry tree in my garden succumbed to the gale on Wednesday last, and a *post mortem* examination revealed the fact that the young branches had sent down roots some 14 feet in length through the centre of the hollow trunk to the ground. *J. D., Stoke Newington.* [A similar occurrence is not unusual in old Willows. Eds.]

Moles as Vegetarians.—Having noticed Mr. Earley's inquiry concerning the mole, I think I can give him a clear proof that they do really eat the roots of vegetables. In taking up a bed of Beetroot I noticed several that were eaten below the surface, and upon examining them more closely I found one that was hollowed quite out from the bottom upwards in the same manner as the Savoys described by a correspondent in last week's issue. I feel quite confident that it was a mole, as there was one of their runs leading up to each Beet that was eaten. I may add that I have never noticed anything of the kind before. *Arthur Madgett, The Gardens, Castle Hill, Bletchingley.* [A long letter on this subject from Mr. Earley will be inserted shortly. Eds.]

Vicomtesse Héricart de Thury Strawberry.—Whilst confirming all that has been said by your correspondents, Mr. Holliday (p. 464), and "R. P. B." (p. 499), as to the excellence of this Strawberry, I altogether demur to the opinion of the latter as to the merits of Keens' Seedling, which he characterises as insipid. Surely "R. P. B." must have a peculiar soil to deal with, or this most highly appreciated and generally cultivated kind of Strawberry would not be insipid. The Keens' Seedling, known and grown by myself and scores of others, is second to none in sweetness, and has a brisk, grateful flavour, possessed by no other Strawberry. Its only fault is the occasional tendency of the plants to go blind, a fault easily remedied by selecting runners from the most productive plants, and renewing the plantations biennially. *A propos* of "R. P. B.'s" remarks as to the sorts best suited for particular localities and soils, I append a list, in the order of merit, of those which do best on the light heathy soil of this district:—President, Keens' Seedling, Vicomtesse Héricart de Thury, John Powell, Lucas, Sir Joseph Paxton, British Queen, and Frogmore Late Pine. *W. Wildsmith, Heckfield.*

Climatal Changes.—The truth of Mr. M'Nab's observations on the climate of past years appears to be further confirmed in the present—the prolonged summer, with even more than its former results, stretching out into another winter season. I have a great many things here flowering for the second time, and some which have flowered and fruited, flowering as profusely as at first. I may note the following:—

Pernettya candida (a provisional name, I presume, for one of the finest of its tribe), and a perfect gem for rockwork, where with me it has flowered and fruited abundantly, being literally covered with whitish berries, larger than Marrow Peas, and after ripening its fruit it is now again covered with fine snow-white blooms
Primula and P. polyanthus, single and double, in several varieties
Gentiana acaulis
Lithospermum prostratum
Veronica angustifolia and others
Actæa rubra?
Polygonum capitatum, a neat rock-plant
Saxifraga cæspitosa
,, japonica, and others
Campanula isophylla alba
,, coronata
,, pumila, cœrulea, and alba
Campanula turbinata and others
Potentilla bicolor and others
Dianthi, various
Armeria, various
Thymus alpinus
,, species from Thibet
Lychnis Lagascæ
Hypericum nummularium
Lamium maculatum aureum
Arenaria maritima alba
Linum, yellow flowered, from South America
Scabiosa Parnassi
Arenaria montana
Nestorian Rose from Persia, a Noisette
Perpetual Roses, several, with Gloire de Dijon, and Souvenir de la Malmaison
Aubrietia, various
Polygala Chamæbuxus
Iberis gibraltarica
Linaria alpina
Hutchinsia alpina, in continuation
Helleborus vernalis
Sedum, various
Ceanothus Veitchii

Even an Apple tree in fruit has put forth a panicle of blossom. *I. Anderson-Henry, Hay Lodge, Edinburgh.*

Stigmaphyllum ciliatum.—This beautiful free-flowering climber is very seldom met with, but it is one I can strongly recommend for covering a pillar or filling a panel in a warm conservatory or intermediate house. I do not remember ever seeing this plant in any other garden except Somerleyton, some

fifteen years ago, where it filled a large panel in the stove division of the grand conservatory. It is most effective if allowed to twine, as it does here, amongst Lapageria rosea, as the blooms of the Stigmaphyllum are open at the same time as those of the Lapageria, and show in pleasing contrast, resembling somewhat in form and colour those of Oncidium flexuosum. If grown in a stove or intermediate house it retains its leaves all the year, but when treated as a conservatory plant it is deciduous. It succeeds admirably in an admixture of peat and loam in about equal proportions, but the border should be well drained. After blooming, this plant should be kept moderately dry till March, when it may be gradually started into growth by giving a good watering with tepid water, having previously pruned out the old flowering wood, as the blooms are borne on the young wood in umbels of from three to five. *J. Sheppard, Woolverstone Park.*

The Old Walls at Kew: Ligustrum japonicum.—In your last impression the writer in speaking of Ligustrum japonicum makes use of the following words:—"It does not need the protection of a wall south of London." That would lead any one not knowing the plant better to suppose that north of London a wall was required. Such, however, is far from being the case. This beautiful shrub is much more accommodating, for it succeeds well without protection even as far north as Perth. In the North of England it is often met with, and for years I have known plants that have escaped uninjured when the common Laurel has suffered. The variegated form, on the contrary, does not do at all outside, but makes a fine object for the decoration of the cool conservatory. With regard to Ilex latifolia, there are two plants in the open at Kew, one in the very fine collection of Hollies behind the winter garden, and the other in the wood near the "engine house." Both are miserable specimens, and seem merely to exist. On the wall, however, it is very handsome. Might I suggest that the Greek derivations be stripped of their barbarous covering, and clothed in a plain English garb? That would prove an advantage to many of the readers of your valuable paper who, like me, know nothing of Greek. *N.*

Pot Vine Growing at Grimston.—I have recently been (as all gardeners ought) on a horticultural tour, and one of the places I called at was Grimston Park, Tadcaster, where everything pertaining to gardening is done well, fruit in particular, but especially pot Vines. I was so struck with these, and the simple mode of culture detailed to me by Mr. Clayton, the gardener, that I there and then mentally resolved to tell your readers about them. Well, in the first place they are really pot Vines—no sham about them, not plunged in borders where the roots can ramify and feed at will; no occasion for that, as they are grown in large pots, and deserve all the room they have got. Here are pot Vines by the score, struck from eyes at the end of February last, and which are now at least 16 feet long, with foliage as stiff as card-board, wood as hard as bones, and plump buds giving full promise of what they intend to do in the coming spring. Mr. Clayton strikes his plants from eyes in slight bottom-heat, and as soon as well rooted they are placed in the fruiting pots, which are arranged, some of them immediately over the hot-water pipes, but not directly in contact with them, and others on planks in front of the house, all of which do equally well, so that bottom-heat has nothing to do with their success. They are planted in a compost of yellow loam only; no nostrums obtain at Grimston; and the only feeding they get is an occasional watering of weak manure-water. Air and exposure to full light, says Mr. Clayton, bring them up sturdily, and a free use of water keeps at bay all insect pests. When fully ripe the canes are cut back to 10 feet, and allowed to carry ten bunches each, and each bunch, from the present appearance of the Vines, would average from 1½ to 2 lb. each—a feat more easily described than accomplished. *W. Wildsmith, Heckfield.*

Digging and Dunging Fruit Borders.—Your correspondent "H. M." appears to have lost sight of the fact, while seeming to advocate the above practice, that it was the digging and dunging that assisted to bring about the decay in his Peach trees. The watery sappy excrescences found on the roots, and described by your correspondent as emitting bundles of suckers, were no doubt the result of digging and dunging, as the latter must have introduced the vegetable matter that led to the formation of fungus. Peach roots are never found in this state if grown in sweet, wholesome, suitable soil, free from manurial or other vegetable matter or admixture; and when they begin to emit suckers it is a sure sign that the roots have received injury by coming in contact with rank manurial matter, or, worse still, from fungus having formed on them, brought about by the process of digging and dunging. Although your correspondent makes mention of digging and dunging in connection with renovating old trees, he appears to have avoided all use of the latter in the formation of his Peach border, and to have used nothing but pure loam—hence his success. There is, I believe, a closer analogy between animal and vegetable life than is commonly supposed, and disease is often engendered in both by living too freely. Instead of being atmospherical, it is generally brought on by the quantity and quality of the food the animal or vegetable exists on or consumes, and if either gorge to repletion, it is at the expense of health and longevity: it is, therefore, better to be on the starvation side than to kill of plethora. Anyhow, it is better to err on the side of poverty in the formation of stone-fruit borders than it is to allow any manurial or other vegetable matter to become incorporated with the soil; and I would urge on all young beginners in border-making to use nothing but good sound loam, pure and simple, as every shovelful of any admixture helps to spoil it, and yet many are not content unless they have as many mixtures as were contained in the witches' cauldron. I hold to the opinion that in addition to all stone-fruit borders being made of pure sound loam, that they should be made as firm as possible, and as far as digging goes should never be disturbed, for the firmer they are the better, especially in the case of Peach trees, for instead of the trees making a few strong roots that would rush away through a loose border, or into the subsoil, it induces a whole host of fibres that lead to the formation of medium-sized healthy fruit-bearing wood, instead of a lot of gross watery shoots that never ripen or bear fruit. The digging and dunging destroy more trees than any other cause, and yet an erroneous notion prevails with some that this improves the flavour of the fruit, as I have a letter now before me attributing the good flavour of outdoor Peaches to being grown in a cultivated border, while that has about as much to do with the flavour as the influence of the equinoctial gales or the Gulf-stream has. That outdoor Peaches are generally superior to those grown under glass is a fact indisputable, and arises from the full exposure to the influence of the sun and air that fruit so situated receive, thereby converting the watery juices into saccharine matter. Were it not for the great demand that exists in most establishments for very early vegetables, few gardeners would be found committing the grave mistake of cropping their fruit borders, for, independently of a large portion of the surface roots being destroyed in the process of digging, the border is robbed of its moisture just at the time the trees require it to swell off a crop of fruit, and the result is an abundance of red-spider. Very often, too, rank stimulating manure is used to suit the temporary crop, or, worse still, half-spent hotbed manure, containing a quantity of partly decomposed leaves, resulting in a prolific crop of fungus, and ultimately the entire destruction of the trees. That digging and dunging is not in favour with that prince of fruit tree cultivators, Mr. Rivers, of Sawbridgeworth, may be gleaned from his invaluable works, and from the following explicit letter he did me the favour of sending, and as it is so much to the purpose I trust he will pardon me for giving it publicity:—

"September 15.

"Dear Sir,—We always advocate for Peach borders with hard and well trodden surface, that forking should be the last thing thought of. Our experience has taught us that this is decidedly the best plan, and that stone fruit thrive much better when the surface is hard.—We are, &c., Thomas Rivers & Son."

Digging and dunging a barren Fig tree would lead to anything but a profitable result in this climate, so far as a crop is concerned, but we may always accept the teaching of the good book; and although the above was intended to convey another meaning it would hold good in the climate in which it was spoken, and was no doubt the practice of cultivators there, or the simile would not have been used by Him who always spoke wisely. *J. Sheppard, Woolverstone Park.*

Ilex latifolia.—Adverting to the article on the Old Walls at Kew, in the closing paragraph, p. 528, October 24, this fine but little known variety is mentioned. At this place, planted out as standards, we have fine plants growing on the high and dry limestone banks, and very beautiful objects they are, often being taken for Magnolia grandiflora. In 1860 they were slightly injured, when the thermometer registered 34° of frost; since that fatal season they have not suffered. Another distinct kind is I. dipyrena, of which we have a pyramid 9 feet high and 5 feet in diameter. I. cornuta and furcata are also well worth growing. All the above varieties should be planted out in elevated nooks where they can have shelter from the north and east winds. By rail I send specimens for your inspection. *W. Coleman, Eastnor.*

Venn's Black Muscat Grape.—It is gratifying to learn that Mr. Venn has at last disposed of this fine Grape, and the fact that an experienced man like Mr. Dodds, for many years gardener to Sir Greville Smythe, Bower Ashton, has purchased the stock, bears out the high opinion I have formed of it. Having seen and tasted it several times within the last four years, I can safely say it has all the good qualities of Snow's Muscat Hamburgh and Madresfield Court, without their defects. It has a good constitution, shows, sets, and finishes heavy crops of fruit under Hamburgh treatment, but is about a fortnight later in ripening than that variety; and although unfairly treated, I believe the parent Vine has never been guilty of producing shanked berries, but this may be due to local circumstances, for I know that the hardiest varieties may be induced to shank by a superabundance of, or by the withholding of water from the roots at the time they are swelling off their crops of fruit. I have long entertained the opinion that our Black Muscats, particularly the much abused Madresfield Court, have been overdone with fire-heat. Knowing at the outset that Venn's Muscat does well under temperate treatment, I would suggest its being grown in every house in which Hamburghs succeed, fully convinced that the time is not far distant when every garden having the slightest pretension to Grape growing will be considered incomplete without this valuable acquisition to our black Grapes. *W. Coleman, Eastnor.*

THE FARM.

Prize Roots.—Our library table is at this moment literally covered with schedules of prizes offered by different societies and individuals for the best roots.

Those offered by agricultural societies usually have reference to root crops in the gross—such, for example, as "for the best 5 acres of Mangel Wurzel," "the best 5 acres of Swedes," without reference to manure, seed, or modes of culture. Another class of these will be "for the best 5 acres of Mangels or Swedes grown from seed supplied by Mr. A.," or "for the best 5 acres of Mangels or Swedes grown from manure supplied by Mr. B." These are usually judged by some two or three farmers appointed for the purpose, who will duly inspect the crop, then weigh the topped-and-tailed roots from a perch of ground, and so multiply for the acre.

Now this, though a rough way of estimating root crops, is yet the best that can be done under the circumstances, and as a mode of encouraging the growth of roots there can be no doubt it has done a very great deal of good. At the same time a heavy crop is not always an unerring criterion of cultural skill, as the nature of the soil, cleanly cultivation, form and trueness to sort of the roots, &c., are matters of considerable importance.

These, however, are points that would often be difficult to estimate, and therefore we look upon it that putting before the world the weight of roots that may be grown by the use of good seed and artificial manures is a matter worthy of encouragement.

No less so is the offering of prizes for the best dozen or more of different kinds of roots; for though it must be confessed that a few plethoric roots, whether of Mangels, Swedes, or common Turnips, afford no exact evidence of the state of the root crop in the farm or garden, yet if form, quality, and trueness to sort be taken into consideration, a root show may be made highly instructive, and, besides, exhibitors and visitors have an opportunity of comparing roots from a distance, and of seeing what may occasionally be attained to.

But perhaps the greatest good that such exhibitions do is to be found in the fact that the roots sent will, of course, be choice specimens from different parts of country, and if these be made use of for the growth of seed we cannot conceive a better way of improving root growth, and thus of benefiting both the seedsman and the farmer; but in awarding these prizes, though much may be said for size and weight, yet form and correctness to a specified sort are of still more importance. If, then, attention be paid to all these points, our root shows may serve a great purpose, as there is no doubt but that roots are to be bred like animals; and in the one case as in the other, a good strain can only be attained and efficiently maintained but by care and attention.

But, further, these shows may be made useful by the introduction of new sorts, and to this end prizes should be offered for any new sort of root, or any new introduction of a feeding plant capable of taking the position which roots at present occupy, or of subserving the same purposes on the farm as do roots.

We hope, therefore, that these exhibitions will be encouraged, for if they only tend to educate the taste and advance the knowledge of what is desired with regard to roots, a great deal of good will be effected by their means.

The Villa Garden.

WINDOW GARDENING.—With October invariably comes a general clearing out of the contents of the window boxes that have done service during the summer. The flowering plants have ceased to flower, and are fast losing their leaves; decay has set in, and renewal is absolutely necessary. The annual exodus that takes place from London about July and August has a most unfortunate effect on a great deal of its most elaborate window gardening: by July, window boxes, furnished with much taste, are in their full flush of beauty; then the shutters are closed, the house deserted, and not a drop of water reaches the plants save what is mercifully vouchsafed through an occasional summer shower. By August a pitiable spectacle is presented, and one can understand the feelings of a fine old gardener who recently said that when he visited London towards the end of the summer he always avoided the fashionable squares and streets, feeling disposed when he passed along them to climb the fence and tilt the boxes over into the area beneath, such miserable burlesques on gardening do they become through neglect. It is usual to leave some one in charge of a London house while the usual occupants are away in the country, and it does appear to be a matter for much regret that the caretakers cannot in many instances be sufficiently interested in the welfare of the plants to give them the small daily attentions required. Neglect—one might write a cruel neglect—disfigures much of the window gardening in fashionable London during the summer months. Replanting is now an absolute necessity, therefore clear out of the box all the soil and drainage, and sweep clean from the sides anything in the shape of dirt and roots clinging to them. In refilling the box put in more material in the way of drainage for the winter than for the summer plants, as the boxes on the outside of windows get fully saturated with rain during the winter. Broken pots make a good drainage when broken up rather small, and over this it is a good plan to place a layer of pieces of turf, for it serves the purpose of preventing the soil from being washed down among the crocks at the bottom of the box when water is administered, and it also keeps the drainage free and open. A soil made up of the siftings of the refuse of a potting bench mingled with some leaf-mould will be found the best for winter use; it will be light and free, and water will pass freely through it.

Seeing that a window box has to occupy an exposed position on the outside sill, the plants to occupy it must be of a hardy character, capable of withstanding alike frost and wet. Of flowering plants there are but few suitable for exposure outside of a window during winter; the gusts of wind that sweep along the streets too often make sport of tender flowers and quickly rob them of any beauty they may possess. It is, therefore, indispensable to fall back on hardy evergreen and variegated plants: what is wanted is foliage, therefore evergreen plants are a *sine quâ non*, and the brighter hues of flowers must be supplied as nearly as possible by leaf variegation. The pitiless storm, no less than the rushing wind work injury among flowers, but their effect on leaf variegation is to cleanse it, and make it assume brighter and gayer tints. A long list of plants need not be given, for the most fitting material can be found in Rhododendron ponticum; Euonymus, green and variegated; Hollies of both classes also; the winter flowering Laurustinus; the golden Thuja and the silver Retinospora; Aucubas, green and variegated; Box, Arbor-vitæs, &c., will supply abundantly the largest requirements. There is no difficulty in obtaining nice little bushy plants from any of the nurserymen, with balls of earth about the roots sufficiently large to carry these plants safely through a winter without loss of vigour. In arranging the plants, let green and variegated leaves alternate, and so place any flowering plants, such as the Laurustinus, as that there shall be a distribution of colours. Some nice little Pompon Chrysanthemums, just coming into flower, might be worked in to form a front row; and then, to give a finish and completeness, a fringe of the variegated Periwinkle, with a small-green-leaved Ivy intertwining the leaves, will form an appropriate and pleasing foreground or fringe. It is an easy matter to introduce a few bulbs in order to give some bright colours by-and-bye when the days begin to lengthen, and the floral hues they furnish will be a fitting accompaniment to the activity that then begins to manifest itself in the vegetable kingdom. The evergreens will furnish shelter to the bulbs when "chill March winds begin to blow," and serve to preserve them longer in bloom. A few Hyacinths, Tulips, Crocuses, Snowdrops, and Scillas, thirty or forty roots in all, would be ample.

Obituary.

WE regret to hear of the death, on Thursday last, October 29, of J. PHILPOTTS, Esq., of Stamford Hill, a well known patron of horticulture, and whose gardener, Mr. J. Wheeler, has for several years been a successful exhibitor of plants at the metropolitan shows.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, OCTOBER 28, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall
Oct.	In.	In.	°	°	°	°	°	°			In.
22	29.57	−0.14	54.5	38.8	15.7	45.5	− 3.2	40.1	81	W.	0.00
23	29.85	+0.14	51.1	36.0	15.1	41.7	− 6.8	37.7	86	N.W.: WSW	0.00
24	29.96	+0.24	56.3	38.2	18.1	46.8	− 1.4	41.3	81	S.W.	0.00
25	29.86	+0.14	58.1	45.9	12.2	53.3	+ 5.4	53.3	100	S.S.W.: S.W.	0.07
26	29.95	+0.23	61.1	54.3	6.8	56.0	+ 8.4	54.4	94	S.S.W.	0.09
27	29.88	+0.15	65.1	52.0	13.1	57.1	+ 9.8	55.8	96	S: SW	0.01
28	29.85	+0.13	61.9	50.0	11.9	55.1	+ 8.1	52.5	91	S.E.	0.00

Oct. 22.—A fine day; partially cloudy till evening: cloudless, but foggy at night.
— 23.—Hoar-frost and fog in the morning; fine, with little cloud during the day; slight fog at night.
— 24.—Generally cloudy.
— 25.—Generally overcast, and thin rain fell frequently during the day. Heavy shower between 10 P.M. and 11 P.M.
— 26.—The amount of cloud was generally large; rain fell in the evening.
— 27.—Generally overcast. A little thin rain fell at night.
— 28.—Overcast in early morning; fine, with variable amounts of light cloud afterwards.

—— In the metropolitan districts the reading of the barometer, at the level of the sea, increased from 29.93 inches at the beginning of the week to 30.02 by 9 A.M. on the 18th, decreased to 29.91 inches by the morning of the following day, increased to 30.27 inches by noon on the 20th, decreased quickly to 29.54 inches by noon on the 21st, increased to 30.18 inches by the morning of the 24th, and was 30.12 inches at the end of the week. The mean reading for the week was 29.96 inches, being 0.08 inch higher than that of the preceding week. The range of readings in the seven days amounted to nearly three-quarters of an inch.

The highest temperatures of the air at 4 feet above the ground ranged from 51° on the 23d to 63° on the 18th, with a mean for the period of 57°. The lowest temperatures at night varied from 36° on the 23d to 49° on the 18th, the mean value being 41°. The mean daily range of temperature was 16°, the greatest being 18°, on the 24th, and the least 14°, on the 18th.

The mean daily temperatures of the air, with departures from their respective averages, were as follows:—18th, 53°.6, + 4°; 19th, 52°.2, + 2°.9; 20th, 47°.2, — 1°.9; 21st, 48°.2, — 0°.7; 22d, 45°.5, — 3°.2; 23d, 41°.7, — 6°.8; 24th, 46°.8, — 1°.4. The mean temperature of the air for the week was 47°.9, being 1° lower than the average of the corresponding week, as deduced from fifty years' observations.

On the 18th, 19th, and 20th, a thermometer, with blackened bulb in vacuo, placed on grass in the full rays of the sun, read 107°, 108°, and 105° respectively, but on the other days its readings did not exceed 100°, and the mean of the seven highest temperatures by this instrument was 90¼°. The lowest readings at night of a thermometer on grass with its bulb fully exposed to the sky were 28° on the 23d, and 30° on the 22d and 24th, the mean for the week being 33°.

The sky was generally cloudy, and rain fell on three days to the amount of one-tenth of an inch nearly.

A heavy gale was experienced from 1 A.M. on the 21st till about 4 P.M. on the same day; the greatest pressure on the square foot was 24.7 lb., at about 8.30 A.M., and the horizontal movement of the air between midnight on the 21st and midnight on the 22d was 690 miles. Light W.S.W. winds were generally prevalent on the other days.

In England the extreme high day temperatures ranged between 69° at Sunderland and 59¾° at Birmingham and Wolverhampton, the general average over the whole country was 61½°. The extreme low night temperatures varied from 42¾° at Liverpool to 32° at Norwich and Hull, the general average being 36¼°. The mean range of temperature in the week was 25¼°. The mean high temperatures observed by day ranged from 62¼° at Sunderland to 54½° at Norwich and Bradford, with an average value of 56¼. The mean low temperatures observed by night varied from 45° at Liverpool to 39½° at Bristol, with a general average of 41¾°. The mean daily range of temperature was 14½°, the greatest range, 19½°, occurring at Sunderland, and the least, 10½°, at Liverpool. The mean temperature for the week was 48°, the highest being at Sunderland, 51¼°, and the lowest at Norwich, 46¼°. The fall of rain measured at the several stations during the week ranged from six-tenths of an inch at Manchester and Eccles to two-hundredths of an inch at Hull and Sunderland, the average fall over the country was three-tenths of an inch.

The weather during the week was fine, but cloudy and showery.

A heavy gale was experienced all over the country on Wednesday the 21st inst., which did great damage to both life and property.

In Scotland the highest temperatures ranged between 65° at Paisley and 56° at Greenock; the lowest temperatures varied from 36½° at Leith to 32° at Greenock, their averages being 59° and 34¼° respectively. The mean range of temperature was 24¾°. The mean temperature for the week was 47° (being 1° less than that of England), the highest occurred at Paisley, 49°, and the lowest at Aberdeen, 45°. Rain was measured at all stations, the amounts varying from 3¾ inches at Greenock to half an inch at Leith, the average fall over the country was 2 inches.

At Dublin the highest temperature was 62°, the lowest 33°, the mean 48½°, and the fall of rain 0.44 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—In all places where hard-wooded flowering plants are grown, however select the collection may be, there ought to be a yearly addition made to the stock, in the shape of a sufficient number of young plants to supply the places of such as die or get worn out; the omission of this yearly recruiting is often felt afterwards. This, of course, is assuming that the propagation of these plants is not attempted in private establishments, where, under any circumstances, it is false economy. The small numbers required, the absence of suitable means for carrying out the work in a manner calculated to insure success, together with the necessary attention to a small number which is comparatively almost as great as in the case of large quantities, make it advisable, even on the score of cost, to leave the propagation of this class of plants to those whose legitimate occupation it is. Such being the case, it becomes a question at what time of the year is the best to purchase. Any one who has had experience in this matter will at once see that the most suitable season is when the plants are most at rest, and when no injury can occur through frost. After the advent of the new year frost may always be expected, which, despite the most careful packing, will sometimes do serious injury. In the spring, when growth has commenced, injury, more or less, always occurs. If such is the case with greenhouse plants, it is much more so in the case of those that grow in heat, and which are frequently so checked in transit as to require months to recover—a circumstance that might easily be avoided by a little forethought. All plants of the above description should be got by the end of November.

SOFT-WOODED GREENHOUSE PLANTS.—Herbaceous *Calceolarias* will now require potting off singly, 60's will be large enough for the first shift; use good loam, with one-sixth sifted leaf-mould, and a similar proportion of rotten dung (all free from worms) and a sprinkling of sand. Calceolarias do not like tobacco smoke, and should any aphides exist, dip each plant singly, previous to its being potted, in tobacco water; place them near the light in a pit where they will be out of danger from frost. Move into their flowering pots the second lot of *Cinerarias*, using soil similar to that recommended for Calceolarias, keeping the plants near the light; these will succeed the early plants, and should be kept where frost can just be excluded, for the later they are the more useful they will be. The principal portion of the *Chrysanthemums* should be got out of the danger of frost, as it is not safe to trust them after this time without some covering. If there exists a canvas-covered framework, such as used for the protection of hard-wooded plants during the summer, a portion may safely be placed under

it, and the latest may be transferred to the north house, where they will move slowly, and come in at Christmas. The late white *Virgin Queen* is one of the best for this purpose, its flowers are of the purest white, large, and equal to a Camellia. Cuttings of the yellow *Calceolaria aurea floribunda*, should, if not already done, be got in for growing as pot plants. It is one of the most useful soft-wooded conservatory subjects, flowering earlier than other varieties. If a good number are grown, a succession can be kept up for a considerable part of the summer. *T. Baines.*

SUCCULENTS.—Dull and cold days, with much moisture in the air, indicate to us that the water-pot ought to be dispensed with entirely for Mammillaria, Echinopsis, Echinocactus, Opuntias, and most of the fleshy sorts of Cereus. The plants should be examined to see that they are perfectly sound, as they sometimes appear very healthy when decay has set in at the base. More especially is this the case with some of the softer sorts of Mammillaria. They should also be examined for bug and scale, and care must be used in cleaning them not to bruise any part. It is best, in the case of sickly plants, to winter them on a dry shelf near the light. Any seed may be sown and kept moist and hot. When well up set them on a shelf and keep them in the seed-pot until spring. The temperature of the house at night should be 50°. Growth should be discouraged in the case of *Crassulas*, *Echeverias*, *Mesembryanthemums*, and *Sempervivums*, by keeping them dry and as cold as can be, so that frost is kept out. *Agaves* may be kept growing yet, and may be helped with a little fire-heat at night, and by giving air during the day when possible; they should not be syringed now. The *Aloe* tribe require especial attention now because they are growing, and some will be pushing flowers; they should be kept watered, but the air must be as dry as possible; lowest night temperature 50°. Where convenient, if *Stapelias* are kept moderately warm, they will continue flowering, but if kept below 50° they must be dry without shrivelling. *J. Croucher.*

Enquiries.

He that questioneth much shall learn much.—BACON.

18. TACSONIA VAN VOLXEMI.—I have a fine plant of this planted in a greenhouse border. Last year it covered the rafters, and showed plenty of flower-buds, the foot-stalks of which got the length of 4 inches, and the flower the size of a Coffee-berry, when they dropped, —not one flower showed itself. Last autumn I cut it down to previous year's wood. It has this year again covered the rafters, but, as before, all the flowers have dropped. Can any of your correspondents tell me what to do with it to cause it to flower? Should I again cut it?—for it is filling the house, which is span-roofed, and ventilated from the top. *Charles Clark.*

19. WISTARIA SEEDS, &c.—Can any of your readers oblige me with information as to where a small quantity (about two quarts) of Wistaria, Hawthorn, and Horse Chestnut seed can be obtained? *W. D. S.* [The Wistaria seed must be a scarce article in this country. EDS.]

Answers to Correspondents.

JUTE CARPETS (Q. 15, p. 503).—For the instruction of *R. N. H.*, I made inquiries to-day of one of our wholesale manufacturers, and the quotations are 3⅛*d.* to 5⅛*d.* per yard, according to quality and style. *C. C., Dundee.*

BOOKS ON FORESTRY: *J. G.* Brown's *Forester*, published by Blackwood, is the best work we know of; but you would gain a vast amount of practical information from Grigor's *Arboriculture*, a cheaper work, published by Edmonston & Douglas.

EXCHANGE.—I have between forty and fifty species and varieties of the family Stapelia, and shall be pleased to exchange lists and cuttings with any growers of this group of plants. Some few specimens are at present unnamed, but, as they flower, I purpose forwarding them to Mr. N. E. Brown, of the Herbarium, Kew, who is now working at a monograph of them. *John E. Daniel, 6, The Terrace, Epsom.*

FUNGUS ON SYCAMORE LEAVES: *H. C., St. Andrews.* You are right in referring the fungus on Sycamore to Xyloma acerinum as figured by Greville. The plant is now always known to botanists as Rhytisma acerinum. We shall shortly publish a brief illustrated account of it.

INSECTS: *J. W. G.* The insect is not the Phylloxera. It is very unsafe to send insects wrapped up in Moss, as they are almost sure to be lost. They should, if small enough, be put into a quill, fastened with a cork, and inclosed in something firm, as wood, or thick pasteboard. *M. J. B.*—*J. C.* The small beetle which attacks the leaves of the Hollyhock in September is Haltica fuscipes. *I. O. W.*—*C. G. H. G.* The chrysalids sent are those of the common Cabbage butterfly, attacked by the parasitic larvæ of a small Ichneumon fly (Microgaster glomeratus), the eggs of which are deposited by the female parent parasite beneath the skin of the Cabbage caterpillar by means of her boring ovipositor. When the eggs of the parasites are hatched, the minute larvæ feed upon the fatty matter of the caterpillar until they are full-grown, carefully avoiding, in the meantime, to touch the vital parts of the caterpillar. When full-fed they burst out of the caterpillar, or chrysalid, each spinning a little cocoon of yellow silk, from which, in due time, the perfect parasite fly escapes. *I. O. W.*

LARGE PEARS: *A. H.* Please send us a sample.

MONSTERA DELICIOSA: *D. D.* A native of Mexico.

MUSSEL SCALE: *J. W.* Prune out the worst affected parts, and wash the remainder with hot water; or scrape the bark with a wooden knife, so as to bruise and crush the females without hurting the trees; and then wash them with Gishurst or hot water. Apply the Gishurst with an ordinary paint brush.

NAMES OF FRUITS: *J. E. H., Finchley.* 4, King of the Pippins; 41, Ribston Pippin. The others are not known.—*J. E. E. Apples:* 1, Deux Ans; 2, Beauty of Kent.—*Pears:* 3, Beurré Diel; 4, Jersey Gratioli; 17, Colmar d'Aremberg; 97, Beurré Rance.—The names of those sent under the name of *H. Bryant* will be given at another time.—*E. W.* 1, Marie Louise (the fruit is defective, through the effect of cold when in a young state); 2 and 4, Glou Morçeau; 3, Beurré Rance.—*Apples:* 5, Emperor Alexander; 6, Lemon Pippin.—*D. A.* 3, Fearn's Pippin; 4, King of the Pippins, others unknown.—*J. Kent.* 3, Drap d'Or; 5, Haffner's Golden Reinette; 6, Dumelow's Seedling; others unknown.—*W. T. P. Pear:* Delices d'Hardenpont.—*John Gray.* 1, Blenheim Orange; 2, King of the Pippins; 5, Fearn's Pippin; the others are not known.—*J. M.* Your Apple is not known to us; but it is worthless, and not worth cultivation.—*Clarke. Pears:* 1, Forelle, or Trout Pear; 2, poor specimen of Beurré Diel; 3, Easter Beurré.—*Apples:* 5, Harvey Russet; 6, a handsome fruit, the name of which we are uncertain about.

NAMES OF PLANTS: *J. M.* Griselinia littoralis. A native of New Zealand.—*George Ward.* Peperomia scandens.—*W. B.* Basella rubra.—*G. E. Elliot.* Rodriguezia crispa.

PATENT STOVE: *Max Leichtlin.* From the patentee, at 48, Rochester Row, Westminster, London, S.W.

STRELITZIA REGINA: *A Constant Subscriber.* Perhaps you have over-potted your plant, or do not give it heat enough in summer. It likes the warmest end of a greenhouse, and will flower freely enough if allowed to get a little pot-bound.

SYSTEMATIC BOTANY: *W. H. P.* The address that Mr. Bentham delivered before one of the sections of the British Association at Belfast, on "The Recent Progress and Present State of Systematic Botany," has, we believe, not yet been published.

THE PRUNING OF VINES: *Vine.* We do not feel inclined to discuss the matter at any length with you at present. Vines require a certain amount of pruning of the ripened shoots, and also stopping of the summer growths. We rather suspect you have practised this to too great an extent, and have thereby so checked the growth of the plant as to produce the result described. The greater amount of properly developed foliage a Vine has the more successful will the crop be.

VARIEGATED IVY ON VERANDAH: *R. T. S., Co. Cork.* We can only advise you to have the plant thoroughly and frequently syringed with clean water. If there are no local objections to the use of Gishurst Compound or tobacco-water, try a few doses of either of those liquids.

VARIOUS QUESTIONS: *J. A. C.* 1. A load of *old* hay consists of 36 trusses of 56 lb. each; of *new*, 36 trusses of 60 lb. each. 2. Cratægus pyracantha, or Escallonia macrantha. 3. An ordinary greenhouse will suit the Lapageria rosea. If you plant it in a well-drained border you cannot well give it too much water during its season of active growth. 4. Without knowing your predilections in the matter of spring bedding plants, it is difficult to say what will suit you. Of spring flowering bulbous plants, the most appreciated are Scillas (S. bifolia and S. sibirica), Anemone appenina, Dog's-tooth Violets, Triteleia uniflora, Zephyranthes candida, Hyacinths, Tulips, Crocus, Narcissus, &c. Then of fibrous-rooted plants there are Hepaticas, Spiræa japonica, Hellebores, Pansies and Violas, Daisies, Polyanthus, and Primrose, &c.

WORM-CASTS ON LAWN: *S. C.* Large light wooden rollers are used frequently upon large lawns, on dewy mornings, to collect worm-casts. Lawns of small extent may be treated in the same way, or be watered with moderately clear lime-water. This will bring all the worms to the top, but it will not prevent others from subsequently taking possession of the ground.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

CATALOGUES RECEIVED.—William Chater (Saffron Walden Nurseries), Catalogue of Double Hollyhocks and Roses.—Ewing & Co. (The Royal Norfolk Nurseries, Norwich), Illustrated Catalogue of Roses, and also their General Nursery Catalogue.—Edward B. Spence (17, Tubwell Street, Darlington), Price List of Palms, Orchids, Ferns, &c.

COMMUNICATIONS RECEIVED.—R. C.—P. F.—C. W. S.—J. L.—J. M. G.—H. H.—E. S. & Sons.—W. Hooper.—R. I. P., Kenley.—J. M.—H. W.—B.—W. B.—T. C. A.—J. Carpenter.—J. Ward—S. G.—S. C.—Dr. K. (many thanks).—W. P. D.—W. E.—W. K.—A. B. M.—W. F. B.—E. G.—L. H. G.—D.—E. T. B.

DIED, at No. 3, Bernard Street, Regent's Park, London, N.W., on October 27, LOUISA, widow of John AITON, late of Enville, Staffordshire, aged 69.

Markets.

COVENT GARDEN, October 29.

The markets generally are very quiet indeed, and transactions moderate, the continued fine weather operating largely in keeping us well supplied with both foreign and home-grown produce. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Oranges, p. 100	..10 0–15 0
Filberts, per lb.	.. 1 0– 1 6	Peaches, p. doz.	.. 8 0–15 0
Grapes, English, p. lb.	2 0– 6 0	Pears, p. doz.	.. 2 0– 3 6
— Muscats, do.	.. 2 6– 6 0	Pine-apples, p lb.	.. 3 0– 6 0
Lemons, per 100	..10 0–15 0	Plums, ½-sieve	.. 2 0– 3 6
Melons, each	.. 2 0– 6 0	Walnuts, p. bush.	..16 0– ..
Nuts, Cob, p. lb.	.. 1 0– 1 6		

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Mint (green), p. bun.	0 6– ..
Beans, Scarlet, bush.	3 0– 5 0	Mushrooms, per pott.	1 0– 2 6
Beet, per doz.	.. 1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle	.. 0 9– 1 6	Parsley, per bunch	.. 0 4– 0 6
Brus. Sprts., p. bush.	5 0– ..	Parsnips, p. doz.	.. 0 9– 1 0
Cabbages, per doz.	.. 1 0– 2 0	Radishes, per bunch.	0 2– 0 4
Carrots, new, p. bun.	0 4– 0 6	— black, Turnip, do.	.. – 0 6
Cauliflowers, per doz.	2 0– 6 0	Seakale, per bundle	2 6– ..
Celery, per bundle	. 1 6– 2 0	Shallots, per lb.	.. 0 3– ..
Cucumbers, each	.. 0 6– 1 0	Salsify, per bundle	.. 1 6– ..
Endive, per doz.	.. 1 0– 2 0	Spinach, per bush.	.. 2 0– 3 0
Herbs, per bunch	.. 0 2– 0 4	Tomatos, per doz.	.. 1 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Turnips, per bundle	.. 0 3– 0 4
Leeks, per bunch	.. 0 2– 0 4	Veg. Marrows, doz.	1 6– 2 0
Lettuces, per doz.	.. 1 6– ..		

New Potatos:—Round, 60*s.* to 90*s.* per ton; Kidneys, 90*s* to 120*s.* per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Asters, per doz. bun.	4 0– 6 0	Mignonette, 12 bun.	2 0– 6 0
Camellias, 12 blooms	3 0– 9 0	Pelargoniums, per 12 sprays	.. 0 6– 1 0
Carnations, doz. bun.	6 0– 9 0	Pelargoniums, Zonal, per 12 sprays	.. 0 3– 0 9
Corn-flower, doz. bun.	3 0– 6 0	Roses, indoor, p. doz.	1 0– 6 0
Dahlias, p. doz. bun.	3 0– 6 0	— Outdoor, do.	.. 0 4– 1 0
Eucharis, per doz.	.. 4 0– 9 0	Spiræa, per 12 sprays	1 0– 2 6
Eschscholtzia, 12 bun.	2 0– 6 0	Stephanotis, 12 sprays	5 0– 9 0
Gardenias, p. doz.	.. 3 0– 9 0	Tuberoses, p. doz.	.. 1 0– 2 0
Gladiolus, doz. sprays	1 0– 2 0	Violets, p. doz. bun.	0 9– 1 6
Heliotropes, per doz. sprays	.. .. – 0 6		

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Asters, per dozen	.. 4 0– 8 0	Fuchsia, per dozen	4 0–12 0
Begonias, do.	.. 6 0–12 0	Heaths, in var., do.	12 0–30 0
Bouvardias do.	.. 9 0–18 0	Liliums, in var., each	1 0– 3 6
Coleus, p. doz.	.. 3 0– 9 0	Mignonette, per doz.	4 0– 6 0
Chrysanthemums, p. dozen	.. 4 0– 9 0	Myrtles .. do.	3 0– 9 0
Cyperus, per dozen	6 0–12 0	Pelargoniums, dble., per doz.	.. 4 0– 9 0
Dracæna terminalis	12 0–30 0	— Scarlet, per doz.	3 0– 9 0
— viridis, per doz.	12 0–24 0	Primula sinensis	.. 4 0– 8
Ficus elastica	.. 1 6– 7 6	Solanums, per doz.	.. 6 0–18

SEEDS.

LONDON: *Oct. 30.*—No increase of animation is yet seen on our market, red Clovers of all kinds being still neglected, notwithstanding the lower prices now reported both from France and America. In Trefoil seed there is scarcely anything doing. Some small amount of business has been passing in Alsike at improved values. For winter Tares the trade is not yet quite over. The same may be said of both winter Barley and Rye. Of blue boiling Peas the supply on offer is not great, but the consumption is very limited. New Dutch Hemp seed is quoted 1*s.* per quarter dearer. Canary seed keeps very firm. *John Shaw & Sons, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday transactions in both English and foreign Wheat were at some reduction from Monday se'nnight. In Barley even the better qualities of malting supported their value with difficulty. Malt was dull, at about late rates. Oats were disposed of very slowly; but sound corn was scarce and pretty strong in tone. Maize scarcely realised previous quotations. Beans and Peas were without alteration. Flour was stagnant, and prices naturally were weak.—At Wednesday's market millers evinced little desire to operate in Wheat, unless at a further reduction. Barley was also difficult to move, and scarcely any attention was directed to Malt. Oats, Beans, and Peas were steady, but Maize and flour were weak, and very sparingly dealt in.

CATTLE.

On Monday last choice quality beasts were dearer than on the previous Monday. For sheep the average prices were not better. Ewes and inferior qualities met with a very dull sale. Choice calves were scarce and dear.—At market on Thursday little business was done in beasts and sheep, even at reduced figures. Calves were plentiful, and much cheaper. Milch cows, dull trade.

HAY.

Whitechapel market quotations:—Prime Clover, 100*s.* to 126*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 114*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load of 36 trusses. Cumberland Market quotations:—Superior meadow hay, 118*s.* to 126*s.*; inferior do., 88*s.* to 108*s.*; superior Clover, 120*s.* to 130*s.*; inferior do., 100*s.* to 110*s.*; and straw, 38*s.* to 42*s.* per load.

POTATOS.

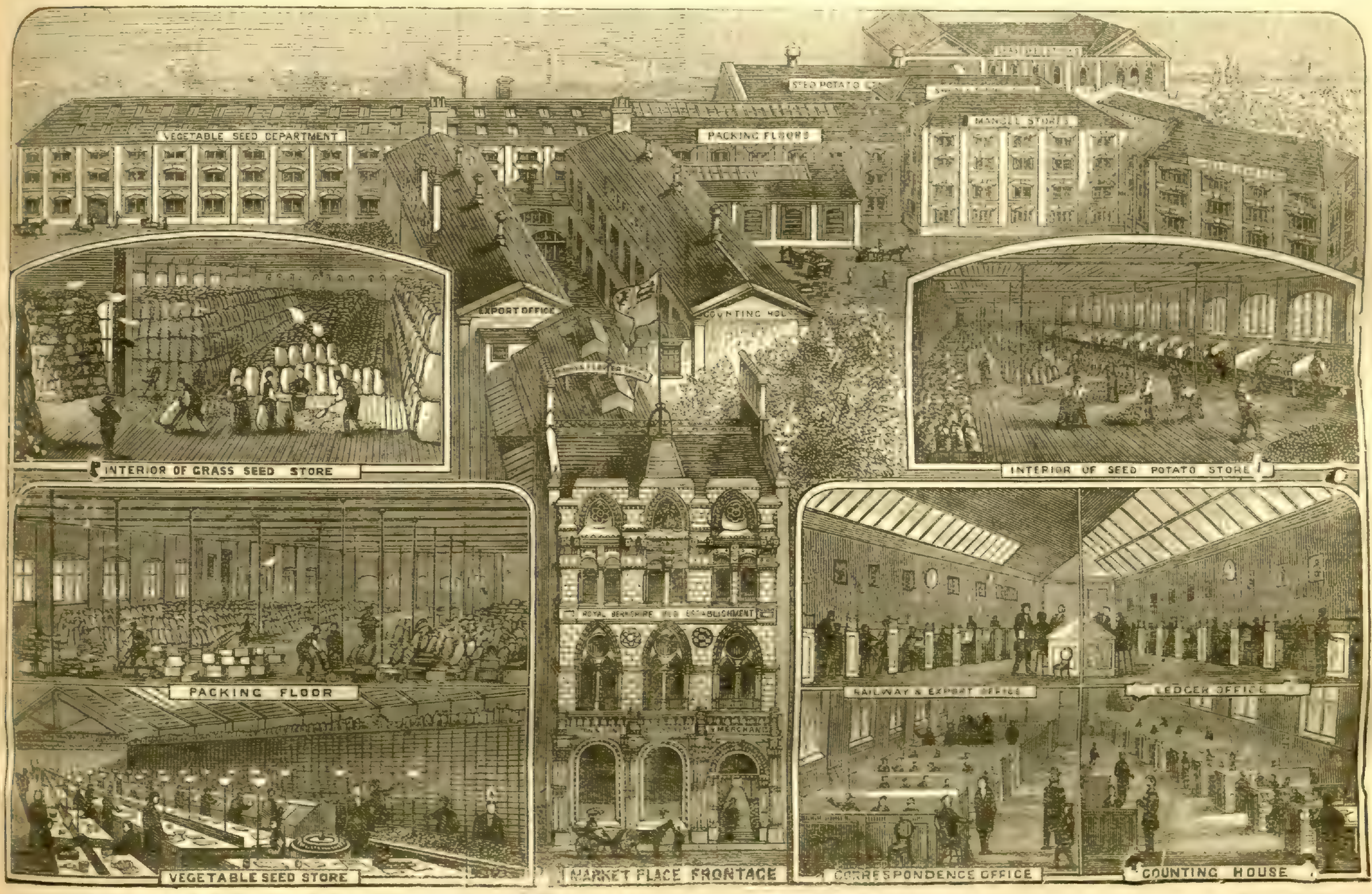
At the Borough and Spitalfields Markets the supplies of Potatos coming to hand are to some extent diseased and wet. Buyers are disinclined to purchase, but prices for sound descriptions rule firm:—Regents, 60*s.* to 80*s.*; rocks, 60*s.* to 70*s.*; and kidneys, 110*s.* to 130*s.* per ton.

THE ROYAL BERKSHIRE SEED ESTABLISHMENT,

READING.

SUTTONS' GRASS SEEDS FOR ALL SOILS.
SUTTONS' PRIZE STOCKS OF FARM SEEDS.
SUTTONS' CHOICE VEGETABLE AND FLOWER SEEDS.
SUTTONS' FRESH IMPORTED FLOWER ROOTS.

☞ *Priced Descriptive Catalogues Gratis and Post Free.*

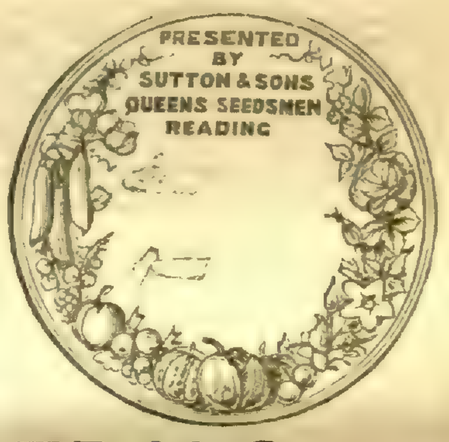


Suttons Sons

Will have the pleasure of offering, through the Medium of

THE ROYAL HORTICULTURAL SOCIETY,

DURING THE ENSUING SEASON,



SIXTEEN GOLD, SILVER, AND BRONZE MEDALS,

And VALUABLE MONEY PRIZES,

FOR THE BEST COLLECTIONS OF VEGETABLES, FLOWERS, FRUITS, AND POTATOS,

AS SEE THE FOLLOWING PARTICULARS :—

Date of Meeting, 1875.
June 2.—For the best six dishes of PEAS (½ peck of each to comprise a dish), to include Suttons' Emerald Gem, Suttons' Ringleader, and Suttons' New Early Dwarf Wrinkled Pea, Bijou .. .. — 1st Prize, **Silver Medal** and £2 2 0; 2d Prize, **Bronze Medal** and £1 1 0

For the best four sorts of MELONS and four sorts of CUCUMBERS, one brace of each, to include Suttons' New Scarlet-flesh Hero of Bath, Read's Hybrid Scarlet-flesh, and Suttons' Royal Horticultural Prize Melons, and Suttons' Duke of Connaught and Marquis of Lorne Cucumbers .. — 1st Prize, **Gold Medal** and £3 3 0; 2d Prize, **Silver Medal** and £2 2 0; 3d Prize, **Bronze Medal** and £1 1 0

July 7.—For the best six dishes of PEAS (½ peck of each to comprise a dish), to include Suttons' Duchess of Edinburgh, Suttons' Giant Emerald Marrow, Suttons' Duke of Edinburgh, and Maclean's Best of All .. .. — 1st Prize, **Silver Medal** and £2 2 0; 2d Prize, **Bronze Medal** and £1 1 0

Date of Meeting, 1875.
Sept. 1.—For the best collection of twenty-four ASTERS, twelve varieties, consisting of the varieties offered in Suttons' *Spring Catalogue and Amateurs' Guide for* 1875 .. .. — 1st Prize, **Silver Medal** and £2 2 0; 2d Prize, **Bronze Medal** and £1 1 0

Nov. 10.—For the best twelve "Suttons' Improved" Reading ONIONS .. .. — 1st Prize, **Silver Medal** and £2 2 0; 2d Prize, **Bronze Medal** and £1 1 0

For the best collection of POTATOS, twelve dishes, eighteen tubers to comprise a dish, distinct kinds, half Kidney and half Round, to include Suttons' Hundredfold Fluke and Suttons' Redskin Flourball .. .. — 1st Prize, **Gold Medal** and £3 3 0; 2d Prize, **Silver Medal** and £2 2 0; 3d Prize, **Bronze Medal** and £1 1 0

For the best six CAULIFLOWERS (Suttons' King) — 1st Prize, **Silver Medal** and £2 2 0; 2d Prize, **Bronze Medal** and £1 1 0

Conditions of Competition.—These Prizes are confined to Noblemen's or Gentlemen's Gardeners, and Gentlemen Amateurs, and (excepting Fruits) must be grown without forcing and in the open ground.

Full Particulars of several Valuable Novelties will appear in "Suttons' Spring Catalogue and Amateurs' Guide for 1875."
Gratis to any Member of the Royal Horticultural Society, or intending Competitor for the above Prizes.

SUTTON & SONS, The Queen's Seedsmen, Reading, Berks.

Planting Season.

To PLANTERS of PUBLIC PARKS, CEMETERIES, or PRIVATE GARDENS.

WILLIAM SKIRVING solicits inspection of his unrivalled Stock of choice EVERGREEN SHRUBS, FOREST and ORNAMENTAL TREES, which he is disposing of at very moderate prices, in order to clear the land for building purposes.

Among the Evergreens are many thousands of fine specimens of Variegated and Broad-leaved Green Hollies, and an immense Stock of all other Hardy Evergreen Flowering Shrubs and Ornamental Trees generally cultivated in Britain, many of which are of large size, well calculated for giving immediate effect.

To Gentlemen wishing to make new or to improve old Pleasure Grounds this is an excellent opportunity, for such an extensive and well-grown Stock of Trees and Shrubs is seldom to be met with. Nursery and Seed Stores—Walton, Liverpool.

Rhododendrons.

HARDY SCARLET, WHITE, and OTHER VARIETIES.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to announce that their CATALOGUE of the above can be had on application.

The whole of the plants for twenty-three years in succession were supplied from this Establishment which formed the Rhododendron Exhibition at the Royal Botanic Gardens, Regent's Park, N.W.; and also at the Garden, Russell Square, W.C., in June last.

An unequalled collection of thousands of STANDARD RHODODENDRONS to be found at this Nursery.

We have also a splendid stock of the undermentioned, for planting as single specimens, viz.:—

STANDARD GOLD YEWS.
STANDARD HOLLIES.
STANDARD VARIEGATED HOLLIES.
STANDARD PORTUGAL LAURELS.
PYRAMIDS also of all the above.
CONIFERS of all kinds and sizes.

An immense stock of the following, from 3, 4, 5, and 6 feet:—YEWS, Portugal LAURELS, BOX, and Green and Variegated HOLLIES; also a large assortment of all the leading EVERGREENS, such as Aucubas, Phillyreas, &c.

LARGE TREES for immediate effect, such as Limes, Planes, Maples, Mountain Ash, Scarlet Chestnut, Horse Chestnut, &c.

NOTE.—The growth of all plants sent out by us is guaranteed.

CABBAGE PLANTS.—H. J. HARDY begs to offer a quantity of strong autumn-sown plants, all true:—

ENFIELD MARKET, EARLY BATTERSEA, } 3s. per 1000.
ROBINSON'S DRUMHEAD, } 25s. per 10,000.
WHEELER'S COCOA-NUT, 5s. per 1000.

LETTUCE PLANTS, SIBERIAN COS.—H. J. H. has much pleasure in offering fine strong plants of his Siberian Cos, at 7s. 6d. per 1000. This is one of the best Lettuces grown to stand the winter; is highly recommended for its excellency of flavour and fine green colour. It grows large, turns in early, and stands a long time before it runs to seed. It is very suitable for Market Gardeners. A liberal allowance to large buyers.

Packages and carriage free to London.

Cash must accompany all Orders from unknown Correspondents. Post Office Orders made payable at Bures. Apply to H. J. HARDY, Stour Valley Seed Grounds, Bures, Essex.

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.

JACKMAN'S LIST of FRUIT TREES.

JACKMAN'S LIST of ROSES.

JACKMAN'S LIST of AMERICAN PLANTS.

JACKMAN'S LIST of CONIFERS.

JACKMAN'S LIST of HARDY SHRUBS.

JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.

JACKMAN'S LIST of CLEMATIS (Special Catalogue).

JACKMAN'S LIST of TRANSPLANTED FOREST TREES.

JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.

GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality:—

MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 ft.
CHESTNUTS, Common Horse, and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.

Woking Nursery, Surrey, S.W.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.

PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.

All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.

POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

Forest and Ornamental Trees, Evergreens, Plants

For GAME COVERTS, &c.

FRANCIS & ARTHUR DICKSON & SONS, the "Upton" Nurseries, Chester, respectfully invite attention to or inspection of their almost unlimited stock of

FOREST TREES, PLANTS for GAME COVERTS,
ORNAMENTAL TREES, CONIFERS,
EVERGREEN and DECIDUOUS SHRUBS,
FRUIT TREES, VINES, &c.;
ROSES, STOVE and GREENHOUSE PLANTS, &c.

The special recommendations of their Plants are extreme hardiness; and, from frequent transplantation, their plants are well furnished, and have abundance of fibrous roots, so that they remove to any part of the country with perfect safety. Inspection invited. Visitors should ask for "The Upton" Nurseries, distant about a mile from Chester Station.

Descriptive Priced CATALOGUES post free on application.

CHOICE RHODODENDRONS.

ALARM, white centre, edged with bright carmine
BRAYANUM, vivid scarlet, very fine.
CONCESSUM, fine clear rosy pink.
ELFRIDA, deep rose, much spotted.
EVERESTIANUM, rosy lilac, with dark spots.
HENDERSONII, purplish crimson, very free bloomer.
JOSEPH WHITWORTH, very dark rich lake, spotted, fine blooms.
LADY ELEANOR CATHCART, fine clear rose, beautifully spotted.
MICHAEL WATERER, splendid crimson, large truss.
MINNIE, blush white, large chocolate spots.
MRS. JOHN CLUTTON, beautiful clear white, fine truss
NERO, fine dark rosy purple, large blooms.

The above very beautiful and distinct varieties are offered by W. H. ROGERS, Red Lodge Nursery, Southampton, at 2s. 6d. each.

An immense number of other named varieties, as per Catalogue, at 1s. 6d. each, selected; or £6 per 100.

Twelve Splendid Heaths for One Guinea.

JOHN H. LEY can now supply above, in fine bushy plants, full of flower-buds, for winter (and immediate) decoration. Package gratis for cash, and delivered free to London.

N.B.—CATALOGUE free on application.
Royal Nursery, London Road, Croydon.

Twelve Graceful Palms, 21s.

HEALTHY young plants, to grow on for table decoration, and will be ready in about six months, or fit for immediate use, including choice and many very rare kinds; 63s., 84s., and 106s.

Twelve Choice Selected Flowering Plants for WINTER, 21s., including—

BOUVARDIAS, CAMELLIAS, AZALEAS, Spiræas, Daphne, Lily of the Valley, Kalmias, Heaths, Double Primula, &c., fine plants. Package free for cash with order. J. H. LEY, Royal Nursery, Croydon.

SPECIAL LIST of PLANT COLLECTIONS, for Winter Decoration of Apartments or Conservatory, free from

J. H. LEY, Royal Nursery, Croydon.

CATALOGUE of AUTUMN PLANTS, SEEDS, and BULBS, free on application to J. H. LEY, Royal Nursery, Croydon.

N.B.—The Nursery is three minutes' walk from West Croydon Station, London, Brighton, and South Coast Railway; twenty minutes' from London.

Twelve Camellias, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon, can now supply beautiful young bushy plants, 12 to 18 inches high, full of buds, and choicest distinct sorts, at 21s., 30s., and 42s. per dozen. Package and delivery to any Railway in London, for cash with order included.

N.B.—A few fine half-specimens, in 8-inch pots, finest sorts, and full of buds, 84s. per dozen, 10s. 6d. each.

Twelve Azaleas, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon, can supply twelve splendid named AZALEAS, full of buds, bushy plants, in 5-inch pots, 18 inches high, for One Guinea, including package and delivery to London, for cash with order.

Also a few very fine plants, in 6-inch and 8-inch pots, 18 inches across, at 42s. and 60s. per dozen; fit to grow on at once for exhibition.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1d. for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS'S Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,

THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

JOHN WEST, DECEASED.—Pursuant to the Act of Parliament, 22d and 23d Victoria, c. 35, intituled "An Act to further Amend the Law of Property, and to Relieve Trustees," NOTICE IS HEREBY GIVEN that all the Creditors and other Persons having any Claims, Debts, or Demands against or affecting the Estate of JOHN WEST, late of Green Lanes, Stoke Newington, in the County of Middlesex, Nurseryman (who died on the 7th day of July, 1874, and whose Will was proved on the 9th day of October, 1874, in the Principal Registry of Her Majesty's Court of Probate, by Samuel Woolcott and John Whitcher, the Executors therein named) are hereby required to send in to the Executors, at the Office of the undersigned Thomas Gregory, the Solicitor of the said Executors, situate at No. 18, Clement's Inn, Strand, London, on or before the 28th day of November, 1874, the full particulars in writing of their Claims against the Estate, and of their Securities (if any) held by them; and that the said Executors will, after that day, proceed to distribute the Assets of the said deceased amongst the Parties entitled thereto, having regard only to the Debts, Claims, or Demands of which the said Executors shall then have had Notice; and that they will not be liable for the Assets, or any part thereof so distributed, to any Person of whose Claim the said Executors shall not then have had Notice.

Dated this 17th day of October, 1874.

THOMAS GREGORY,
18, Clements Inn, Strand, London,
Solicitor for the said Executors.

Loam, Loam, Loam.

THE TOP SPIT of a MEADOW, delivered at Bexley Railway Station, at 5s. per yard. Sample and Testimonials on application to

J. ELLINGHAM, Bexley Heath, Kent.

Autumn Sowing.

ODAMS' MANURES, Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.

Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

MILDEW

May be entirely prevented as well as cured by

EWING'S INFALLIBLE COMPOSITION. Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1s. 6d. p. bottle, with full directions for use.

Russia Mat Merchants.

MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., IMPORTERS of ARCHANGEL MATS. Large stock of heavy ST. PETERSBURG and close-woven MATS now arrived.

N.B.—Heavy St. Petersburg are best for covering purposes.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100s.; Petersburg, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; packing Mats, 20s., 30s., and 35s. per 100; and every other description of Mats at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton, and the late Professor Lindley, &c., &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.

PROTECTION FROM COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 4d. per yard.

"FRIGI DOMO" CANVAS.

Two yards wide	.. ..	1s. 10d. per yard run.
Three yards wide	.. ..	3s. per yard.
Four yards wide	.. ..	3s. 10d. per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

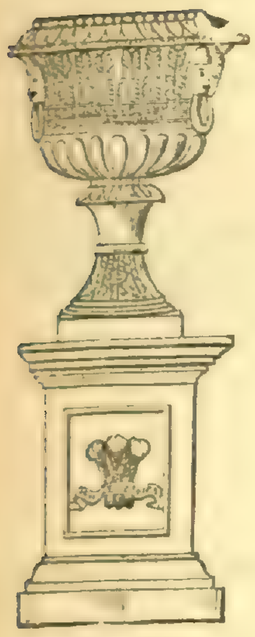
Indestructible Terra-Cotta Plant Markers.

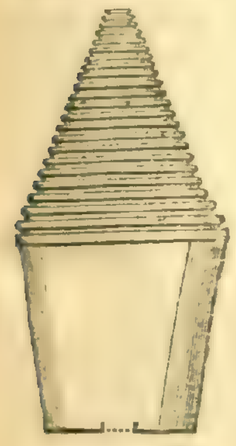
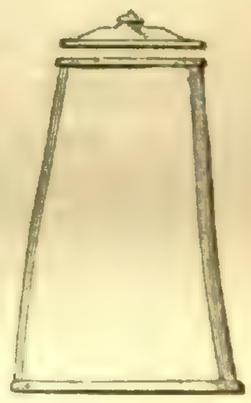
MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Manures, Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of

POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.



GARDEN DECORATION.

IMPERISHABLE TERRA COTTA.

JOHN MATTHEWS,

ROYAL POTTERY, WESTON-SUPER-MARE.

GARDEN POTS, | SEAKALE POTS,
RHUBARB POTS, | SEED PANS,

AND ALL KINDS OF GARDEN POTTERY OF THE BEST QUALITY.

PRICE LIST Free. BOOK of DESIGNS, 7*d.*

AWARDED SILVER MEDAL AT THE BIRMINGHAM SHOW, 1874.

BOILER FUEL.

FROM 20 TO 30 PER CENT. SAVED

By the Use of WEEKS'S PATENT

DIAPHRAGM AND FUEL ECONOMISER,

Which is acknowledged to be one of the Greatest Successes ever introduced.

Full Particulars and Coloured Lithographs of Boilers, also 13th Enlarged Edition of the "Book of Designs," Post Free, on application to

J. WEEKS & CO.,

HORTICULTURAL BUILDERS, AND HOT-WATER APPARATUS MANUFACTURERS,

KING'S ROAD, CHELSEA, LONDON, S.W.

HORTICULTURAL IRON AND WIRE WORKS.

Useful and Ornamental for Gardens and Conservatories.

Iron and Wire Work—Arches
Iron and Wire Work—Rose Fence or Screen
Iron and Wire Work—Roseries
Iron and Wire Work—Summer Houses
Iron and Wire Work—Temples
Iron and Wire Work—Covered Ways
Iron and Wire Work—Garden Fencing (Rabbit proof
Iron and Wire Work—Espaliers
Iron and Wire Work—Trainers
Iron and Wire Work—Verandahs
Iron and Wire Work—Flower Stands
Iron and Wire Work—Aviaries & Pheasantries
Wire Work—Baskets
Wire Work—Trellises

☞ R. H. begs most respectfully to solicit the favour of Gentlemen or their Gardeners who are contemplating making Alterations in their Gardens, to apply for one of his "NEW ILLUSTRATED CATALOGUES of DESIGNS," suitable for Gardens and Conservatories.

IMPROVED

FLOWER STAND.

Royal Horticultural Society's Flower Stand, South Kensington.

Circular or Half Circular, and made to fit around Columns.

Conservatories fitted up with this strong and elegant Flower Stand, which can be made to suit any position.

Wire Boxes for Lycopodium fitted to each Stand.

For Specimens of Conservatories furnished with this handsome Flower Stand see Illustrated Catalogue.

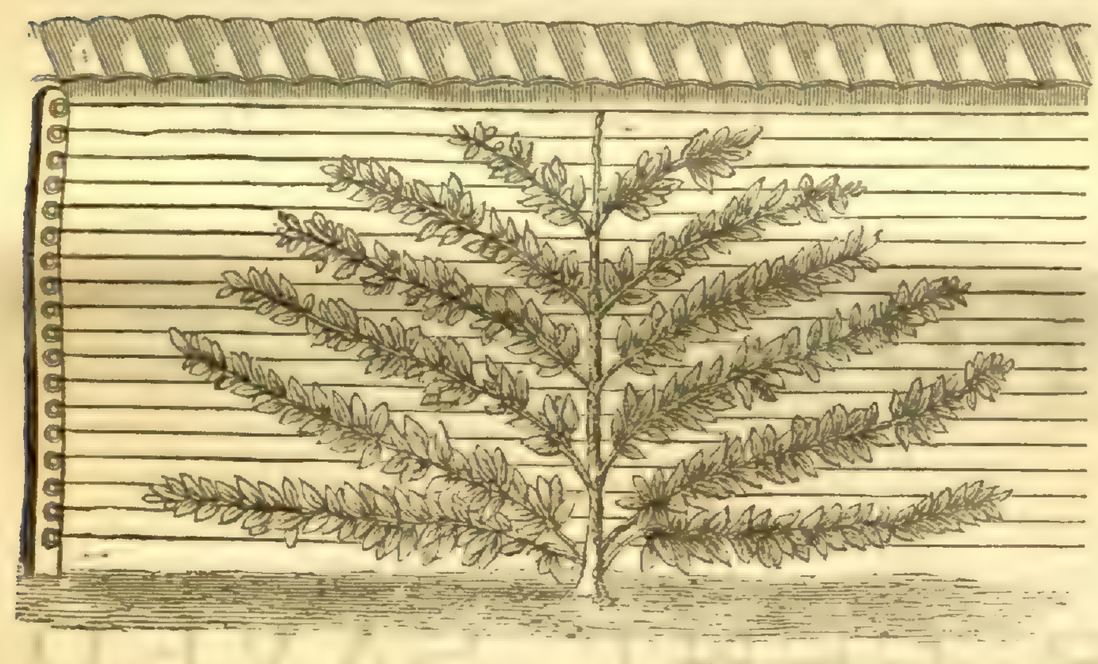
SPECIALITY.—GARDEN WALL WIRING.

NEW AND OLD WALLS WIRED ON THIS IMPROVED SYSTEM.

For Strength—Very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.

For Durability—Being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

For Neatness—All the Wires are kept perfectly tight, without the use of the Raidisseur.

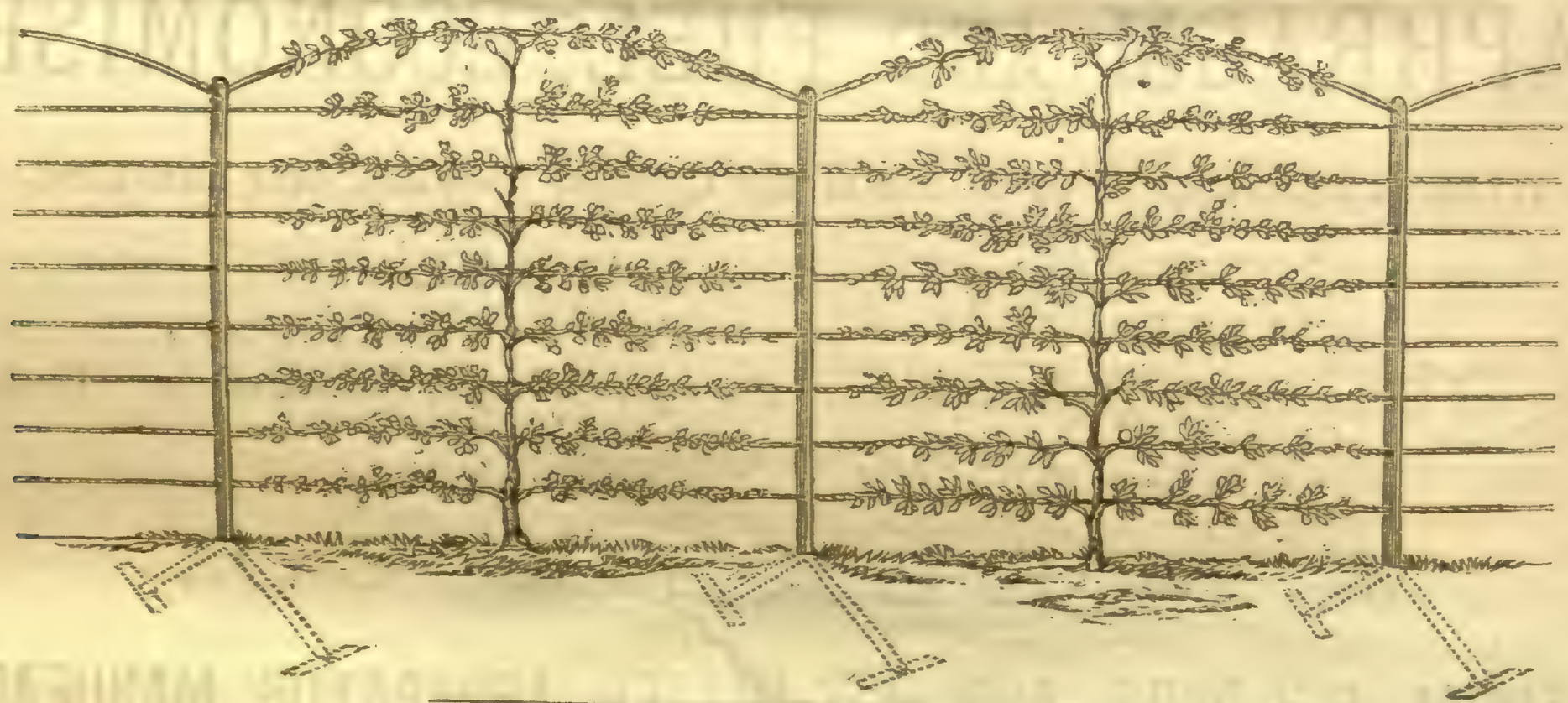


R. H. wishes to draw the attention of the Nobility and Gentry to his improved system of "Wiring Garden Walls," suitable for the better training of Fruit Trees, as being a considerable advancement from the old "*Nailing*" plan—great saving of time is effected in the tying of the Trees—the walls are not disfigured by constant nailing and cloth loops, which is very unsightly. Where Trees are trained to Wires, nothing is seen but the Trees in their trained form. With the above-named system there is another advantage—all the Wires can be slackened for winter and tightened in spring, to allow for expansion and contraction, without the least danger to the Wires. Our system is receiving great favour, especially where we have done Wiring, as for instance in long walls—The Marquis of Salisbury, Hatfield House, Hatfield, 1500 yards; Lord Middleton, Birdsall House, York, 850 yards; Robert Gosling, Esq., Hassobury, Essex, 600 yards, and many others in different parts of the country.

We are frequently called to Wire Old Walls where the Trees are grown to a large size; there is no difficulty in Wiring Old Garden Walls. The Wall Wiring season is just commencing for the winter, and R. H. begs to solicit the Nobility and Gentry who contemplate having their Garden Walls Wired to favour him with early instructions for the same, as there is often a rush to get all the wiring out of hand before spring.

ESPALIER WALKS,

Of which the annexed Engraving is a representation, and which is adapted to the Training of Apples, Pears, or any kind of Fruit Trees, as Raspberry, Currant, &c.; the latter fruits are improved both in size and flavour by this treatment, deriving the full benefit of sun and air. As a Division each side of a Kitchen Garden Walk, for Screening the Plots of Vegetables, especially where Visitors have to pass through, their adoption is highly recommended. This Espalier has been supplied to several large Gardens, and is much approved of for its elegance and utility.



R. HOLLIDAY, HORTICULTURAL IRON and WIRE WORKS, 2A, PORTOBELLO TERRACE, NOTTING HILL GATE, LONDON, W.

THE THAMES BANK IRON COMPANY

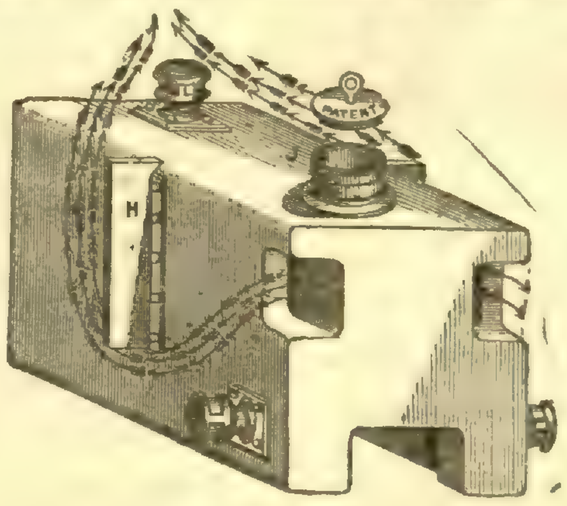
(Successors to Lynch White),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

SURREY SIDE, BLACKFRIARS BRIDGE,

Have the largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.

HOT-WATER BOILERS,



("CLIMAX.")

PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

NEW PATENT "CLIMAX" BOILER (1874). See p. 666, *Gardeners' Chronicle.*

"GOLD MEDAL" BOILER (Birmingham, 1872).

PATENT "EXCELSIOR" BOILER (1871).

"WITLEY COURT" BOILER (Silver Medal, 1872).

"TRENTHAM IMPROVED" BOILER, with Waterway End and Smoke Consumer.

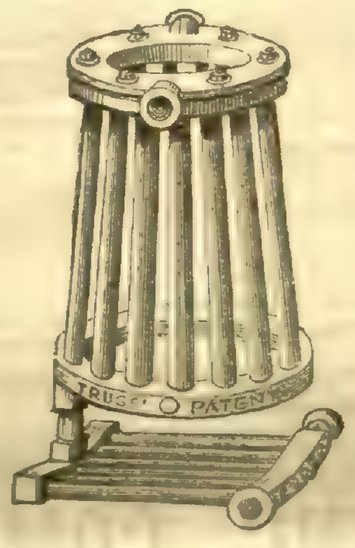
"TUBULAR," and every other Boiler of known merit or excellence.

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

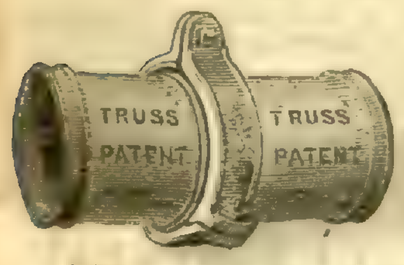
HOT-WATER APPARATUSES.

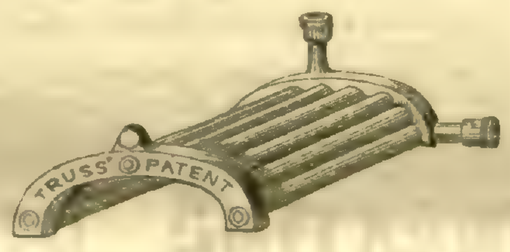
CONSERVATORIES, HOTHOUSES, CHURCHES, PUBLIC BUILDINGS, PRIVATE RESIDENCES, &c.,



HEATED WITH TRUSS' PATENT PIPES AND BOILERS,

Complete with Universal, Flexible, and Leakless Joints.





The prominent advantages of these Pipes and Joints are the rapidity with which they are fixed, dispensing entirely with the tedious, expensive, and insecure socket or flange jointing, the facility for alterations or removal of apparatus, with a considerable saving in cost in comparison with any other system.

First-class Workmen kept for Fixing Apparatus complete in any part of the Kingdom.

Sole Proprietors and Manufacturers—

C. and F. SANDERSON, IRON and BRASS FOUNDERS, MANSFIELD, NOTTS.

ST. PANCRAS IRON-WORK COMPANY.

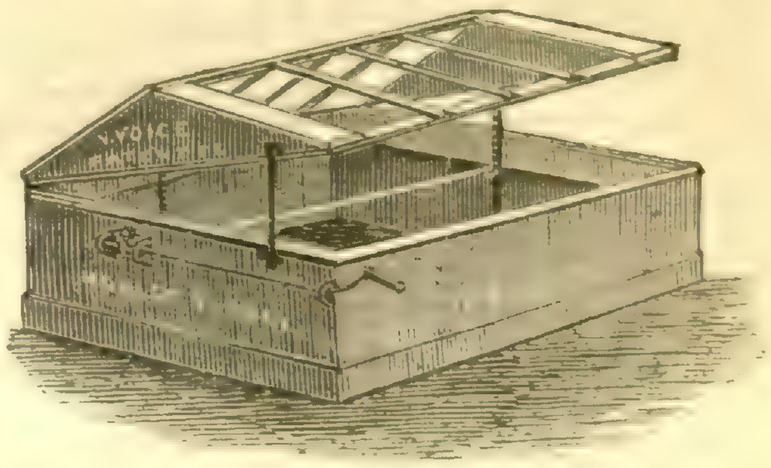
CONSERVATORIES, GREENHOUSES, &c.

ARCHITECTS' DESIGNS CAREFULLY CARRIED OUT.

APPLY FOR ESTIMATES TO

OLD SAINT PANCRAS ROAD, LONDON, N.W.

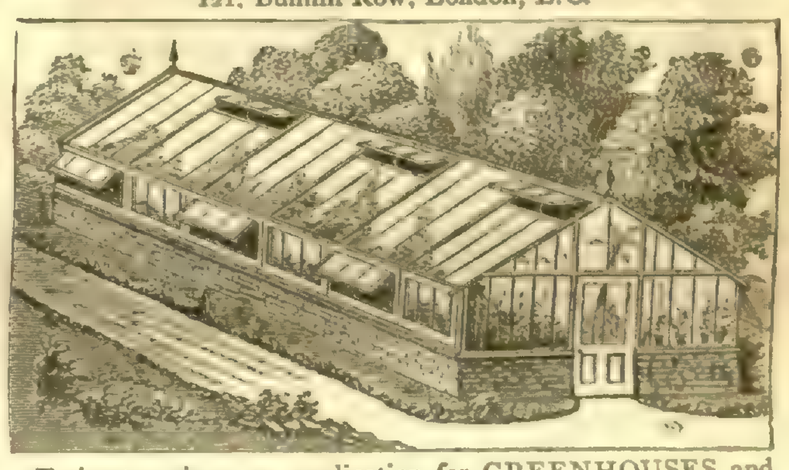
N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

W. H. LASCELLES, Horticultural Builder, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

HOT-WATER APPARATUS

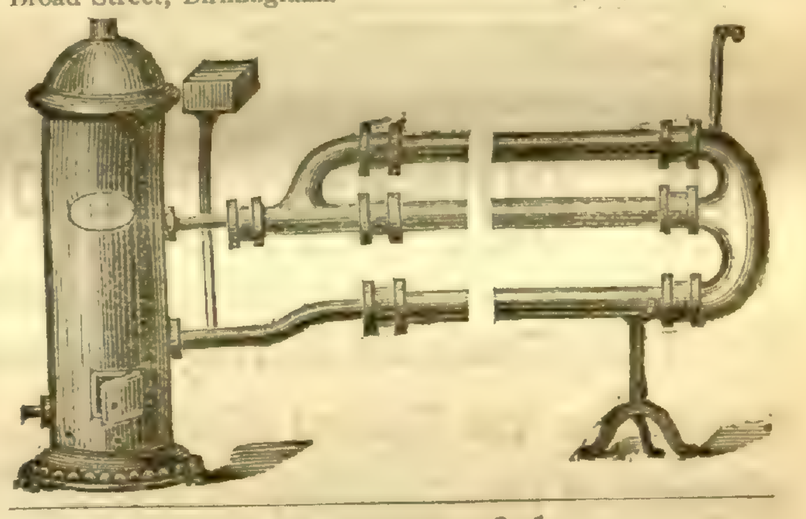
(Heated by Gas)

FOR SMALL CONSERVATORIES, GREENHOUSES, &c.

Price from £3 3s. To be had of

JOHN GILL and CO., 299, Oxford Street, London, W., and of all Ironmongers.

Wholesale only of JOHN WRIGHT and CO., Essex Works, Broad Street, Birmingham.



Established 1856.

KEEP OUT THE FROST.

WILLIAM H. HONEY'S PORTABLE

VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

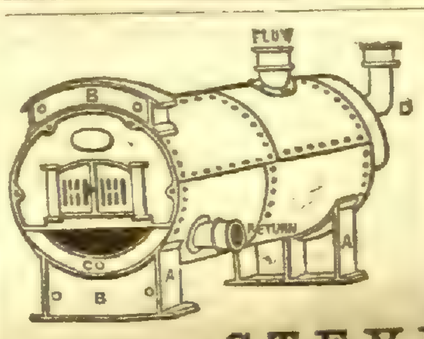
Prices, in block tin, 30s.; in copper, 50s. Copper, with glass, to give light and heat, 55s. Either will be sent on receipt of Post-office Order.

To be seen in operation at

WILLIAM H. HONEY,

263, REGENT STREET, W.

Catalogue free. No agents appointed.



STEVENS'

TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. and J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.
HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

J. G. SMEATON & CO.,
Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

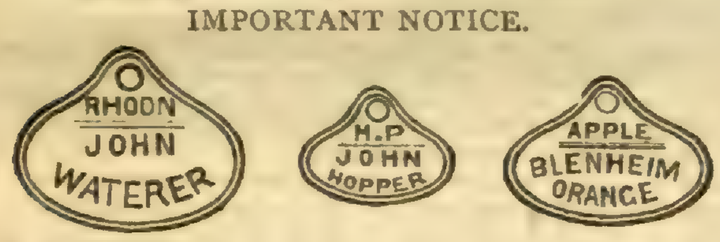
HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

HOT-WATER APPARATUS

If you want to know
THE CHEAPEST AND BEST WAY
TO HEAT YOUR GREENHOUSE,
Send Two Stamps for a fifty-two page Catalogue, containing 100 illustrations.

J. MUSSETT,
Winstanley Road, Clapham Railway Junction, S.W.

The Improved Imperishable Labels !!!
IMPORTANT NOTICE.



J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.
J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose. The Labels are made of a white metal with RAISED BLACK-FACED LETTERS.
All future orders will be executed with the new type.
Samples and Price List free.
Address—J. SMITH, Label Factory, Stratford-on-Avon.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

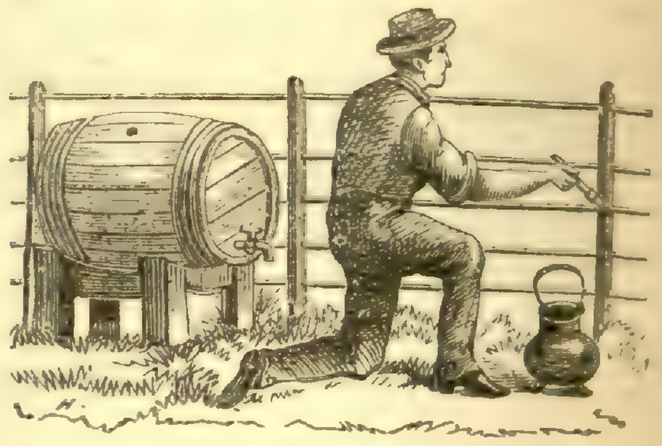
SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

Reduced Prices.
THE CELEBRATED GRANITIC PAINT.
Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.
For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.
For Particulars, and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

Labels—Labels.
PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3s. 6d. per 1000, or 30s. per 10,000; if eyeleted, 4s. per 1000. Vellum Cartridge, 4 inches long, 3s. per 1000 for 10,000. Sample Labels sent on receipt of Postage Stamp. Orders delivered free in London.
JOHN FISHER AND CO., Label Works, Boston.

Oil Paint no Longer Necessary.



HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all outdoor work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.
Sold in casks of about 30 gallons each, at 1s. 6d. per gallon, at the Manufactory, or 1s. 8d. per gallon paid to any Station in the Kingdom.
UNSOLICITED TESTIMONIAL.
"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.
"Mr. Lloyd Lloyd encloses cheque for £3 5s., amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."
Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.
CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

Notice.
(By Appointment to the Royal Horticultural Society.)
To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.
ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.
ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

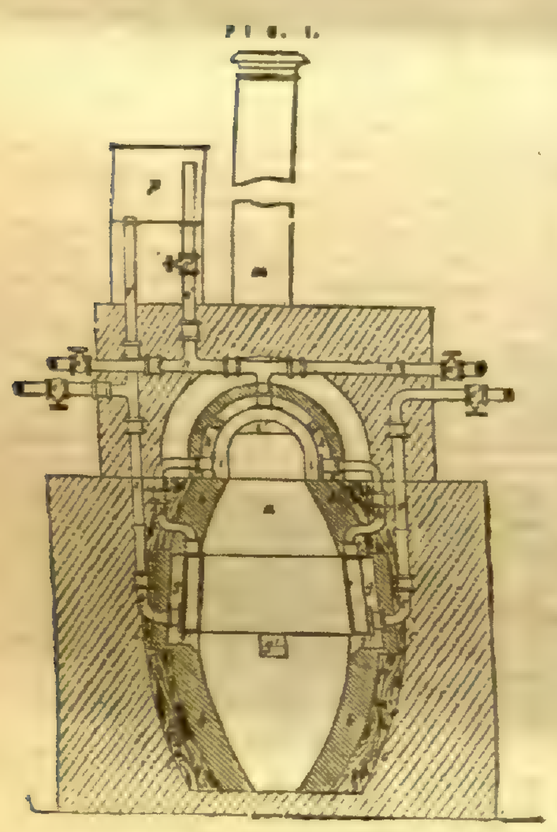
THE GOWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company, having purchased from the Dromore Patent Heating Company Mr. Cowan's valuable Patents for the United Kingdom, is now prepared to undertake the Erection of Apparatus on that System in all parts of the Country.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

THE SUCCESS OF EVERY APPARATUS ERECTED BY THE COMPANY IS GUARANTEED.



Full Particulars of this System, Testimonials, and Opinions of the Press, can be seen in the Company's Illustrated Pamphlet, which can be obtained, post free, on application.

The Company has an Efficient Staff of Engineers, and send at any time to inspect places where the idea is entertained of Erecting the Apparatus.

The System has lately been adopted at Hazelwood, Herts, the seat of Lord Rokeby; Stackpole Court, the seat of the Earl of Cawdor; Ripley Castle, Yorkshire, the seat of Sir H. D. Inglby, Bart.; Langleybury House, Herts, the seat of Jones Lloyds, Esq.; and at many other places.

The Company also undertakes the Erection of all other kinds of Heating Apparatus, and of Horticultural Buildings.

PLANS AND ESTIMATES FURNISHED ON APPLICATION.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

Office: 4, LOTHBURY, BANK, LONDON, E.C.

For Park, Farm, and General Enclosures.

FRANCIS MORTON & Cos (LIMITED) LIVERPOOL NAYLOR STREET CABLE FENCING

Is in use over many thousand miles,

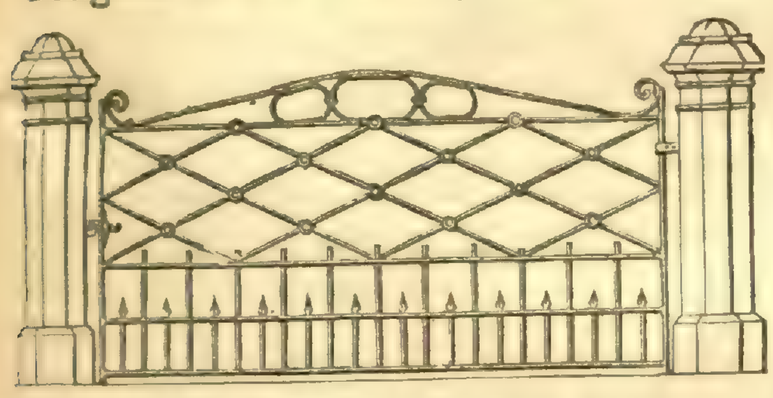
And has been awarded the Silver Medals and Highest Commendations of the leading Agricultural Societies, it forms the most efficient strained iron fence known.

ORNAMENTAL

IRON ENTRANCE GATES, &c.,

IN WROUGHT AND CAST IRON,

Designed for the Mansion, Villa, or Farm.



Field, Wicket, and Garden Gates

In Great Variety of Patterns.

ORNAMENTAL and FIELD HURDLES,

With Round or Flat Bars.

Continuous Bar Iron Fencing,

Fitted with F. M. & Co.'s Patent Self-locking Joints, which form a continuous rigid brace from end to end of the Fence, and the most perfect system for securing its efficiency.

F. M. & Co.'s New Illustrated CATALOGUE is now ready, and will be forwarded on application.

LONDON OFFICE—

1, DELAHAY ST., WESTMINSTER, S.W.

GALVANISED WROUGHT IRON

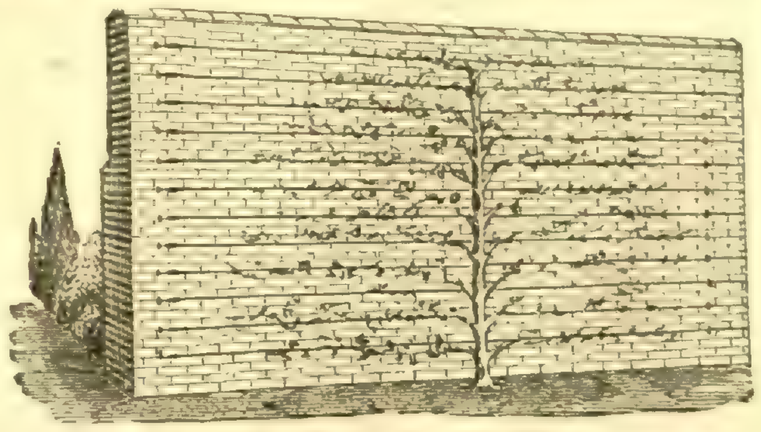
FITTINGS for WIRING WALLS,

For the Purpose of Training Fruit Trees

ON THE FRENCH SYSTEM,

and as recommended by Mr. W. Robinson, F.L.S., in his new work, "The Parks, Promenades, and Gardens of Paris."

By this system nails and shreds are entirely dispensed with, the walls are not injured, and no harbour is afforded to small insects. The Tying of the Fruit Trees is effected in one-fifth of the time required by the old system. The arrangement is so simple, that it can easily be applied to any Walls by inexperienced hands.



PRICES OF MATERIALS:—

GALVANISED RAIDISSEURS for Tightening the Wires. One of these required for each Line of Wire.

No. 900. 4s. per doz.

GALVANISED WALL EYES, 6d. per dozen.
GALVANISED TERMINATING HOLDFASTS, 2s. per doz.
GALVANISED WIRE, 2s. 6d. and 3s. per 100 yards.

ILLUSTRATED LISTS, with full particulars of the above, and of FITTINGS for ESPALIER TRAINERS, on very economical principles, free on application to

BARNARD, BISHOP & BARNARDS,
NORFOLK IRONWORKS, NORWICH.

TRADE MARK.

Entered at Stationers' Hall.

F. STEVENSON'S ABYSSINIAN MIXTURE, Warranted to Destroy Mealy Bug, and all Insects infesting Plants. Unequalled as a Winter Dressing for Vines and Fruit Trees.

Sold by all Nurserymen and Seed Merchants, in Bottles, 1s. 6d., 3s., 4s. 6d. & 5s. 6d. each.

Inventor and Sole Manufacturer,
F. STEVENSON,
Stamford St., Altrincham, Cheshire.
(Late of Lark Hill, Timperley.)

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. Fountaine, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

Just Published.

How, When, and What to Plant.

"THE HEATHERSIDE MANUAL," being an Alphabetical Catalogue of all the Hardy Trees and Shrubs most worthy of Cultivation, containing ample instructions as to How, When, and What to Plant. By Augustus Mongredien, Author of "Trees and Shrubs for English Plantations." 115 pages. 8vo. Price 1s.; post free for 13 stamps.

London: Heatherside London Depot, 28, Queen Victoria Street, E.C.

Now Ready, Fifth Edition, considerably Extended, with 40 Wood Engravings, Frontispiece, and 8 new Panoramic Maps, post 8vo, 12s. 6d.

WINTER and SPRING on the SHORES of the MEDITERRANEAN; or, the Rivieras, Italy, Spain, Greece, Constantinople, the Archipelago, Corsica, Sicily, Sardinia, Algeria, Tunis, Smyrna, with Biarritz and Arcachon, as Winter Climates. By Dr. Henry Bennet.

J. and A. CHURCHILL, New Burlington Street, W.

Belgian.

BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAICHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. Burvenich, E. Pynaert, E. Rodigas, and H. J. Van Hulle, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid 10s. per annum.

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8d. per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

Every Saturday, price 4d., by Post, 4½d.

NOTES AND QUERIES:

A MEDIUM OF INTERCOMMUNICATION FOR LITERARY MEN, ARTISTS, ANTIQUARIES, GENEALOGISTS, &c.

Edited by Dr. DORAN, F.S.A.

"When found, make a note of."—Captain Cuttle.

Containing every Week amusing Articles on some of the following Subjects:—

ENGLISH, IRISH, and SCOTTISH HISTORY, Illustrated by original Communications and inedited Documents.
BIOGRAPHY, including unpublished Correspondence of eminent Men, and unrecorded Facts connected with them.
BIBLIOGRAPHY, more especially of English Authors, with Notices of rare and unknown Editions of their Works, and Notes on Authorship of Anonymous Books.
POPULAR ANTIQUITIES and FOLK LORE, preserving the fast-fading relics of the old Mythologies.
BALLADS and Old Poetry, with Historical and Philological Illustrations.
POPULAR and PROVERBIAL SAYINGS, their origin, meaning, and application.
PHILOLOGY, including Local Dialects, Archaisms, and Notes on our old Poets.
GENEALOGY and HERALDRY, including Histories of Old Families, Completion of Pedigrees, &c.
MISCELLANEOUS NOTES, QUERIES, and REPLIES, on points of Ecclesiastical History, Topography, Fine Arts, Natural History, Miscellaneous Antiquities, Numismatics, Photography, &c.

NOTICE.—The FOURTH SERIES is now complete, in Twelve Volumes. A New Series, the FIFTH, commenced with SATURDAY, January, 3, 1874. As many of the Numbers are scarce, subscribers desirous of completing their Sets should order at once the Numbers required.

GENERAL INDEX to the Second Series may be had, price 5s. 6d.

GENERAL INDEX to the Fourth Series, price 6s., now ready.

COVERS for BINDING now ready, 1s. each; by post, 1s. 2d.

Vol. I., Fifth Series, JANUARY to JUNE, 1874, price 10s. 6d., cloth.

Published by JOHN FRANCIS, at 20, WELLINGTON STREET, STRAND, W.C.,
And may be had by Order of all Booksellers and Newsmen.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.

Contents:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4d.; Stamped, 5d.

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London .. Mr. George Street, 30, Cornhill, E.C.
Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham. Mr. R. S. Kirk, 90, New Street.
Liverpool .. Lee & Nightingale, 15, North John Street.
Bristol .. James & Henry Grace, Royal Insurance Buildings.
Edinburgh .. Robertson & Scott, 13, Hanover Street.
Glasgow .. W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

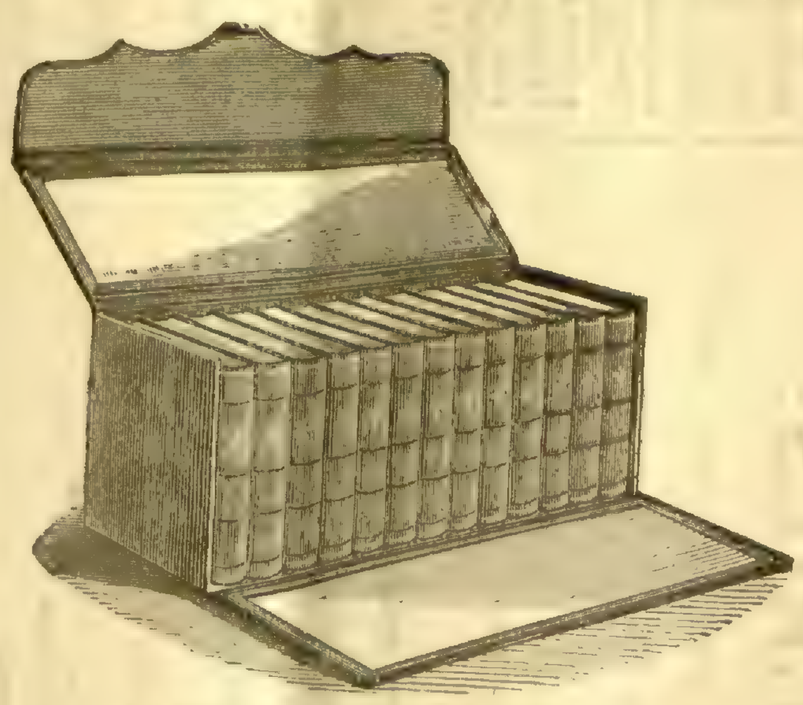
"Nothing could be prettier than this diamond edition of the Poet."

Opinion of "THE SUN."

"The paper is toned, the type is exquisitely beautiful, the text is Shakspeare, '*pur et simple.*' It is, besides all these, a very marvel of cheapness, as the result of a happy thought most charmingly realised."

THE

HANDY-VOLUME SHAKSPEARE.



In Bindings suitable for Presents.

BOUND IN GREEN CLOTH, *limp, red edges, in a neat cloth case*, price One Guinea.

IN CRIMSON FRENCH MOROCCO, *gilt edges, in an elegant leather case*, price One Guinea and a Half.

IN THE BEST GERMAN MOROCCO, *gilt edges, in an elegant case* (New Style) price Two Guineas and a Half.

IN THE BEST TURKEY MOROCCO, *limp, gilt edges, in case to match, with Lock*, price Three Pounds Ten Shillings.

IN THE BEST RED RUSSIA, *limp, gilt edges, in case to match, with Lock*, price Three Pounds Ten Shillings.

This choice Miniature Edition of "Shakspeare" is in 13 Volumes, 32mo size, and contains the whole of the Plays, Poems, and a Glossary. The volumes are printed on a slightly toned paper of fine quality, with a new, clear, and readable type, on a page free from Notes—and the Text has been arranged from a close comparison of the most trustworthy editions.

LONDON:
BRADBURY, AGNEW, & CO., 8, 9, 10, BOUVERIE STREET.

More comprehensive, and superior to the "Encyclopædia Britannica."

THE

ENGLISH CYCLOPÆDIA

OF UNIVERSAL KNOWLEDGE.

Price, including the Index Volume—

In 27 volumes, 4to, cloth	. . . . price	£16 12	0
,, 12 ,, ,, half calf extra	. . . ,,	18 12	0
,, 12 ,, ,, half red russia	. . ,,	19 4	0

*** *In the bound copies the New Supplementary portion is incorporated with each volume. With the cloth copies the Supplements are given as an additional volume to each division.*

DIVISIONS.

			£	s.	d.
GEOGRAPHY	In 5 vols. 4to, cloth (with Supplement), . price		2	17	0
	,, 2 ,, ,, half calf extra . . . . ,,		3	4	0
	,, 2 ,, ,, half red russia . . . ,,		3	6	0
NATURAL HISTORY	,, 5 ,, ,, cloth (with Supplement), . ,,		2	13	0
	,, 2 ,, ,, half calf extra . . . . ,,		3	0	0
	,, 2 ,, ,, half red russia . . . ,,		3	2	0
ARTS AND SCIENCES	,, 8 ,, ,, cloth (with Supplement), . ,,		6	18	0
	,, 4 ,, ,, half calf extra . . . . ,,		7	12	0
	,, 4 ,, ,, half russia . . . . ,,		7	16	0
BIOGRAPHY	,, 6 ,, ,, cloth (with Supplement), . . ,,		3	18	0
	,, 3 ,, ,, half calf extra . . . . ,,		4	7	0
	,, 3 ,, ,, half red russia . . . . ,,		4	10	0

Index Volume, 6*s.* in cloth, 9*s.* half calf, 10*s.* half russia.

Opinion of "THE TIMES."

"As regards the contents of this Cyclopædia, it is impossible to give any sufficient impression of an aggregate which includes somewhere or other all the information generally required upon every conceivable topic."

NOTICE.—THE SUPPLEMENTARY VOLUMES can be had separately as under:—

GEOGRAPHY—cloth, 15*s.*; half calf, 20*s.*; half russia, 21*s.*

NATURAL HISTORY—cloth, 11*s.*; half calf, 16*s.*; half russia, 17*s.*

BIOGRAPHY—cloth, 15*s.*; half calf, 20*s.*; half russia, 21*s.*

ARTS AND SCIENCES—cloth, 42*s.*; half calf, 50*s.*; half russia, 52*s.*

LONDON: BRADBURY, AGNEW, & CO., 8, 9, 10, BOUVERIE ST.

THE AGRICULTURAL GAZETTE, SATURDAY, OCTOBER 31, 1874,

Contains—

ORIGINAL ARTICLES on The Sheep Fold—Scab in Sheep (Illustrated)—Dairy Notes—Poultry Culture—Impure Air—A List of Plants Suitable for Bee Culture—Winter and Spring Flowering Bulbs—Agricultural Machinery (Illustrated)—The Economy of Labour—Farm Labourers in Somerset—Autumn Aquatics—Coursing—The Agricultural Labourer's Question—Tenant Right and Modern Agriculture—Phylloxera—Medal of Hawkes Bay Agricultural Society (Illustrated)—A Sussex Cow, with Portrait—Welsh Farming (a Rejoinder)—Kohl Rabi Cultivation—Agricultural Chemistry (Recent Investigations in)—&c.

HOME AND FOREIGN CORRESPONDENCE on Why are Good Horses so Rare?—The Contents of the *Agricultural Gazette*—Surface Grubs—Steam Cultivation at Tiptree—Kohl Rabi and Cabbages *versus* Swedes—The Steam Plough—Sewage—Emigration to Canada—Canadian Provincial Fair—Canadian Farming.

FARM NOTES AND MEMORANDA from various Counties in Great Britain.

REPORTS OF SOCIETIES, FARMERS' CLUBS, &c.

ALSO—

The Veterinarian—The Poultry Yard—The Garden of the Farm—The Beekeeper—The Household—Dairy Notes—The Weather—Reports of Markets, Notices of Books, &c.

Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

THE COTTAGER'S CALENDAR of GARDEN OPERATIONS. By the late Sir JOSEPH PAXTON, M.P.

Reprinted from the *Gardeners' Chronicle*, with Additions.

Price 3*d.* each, or 5*s.* for 25 Copies for distribution amongst Cottage Tenantry.

Delivered anywhere in London on receipt of a Post Office Order, payable to WM. RICHARDS, at the King Street Office, Covent Garden.

Published at the Office of the *Gardeners' Chronicle*, 41, Wellington Street, Covent Garden, London, W.C.

Works on Botany, by Dr. Lindley.

THE VEGETABLE KINGDOM; or, THE STRUCTURE, CLASSIFICATION, AND USES OF PLANTS. Illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25*s.*, with upwards of 500 Illustrations.

EXTRACT FROM THE AUTHOR'S PREFACE.

"The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be brought by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon limited number of objects."

By the same Author.

INTRODUCTION to BOTANY. Fourth Edition, greatly enlarged; with six Plates, and numerous Wood Engravings. Two Volumes, 8vo, 24*s.*

*** It has been the Author's wish to bring every subject that he has introduced down, as nearly as possible, to the state in which it is found at the present day. In doing so, he has added so very considerable a quantity of new matter, especially in what relates to Vegetable Anatomy and Physiology, that the present Edition may be considered, in those respects, a new work.

DESCRIPTIVE BOTANY; or, THE ART OF DESCRIBING PLANTS CORRECTLY, in Scientific Language, for Self Instruction and the Use of Schools. Price 1*s.*

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

Illustrated with Twelve finely-coloured Plates and nearly 300 Wood Engravings, large 8vo, cloth, price 31*s.* 6*d.*,

THE GARDENERS' ASSISTANT: Practical and Scientific. A Guide to the Formation and Management of the Kitchen, Fruit, and Flower Garden, and the Cultivation of Greenhouse and Stove-house Plants. By ROBERT THOMPSON, late of the Royal Horticultural Society's Gardens, Chiswick.

"The best compendious treatise on modern gardening."—*Daily Telegraph.*

London: BLACKIE AND SON, Paternoster Buildings, E.C.; and of all Booksellers.

THE ELEMENTS of BOTANY, STRUCTURAL AND PHYSIOLOGICAL. With a Glossary of Technical Terms and numerous Illustrations. 9*s.* cloth.

This completes the series of Elementary Botanical Works by Professor LINDLEY, of which *School Botany* and *The Vegetable Kingdom* form the other parts.

The first two Parts of *The Elements of Botany*, comprising Structural and Physiological Botany, and a Glossary of Technical Terms, are published in one 8vo volume, price 9*s.*

These three Parts form a complete Manual of Botany for Medical and other Students who have made themselves acquainted with the Author's *School Botany*.

N.B. The Glossary may be had separately, price 5*s.*

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

WANTED, a HEAD GARDENER, well versed in every Department of the profession, and thoroughly competent to Control a large staff of Men. Salary commencing at £85 per annum, with house, &c.—Applications in Candidate's own handwriting, stating age, if married or single, where last or at present employed, how long, why leaving or left, with copies only of testimonials, and endorsed "Gardener," to be addressed Messrs. OWEN AND JONES, Estate Agents, Marchwiel, Wrexham, and forwarded not later than November 10

Cape of Good Hope.

WANTED, a GARDENER (single), to proceed to the Cape, to take the Superintendence of the Government Gardens. Engagement to be for three years certain. Terms—free quarters and £80 for the first year, £90 for the second year, and £100 for the third. Free passage provided by Royal Mail Steamer.—Apply, in the first place, by letter, inclosing testimonials, to THOMAS E. FULLER, Cape Emigration Agent, 15, Coleman Street, London, E.C.

WANTED, a GARDENER (single) for the Royal Spa Hotel, Esplanade, Shanklin, Isle of Wight; to board and lodge in the house. Vegetables and Flowers the principal work. Wages 10*s.* per week, with board and lodging.—Send reference to A. HINTON, as above.

WANTED, a SECOND GARDENER, married, no family. Wife to take Charge of a Lodge-gate. Good character indispensable.—Address, with full particulars, Mr. MOORE, Head Gardener, Akeley Wood, Buckingham.

WANTED, a GARDENER and his WIFE (without incumbrance), in the North of France, 6 miles from Boulogne.—Wife must be a good Plain Cook, and used to General Housework (Housemaid kept); Man to have a good knowledge of Fruit, Flower, and Kitchen Gardening. Wages £40 per annum for the two; all found.—Address, in first instance, to Mr. J. J. THOMAS, 12, Paddington Green, London, N.W.

WANTED, a NURSERY FOREMAN and PROPAGATOR, who is thoroughly versed in Hardy Ornamental Trees and Shrubs, Fruit Trees, &c.; must be able to Write a good Hand. First-class testimonials required.—Apply to L. T. DAVIS, Ogle's Grove Nursersy, Hillsborough, County Down, Ireland.

WANTED, as PROPAGATOR and GROWER of young Stock for a large Public Establishment in Ireland, a steady Man, who understands the above sort of Work, and who has been accustomed to Grow and Propagate Rare Plants. He would find this a quiet, comfortable place. Wages 24*s.* per week, with lodging on the premises.—Apply to M. D., Post Office, Glasnevin, Dublin.

WANTED, a Junior Assistant in a Seed Establishment as INVOICE CLERK, and to Assist in the Flower Seed Department; must be a good Penman.—Address, with full particulars, R. P. B., Mr. Cooper, Seed Merchant, 152, Fleet Street, London, E.C.

WANTED, as PORTER, a young Man. He must be steady, sober, industrious, and willing to make himself useful.—Apply, personally, Messrs. NUTTING AND SON, Seed Warehouse, 60, Barbican, E.C.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD).—Age 30, married; thoroughly understands the profession in all its branches. Good character.—A. B. C., M. Hallam, Burton-on-Trent.

To Noblemen and Gentlemen.

GARDENER (HEAD).—CHARLES HIGGS, The Gardens, Caversham Park, Oxon, can with confidence recommend his Foreman, Thomas Elisha, to any Lady or Gentleman requiring a first-rate Man. Well up in all branches of the profession.—Address as above.

GARDENER (HEAD).—Age 37, married; practically acquainted with every Department of Gardening. Five and a-half years' good character. Leaving through Employer changing residence.—GARDENER, Astley Hall, Chorley, Lancashire.

To Nurserymen, Gardeners, and Others.

GARDENER (HEAD).—The Advertiser is open to give £3 to any one procuring him a suitable situation as above. Character will bear the strictest investigation.—A. B., 67, Pembroke Road, Kilburn, N.W.

GARDENER (HEAD), to any Lady or Gentleman in want of a thoroughly energetic and practical Man.—Single; sixteen years in first-rate gardens; five years in last situation as Head Gardener. Testimonials of the highest order.—J. W. C., 37, Marylebone Road, N.W.

GARDENER (HEAD), age 32, married, no family; six years' unexceptionable character.—A GENTLEMAN, going abroad, wishes to recommend his Head Gardener to any Lady or Gentleman requiring the services of a thoroughly practical Man, who understands every branch of the profession.—W. ANDREWS, Esq., Sutherland House, Hartwell, near Dresden, Stoke-upon-Trent.

GARDENER (HEAD).—The Advertiser (age 40) will shortly be disengaged, and offers his services to any Lady or Gentleman in want of an energetic Man, well up in all the details of the profession, including Early and Late Forcing of all Fruits, Flowers and Vegetables, Growing Plants for Exhibition or Home Decoration, Decoration of the Flower Garden, Laying-out new Grounds, Erecting Horticultural Buildings, &c. Seventeen years' Head Gardener, and experience from childhood. Good character.—ALPHA, Mr. Richard Smith, St. John's Nurseries, Worcester.

GARDENER (SINGLE-HANDED), or where one or two are kept.—Age 31, single; seventeen years' practice. Understands Gardening all its branches. Would not object to board in the House. Good character.—WILLIAM GIBSON, Vernon House, Bath Terrace, Low Harrogate.

GARDENER (UNDER), in a Nobleman's or Gentleman's Garden.—Age 21; six years' experience. Good references from previous places.—Address, stating wages, T. W., Brandon, Coventry.

GARDENER (UNDER).—Young, respectable. Good character.—E. S., Park Lane, Whitefield, near Manchester.

GARDENER (SECOND), in a Gentleman's Establishment.—First-class reference.—T. S., The Gardens, Beddington House, Beddington, Surrey.

DANIEL BROS., The Royal Norfolk Seed Establishment, Norwich, REQUIRE an experienced and energetic young MAN, to take a leading part in the Flower and Vegetable Seed Department, and as Assistant Correspondent. Applicants to state age, experience, references, wages required, and enclose copies of testimonials.

TO LANDED PROPRIETORS.—The Advertiser is desirous of meeting with an engagement where his general knowledge of Gardening, Management of Arable and Grass Land, Timber and Planting, Making of Plans for, and carrying out of, Groundwork and Buildings, may be available. Would be found competent to Plan and Lay-out a New Garden. Good testimonials.—X. Y., *Gardeners' Chronicle* Office, W.C.

FOREMAN (OUTDOOR).—Well up in the Propagation of Conifers, Rhododendrons, Ornamental Trees and Shrubs, Roses, Climbers, &c.—C., Upton Nurseries, Chester.

TRAVELLER, or GROUND FOREMAN and SALESMAN.—Thoroughly acquainted with both Nursery and Seed Trades. First-class references.—W. MOSS, Wall, Lichfield.

TRAVELLER, or ASSISTANT TRAVELLER, to Work Seeds, Manures, Feeding Stuffs, Agricultural Implements, &c.—Age 21; bred to the Nursery and Seed Business.—AGER, Messrs. Downie, Laird & Laing, 17, Frederick Street, Edinburgh.

Seed Trade.

TRAVELLER, or WAREHOUSEMAN.—Age 23; has a thorough knowledge of the profession. Would not object to go abroad.—Highest references may be had on applying, by letter, to F. M., Alex. McCulloch, 5, Elliot Street, off Dumbarton Road, Glasgow, N.B.

TRAVELLER or WAREHOUSEMAN.—Age 29; fourteen years' experience in Wholesale Seed Trade. Knows West of England, South Wales, Ireland and Scotland. First-class references.—J. S. B., *Gardeners' Chronicle* Office, W.C.

Seed Trade.

SHOPMAN and TRAVELLER, or in a Wholesale London Warehouse.—Age 33; has had seventeen years' experience. First-class references.—SEEDSMAN, Mr. John Taylor, 16, Fore Street, City, E.C.

CLERK (INVOICE or GENERAL).—A young Man; thoroughly understands Book-keeping, and has no objection to assist in Seed Shop when necessary.—A. B., Mr. B. S. Williams, Paradise Nursery, Holloway, London, N.

BAILIFF (WORKING).—Single; thoroughly acquainted with Farming in all branches, Rearing and Breeding of Stock, &c.—X. Y. Z., 23, Market Place, Manchester.

To Nurserymen and Seedsmen.

PACKER.—First-class Basket, Box, and Bundle Packer. The highest testimonials as to character and ability.—A. B., 11, Holley Terrace, North Finchley, N.

WANTED, to APPRENTICE a YOUTH (age 15), in a Nobleman's or Gentleman's Garden where he will have an opportunity of learning the various branches of the profession. A Premium of £20 will be given.—GEORGE GIGG, Catts Malthouse, Kingsclere, Newbury, Berks.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.

Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

LEAMINGTON BROCCOLI.

F. PERKINS

BEGS TO ANNOUNCE THAT HE HAS SAVED A LIMITED SUPPLY OF HIS

LEAMINGTON BROCCOLI,

From picked heads grown in his own Nursery, which he will offer in Sealed Packets only, bearing his Registered Trade Mark, price 2*s.* 6*d.*

Reports of the Horticultural Press on the Specimens Exhibited before the Royal Horticultural Society :—

"Mr. F. Perkins, Leamington, again sent some very fine examples of his new Leamington Broccoli, which gained from the Committee a FIRST-CLASS CERTIFICATE. It is of good size, fine form, very close and white, and the heads are uncommonly well *protected by the foliage.*" — *Gardeners' Chronicle, April* 19, 1873.

"The Leamington Broccoli, exhibited by Mr. Perkins, of Leamington, and which may be described as the finest variety in cultivation for late use. The heads were quite 9 inches in diameter, globular, perfectly solid, and very pure in colour, owing to the *admirable manner in which the leaves fold over and protect them.* This was awarded a FIRST-CLASS CERTIFICATE at the last Meeting, a distinction it richly deserved."—*Gardeners' Magazine, May* 10, 1873.

"Mr. Perkins, of Leamington, sent several heads of his new Leamington Broccoli, a remarkably fine, large-headed, late, and *self-protecting* variety, which was awarded a FIRST-CLASS CERTIFICATE. This Broccoli has been often before the Committee, and has invariably received its highest approval."—*Journal of Horticulture, April* 17, 1873.

F. P. has again arranged with

MESSRS. WAITE, BURNELL, HUGGINS & CO.,

SEED GROWERS and MERCHANTS, 79, SOUTHWARK STREET, LONDON, S.E.,

For the Wholesale Distribution, who will quote Price to the Trade on application.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, October 31, 1874.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 45.—Vol. II. { New Series. } SATURDAY, NOVEMBER 7, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Ash, notes on the (with cuts) 584
Auction sales and nursery stock 591
Bee-swarming 587
Books, notices of .. 587
British gardeners.—V. .. 582
Carapa tree, the 586
Chrysanthemums, the Temple 592
Climatal changes .. 592
Clipped garden (with cut) 591
Coffee, the new 587
Condition of the trees in Hyde Park and Kensington Gardens .. 589
Cuscuta reflexa 590
Divining-rod, the .. 581
Escallonia rubra 590
Euonymus, the 591
Farm, the 593
Florists' flowers 586
Fourcroya undulata .. 590
Bahia sugar 590
Fowler, Mr. A., with portrait 582
Fruit trees, digging and dunging 592
Fungi 590
Galls on Holly roots (with cut) 597
Garden operations .. 595
Kew, the old walls at .. 585
Lobelia subnuda 590
Mole as a vegetarian, the 593
Natural history (with cut) 587
Nurserymen, our liberal . 591
Oranges from Jaffa .. 589
Paraffin lamp, the .. 593
Phalænopsis Esmeralda . 582
Plants, new garden .. 582
Plants, on wintering .. 593
Pyrus (Cydonia) japonica 592
Rainfall, the 590
Salvia splendens 593
Silphium plant, the .. 592
Strawberries, Keens' seedling and others .. 593
Tacsonia Van Volxemii . 552
Tapes, incorrect measuring 593
Utricularia Endresii .. 582
Veronica Andersoni .. 590
Villa garden, the .. 593
Vines, pot, at Grimston . 593
Weather, the 595
Wheat as a feeding-stuff 593

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is **$6.30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; hrough whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price in cloth*, 16*s*.
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.—NOTICE.—FRUIT and CHRYSANTHEMUM SHOW, and FRUIT and FLORAL COMMITTEES' MEETING, on WEDNESDAY NEXT, November 11. Band from 2 o'Clock. Admission 5*s*. General Meeting at 3 o'Clock.

THE STOKE NEWINGTON and HACKNEY CHRYSANTHEMUM SOCIETY.—The Twenty-eighth Annual EXHIBITION of CHRYSANTHEMUMS will be held in the New Town Hall, Hackney, on TUESDAY and WEDNESDAY, November 17 and 18. Entries close on the 13th.
For Schedules, &c., apply to the Hon. Sec. JNO. RAINBOW, Jun., Downs Nursery, London Road, Clapton, E.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

LEE'S "VICTORIA REGINA" VIOLET.—Small Plants, 12 for 6*s*., post free; 40*s*. per 100. Strong Plants, 12 for 10*s*., post free; 70*s*. per 100. Extra strong, 12*s*. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

WHOLESALE CATALOGUE of TREES, SHRUBS, CLIMBERS, &c., free on application.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

BEECH, 3 feet, very fine and well rooted, 7*s*. 6*d*. per 1000.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

RHODODENDRONS, Hybrid.—Strong plants, raised from the finest White, Rose, Purple, Scarlet varieties, 1½ to 3 feet high, £1 per 100.
H. JACKSON, Blakedown, Kidderminster.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

A BARGAIN.—HORSE CHESTNUT TREES, 5 to 6 feet, 3*s*. per 100; fine WALNUT TREES, 4 to 5 feet, 4*s*. per 100; OAKS, 4 to 5 feet, 2*s*. per 100. For Cash. WILKIN, Tiptree, Kelvedon.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to
CARTERS', The Royal Seedsmen, High Holborn, London.

Vines.

B. S. WILLIAMS has a large and fine stock of FRUITING and PLANTING CANES, of all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, N.

GRAPE VINES.—A fine stock of all the leading sorts; strong, well-ripened short-jointed Canes. Extra fruiting size, in 11-inch pots; smaller plants, in 6-inch and 9-inch pots. Prices from 3*s*. 6*d*. to 10*s*. 6*d*. each. Free from any kind of disease.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s*. to 60*s*. per dozen. Extra strong Fruiting Canes, 7*s*. 6*d*. to 10*s*. 6*d*. each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s*. each.
RICHARD SMITH, St. John's Nurseries, Worcester.

New Grape.

VENN'S SEEDLING BLACK MUSCAT.—Good Planting Canes, Two Guineas each, delivered to order on receipt of Cheque or Post-office Order on Horfield, Bristol, payable to
WILLIAM DODDS, Gladstone Villa, Bishopston, Bristol.
Testimonials of Merit to be had free on application.

Early Planting.

DAVISON AND WHITTEM'S CATALOGUE of all the Best and Newest ROSES is now ready. Also a GENERAL CATALOGUE of CONIFERS, FOREST, FRUIT, and other TREES. Post free on application. White Cross, Hereford.

New Climbing Rose,

JULES MARGOTTIN, 3*s*. each, 30*s*. per dozen. The old favourite Rose in all respects, except in being a free climber.
RICHARD SMITH, Nurseryman, Worcester.

WHOLESALE CATALOGUE of ROSES, FRUIT TREES, &c., free on application.
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey.

ROSES.—Fine strong Dwarfs on Manetti, 30*s*. per 100, £12 10*s*. per 1000; Standards, 80*s*. per 100; Half-standards, 60*s*. per 100.
MAURICE YOUNG, Milford Nurseries, Godalming.

J. AND G. LOWE have a few thousand CAUCASIAN LAURELS, 6 to 12 inches, to offer to the Trade, at 30*s*. per 1000, for cash.
Kingston Lane Nursery, Uxbridge.

To Gentlemen, Nurserymen, and Others.

AUCUBA JAPONICA.—The Executors of the late John West, Nurseryman, &c., of Green Lanes, Stoke Newington, beg to OFFER for IMMEDIATE SALE a quantity of large AUCUBAS in fine condition. Particulars may be had on aplication at the Nursery, Green Lanes, N.

QUICKS.—Good strong Quicks, 6*s*. to 8*s*. per 1000, or £25 per 100,000; extra do., 10*s*. 6*d*. to 15*s*. per 1000, or £45 to £55 per 100,000.
MAURICE YOUNG, Milford Nurseries, Godalming.

Nurseries, Dundee, Scotland.

PRICES of SEEDLING and TRANSPLANTED FOREST and ORNAMENTAL TREES, SHRUBS, &c., may be had on application.
W. P. LAIRD AND SINCLAIR.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Hyacinths, Tulips, Crocus, &c.

The best material in which to grow the above is
COCOA-NUT FIBRE REFUSE.—Price 1*s*. per bushel, or 6*d*. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE, invaluable for Forcing, Plunging, and Resisting Frost and Cold. Price 9*d*. per bushel; 20 bushels, 5*d*.; 100, 4½*d*. per bushel.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

WANTED, at Weybridge, Surrey, about 400 to 500 square yards of good TURF for a LAWN. Write, stating price delivered at Weybridge Station, to
W., 1, Westminster Chambers, Victoria Street, London, S.W.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

Large Dutch Crocus.

WILLIAM HOOPER has just received a Consignment of the above, of good quality and condition. Price 15*s*. per 1000; 1*s*. 6*d*. per 100. Yellow, Blue, White, Striped, or Mixed. CATALOGUES on application.
Florist and Seedsman, 88, Oxford Street, W.

Dutch Bulbs direct from the Grower.

HYACINTHS for Pots or Glasses, 16*s*. per 100; Bedding, 12*s*.; TULIPS, 6*s*.; CROCUS, 1*s*. Other Bulbs equally cheap. CATALOGUES ready. Address, S. HARVEY, Popham Street, Nottingham.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s*. carriage free. CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

"A. B. C." Descriptive Bulb Guide.

THOMAS S. WARE'S NEW BULB CATALOGUE is now ready, and may be had free on application. It embraces every family worthy of cultivation, and is one of the most complete ever published.
Hale Farm Nurseries, Tottenham, London, N.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

STANDARD TRAINED PEACHES, NECTARINES, and APRICOTS, fine Trees of the hardiest and best sorts, with all other forms of Fruit Trees in great variety. Descriptive Price Lists gratis.
RICHARD SMITH, Nurseryman, Worcester.

CARTER'S PROLIFIC RASPBERRY (true).—Five thousand Canes for Sale, at 25*s*. per 1000.
JAMES BURKIN, Cudham, near Chislehurst, Kent.

STRAWBERRY PLANTS, for Forcing.—Seven hundred fine Plants of PRESIDENT, in pots, well rooted, and ready for forcing: the best of all sorts for the Greenhouse. Must be Sold, owing to removal of forcing-house.
Gifford Lodge, England Lane, Haverstock Hill, N.W.

MANETTI STOCKS—13,000, full of Cuttings, strong, 25*s*. per 1000. GIANT ASPARAGUS, 12,000, 3-yr. old, 15*s*. per 1000.
THOMAS READE, Beach Nursery, Southend, Essex.

Home Grown Agricultural and Garden Seeds.

H. AND F. SHARPE are now prepared to make special offers to the Trade of their home-grown choice selected stocks of AGRICULTURAL and GARDEN SEEDS of this season's growth. They have been harvested in very fine condition, and are quoted low in price.
Seed Growing Establishment, Wisbech.

MONRO'S DUKE of EDINBURGH CUCUMBER. See *Gardeners' Chronicle*, October 31. SEEDS ordered have been sent off. ELECTROTYPES of PLATE in October 31, 9*s*. each.
J. MONRO, Potter's Bar, N.

Asparagus for Sale.

FOR SALE an ACRE of ASPARAGUS, Four Years Old. Apply to
Mr. HAYMAKER, Grand Row, Covent Garden.

SEAKALE and ASPARAGUS.—A large quantity, for forcing, extra strong; also 1-yr., 2-yr., and 3-yr. old, for planting. Price on application.
HENRY PAGE, Walham Green, Fulham, S.W.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three and four years old.
Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

FRUIT TREES.—One hundred thousand strong Standard and Pyramid Cherries, Apples, Pears, and Plums, from 75*s*. per 100. Gooseberries, 3-yr., from 10*s*. per 100; Currants, 3-yr., from 6*s*. per 100. CATALOGUES on application to
T. EVES, Gravesend Nurseries.—Established 1810.

Johnstone's St. Martin's Rhubarb.

EARLIEST and BEST in CULTIVATION for open ground; it has a splendid colour, and excellent for forcing. Strong roots, 1*s*. each. Trade price on application.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

To the Trade.

CAULIFLOWER, Veitch's Autumn Giant, true, direct from the raiser. CUCUMBER, Telegraph; we hold perhaps the largest stock of the true Rollisson's Telegraph in the country. Special low quotations on application to
F. SANDERS AND CO., Seed Growers, St. Albans.

Seed Potatos.

H. AND F. SHARPE'S Wholesale Special Priced LIST of SEED POTATOS is now ready, and will be forwarded, post free, on application. It includes all the best English and American sorts in cultivation, and the prices will be found very moderate.
Seed Growing Establishment, Wisbech.

EMILE DESMET, 2, Hundelghem Street, Ledeberg, near Ghent, Belgium, offers to the Trade:—
1000 SPIRÆA JAPONICA, for £6.
100 ROSES, Standards, good sorts, for 50s.
100 ROSES, Half Standards, for 40s.
100 LILY of the VALLEY, for 65s.

CHOICEST CARNATIONS and PICOTEES for Sale—5000 of the choicest and finest kinds, to name, all of which are strong, healthy, and good rooted plants. Selection left to J. H. Per dozen pairs, 6s., 9s., and 12s. True old Crimson CLOVE, 3s. per dozen plants.
Packages included.
J. HUNT, Apollo Nurseries, Caister Road, Great Yarmouth.

ASPARAGUS for FORCING.—A large quantity of very fine roots at 7s. per 100; very good 3-yr. old Asparagus plants at 2s. 6d. per 100.
GOOSEBERRIES and CURRANTS of various sorts at moderate prices.
J. COOMBES, Darnley Road Nursery, Gravesend.

Plant at Once.

CABBAGES.—For Ewes and Lambs, Sheep and Cows, or for Garden purposes, nothing can surpass Enfield Market and Robinson's Champion Drumhead. Good plants now ready, at 3s. per 1000, package free. Cash with orders. Large buyers liberally treated with. References given to the leading Agriculturists of the day.
Fine Red Dutch Pickling Cabbage Plants, 5s. per 1000.
F. GEE, Seed Grower, &c., Biggleswade, Beds.

Carriage Paid to London.

ROSES.—CHARLES BURLEY will send, package free, Standard Roses, fine heads, 12s. and 15s. per dozen; 12 first-rate Dwarf Roses for 7s., 50 for 26s., 100 for 50s. Maréchal Niel, on own roots, 3s. 6d. per dozen, post free.
PHLOX, best sorts, 2s. 6d. per dozen, post free.
ZONAL PELARGONIUMS, new (sent out in 1873), 12 for 5s.
Paradise Nursery, Brentwood.

To the Trade.

SNOWDROPS, double and single; GLADIOLUS BRENCHLEYENSIS, LILY of the VALLEY CLUMPS, extra fine.
HURST AND SON, 6, Leadenhall Street, London, E.C., can offer the above at low prices, of finest quality.

Turf, at 4d. per Square Yard.

J. CHEAL AND SONS, of Lowfield Nurseries, Crawley, can supply TURF of excellent quality at the above price, delivered in trucks at Crawley Station. The Ground must be cleared in a few weeks to make room for extending the Nurseries.
Priced CATALOGUES of TREES and SHRUBS free by post.

The Planting Season.

WOOD AND CO., in consequence of having to clear a portion of their Land this season, are prepared to offer, at very reduced prices, a part of their extensive NURSERY STOCK, consisting of some thousands of Fruit and Forest Trees, Conifers, Laurels (Portugal do., handsome specimens), Evergreen Shrubs and Roses; all which are very healthy and in fine condition for removal. Price and all particulars on application.
BARBOURNE NURSERIES, WORCESTER.

New Variegated Holly.
ILEX MYRTIFOLIA AUREO MACULATA.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, has the pleasure of offering to the public this very pretty new Holly. Good grafted plants at 21s. each (free to London), one over when three are ordered.
N.B.—LILIUM LANCIFOLIUM RUBRUM and ROSEUM, strong bulbs, 42s. per 100.
LILIUM POMPONICUM, very pretty, 6s. per dozen.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong Plants of which are now ready for sending out. List of Varieties and Prices, together with Catalogue of Dutch Bulbs, on application.
Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains 6 pair of choice Show Carnations, 6 pair of choice Show Picotees, 12 pair of Show Pinks, and 12 choice mixed Carnations and Picotees for borders. Carriage and package free on receipt of Post-office Order. Half the above quantities 11s.
Address, ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

Violet.

LEE'S VICTORIA REGINA.—It gives me great pleasure to offer again the above magnificent and exquisitely sweet-scented Violet, which last season gave such remarkable satisfaction, at greatly reduced prices. For LIST of the Trade see the *Gardeners' Year Book* and the *Garden Oracle* for 1875. Extra strong plants, 12s. per dozen, 6s. 6d. per half dozen; smaller, 6s. to 9s. per dozen, 3s. 6d. to 5s. per half dozen.
Several persons having written for seed of the Victoria Regina, and although a very shy seeder, G. LEE has succeeded in harvesting a small quantity, which he offers in sealed packets at 2s. 6d. each, post-free.
N.B.—It should be sown in pans not later than the end of December, and kept in a cold pit or frame till well up.
GEORGE LEE, Market Gardener, Clevedon, Somerset.

SWEET VIOLETS.

MARIE LOUISE, the best Violet in cultivation, large double blue, white centre; flowers from August to May. Sample flowers sent post-free on application. Large flowering clumps, 12s. per dozen; rooted plants, 30s. per 100.
BLANDYANUM, double dark purple; flowers from August to May. Large clumps, 6s. per dozen, 40s. per 100; rooted plants, 20s. per 100.
KING OF VIOLETS, very large double. Good clumps, 6s. per dozen, 40s. per 100; rooted plants, 20s. per 100.
REINE DES VIOLETS, very large double white. Large clumps, 6s. per dozen, 40s. per 100; rooted plants, 20s. per 100.
NEAPOLITAN, double, lavender-blue, 6s. per dozen; rooted plants, 20s. per 100.
NEAPOLITAN, single, lavender-blue, 4s. per dozen.
The above are all strong, healthy plants, and suitable for Potting or Forming Masses in the Flower Garden.
Priced CATALOGUE of BULBS and SPRING BEDDING PLANTS free on application.
FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

STEPHANOTIS FLORIBUNDA, large and clean, well grown, 10s. 6d. each; AZALEA INDICA ALBA, 3 feet 6 inches by 4 feet 6 inches; ADIANTUM CUNEATUM, by the 100 or dozen; also a quantity of PINE SUCKERS, on application to
L. J. WALKER, Wood Green, Waltham Abbey, Essex.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.
PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.
All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.
POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

CABBAGE PLANTS.—H. J. HARDY begs to offer a quantity of strong autumn-sown plants, all true:—
ENFIELD MARKET, EARLY BATTERSEA, } 3s. per 1000.
ROBINSON'S DRUMHEAD, } 25s. per 10,000.
WHEELER'S COCOA-NUT, 5s. per 1000.
LETTUCE PLANTS, SIBERIAN COS.—H. J. H. has much pleasure in offering fine strong plants of his Siberian Cos, at 7s. 6d. per 1000. This is one of the best Lettuces grown to stand the winter; is highly recommended for its excellency of flavour and fine green colour. It grows large, turns in early, and stands a long time before it runs to seed. It is very suitable for Market Gardeners. A liberal allowance to large buyers.
Packages and carriage free to London.
Cash must accompany all Orders from unknown Correspondents. Post Office Orders made payable at Bures. Apply to
H. J. HARDY, Stour Valley Seed Grounds, Bures, Essex.

Planting Season.
To PLANTERS of PUBLIC PARKS, CEMETERIES, or PRIVATE GARDENS.

WILLIAM SKIRVING solicits inspection of his unrivalled Stock of choice EVERGREEN SHRUBS, FOREST and ORNAMENTAL TREES, which he is disposing of at very moderate prices, in order to clear the land for building purposes.
Among the Evergreens are many thousands of fine specimens of Variegated and Broad-leaved Green Hollies, and an immense Stock of all other Hardy Evergreen Flowering Shrubs and Ornamental Trees generally cultivated in Britain, many of which are of large size, well calculated for giving immediate effect.
To Gentlemen wishing to make new or to improve old Pleasure Grounds this is an excellent opportunity, for such an extensive and well-grown Stock of Trees and Shrubs is seldom to be met with. Nursery and Seed Stores—Walton, Liverpool.

FOR AVENUES and ORNAMENTAL PLANTING.
ABIES DOUGLASII, 10 to 12 feet, £3 per dozen.
CEDAR, Mount Atlas, 10 to 12 feet, £8 8s. per dozen.
CHINESE JUNIPER, 5 to 6 feet, 30s. per dozen, £10 per 100; 6 to 7 feet, 30s. per dozen, £12 10s. per 100; 7 to 8 feet, 42s. per dozen, £15 per 100.
PICEA NORDMANNIANA, 3 to 4 feet, 42s. per dozen, £12 10s. per 100; 4 to 5 feet, 60s. per dozen, £20 per 100.
PICEA PINSAPO, 6 to 7 feet, £6 6s. per dozen; 7 to 8 feet, £8 8s. per dozen.
THUJA LOBBII, 12 to 15 feet, £4 4s. per dozen.
WELLINGTONIA GIGANTEA, 5 to 6 feet, £5 per dozen.
All well grown and recently transplanted. For full descriptions see LIST of the EVERGREEN FIR TRIBE.
RICHARD SMITH, Nurseryman, Worcester.

Forest and Ornamental Trees, Evergreens, Plants
For GAME COVERTS, &c.

FRANCIS & ARTHUR DICKSON & SONS, the "Upton" Nurseries, Chester, respectfully invite attention to or inspection of their almost unlimited stock of
FOREST TREES, PLANTS for GAME COVERTS,
ORNAMENTAL TREES, CONIFERS,
EVERGREEN and DECIDUOUS SHRUBS,
FRUIT TREES, VINES, &c.;
ROSES, STOVE and GREENHOUSE PLANTS, &c.
The special recommendations of their Plants are extreme hardiness; and, from frequent transplantation, their plants are well furnished, and have abundance of fibrous roots, so that they remove to any part of the country with perfect safety. Inspection invited. Visitors should ask for "The Upton" Nurseries, distant about a mile from Chester Station.
Descriptive Priced CATALOGUES post free on application.

CHOICE RHODODENDRONS.

ALARM, white centre, edged with bright carmine
BRAYANUM, vivid scarlet, very fine.
CONCESSUM, fine clear rosy pink.
ELFRIDA, deep rose, much spotted.
EVERESTIANUM, rosy lilac, with dark spots.
HENDERSONII, purplish crimson, very free bloomer.
JOSEPH WHITWORTH, very dark rich lake, spotted, fine blooms.
LADY ELEANOR CATHCART, fine clear rose, beautifully spotted.
MICHAEL WATERER, splendid crimson, large truss.
MINNIE, blush white, large chocolate spots.
MRS. JOHN CLUTTON, beautiful clear white, fine truss
NERO, fine dark rosy purple, large blooms.
The above very beautiful and distinct varieties are offered by W. H. ROGERS, Red Lodge Nursery, Southampton, at 2s. 6d. each.
An immense number of other named varieties, as per Catalogue, at 1s. 6d. each, selected; or £6 per 100.

DWARF and STANDARD ROSES, strong Plants and cheap, from Paris.—Maréchal Niel, dwarf, from the ground, £2 10s. per 100; Paul Néron, Charles Lefebvre, Madame Lacharme, Virginale, Gloire de Dijon, Madame Vidot, Duchesse d'Orleans, and all the best sorts £2 per 100. Maréchal Niel, Madame Falcot, and all the best Tea Roses, standards, £5 per 100. Perpetuals, all the best sorts, the choice of the customers, £5 per 100; our own best selection, £4.
Apply to LEVÊQUE ET FIL, Nurserymen, &c., Ivry-sur-Seine, near Paris.

To the Trade.

JOHN PERKINS AND SON beg to offer the following, which are all in the finest possible condition for removal:—
APPLES, Standard, 60s. to 70s. per 100; 2 years, untrimmed, 50s. per 100; Dwarf-trained, 15s. to 18s. per dozen
APRICOTS, Dwarf-trained, 24s. to 30s. per dozen; Dwarf, 1-yr. cutback, 10s. per dozen
PEACHES, Dwarf-trained, 24s. to 30s. per dozen
NECTARINES, Dwarf-trained, 24s. to 30s. per dozen
CURRANTS, Red, fine, 60s. per 1000
CHESTNUT, Horse, 5 to 6 feet, 40s. per 1000
ELM, Huntingdon, 8 to 10 feet, 50s. per 100
OAKS, English, fine, transplanted, 3 to 4 feet, 40s. per 1000; 4 to 5 feet, 50s. per 1000; 5 to 6 feet, 60s. per 1000; 6 to 8 feet, 80s. per 1000
PRIVET, Evergreen, fine transplanted, 1½ to 2 feet, 15s. per 1000; 2 to 3 feet, 20s. per 1000
PINUS AUSTRIACA, 1½ to 2 feet, 40s. per 1000; 2 to 3 feet, 60s. per 1000; 3 to 4 feet, 120s. per 1000
WHITETHORN or QUICK, 2 and 3 years transplanted, 8s. to 11s. per 1000
BLACKTHORN, fine, 2 to 3 feet, 17s. per 1000
BERBERIS AQUIFOLIA, 1 to 1½ foot, 18s. per 1000; 1½ to 2 feet, 50s. per 1000
BOX, Green, fine bushy, 1 to 1½ foot, 80s. per 1000; 1½ to 2 feet, 100s. per 1000
CEDRUS DEODARA, 1½ to 2 feet, 18s. per dozen; 2 to 2½ feet, 21s. per dozen; 2½ to 3 feet, 24s. per dozen
CUPRESSUS LAWSONIANA, 1½ to 2 feet, 15s. per 100; 2 to 2½ feet, 20s. per 100; 2½ to 3 feet, 25s. per 100; 3 to 4 feet, 30s. per 100; 4 to 5 feet, 9s. per dozen
JUNIPERUS CHINENSIS, 1½ to 2 feet, 6s. per dozen; 2 to 2½ feet, 9s. per dozen; 2½ to 3 feet, 12s. per dozen
LAURELS, Common, 1½ to 2 feet, 60s. per 1000; 2 to 2½ feet, 70s. per 1000; 2½ to 3 feet, 80s. per 1000
LAURELS, Portugal, 1 to 1½ foot, 70s. per 1000; 1½ to 2 feet, 100s. per 1000; 2 to 2½ feet, 25s. per 100; 2½ to 3 feet, 35s. per 100; 3 to 3½ feet, 50s. per 100; 3½ to 4 feet, 70s. per 100; 4 to 5 feet, 100s. per 100
PICEA NORDMANNIANA, 1½ to 2 feet, 10s. per dozen
PINUS CEMBRA, 1½ to 2 feet, 20s. per 100; 2 to 2½ feet, 30s. per 100; 2½ to 3 feet, 40s. per 100; 3 to 4 feet, 60s. per 100
THUJA LOBBII, 2 to 2½ feet, 40s. per 100; 2½ to 3 feet, 50s. per 100; 3 to 4 feet, 10s. per dozen; 4 to 5 feet, 12s. per dozen; 5 to 6 feet, 18s. per dozen
THUJA AUREA, 1 to 1½ foot, 12s. per dozen; 1½ to 2 feet, 15s. per dozen; 2 to 2½ feet, 21s. per dozen; 2½ to 3 feet, 36s. per dozen
THUJOPSIS BOREALIS, 2½ to 3 feet, 12s. per dozen; 3 to 4 feet, 18s. per dozen; 4 to 5 feet, 24s. per dozen
YEWS, English, 1½ to 2 feet, 20s. per 100; 2 to 2½ feet, 25s. per 100; 2½ to 3 feet, 35s. per 100; 3 to 3½ feet, 45s. per 100
Wholesale and Retail CATALOGUES on application to
52, Market Square, Northampton.

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.

JACKMAN'S LIST of FRUIT TREES.

JACKMAN'S LIST of ROSES.

JACKMAN'S LIST of AMERICAN PLANTS.

JACKMAN'S LIST of CONIFERS.

JACKMAN'S LIST of HARDY SHRUBS.

JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.

JACKMAN'S LIST of CLEMATIS (Special Catalogue).

JACKMAN'S LIST of TRANSPLANTED FOREST TREES.

JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.

GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality:—
MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 ft.
CHESTNUTS, Common Horse, and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.
Woking Nursery, Surrey, S.W.

Carters LIST OF NOVELTIES FOR 1874-5.

PRICES TO THE TRADE ON APPLICATION.

CARTER'S GREEN GAGE TOMATO.

Awarded a First-class Certificate by the Royal Horticultural Society, October 7, 1874.

We have much pleasure in offering, for the first time, our New Tomato, "Carter's Green Gage." It was exhibited before the Fruit Committee of the Royal Horticultural Society, on Wednesday, October 7, and awarded a First-class Certificate for its very fine flavour and clearly defined and distinct character. It is very prolific, bearing clusters of fruit of a beautiful citron colour, irregularly pencilled with steel-coloured flakes on the upper surface, which renders it very ornamental. In a raw state it has the agreeable acid of an American Cranberry, with a fine sugary flavour. This variety, selected by us at our own Seed Farms, from Hathaway's Excelsior, is very early, and ripens readily in our English climate out-of-doors. It is quite distinct in colour, form, and flavour from any other Tomato. We have received the following testimonials :—

Mr. PENNY, Gr. to His Royal Highness the Prince of Wales, writes as follows :—

"Messrs. Carter have sent me some of their Green Gage Tomato, which should be called Golden Gage. It is a great acquisition. Having tasted it, together with one of the best red varieties, I find it is greatly superior. The flavour is something delicious when cooked, and combines the Apple and Tomato beautifully blended. No garden should be without this Novelty. I shall grow it largely."

Mr. FLECK, Cumberland Lodge, Windsor Park.

"Your Green Gage Tomato was very much admired by H.I.H. the Grand Duke Cæsarevitch and by H.R.H. the Duke of Edinburgh. Their Royal Highnesses the Prince and Princess Christian wish me to thank you for having sent such a beautiful dish of fruit."

From Mr. W. TILLERY, Gr. to His Grace the Duke of Portland, Welbeck Abbey.

"Your New Green Gage Tomato is well worthy of the First-class Certificate it received. I have grown nine varieties of Tomatos this year, and find that your new sort excels any of them for juiciness and fine flavour. When known I have no doubt that it will be a general favourite."

From Mr. J. COX, Gr. to F. C. Hill, Esq., Redleaf.

"All true lovers of the Tomato must thank you for introducing that distinct variety the Green Gage. It possesses truly a most delicious flavour, superior to any sort I know, and cannot fail to be considered an acquisition, being really amongst Tomatos what the Green Gage is amongst Plums."

The Seed Pockets are illustrated with a natural-sized drawing of the Fruit, printed in colours. Electros of single fruit will be ready on Tuesday next, price 3*s.* 6*d.*

CARTERS' COMMANDER-IN-CHIEF PEA.

A very fine greenish blue wrinkled Marrow, which was originated at our St. Osyth Seed Farm five years ago. We consider this variety to be superior to G. F. Wilson, having larger pods, and the Peas are of a very fine colour. This Pea takes the lead with us, principally because we found many pods with ten Peas in a pod, which is something extraordinary with large wrinkled Peas. The pods are slightly curved, and the height is 4 feet.

Electros of single pod (half opened) will be ready on the 12th inst., price 6*s.*

BLOXHOLM HALL MELON.

A splendid variety of scarlet-flesh Melon, very handsomely netted. Raised by Mr. Lumsden, Gr. to the Right Hon. C. Nesbit Hamilton. The following testimonials speak as to its flavour, and we can also vouch personally that it is in our judgment the finest scarlet-fleshed Melon in cultivation—we having had the seed two years in our possession, and thoroughly compared it for flavour with the best variety in cultivation :—

From Mr. T. CHALLIS, Gr. to the Right Honourable the Earl of Pembroke, Wilton House.

"Your Bloxholm Hall Melon is very handsome in shape, very handsome in shape, very heavy, thick flesh, melting and excellent in flavour; it is very delicious and juicy. It is a free grower, and sets well. I was awarded a Certificate at the Bath Show for this variety."

From Mr. H. KNIGHT, Gr. to His Grace the Duke of Roxburghe, Floors Castle.

"Your Bloxholm Hall Melon is a first-class variety of the scarlet-flesh class. It has a good depth of flesh, of excellent flavour, and is a good setter, with a healthy constitution."

Mr. BENNETT, Gr. to the Most Noble the Marquis of Salisbury, has also informed us, that he considers Bloxholm Hall one of the finest and best Melons he ever grew.

From Mr. O. GOLDSMITH, Gr. to Sir W. Farquhar, Bart., Polesdon Lacy.

"I have found your Bloxholm Hall Melon, without exception, the best scarlet-fleshed Melon I ever tried."

Electros of this Melon will be ready by the 12th inst.—size, 2 inches by 1¾—price 5*s.*

SEVILLE LONG-POD BEAN.

A distinct and very desirable variety of Broad Bean; of dwarf habit, growing about 18 inches high, with extraordinarily long pods, many of them measuring over 9 inches in length. Was tried at Chiswick this season, and awarded a First-class Certificate. A first-rate variety for Gentlemen's Gardens.

CARTER'S MAMMOTH LONG-POD BEAN.

A variety of the English Long-pod Bean (which we have been for many years selecting), with very long pods. Was grown at Chiswick this season, and awarded a First-class Certificate by the Royal Horticultural Society, as being the best type of English Long-pod Bean.

NASTURTIUM RUBY KING.

A Seedling variety of that type of dwarf Nasturtium originated by us, viz., the dark-foliaged or King of Tom Thumb section, the popularity of which is now universal—from the fact of their bright colours contrasted with dark foliage, compact habit and duration of bloom (flowering all summer and autumn until killed by frost), rendering them quite equal in effect to bedding Geraniums. The colour of the new variety now offered is quite unique—pure pink shaded with carmine—and forms an effective contrast with the varieties already in cultivation.

Electros showing entire plant, 6 inches by 5, price 10*s.* 6*d.*

LEPTOSYNE STILLMANNI.

A Composite annual of dwarf habit, about 9 inches high, very free blooming, with large orange-yellow blossoms; striking and showy for rockery and herbaceous borders.

SALVIA CANDIDISSIMA.

A noble-looking plant, with large silvery leaves of ornamental character—biennial—admirably adapted for shrubberies where single specimens would form a conspicuous ornament. This plant gives out a strong odour similar to Truffles

Electros, 2 inches by 1¾, will be ready by the 9th inst., price 7*s.* 6*d.*

NEW CARMINE CANDYTUFT.

This splendid novelty was sent out by us for the first time last year, but our stock was very limited; our harvest of this year is also short. It is quite distinct, and of a brilliant carmine colour.

VISCARIA CARYOPHYLLOIDES.

A variety raised by us from the Viscaria elegans picta. It is quite constant, and is a valuable addition to this already showy section of annuals. The flowers are beautifully striped with purple, rose, and white.

SCHIZANTHUS ALBUS OCULATUS.

Showy variety of annual Schizanthus, of the large-flowered variety. Colour of flower clear white ground, with large central black spot.

THREE NEW VARIETIES OF GODETIA WHITNEYI.

G. WHITNEYI FLAMMEA.—Colour flaming crimson, very brilliant.

G. WHITNEYI FLAMMEA STRIATA.—Colour, stripe or elongated blotch of flaming crimson running up the centre of each petal; very showy.

G. WHITNEYI CONCOLOR.—Colour glossy pearly-white, like white satin; distinct and elegant.

*** The above three Godetias have been selected by us from the original Godetia Whitneyi. They are quite distinct and very showy annuals.

HONEYSUCKLE FRENCH PINK.

Colour rosy pink. Has a distinct appearance from the red and white varieties already in cultivation.

CARTER'S LIST of NOVELTIES, including the above with some others, also the best of last year's Novelties, is now in the Press, and may be had by the Trade next week.

COLOURED PLATES OF RUBY GEM NASTURTIUM AND CARTER'S GREEN GAGE TOMATO WILL BE PUBLISHED IN DECEMBER, **Price 1*s.* each.**

CARTER'S, THE QUEEN'S SEEDSMEN, HIGH HOLBORN LONDON, W.C.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application. Mr. WEBB, Calcot, Reading.

Rose Catalogue.

WM. PAUL, Paul's Nurseries, Waltham Cross, Herts, has just published the New Edition of his ROSE CATALOGUE, which he will be happy to forward, free by post, on receipt of Postage Stamp.

Roses—Vines.

JOHN KEYNES, Castle Street, Salisbury.

The above are of the usual first-rate quality.
CATALOGUES ready. Every attention paid to Orders.
Salisbury, October 14, 1874.

SPRING GARDENING PLANTS. — 500,000 DAISIES, PANSIES, PRIMROSES, SILENES, FORGET-ME-NOTS, and all the most useful sorts for the above purpose, from 4s. per 100. See Catalogue of above and ROSES. Post free.
J. MOORE, Nurseryman and Seedsman, 52, Market Place, Warwick.

PLANTS for WINTER FORCING.—Any one desirous of Successfully Forcing Flowering Plants during the coming Winter Months, should apply at once to JOHN STANDISH AND CO. for a LIST of their PLANTS specially prepared and adapted for this purpose.
Royal Nurseries, Ascot, Berks.

To Nurserymen and the Trade.

SEAKALE ROOTS for Forcing (very fine), 9s. per 100, 80s. per 1000. ASPARAGUS ROOTS, 2-yr. old, 3s. per 100, 25s. per 1000. Terms, cash on delivery.
SAMUEL ALLAWAY, Earl's Court Farm, Old Brompton, London, S.W.

Carnations and Picotees.

To AMATEURS and the TRADE.

J. BOOTH, FLORIST, Failsworth, Manchester, is now offering the above in all the choice named exhibition varieties.
CATALOGUES and price on application.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6s., 9s., and 12s. per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40s. cash. Baskets and Packing included.
Crown Nursery, Reading.
N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1s. per packet, post-free.

LAURELS.
COMMON LAUREL, 2 to 3 feet, 16s. per 100, £7 per 1000; 3 to 4 feet, 25s. per 100, £10 per 1000.
COLCHIC LAUREL, 3 to 4 feet, 30s. per 100; 4 to 5 feet, 42s. per 100.
PORTUGAL LAUREL, 1½ to 2 feet, 34s. per 100.
Good, bushy, well-grown plants.
RICHARD SMITH, Nurseryman, Worcester.

FIBROUS PEAT.—Brown Fibrous Peat, best quality, for Orchids, Stove Plants, and Potting, £6 6s. per 6-ton truck load. Black Fibrous Peat, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5s. per 6-ton truck load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

SPHAGNUM or PEAT MOSS. — Fresh Sphagnum Moss, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

Hollies.

HOLLIES, 1 foot to 15 inches, bushy, well-rooted, and removed, 20s. per 100.
WALKER AND CO., Farnborough Station, Hants.

Picea Nordmanniana.

PICEA NORDMANNIANA, 1 to 1½ foot, 50s. per 100; 2 feet, 75s. per 100; 2½ feet, 100s. per 100 3 feet and 4 feet, 36s. and 48s. per dozen.
WALKER AND CO., Farnborough Station, Hants.

Eltham Nursery, Kent, S.E.

One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.

THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c.
Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

To Gentlemen, Market Gardeners, and Others.

MITCHELL'S CHAMPION of ENGLAND BROCCOLI.—J. MITCHELL, retiring from the Business, has a small quantity of NEW SEED to DISPOSE OF—the Best Late White ever grown. Will be sold in ¼ lb., ½ lb., and 1 lb. packages, at One Guinea per pound. Sent to any part of the world on receipt of Post-office Order made payable to
JOHN MITCHELL, Ponder's End, Middlesex.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

CHRYSANTHEMUM SHOW.

THE PINE-APPLE NURSERY COMPANY

Respectfully invite the Gardening Public to inspect the extensive Exhibition of this splendid Autumn Flower, which will continue during the month of November in their large Winter Garden.

MAIDA VALE, LONDON, W.

VINES

Grown from the celebrated Lambton Castle Eyes.

S. BIDE can now supply good, short-jointed, clean-grown VINES in POTS of all the leading kinds, from the above celebrated and well-known Stock (a list of which may be had on application), at the following moderate prices, viz.:—

Single Plants, 5s. each; 6 for 21s.; 12 for 36s.

Mr. Hunter has grown this year Bunches of the Black Hamburgh weighing 21 lb. 12 oz., being the heaviest on record.

S. BIDE, ALMA NURSERY, FARNHAM, SURREY.

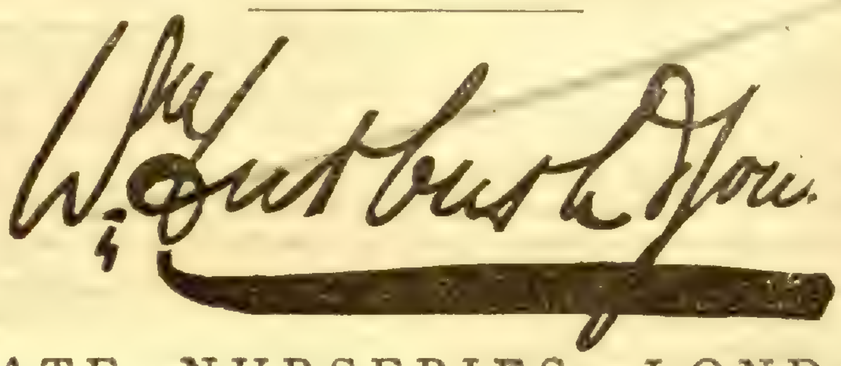
CAMELLIAS, CAMELLIAS, CAMELLIAS—
AZALEAS, AZALEAS, AZALEAS,

From 1 to 10 feet, beautifully set with Bloom. Price on application.

The Finest Stock in the Country.

WINTER BLOOMING HEATHS, EPACRIS, BOUVARDIAS, &c.

A VISIT TO THE NURSERIES SOLICITED.



HIGHGATE NURSERIES, LONDON, N.

TO THE TRADE.

KING OF THE BROCCOLIS.

Electrotypes of this block, 3s. 6d. each.

Price to the Trade on application.

1s. 6d. per Packet.

This magnificent variety comes in for cutting from the beginning of May to the first week in June, and is undoubtedly the finest late Broccoli in cultivation. It is of a fine dwarf habit, and being well protected is exceedingly hardy. Its heads are remarkably fine, close, and white, and of enormous size, and cannot fail to prove a great acquisition to the kitchen garden.

Messrs. HURST & SON are pleased to announce to the Trade that the entire disposal by wholesale of this fine Broccoli has been placed in their hands by Messrs. Daniels, Brothers, Norwich, but regret that, in consequence of their limited supply, they are only able to offer for the coming season, in sealed packets, retail, 1s. 6d. each. Early orders solicited. A List of those firms from whom "King of the Broccolis" can be obtained will be published shortly.

HURST & SON,
SEED MERCHANTS, 6, LEADENHALL STREET, LONDON, E.C.

PLANTING SEASON.

SEEDSMEN *TO THE QUEEN.*

LITTLE & BALLANTYNE,

THE "KNOWEFIELD NURSERIES," CARLISLE,

RESPECTFULLY INVITE INSPECTION OF THEIR

LARGE COLLECTION OF FOREST TREES

Suitable for Hill Land or Low Land Planting,

GAME COVERT PLANTS, FRUIT TREES, ROSES, DECIDUOUS AND EVERGREEN SHRUBS, AVENUE and PARK TREES, &c.

The above can be safely recommended to remove well to any distance; they are grown in a Northern Climate, in Open Unsheltered Ground, and are perfectly Hardy.

Priced Catalogues Post Free on application.

L. & B.'s Complete Descriptive List of Fruit Trees Cultivated in the United Kingdom will be issued in a few days, price 1*s.*

LITTLE & BALLANTYNE,
SEED MERCHANTS AND NURSERYMEN, CARLISLE.
(ESTABLISHED 50 YEARS.)

ROSES.

CHARLES TURNER'S CATALOGUE

IS NOW READY.

STANDARD ROSES.

These are grown in great numbers, they are very fine this season, with well-ripened wood, and are now ready for removal.

DWARF ROSES

Are also grown most extensively, and can be had on the Manetti and Briar Stocks, or on their Own Roots.

ROSES IN POTS

Are a speciality at the Royal Nurseries, where a fine stock can be seen of extra strong TEAS and HYBRID PERPETUALS, grown especially for early forcing.

☞ *The CATALOGUE also contains full Lists of FRUIT TREES, CONIFERÆ, EVERGREEN and DECIDUOUS SHRUBS, &c., and can be had on application.*

THE ROYAL NURSERIES, SLOUGH.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,

SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.
First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, price 7s. 6d. each.

NEW HYBRID PERPETUAL ROSE,

CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3s. 6d. each; 30s. per dozen.

CLIMBING PERPETUAL ROSE,

CLIMBING JULES MARGOTTIN (Cranston's).

A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3s. 6d. each.

Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers as under, in fine, strong plants:—
TRITOMA UVARIA, 10*s.* per 100.
" " GRANDIFLORA, 10*s.* per 100.
SEAKALE, 1-yr. fine, 25*s.* per 1000.
SEAKALE, 2-yr. fine, 45*s.* per 1000.
CATALOGUES of NURSERY STOCK now ready, and forwarded on application.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum).—SEEDS of the Blue Gum, and other Tasmanian and Australian Forest Trees and Shrubs, can be obtained of
C. F. CRESWELL, Wholesale and Retail Seed Merchant, Hobart Town, Tasmania; or at his Branch Establishments, 478, George Street, Sydney, New South Wales; and 37, Swanton Street, Melbourne, Victoria.
Price LISTS sent gratis to any part of the World on application.

LAURUSTINUS, 2 to 3 feet, 6*s.*; 3 to 4 feet, 9*s.* per dozen, fine, in bloom, planted last Spring.
LAURELS, 2 to 3 feet, 12*s.* 6*d.*; 4 to 5 feet, 25*s.* per 100.
LARCH, 2 to 3 feet, 30*s.*; 3 to 4 feet, 40*s.* per 1000.
PINUS INSIGNIS, 3 to 4 feet, 9*s.* per dozen.
" AUSTRIACA, 3 to 4 feet, 25*s.* per 100.
DEODARA, 2½ to 3 feet, 18*s.* per dozen.
ARAUCARIA IMBRICATA, 1½ to 2 feet, 18*s.* per dozen.
DAVISON AND WHITTEM, Hereford.

To the Trade Only.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers (samples on application):—
GUNNERA SCABRA, 40*s.* per 100.
SPIRÆA ARUNCUS, 25*s.* per 100. [per 100.
WAHLENBERGIA (Campanula) GRANDIFLORA, 25*s.*
AILANTUS GLANDULOSA, 1-yr., 4*s.* per 1000.
ROBINIA PSEUD-ACACIA, 1-yr., 3*s.* per 1000.

Australian Seeds and Plants.

SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.
SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, **Chester.**

EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 6 to 7 feet, 60*s.* per 100.
SIBERIAN ARBOR-VITÆ, 5 to 6 feet, 100*s.* per 100.
CHINESE JUNIPER, 5 to 6 feet, 150*s.* per 100.
COLCHIC LAUREL, 6 to 7 feet, 100*s.* per 100.
ENGLISH YEW, 3 to 3½ feet, 120*s.* per 100.
THUJA LOBBII, 4 to 5 feet, 90*s.* per 100.
RICHARD SMITH, Nurseryman, Worcester.

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS and CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.
Wandsworth Common Nursery, Surrey, S.W.
The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

J. SCOTT'S TREE and SHRUB CATALOGUE is replete with information about Trees, &c. It enumerates the names and gives descriptive notes of one of the best and well-grown Collections in the West of England. Parties intending to Plant should send for a copy, supplied gratis, as are also the SEED and BULB CATALOGUES; and SCOTT'S ORCHARDIST, at 5*s.* 6*d.*, free by post.
The Nurseries, Merriott, Somerset.

J. SCOTT'S FRUIT TREES cover many Acres, and form the most complete Collection in the World, consisting of 2200 sorts of Pears, 1400 sorts of Apples, and other kinds in proportion, amounting in the whole to over 5000 sorts. CATALOGUES, gratis, sent to all applications; or SCOTT'S ORCHARDIST, post free, for 5*s.* 6*d.*, the most complete work upon Fruit Trees in the English Language.
Merriott Nurseries, Somerset.

STRONG AUTUMN SOWN CABBAGE PLANTS can now be supplied of the undermentioned kinds (all true to name):—
EARLY BATTERSEA
ENFIELD MARKET } at 3*s.* 6*d.* per 1000.
NONPAREIL
ROBINSON'S DRUMHEAD, at 3*s.* per 1000.
W. VIRGO AND SON, Wonersh Nurseries, Guildford.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

VINES, VINES, VINES—
EPIPHYLLUMS, PERESKIA STOCKS.
VINES.—Fruiting and Planting Canes, strong, well ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Buckland Sweetwater, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2*s.* 6*d.* to 5*s.* each; a few extra strong canes, 6*s.* 6*d.*
EPIPHYLLUMS.—Good Standards, with nice heads, in twelve best sorts, 9*s.* and 12*s.* per dozen.
PERESKIA STOCKS, out of pots, 15*s.* per 100.
CINERARIA HYBRIDA, fl.-pl., 6*s.* per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

NEW CATALOGUES for 1874.

A Descriptive CATALOGUE of ROSES.
A Descriptive CATALOGUE of FRUITS.
A Descriptive CATALOGUE of BULBS.
A General CATALOGUE of GENERAL NURSERY STOCK. Address
WM. WOOD AND SON, The Nurseries, Maresfield, near Uckfield, Sussex.

Bouvardias—Vreelandii, jasminiflora, &c.

MESSRS. JOHN STANDISH AND CO.'S Stock of the above beautiful Winter-flowering Plant is exceptionally fine this season. 15*s.* to 18*s.* per dozen, fine plants.
They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24*s.* to 36*s.* per dozen.
Royal Nurseries, Ascot, Berks.

From Paris.—Gladioli Seedlings,
per Colour, Mixed Seedlings, and Sorts per name.

LEVÊQUE AND SON, Nurserymen, Ivry-sur-Seine, near Paris, beg to offer, for the first time, SEEDLING GLADIOLI, in separate colours, beautiful, of flowers equal to the collection.
Mixed White, 12*s.* per 100; do. Red, 12*s.* per 100; do. Yellow, 24*s.* per 100; do. Rose, 12*s.* per 100.
Seedlings, mixed, of all colours, 8*s.* per 100, £3 4*s.* per 1000.
Their stock of named sorts is splendid, and cheap.
See the LIST, sent free on application.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.
Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

New Rhododendrons.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to announce that they are now sending out the undermentioned Hardy RHODODENDRONS, price 21*s.* each—the usual Discount to the Trade:—
MRS. RUSSELL STURGIS.
MRS. JOHN KELK.
HELEN WATERER.
JOHN WALTER.
JAMES MASON.
FREDERICK WATERER.

Four Thousand Double-flowered Chinese Primrose.

E. G. HENDERSON AND SON can now offer of the above, strong healthy New Plants, of 1874 growth, including Atro-rosea, Blushing Beauty, Exquisite, Empress, Emperior, Lilac Queen, King of Purples, Magenta Queen, Magnifica, Mrs. Eyre Crabbe, Pearl Blossom, Princess of Wales, rubra grandiflora, &c. Twelve varieties, from 30*s.* to 42*s.* and 60*s.*
PRIMULA JAPONICA, mixed varieties, 9*d.* each, 6*s.* per dozen; in six colours, raised from selected home-grown plants 1*s.* 6*d.* each.
AUBRIETIA HENDERSONI, the finest variety in growth and colour, strong plants, 2*s.* each, 18*s.* per dozen.
DAISY, Flower of Spring, beautiful and effective, pure white, 1*s.* each, 9*s.* per dozen.
PINK, Rosy Morn, 1*s.* 6*d.* each.
VIOLETS, White Czar and Victoria regina, 1*s.* 6*d.* each.
CYCLAMEN PERSICUM (from 3000 plants), mixed colours, 9*s.*, 12*s.*, and 18*s.* per dozen; collection to name 21*s.* and 30*s.* per dozen.
The Trade supplied on usual terms for all the above.
For full descriptions see CATALOGUE 155.
Wellington Nursery, St. John's Wood, London, N.W.

Twelve Splendid Heaths for One Guinea.

JOHN H. LEY can now supply above, in fine bushy plants, full of flower-buds, for winter (and immediate) decoration. Package gratis for cash, and delivered free to London.
N.B.—CATALOGUE free on application.
Royal Nursery, London Road, Croydon.

Twelve Graceful Palms, 21s.

HEALTHY young plants, to grow on for table decoration, and will be ready in about six months, or fit for immediate use, including choice and many very rare kinds; 63*s.*, 84*s.*, and 106*s.*

Twelve Choice Selected Flowering Plants for WINTER, 21s., including—

BOUVARDIAS, CAMELLIAS, AZALEAS, Spiræas, Daphne, Lily of the Valley, Kalmias, Heaths, Double Primula, &c., fine plants. Package free for cash with order. J. H. LEY, Royal Nursery, Croydon.

SPECIAL LIST of PLANT COLLECTIONS, for Winter Decoration of Apartments or Conservatory, free from
J. H. LEY, Royal Nursery, Croydon.

CATALOGUE of AUTUMN PLANTS, SEEDS, and BULBS, free on application to
J. H. LEY, Royal Nursery, Croydon.
N.B.—The Nursery is three minutes' walk from West Croydon Station, London, Brighton, and South Coast Railway; twenty minutes' from London.

Twelve Camellias, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon, can now supply beautiful young bushy plants, 12 to 18 inches high, full of buds, and choicest distinct sorts, at 21*s.*, 30*s.*, and 42*s.* per dozen. Package and delivery to any Railway in London, for cash with order included.
N.B.—A few fine half-specimens, in 8-inch pots, finest sorts, and full of buds, 84*s.* per dozen, 10*s.* 6*d.* each.

Twelve Azaleas, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon, can supply twelve splendid named AZALEAS, full of buds, bushy plants, in 5-inch pots, 18 inches high, for One Guinea, including package and delivery to London, for cash with order.
Also a few very fine plants, in 6-inch and 8-inch pots, 18 inches across, at 42*s.* and 60*s.* per dozen; fit to grow on at once for exhibition.

Planting Season.

WILLIAM FLETCHER holds a large stock of the undermentioned, all well grown and recently transplanted:—
PINE, Weymouth, 6 to 10 feet.
CUPRESSUS LAWSONIANA, 4 to 10 feet.
ABIES DOUGLASII, 6 to 10 feet.
,, CANADENSIS, 4 to 8 feet.
THUJA AMERICANA, 5 to 9 feet.
THUJOPSIS BOREALIS, 6 to 10 feet.
ARBUTUS, bushy, 1 to 3 feet.
HOLLIES, variegated, of sorts, 1 to 4 feet.
LAURELS, common, 2 to 4 feet.
,, Portugal, 2 to 5 feet.
,, ,, standards.
THORNS, Paul's New Scarlet, 6 to 8 feet, and other varieties.
RHODODENDRON PONTICUM, bushy, 1 to 4 ft.
,, CATAWBIENSE, bushy, 1 to 4 feet.
,, Hybrids, of sorts, 1 to 3 feet.
ACER NEGUNDO VARIEGATA, standards and dwarfs.
CHESTNUTS, Scarlet, 7 to 12 feet.
,, White, 7 to 12 feet.
Prices on application.
Ottershaw Nursery, Chertsey.

To Gentlemen, Planters, and Others, Purchasers of ROSES, FRUIT TREES, FOREST TREES, SHRUBS, and ORNAMENTAL TREES.

MESSRS. W. VIRGO AND SON, of the Wonersh Nurseries, near Guildford, can now supply the public with the undermentioned STOCK, in either large or small quantities, viz., 10,000 clean-grown Standard, Half Standard, and Dwarf Roses, 300,000 2-yr. and 3-yr. transplanted Quicks, 50,000 Hazel, 2 to 3 feet, transplanted; 50,000 Alder, 2 to 3 feet, transplanted; 50,000 Birch, 2 to 3 feet, transplanted; 100,000 Spanish Chestnut, 2 to 3 feet, transplanted; 100,000 Ash, 2 to 3 feet, transplanted; 50,000 Scotch Fir, 2 to 3 feet, transplanted; Elm and Beech, 3 to 4 feet, transplanted; Ornamental Trees, 6 to 10 feet; Horse Chestnut, Spanish ditto, Elm, Sycamore, Norway Maple, 1000 Paul's new Scarlet Thorns, 8 feet, straight stems; 10,000 Laurels, 2 to 6 feet; Poplars, various; Limes, Laburnums, Turkey Oak, Hornbeam, Spruce Fir, Weymouth Pine, austriaca ditto, 2 feet to 5 feet; a large stock of fine Standard Apples, Pyramids and Dwarfs; Pears and Plums, 10,000 Red, Black, and White Currants; 5000 Gooseberries, various; a large collection of Deciduous and Flowering Shrubs, Coniferæ, Green Hollies and Yews, together with a great variety of other sorts too numerous to mention.
Full particulars in CATALOGUES, to be had on application.

PRETTY WINTER and SPRING FLOWERS
OF EASY CULTURE.

Carter's

COLLECTIONS OF BULBS
Sent on receipt of Post Office Order.

No. 14—For the Open Ground, adapted for Ordinary Good Garden Soil—Price 21s., contains:—

12 Hyacinths, in three colours.
12 Narcissus, double white.
12 ,, Poeticus, or Pheasant-eye.
25 Double Daffodils.
12 Tulips, extra fine mixed, double.
12 ,, ,, ,, single.
12 ,, finest mixed, late.
12 ,, Duc Van Thol.
6 Campernel Jonquils.
6 Polyanthus Narcissus, fine mixed.
12 Star of Bethlehem.
6 Triteleia uniflora.
6 Dog's-tooth Violets.
25 Crocus, blue.
50 ,, striped.
50 ,, large yellow.
25 Crocus, white.
24 Anemones, extra fine mixed.
12 Iris, extra choice mixed English.
12 ,, extra fine mixed Spanish.
3 Lilium candidum.
3 ,, tigrinum.
24 Ranunculus, extra fine mixed.
50 Snowdrops. 24 Winter Aconites.

Packing and Carriage Free.

Other Collections, price 10*s.* 6*d.*, 42*s.*, 63*s.*, and 84*s.* 20*s.* value Carriage Free.

From F. WALTON, Esq., *St. Cuthbert's.*
"The Collection of Bulbs is truly a wonderful one for the money."

CARTER'S, THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

THE LAWSON NURSERIES,
EDINBURGH.

The Extensive Stock of
Seedling and Transplanted Forest Trees, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, &c.,
Is this Season in Splendid Health, and will be Sold at Moderate Prices.

Catalogues on Application, and Special Offers will be made for Large Contracts.

THE LAWSON SEED AND NURSERY COMPANY, LIMITED,
EDINBURGH AND LONDON.
LONDON ADDRESS: 106, SOUTHWARK STREET, S.E.

THE FINEST BROCCOLI IN CULTIVATION,
COOLING'S MATCHLESS.

GEORGE COOLING

Begs again to offer Seed of the above now well known Broccoli. It has taken its rank as one of the finest self-protecting varieties grown, coming into use immediately after Snow's Winter White, with immense pure white heads of a pyramid shape, very close, and of a delicious flavour. It was awarded a First-class Certificate by the Royal Horticultural Society when first exhibited, and has upon several occasions since been shown and Specially Commended, and again obtained the First Prize in a strong competition at South Kensington last spring.

Price 1s. 6d. per packet.

Price to the Trade per Hundred Packets or per Pound on application.

GEORGE COOLING, NURSERYMAN AND SEEDSMAN, BATH.

DANIELS'
DUKE OF EDINBURGH.

"THE FINEST CUCUMBER IN CULTIVATION."

This magnificent variety, sent out by us last season, is undoubtedly the grandest ever offered to the Horticultural Public. It is a fine pearl-white-spined variety, of a beautiful rich green colour, which it retains to the last. It is a remarkably shy seeder, immensely prolific, and of a quality for table that is not to be excelled. It grows rapidly to the length of 30 to 36 inches, being at the same time tender and crisp, and of the most beautiful proportions. For exhibition this variety will be found to have no equal, and for general use cannot be surpassed.

Electrotypes of Block, as above, can be supplied.

In Sealed Packets, 2s. 6d. and 5s. each. Price to the Trade on application.

£10 IN PRIZES

Will be given by us as follows, at the Grand Provincial Meeting of the Royal Horticultural Society in 1875:—

£5 for the best Brace; £3 for the second best Brace; and £2 for the third best Brace.

N.B.—We wish it to be clearly understood that this variety is perfectly distinct from that sent out by Mr. Monro under the same name, and to which it has been suggested, by the Editors of the *Gardeners' Chronicle*, we ought to give priority, But we beg to inform the Horticultural Public and the Trade that the name, "Duke of Edinburgh," was fixed on for our Cucumber so early as August, 1873, at which time it appears Mr. Monro's variety was known under the name of "Rabley Improved." We therefore feel that we are perfectly justified in retaining the name we have given, although the two being named alike is an unfortunate coincidence, and apt to cause some slight confusion. We may add that we have communicated with Mr. Monro on this subject, and that he is perfectly satisfied with our explanation.

As we do not attach much importance to the value of Special Certificates from the Fruit Committee of the Royal Horticultural Society, we did not send up specimens for their inspection, but we much regret that that highly respectable body should have committed the grave error of identifying our Duke of Edinburgh with "Marquis of Lorne," and feel confident that, had fair specimens of the true variety been exhibited by the London firm, so gross a mistake would have been impossible, as the annexed correspondence from the *Gardeners' Chronicle* and the *Journal of Horticulture* will plainly show there exists the widest difference between the two varieties in quality, colour, prolificacy, habit, &c.; and, notwithstanding what has been written by interested persons to the contrary, we still maintain that it is by far the finest Cucumber in cultivation—an assertion that can be supported by abundant testimony.

Mr. ABBOTT, the eminent Cucumber grower, writing of this, says:—"Its robust habit and constitution surpasses all I have ever seen. It is also one of the most prolific sorts possible to grow, and cannot be exceeded by any sort out. Its size is most enormous; the longest fruit I grew was 3 feet 4 inches in length. The calculated length of 107 fruit grown by me was 284 feet (an average of about 32 inches each fruit). It is a splendid pearl-white-spine, colour best green, which it retains to the last. . . . I give this after twenty-one years' successful practice in growing Cucumbers."

From the GARDENERS' CHRONICLE *of July* 15, 1874.

"FRUIT COMMITTEE.—A. Smee, Esq., F.R.S., in the chair. At this meeting Mr. Barr, 12, King Street, Covent Garden, sent three varieties of Cucumber, viz., Daniels' Duke of Edinburgh, a fine variety of Telegraph, and Dyer's Champion. The committee decided that the former, which was the produce of seeds supplied to Messrs. Barr & Sugden by Messrs. Daniels, was too much like, if not identical with, Marquis of Lorne to be considered distinct from it.

From the JOURNAL OF HORTICULTURE, *July* 23, 1874.

"CUCUMBER, DUKE OF EDINBURGH.—As the grower of the Cucumbers sent to the Royal Horticultural Society by Messrs. Barr & Sugden as Messrs. Daniels' Duke of Edinburgh, and said to be the Marquis of Lorne, I can say there is a great difference between the two varieties. I have grown the Marquis of Lorne for two seasons before, and have it now; and I find the Duke a very free-fruiting kind, which I cannot say the other variety is, and it is much larger. The Cucumbers sent were not grown one to a plant on purpose to be exhibited, but were all cut from one plant bearing other smaller fruit. The largest of them, although only 2 feet long, weighed 5 lb. 8½ oz.—T. REDLEY, Uxbridge."

Mr. D. F. FISH *in the* GARDENERS' CHRONICLE *of July* 25, 1874, *writes*:—

"DANIELS' DUKE OF EDINBURGH CUCUMBER.—The decisions of the Fruit and Floral Committee of the Royal Horticultural Society are generally given with so much care and correctness that they are seldom called in question. Perhaps, too, the fact of these decisions being so often given in reference to novelties with which the major part of your readers have little or no acquaintance may partly account for the general acquiescence with which their estimate is received of the worth or worthlessness of particular varieties. Be that as it may, assuredly the committee have made a mistake in refusing an award to the above Cucumber on the ground of its not being sufficiently distinct from the Marquis of Lorne. I grow both side by side, and it would be almost impossible for two Cucumbers corresponding nearly in length to be more unlike each other. In colour, in texture, in height, in quality, in form, in bloom, they are almost as unlike as Telegraph is to Blue Gown. The committee must have had the wrong variety of either one or the other Cucumber before them, or they could never have made such a mistake. In colour and bloom there is the widest difference, while in quality, which might not be tested by the committee, the difference is wide as the poles asunder, the Marquis of Lorne being one of the worst, and the Duke of Edinburgh (Daniels') one of the best long Cucumbers grown. I may add that it took the prize at the Bury St. Edmund's show in competition with several model braces of the Marquis of Lorne, shown by other exhibitors and myself. So much I have felt compelled in justice to say, as a grower of both Cucumbers. I have not grown Monro's Duke of Edinburgh—a totally different Cucumber, of the Telegraph or Ipswich Gem type, and also, I believe, of excellent quality. The two of one name is unfortunate, but they are totally distinct, and both good in their class; and the two varieties of one name could not, of course, influence the Fruit Committee to declare that Daniels' Duke of Edinburgh was not sufficiently distinct from Marquis of Lorne to be certificated; on the contrary, the distinction is almost emphatic, I might add glaring. *D. T. Fish.*"

From the GARDENERS' CHRONICLE, *August* 1, 1874:—

"CUCUMBERS: DANIELS' DUKE OF EDINBURGH AND THE MARQUIS OF LORNE.—On reading the reports of the Fruit and Floral Committee of the Royal Horticultural Society, knowing how very careful they are in examining specimens sent to them, I was surprised to find that Daniels' Duke of Edinburgh Cucumber was thought the same as Marquis of Lorne. Surely the two varieties could not have been shown true, or, as Mr. D. T. Fish remarks, there would not be any trouble in distinguishing one from the other. I should fancy that both the specimens shown were of one and the same variety. I am now growing Daniels' Duke of Edinburgh, Marquis of Lorne, Wonder of the North, Blue Gown, Telegraph, &c., all in one house, and the two varieties now under discussion are as different from each other as any two sorts grown. Both are about of the same length, but different in shape, colour, &c. The Duke will bring more fruit to maturity in a given space of room than will the Marquis. I have some nice specimens of the Duke of Edinburgh in pits for seed, and I find as they get old they turn lighter before ripening, as also does the Marquis of Lorne; but even then the two varieties can easily be distinguished. The Marquis of Lorne is round at the point when the blossom drops, the Duke of Edinburgh is pointed. I shall give preference to the Duke of Edinburgh for my own use, and class it as a useful and good exhibition variety. *C. Osman, Sutton.*"

A List of those Firms from whom our "Duke of Edinburgh" Cucumber can be obtained true will be published in a future Number.

DANIELS BROTHERS, The Royal Norfolk Seed Establishment, Norwich.

Richmond Nurseries, Richmond, Surrey.

(ESTABLISHED 1802.)

To the TRADE and large CONTRACTORS.

G. AND W. STEELL have to offer this season, extra to their usual large stock of ROSE, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN SHRUBS, &c., a large quantity of fine, clean-grown and straight in the stock Standard GOLDEN QUEEN and other varieties of variegated HOLLIES, from 2 to 5 feet in the stem; Pyramid Green and Variegated do., from 2 to 7 feet; also an immense quantity of Hybrid and Ponticum RHODODENDRONS, uncommonly well set with bloom-buds, which they are prepared to supply at extremely low figures. Where large quantities are required special prices will be given.

Melbourne, near Derby.

S. ROBINSON, late of Shaw House, begs to inform his old Customers and others, that in consequence of being obliged to clear the ground by February 1, 1875, he has the following FOREST TREES, &c., to dispose of. If not sold by private contract, they will be offered by Auction on November.

15,000 to 20,000 OAKS, 4 to 5 and 5 to 8 feet.
18,000 to 25,000 SCOTCH FIRS, 3 to 4 and 5 feet.
25,000 to 30,000 LARCH, 4 to 5 feet.
A large quantity of HOLLIES, from 2 to 4 feet, and from 4 to 7 feet; the large sizes, growing singly, are fine specimens for ornamental planting.
500,000 to 600,000 QUICKS, partly 1-yr. bedding and 2-yr. transplanted, and 3-yr. bedding. 20,000 to 30,000 4-yr. transplanted, clean grown and very strong.
About 8000 2-yr. transplanted PRIVETS.
Smaller quantities of LIMES, 5 to 7 feet.
ALDERS, 7 to 9 feet.
SPANISH CHESTNUTS, 4 to 6 feet.
Ornamental SPRUCE, 5 to 7 feet.
BOX TREES and FILBERT NUTS.

WILLIAM POTTEN can still supply FRUIT TREES, &c., as offered in *Gardeners' Chronicle*, October 31; also the following:—

Twelve select Gold and Silver Tricolor GERANIUMS for 10s.—Achievement, Acme, Mr. Rutter, Mrs. Dunnett, Peter Grieve, Prince of Wales, Eva Fish, Her Majesty, Lass o' Gowrie, Mrs. Colonel Wilkinson, Mrs. Rousby, Princess Beatrice (Paul's).

Twelve select Gold and Bronze for 5s.—Black Douglas, Bronze Beauty, Crown Prince, Emperor of Brazil, Goldfinder, Harrison Weir, Marshal MacMahon, Princess of Wales, Reine Victoria, Rev. C. Peach, The Moor, W. R. Morris.

Four new ones of 1873 (Laing's) for 8s.—Mrs. Harrison Weir, W. E. Gumbleton, Prince Arthur, Chieftain.

Twelve good Doubles, including Jewel, Aurore, E. J. Lowe, and Aline Sisley, for 4s.

Twelve select Zonals for 5s.—Amaranth, Beauty of Paradise, Caven Fox, Colonel Holden, Duke of Devonshire, Florence Fraser, Fred George, Iago, Matilda, Mrs. Hammersley, Polly King, Triumph.

Twelve other good varieties for 3s.

The above are strong plants in 3-inch pots. All plants package free, or by post.

The Nursery, Sissinghurst, Staplehurst, Kent.

French Roses.—6000 Paul Neyron Roses for Sale.

L. PAILLET, NURSERYMAN, Chatenay lez Sceaux, near Paris, established 1827, begs to offer a splendid lot of the fine ROSE, PAUL NEYRON, at the following prices:—Standards, £6 per 100, £55 per 1000; Half or Dwarf Standards, £3 per 100; Dwarfs, £4 per 100, £35 per 1000.

L. PAILLET begs also to offer for the present season a very large stock of ROSES of every kind, at the following prices:—Fine Standards, £5 per 100, £45 per 1000; Half or Dwarf Standards, £4 per 100, £35 per 1000; Dwarfs, £2 per 100, £19 per 1000; own roots, 1-yr., £1 15s. per 100, £16 per 1000; own roots, 2-yr., fine, £2 5s. per 100, £20 per 1000; own roots, Souvenir de la Malmaison, strong, £1 15s. to £2 5s. per 100, £16 to £20 per 1000; Bengals, assorted, four of the best sorts. £6 per 1000. L. PAILLET will deliver any of these free to London, packing included, for cash on delivery, for an additional 10s. per 100 for Standards and Half or Dwarf Standards, and 6s. per 100 for Dwarfs and own roots.

Large quantities of FRUIT TREE STOCK, such as Quince, Pears, 1 and 2-yr., Apples from seed, Doucin and Paradise Apple, Plums, Mahaleb, Cherry stocks; also large quantities of ORNAMENTAL TREES and SHRUBS. Prices and Catalogues sent on application.

ACACIAS, 1 and 2-yr., in large quantities.
POTATO, Early Rose, £6 12s. per 1000 lb.
WELLINGTONIA GIGANTEA PENDULA, new varieties, from 16s. to 28s. each.

Orders must be sent to

L. PAILLET, or to his Agents, Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

EVERGREEN SHRUBS for WINTER BEDDING.

	Per doz.—s.	d.		Per doz.—s.	d.
Aucuba japonica, 12 to 15 inches	8	0	Laurel, rotundifolia, 12 to 15 inches	6	0
Biota elegantissima, 9 to 10 inches	12	0	Mahonia Aquifolia, 12 to 15 inches	2	0
Double Gorse, 12 to 15 in.	6	0	Menziesia, dwarf purple	6	0
Erica carnea, dwarf ..	6	0	,, ,, white	6	0
,, multiflora rubra ..	6	0	Pernettya angustifolia, dwarf	8	0
,, vagans rubra ..	6	0	Tree Ivy, 12 to 15 inches	10	0
Golden Yews, 12 to 15 in.	12	0	,, ,, Rœgneriana, 12 to 15 inches	12	0
,, Vinca, dwarf ..	3	0	,, ,, yellow berried, 9 to 12 inches	12	0
Hartogia capensis, 12 to 15 inches	8	0	,, ,, silver striped, new, 9 to 10 in.	12	0
Japan Privet, 12 to 15 in.	6	0	,, tricolor, 9 to 10 in.	12	0
,, Yews, 12 to 15 in.	9	0	Yucca filamentosa, 12 to 15 inches ..	12	0
Laurel, willow-leaved, 12 to 15 inches	6	0	,, gloriosa pendula, 12 to 15 inches	12	0
,, Portugal, 12 to 15 inches	4	0			
Laurel, Caucasian, 12 to 15 inches	4	0			

RICHARD SMITH, Nurseryman, Worcester.

ROSES.

Twelve Acres of Standard and Dwarf Roses, all clean, strong, healthy, fully ripened and well rooted.

Eighty thousand choicest Tea-scented and Noisette Roses, in pots for Conservatories, walls, and sheltered situations out-of-doors.

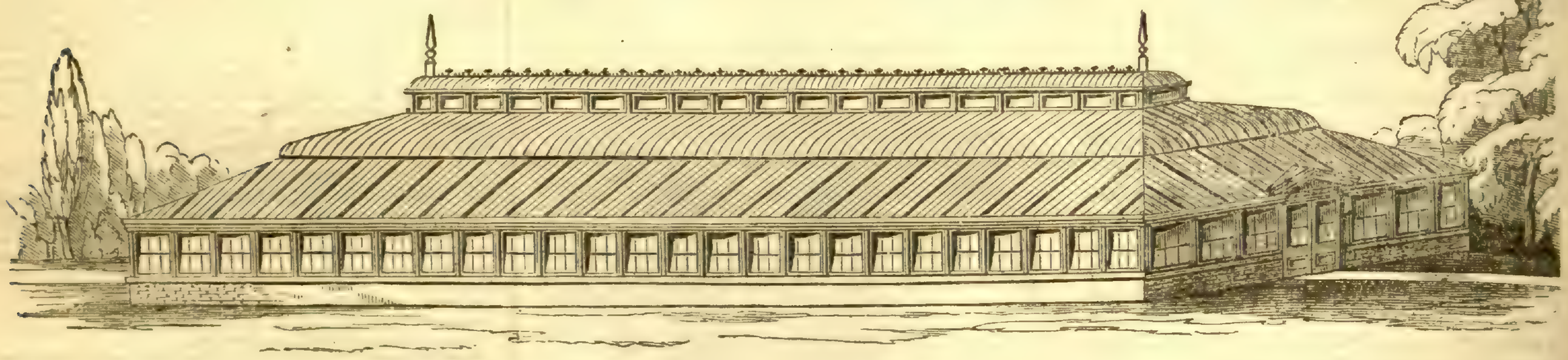
Extra strong Hybrid Perpetual Roses of best sorts, in pots, for forcing.

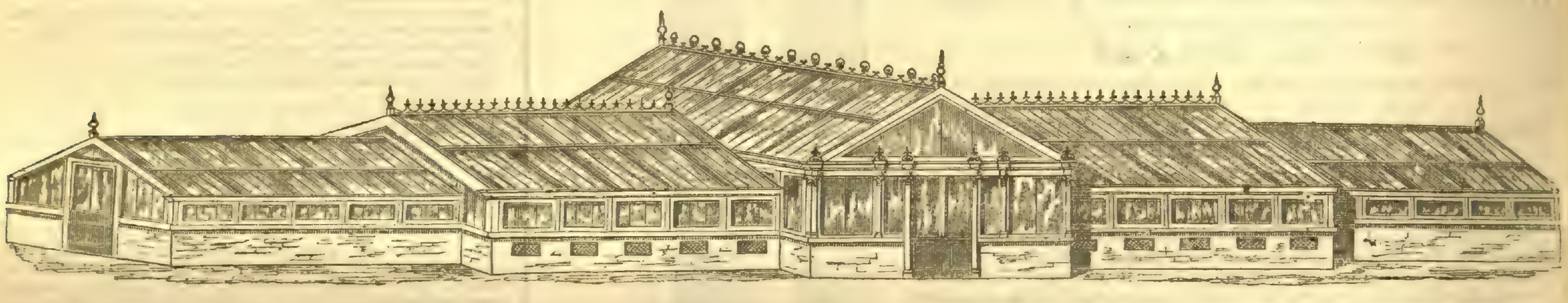
Climbing Roses in great variety, for quickly covering Rockwork, Pillars, Trellises, &c.

Descriptive Price LIST on application.

R. S. will be happy to give a special quotation for large quantities.

RICHARD SMITH, Nurseryman, Worcester.





HENRY ORMSON,

DESIGNER AND BUILDER OF CONSERVATORIES AND WINTER GARDENS,

EITHER PLAIN OR ORNAMENTAL, CONSTRUCTED OF IRON OR WOOD, OR A COMBINATION OF BOTH.

Plans and Estimates for Horticultural Buildings of all descriptions to suit any Garden, large or small.

Gentlemen waited on and Surveys made in any part of the country.

Estimates given from Architects' Drawings.

BOILERS and HEATING APPARATUS of the best description.

HOT-WATER PIPES and CONNECTIONS and a variety of the best BOILERS always kept in Stock.

PRICES AND ESTIMATES ON APPLICATION.

HENRY ORMSON,

HORTICULTURAL BUILDER AND HOT-WATER APPARATUS ENGINEER,

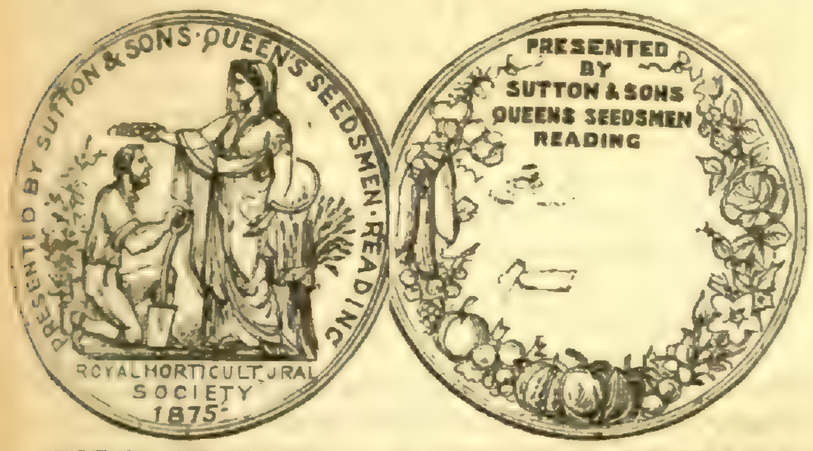
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

IMPORTANT ANNOUNCEMENT.

SUTTON & SONS

Will have the pleasure of offering through the medium of the Royal Horticultural Society during the ensuing season,

SIXTEEN



GOLD, SILVER, and BRONZE MEDALS,

AND VALUABLE MONEY PRIZES,

FOR THE BEST

Collections of Vegetables, Flowers,

FRUITS, AND POTATOS,

As see the following particulars :—

Date of Meeting, 1875.

June 2.—For the best six dishes of PEAS (½ peck of each to comprise a dish), to include Suttons' Emerald Gem, Suttons' Ringleader, and Suttons' New Early Dwarf Wrinkled Pea, Bijou	**Silver Medal** and	1st Prize,	£2	2	0
	Bronze Medal and	2d Prize,	£1	1	0
For the best four sorts of MELONS and four sorts of CUCUMBERS, one brace of each, to include Suttons' New Scarlet-flesh Hero of Bath, Read's Hybrid Scarlet-flesh, and Suttons' Royal Horticultural Prize Melons, and Suttons' Duke of Connaught and Marquis of Lorne Cucumbers ..	**Gold Medal** and	1st Prize,	£3	3	0
	Silver Medal and	2d Prize,	£2	2	0
	Bronze Medal and	3d Prize,	£1	1	0
July 7.—For the best six dishes of PEAS (½ peck of each to comprise a dish), to include Suttons' Duchess of Edinburgh, Suttons' Giant Emerald Marrow, Suttons' Duke of Edinburgh, and Maclean's Best of All	**Silver Medal** and	1st Prize,	£2	2	0
	Bronze Medal and	2d Prize,	£1	1	0
Sept. 1.—For the best collection of twenty-four ASTERS, twelve varieties, consisting of the varieties offered in Suttons' *Spring Catalogue and Amateur's Guide for* 1875	**Silver Medal** and	1st Prize,	£2	2	0
	Bronze Medal and	2d Prize,	£1	1	0
Nov. 10.—For the best twelve "Suttons' Improved" Reading ONIONS	**Silver Medal** and	1st Prize,	£2	2	0
	Bronze Medal and	2d Prize,	£1	1	0
For the best collection of POTATOS, twelve dishes, eighteen tubers to comprise a dish, distinct kinds, half Kidney and half Round, to include Suttons' Hundredfold Fluke and Suttons' Red-skin Flourball	**Gold Medal** and	1st Prize,	£3	3	0
	Silver Medal and	2d Prize,	£2	2	0
	Bronze Medal and	3d Prize,	£1	1	0
For the best six CAULIFLOWERS (Suttons' King)	**Silver Medal** and	1st Prize,	£2	2	0
	Bronze Medal and	2d Prize,	£1	1	0

CONDITIONS OF COMPETITION.

These Prizes are confined to Noblemen's or Gentlemen's Gardeners and Gentlemen Amateurs, and (excepting Fruits) must be grown without forcing and in the open ground.

Full particulars of several Novelties will appear in

SUTTONS' SPRING CATALOGUE

And AMATEUR'S GUIDE for 1875,

Gratis to any Member of the Royal Horticultural Society, or intending competitors for the above prizes.

Sutton & Sons

THE QUEEN'S SEEDSMEN, READING.

SATURDAY, NOVEMBER 7, 1874.

THE DIVINING ROD.

(*Concluded from p.* 484.)

SO much for an account of the divining rod in the last century, to which many earlier references in miscellaneous writers might be added. Thus Swift, in the *Virtues of Sid Hamel the Magician's Rod*, says :—

> "They tell us something strange and odd
> About a certain magic rod
> That, bending down its top, divines
> Whene'er the soil has golden mines :
> Where there are none it stands erect,
> Scorning to show the least respect ;"

and an earlier poetical reference is that made by Samuel Sheppard, in his *Epigrams* (1651) :—

> "Some sorcerers do boast they have a rod
> Gathered with vowes and sacrifice,
> And (borne about) 'twill strangely nod
> To hidden treasure where it lies."

A long description of the employment of the rod near Bristol about 1826 will be found in Hone's *Year Book* under December 30 ; and it is used in Cornwall and Wiltshire, and especially in the Mendip Hills and surrounding district, even up to the present time, as appears from a note in the *Geological Magazine* for November, 1872. An account of the *modus operandi* will be found in Billingsley's *Agricultural Survey of the County of Somerset* (1797). The practice also obtains in America, where it was exercised by Joe Smith, of Mormon notoriety.

According to some, this kind of divination can be most successfully practised by "the seventh son of a seventh son ;" and special days are set apart as especially favourable to its use. Thus, persons wishing to use the rod for the discovery of lead ore must do so upon Midsummer Eve, and the Hazel employed must be of the same year's growth. Mr. Kelly says: "Had the Antiquary been half as skilled in magic lore as he was in the art of discovering Roman camps and Latin inscriptions, he might have convicted Dousterswivel on the spot as an impostor when the fellow pretended to cut a divining rod in the broad glare of day, and with as little ceremony as we might cut a walking-stick. The success of such an operation is dependent upon many special conditions. It must always be performed after sunset and before sunrise, and only on certain nights, among which are specified those of Good Friday, Epiphany, Shrove Tuesday, St. John's Day, the first night of a new moon or that preceding it. In cutting it one must face the east, so that the rod shall be one which catches the first rays of the morning sun ; or, as some say, the eastern and western sun must shine through the rod, otherwise it will be good for nothing." Even religious rites are occasionally performed upon it ; for the same author tells us that in the Oberpfals it is baptised and given a name as soon as it is cut, and the sign of the cross is thrice made over it ; or it is attached to the body or dress of a child that is about to be christened. Even the rod itself, without any human aid, appears to have been invested with magic powers : for in the *Shepherd's Kalendar* directions are given for the preparation of a forked Hazel wand, which is to be peeled and dried, and then steeped in the juice of Cuckoo-fruit or Night-shade, and pointed at one end. "Then where you suppose any rich mine or hidden treasure is near, place a piece of the same mettal you conceive is hid, or in the earthe, to the top of one of the forks, by a hair, or very fine silk or thread, and do the like to the other end ; pitch the sharp single end lightly to the ground, at the going down of the sun, the moone being in the encrease, and in the morning at sunrise, by a natural sympathy, you will find the mettal inclining, as it were pointing to places where the other is hid."

Vallemont in his *Traité de la Baguette*, to which we shall again refer, figures different astrological tables indicating the "aspects" under which it has been supposed that the divining rod should be gathered for special purposes. They are drawn from the *Novum Testamentum* of Basil Valentine, an Italian Benedictine monk of the fifteenth century ; and to each table is prefixed a short notice indicating the special properties of each rod, and the particular name by which it was known. Thus the "Verga lucente," or shining rod, was most efficacious in discovering gold and such minerals as are under the influence of the sun ; the "Verga candente" for those dominated by the moon ; the jumping rod for emeralds and such stones as are ruled by Venus ; the "Verga battente" for all things under the influence of Jupiter ; the trembling rod for lead, antimony, and other things ruled by Saturn ; the inferior or dipping rod for iron and all that is dominated by Mars ; and the superior rod for mercury and everything under the influence of the plant of that name.

It is in France and Germany, indeed, that the influence of the divining rod reached its height. This influence was fostered in a remarkable degree by the singular experiments of Jacques Aymer, a peasant of Grenoble, a history of which may be found at considerable length in the Rev. S. Baring-Gould's *Curious Myths of the Middle Ages*. An abstract of this singular case would be far too long for these columns. Suffice it to say that, by the aid of this unlettered rustic and his rod, a murder was detected which had baffled all other investigations. The story rests upon indisputable testimony, and would certainly go far to establish one's belief in the phenomenon, notwithstanding the failures of Aymar upon subsequent occasions. And after all it seems at any rate possible that at the bottom of the matter there is a substratum of truth. Certain it is that in numerous well-authenticated cases, wherein the agents have been persons above suspicion, water has been found by means of the rod where it was not even suspected to exist. Such instances as that recorded of "Lady N." (Noel) in the *Quarterly Review*, vol. xxii., p. 373, are scarcely to be reckoned among wilful impostures ; and others quite as striking are given at p. 441 of vol. cxxii. of the same Review. It would appear from a note in the *Gentleman's Magazine* for 1752 (p. 77), that Linnæus himself was almost convinced of the powers of the divining rod.

> "When he was upon his voyage to Scania, hearing his secretary highly extol the virtues of the divining wand, [he] was willing to convince him of its insufficiency, and for that purpose concealed a purse of one hundred ducats under a Ranunculus which grew by itself in a meadow, and bid the secretary find it, if he could. The wand discovered nothing, and M. Linnæus' mark was soon trampled down by the company who were present ; so that when M. Linnæus went to finish the experiment by fetching the gold himself, he was utterly at a loss where to seek it. The man with the wand assisted him, and pronounced that it could not lie that way they were going, but quite the contrary ; so pursued the direction of his wand, and actually dug out the gold. M. Linnæus adds, that such another experiment would be sufficient to make a proselyte of him."

Vallemont's work, *La Physique Occulte, ou Traité de la Baguette Divinatoire*, which has been already mentioned, contains a fund of information upon the use of the divining rod. It contains a full account of the case of Jacques Aymar, and gives reports of several similar instances. The following brief narrative may be taken as a specimen of the rest. After

dilating on the accidental means by which so many discoveries have been made, M. de Vallemont goes on to say that it was by pure accident that a peasant of St. Marcellin discovered that the *baguette* would turn when over the bodies of those who had been murdered. Being one day engaged in searching for water in his own neighbourhood the rod inclined so suddenly that he was convinced that water was at hand. In this, however, he was deceived; but instead of water he found in a cask the body of a woman, round the neck of which was the cord with which she had been strangled. He at once guessed that the body was that of a woman who had disappeared four months previously. The peasant at once went to the house where she had resided, and presented his rod to all its inmates: it remained motionless until it was applied to the husband, when it turned violently, and the man at once took flight. The interest of such cases as this, however, is far inferior to that of Jacques Aymar, which is well worth perusal. De Vallemont's work contains also a long list of mines discovered in various parts of France by the agency of the rod, and the testimony of various observers to its efficacy.

We have already seen that Willow or Elm wood may be substituted for Hazel, but it would appear that various woods are employed for different objects. Thus some have said that the Hazel was especially suited to the discovery of gold and silver, for the former being tipped with points of iron and gathered at the full of the moon; for copper Ash was employed, and a Pine branch for lead; Almond, Laurel, and even the stems of Artichokes have also been employed, as well as Birch, Pear, Apple, Cherry, and Tamarisk. In America the Witch Hazel (Hamamelis virginica) was used. Barton says:—"The divining rods formerly used by impostors, who pretented to find precious ores, were made of the twigs of this tree; and in Virginia, I am credibly informed, that the vulgar are still imposed on by persons who pretend to find water by the indication of rods of this tree."

The foregoing is only a sketch of a subject of considerable interest, which in these days of "spiritism" and "psychic force" is at least as worthy of attention as many of the topics with which society is occupied. Much interesting matter would certainly be brought to light by any one willing to undertake a complete investigation of the matter.

For the benefit of those who may wish to examine the literature of the divining rod at greater length than is possible in these columns, the following works, in addition to those already named, may be noted as worthy of consultation:—*Narrative of Practical Experiments*, by Francis Phippen (1853); *De la Baguette Divinatoire*, par M. Chevreul (1854); and *Notes and Queries*, first series, x., 468, where a copious list of treatises on the divining rod is given. For general readers, the interesting sketch by Mr. Baring-Gould, to which reference has already been made, will be found sufficient. *B. M.*

New Garden Plants.

Phalænopsis Esmeralda, *n. sp.**

A lovely gem, bearing rich spikes of amethyst-coloured brilliant blossoms, "showing from fifteen to twenty flowers." I hope to be able to say more about this pretty plant by-and-bye, as I am expecting more news from an excellent correspondent. The history will be given then. Let me meanwhile keep the friends of Orchids in honest curiosity. *H. G. Rchb. f.*

* Foliis oblongo-ligulatis acutis (rubro-aspersis); "pedunculo Phalænopsidum;" floribus illos P. equestris, Rchb., f., subæquantibus; sepalis oblongis obtusis; tepalis subæqualibus; labelli ungue utrinque medio ligula lineari obtuse porrecta parva; antice lamella depressa tricrenata; lamina ipsa trifida, lacinjis lateralibus divaricatis oblongis, lamina media ligulata obtuse acuta porrecta angustiori, plica transversa in disco ante basin; androclinio postice cucullato; rostello ornithorrhyncho; polliniis quaternis liberis.

Utricularia Endresii, *n. sp.**

It is well known that the sphere of Orchids as understood by amateurs is not quite the same as that of botanists. Some amateurs include among the bloodthirsty carnassiers the Dionæas, Droseras, Sarraceniads, Darlingtonias, Nepenthes, &c. We expect that poor little Cephalotus and Aldrovandra will soon be tried for their tigerhood, and we would suggest that the first would like some mutton-chops, the second some canary-bird steaks. Beware, then, ye sheep! There are also, *per contra*, some true Genera Orchidearum excluded from the list. I remember well that one of the most celebrated collectors snubbed me for asking for Vanillas. "Vanillas!" he said. "Vanillas are nothing in the world but Piperaceæ, differing in their aroma and by their having the seeds inside of the pod, while they are outside in Piper." The same gentleman, whose morphology was rather advanced, used to show his guests some Mahonias as the mother-plants of Mahogany timber, and a Cassia tomentosa as the useful plant giving Cinnamon Bark! After having explained these differing views about systematic botany, I hope to be excused for speaking about a Lentibulariaceous Orchid—an Utricularia. The plant is very near the now well-known Utricularia alpina of Linnæus (now usually called U. montana, Jacq.). Having, however, seen several living plants of Utricularia Endresii side by side with those of the U. alpina; having at my command numerous specimens of both; having, moreover, lately looked over the rich Kew treasures, I feel quite satisfied that Mr. Endres, the excellent, keen and persevering observer, is fully right when speaking of the two as quite distinct. I have also addressed myself to a very high authority, Professor Oliver, who was kind enough to interrupt his numerous official work in order to compare the plants, and he admitted without reluctance the two as quite distinct. A certain doubt is left as to the Utricularia unifolia of Ruiz and Pavon, that goes even now through the monographs like Banquo's Ghost. The poor creature even now is in want of its corolla. Yet our plant has more than one leaf and more than one flower. If we compare it to Utricularia alpina, L. (montana, Jacq.), we see it has much thinner and smaller flowers, the calyx is rose-coloured, shorter, and broader. The spur is much shorter, and the lip has the chief peculiarity of showing on each side before getting cuneate a projecting angle. The colour, too, is said to be intermediate between the colour of the flowers of Comparettia falcata and those of Vanda cœrulea. It grows at 2000 feet altitude in Costa Rica, in woods, on trunks, and on the soil at rather dry stations, and loses all its leaves during the dry season. That is never done by U. alpina (montana), whose leaves are far more fleshy, larger, and glaucous. That species grows at 4000 feet, in damp woods. The pretty plant was collected by Señor Endres. The very accurate and acute observations I have the pleasure to give to your readers are all his, and afford an illustration of what kind of a collector this gentleman is. This plant is dedicated to him as one more token of my high consideration and admiration. I saw the plant lately in full profusion of flower-buds at the Royal Exotic Nursery of Messrs. Veitch. *H. G. Rchb. f.*

* Radicibus ex tuberculis oblongis pedicellatis fibrillisque filiformibus; foliis radicalibus petiolatis cuneato-lanceolatis acutis, membranaceis, retinerviis; pedunculo erecto usque quinque-floro (in planta culta unl, in planta spontanea bitlora); bracteis ligulatis obtusis ovaria pedicellata usque dimidio æquantibus; bracteolis linearibus acutis; calycis sepalis transverse ovatis obtusis; corollæ labio superiori subtrilobo retusiusculo transverso ciliato, labio inferiori plus dimidio majori transverse reniformis antice trilobo; postice utrinque angulato limbo ciliato; palato prominulo, calcari arcuato acuminato labio subduplo breviori.—Sepala albido carnea.; "corolla coloris medii inter illum Comparettiæ falcatæ ac Vandæ cœruleæ."—Utricularia alpina, Veitch Cat., nec L.

BRITISH GARDENERS.—V.

Archibald Fowler.

Mr. Archibald Fowler, of Castle Kennedy, was born towards the close of 1816, at Gilmore Hill, near Glasgow, then a gentleman's place—the property of Robert Bogle, Esq., now the site of the magnificent new college. There his father worked the small farm for nearly half a century. Gilmore Hill was then and for long afterwards considered one of the prettiest and best kept places about Glasgow, famed for its well-planned, well-kept, and productive gardens; and the early association with this place had, in all probability, something to do with Mr. Fowler's choice of gardening as a profession.

After attending the parish school at Partick for about seven years, and afterwards a higher class school for one year, Mr. Fowler commenced his horticultural career in the Royal Botanic Garden, Glasgow, in November, 1832, under the late able and accomplished curator, Mr. Stewart Murray. Soon after he commenced work the worthy curator presented him, in common with all the other apprentices, with a large ruled book, which he was given to understand he would be expected to fill with names of plants, during the currency of his apprenticeship. The first page presented a set of rather stringent rules, one of which was to the effect that he was to enter in this book as many names as he could remember every month, and to be examined as to his knowledge of them on pay nights, and if the examination did not prove satisfactory he was to receive no pay. The former part of the rule was occasionally, and the latter never, carried out; but when the examinations did take place, pungent remarks were generally appended to the lists of plants—either complimentary or the reverse, as the students merited, and their progress in writing was also freely criticised. All this had a favourable tendency on the young men, and induced them to study well at a time which, if left to themselves, would in most cases have been misspent. At this period, too, Mr. Fowler had an opportunity of acquiring some knowledge of the propagation of plants, and their culture both under glass and out-of-doors. The apprentices had also the great privilege of attending every alternate day Dr., afterwards Sir William Hooker's annual course of extremely popular botanical lectures, which he delivered to crowded classes in the hall of the Botanic Garden.

At that time the Glasgow Botanic Garden was much celebrated for its rich and extensive collection of plants. Its indefatigable curator, as well as Sir William Hooker's connection with it, had doubtless much to do with this. Seeds and new and unknown plants poured into it from all parts of the world then open to Europeans. Douglas and Drummond had shortly before been collecting and sending home from the New World—which had then only been partially explored—many of its richest vegetable treasures. Not a few of these and other new plants flowered for the first time in the Glasgow Botanic Garden. Watching these novelties during all their stages of growth, up to the period of inflorescence, gave a zest to the study of plants which can never be forgotten.

In the winter evenings a night school was generally organised for three nights in the week. Practical geometry, plant and plan drawing, mathematics, land surveying, &c., were taught. The apprentices had to pay ten guineas for apprentice fee, and had 5*s.* per week of wages the first year, 6*s.* per week the second, and 7*s.* per week the third. The journeymen had 8*s.* per week, with bothy and firing.

A few months after finishing his apprenticeship (in the spring of 1836) Mr. Fowler entered on an engagement at Cadden House, near Glasgow, as a journeyman gardener, for nearly one year, in the latter part of which he was promoted to the charge of the forcing houses. Mr. William Gowens was the head gardener, and he had the reputation of being a good Grape grower.

"Early in the following spring (1837)," writes Mr. Fowler, "I made an engagement with Mr. Duncan M'Naughten to act under him as foreman, in the gardens of Lord Cloncurry, at Lyons, Co. Kildare, Ireland. Mr. M'Naughten was then in the prime of life, but has long since passed away. He had received his early training in Scotland, and afterwards had lived in some of the best places in England. He was a most enthusiastic horticulturist, full of energy, and had only been a few years at Lyons when I entered on my engagement with him. In the interval he had metamorphosed the place, bringing it up to and surpassing most of the places in the vicinity. Pines, Vines, Peaches, and Melons, were all well grown; vegetables and flowers were largely forced during the winter and spring months; stove and greenhouse plants were also grown to a moderate extent; and flower gardening was done in first-class style for the period. I am not sure but that I there and then saw about 2 acres of a flower-garden as rich in colour as I have ever seen since; doubtless the materials were different from those generally used now-a-days—somewhat coarser it may be—less dressy, less uniform, but not less pleasing and effective.

"Mr. M'Naughten was great as a fruit-grower; the soil of his garden was composed of a strong heavy loam, indifferently drained; its tendency was to produce strong growths of wood, but indifferent fruit crops. Root pruning, thorough draining, keeping the roots near the surface, and fresh soil, were his never-failing remedies.

"At this period of my life I felt it a matter of considerable importance to be under the training of such a man, but there was at least one serious drawback—if not to my happiness, at least to my personal comfort—the bothy; and I shall ever remember the short coughs and "stikit" apologies with which my worthy master introduced me to it. It was a lean-to, against the north side of the north wall of the kitchen garden, 10 or 12 feet in length by about 8 feet in breadth, with an earthen floor below and only the slates above, the inside walls unplastered; a small window without a frame, set in lime, let in some light; the door was low and narrow, minus about 1 foot at the bottom, which in the course of several generations had gradually decayed. The table was formed of a few pieces of deal board, nailed together by two cross bars of the same material, hinged to the back wall on one side, and when in use

supported by one foot, also moving on a hinge; the seats were stumps of trees, a fire-place near one corner, but no grate in it, the remainder of the scant furniture made to correspond. I very soon gave free expression to my dissatisfaction with it; I protested—I threatened to leave, but none of the powers that be could understand me, except my master, who was powerless. 'They said it was as good as any in the neighbourhood; nobody had ever complained of it before.' Men were plenty, good places were scarce. I submitted, and occupied it till November, 1838, when I left it as I found it.

"My next engagement was with Mr. John McNaughten, father of my late worthy chief, to go as foreman to Edmonstone House, near Edinburgh. Mr. McNaughten was well-known amongst Scotch gardeners about half a century ago, and at one time stood high in his profession. At the time I entered on my engagement with him he was far advanced in life, and had the charge of the farm as well as the garden. Under these circumstances, I was allowed to do very much as I liked with the garden, and for the first time had an opportunity of acting very much on my own judgment.

"In former years my master had been a keen and very successful competitor at the Edinburgh shows, which were then famous. The old spirit was still in him, but younger men had arisen and occupied his place, notwithstanding which he liked to 'fight his battles o'er again,' which he often did, in my hearing, with great gusto and undiminished enjoyment. Long, however, before my connection with Edmonstone, the gardens, although still good, had somewhat 'fallen from their former high estate,' and consequently were 'less known to fame.' While I was there, if anything really good was produced, "try and keep it for the show" was my invariable instruction.

"On one occasion, either in the autumn of 1839 or 1840, if I remember right, a special prize was offered for the best dish of Mushrooms, and as Edmonstone once had some reputation for its fine Mushrooms, the fire of competition was once more kindled in the old man's breast. An unusual number of beds were set going in the Mushroom-house, to be in at the proper time; dung was prepared, and a number of large frames were made up with it outside, and in due course spawned, soiled, and covered with hay-bands, &c., each of the young gardeners being told off to take a special charge, and a premium promised to the most successful. As the period of the show approached, all was anxiety, but when it came round the result was, to say the least, disappointing.

"The Melon-pits at Edmonstone were in those days neat and model pits. They were partly sunk beneath the ground, and so planned that the linings were entirely out of sight. They stood on brick pillars, which carried large freestone flags; fermenting material was placed betwixt the pillars and below the flags, and a thin layer of dung above the flags, and covered with soil to grow the Melons. The crop had been early ripe, the dung above the flags was spawned, the soil reduced, but the result in the Melon-pit was as described above. A day or two before the show, however, some of the men had been employed removing the linings and clearing out the old fermenting materials below the pits, which had shrunk into small space. In doing so, the men discovered that the roof or underside of the flagstones was covered at the joints with large Mushrooms, growing head down, and in the greatest perfection for exhibition. They were of extraordinary size, the equal of which I have not since seen. A dish of the best was in due course selected. I often recal to memory the lively gesticulations and happy face of the old veteran when his attention was first directed to them. Of course, at the show they had the 1st prize awarded to them, but Mr. McNaughten did not that day, nor for long after, communicate their history to his inquisitive rivals. At Martinmas, 1840, I left Edmonstone, and immediately entered on my present charge.

"A few months before, General Sir John Dalrymple, Bart., of Oxenford Castle, had succeeded to the Earldom of Stair and the Wigtonshire estates. The previous Earl was mostly non-resident, and took little interest in the place; consequently, the gardens and grounds were for a long period literally allowed to run wild. Soon after arriving here, on walking round I found the gardens crowded with old standard fruit trees, mostly unhealthy; the wall trees had grown from the walls like standards, the walls carried a fine crop of Ferns on the sides and on the top, while numerous Ash and other seedling forest trees, some of which were as thick as a man's leg, had established themselves. What had once been a fine range of forcing-houses stood with half the glass out, and were otherwise very much dilapidated. The Vines inside had been grown without fire, and were tied up to the roof like sheaves of Wheat.

"The pleasure-grounds of Castle Kennedy, then extending to about 70 acres, had been laid out by Marshal Stair, about a century before, in the ancient style of gardening. Most of the old trees had lately been cut down and sold; the quaint old grass terraces all but destroyed by cattle being allowed to graze on them; the fine lawns and avenues were grown over with Whins, Broom, and seedling forest trees; in short, a line could scarcely anywhere be traced, and neglect was everywhere apparent. This was a state of things which could not be long tolerated by the new proprietor. I was at once instructed to begin by putting the gardens in good order, and immediately set about getting the hothouses and walls repaired, and the fruit trees thinned out and gradually renewed, &c. In a year or two I discovered that the Vines were in a most unsatisfactory state, and that they had long been the bane of my predecessors, and that although mulched and manured liberally and otherwise properly attended to, the clusters of berries continued small, and shanking invariably set in as the fruit approached maturity. There was a considerable demand for fruit, which I was expected to supply, and this made me cautious about destroying the old Vines, the more so as new houses were contemplated. I commenced by lifting the roots inside the one year and outside the next, adding a portion of new soil, which told favourably while they remained in it, but I found they soon left it, and penetrated into the subsoil, and shanking once more set in.

"After a series of experiments with Vine roots about this time, I was much struck with the tendency which they exhibited to leave the surface soil, however good, and in considerable numbers penetrate the subsoil when left to the freedom of their own will, and thus sinning against themselves by absorbing unwholesome food, as seen in its effects upon the fruit. I was also surprised to observe that when Vines were planted inside a vinery, with perfect freedom to go out, they were soon found outside in the proportion of six to one; plainly teaching that Vines grown under glass, and ripening crops at ordinary seasons, when planted inside, which should generally be done, ought to be allowed to run outside—I presume because the soil is sweeter than inside, on account of shade and drip from the Vines. All this means, that to grow Vines for any length of time successfully, where the subsoil is uncongenial, the borders should be concreted or otherwise paved, so as to keep the Vine roots inside the made border, and that a deep border is preferable to a broad one, because less liable to suffer from drought.

"I also observed that in a thoroughly well-drained border, neither under nor over done, other conditions being favourable, the Vine grew with great vigour during the warmest period of the season, and that root-action started earlier and continued later than in an imperfectly drained border. I also noted that the Vines did best in very wet seasons in such borders, particularly if the rain fell in abundance during the time the wood was forming and the fruit swelling. Moreover, I could not help reflecting that there was something seriously at fault in our management, seeing the great difference of temperature that we caused to exist betwixt the root climate outside and the climate inside which surrounds the leaves and branches. In wet northern localities this is much more apparent than in more southern and warmer districts.

"Unfortunately, this problem has not yet been satisfactorily solved, although it has arrested the attention of many; but some progress has been made. Heated chambers, hot-water pipes, flues, &c., have been introduced in connection with the outside borders, but with doubtful results, owing to counteracting causes. What I have found to answer best, and what I have long recommended, is a moderately-drained, deep border, with openings outside, communicating with the surface inside, and so placed as to cause a slow current to pass through the draining material, where it parts with some of its caloric; and this raises the temperature of the border a few degrees during the growing season. This I first tried on the old vineries at Castle Kennedy in 1844, and again on the new ones, which commenced to be erected in 1858, and have since adopted at numerous other places. The advantage does not appear to me to lie so much in the slightly increased temperature during the warmest part of the summer, as in the earlier and later parts of our short growing season, inducing, from increased temperature at these periods, root action at the time it is so much wanted to support and carry on the growths at the early part of the season, and mature the wood and fruit buds at the latter part of it, which cannot be done unless the roots are kept active.

"In 1841, the year after my connection with this place commenced, it was decided by the then Earl of Stair, after much consideration, to remodel Castle Kennedy, keeping up all the old quaint grass terraces, and continuing the ancient style of gardening—modifying it to a limited extent to suit modern ideas as far as the peninsula or old Castle Kennedy was concerned, and to form a park beyond the lakes which surround Castle Kennedy. The late Mr. J. C. Loudon was at this time consulted; but only made one visit, which extended over nearly a fortnight, when I had the pleasure of making the acquaintance of this remarkable man, and hear him at great length expound his views as to the capabilities of the place, and what should be done to improve it. He had a plan for part of the grounds made when here, which has not since been put in execution.

"Although at first engaged only to manage the gardens, I was soon called upon to extend my sphere of labour, and for nearly the last thirty-four years have, under the direction of, and in conjunction with the former and present Earls of Stair, taken an active part in remodelling Castle Kennedy, planning, forming, and planting the Pinetum, laying-out the park, approaches, ground-work, flower gardens, &c., in connection with the new mansion-house—Lochinch—which stands to the north of Castle Kennedy, and near the centre of the park. I have had during that long period the privilege to serve two noblemen, alike distinguished for their urbanity, liberality, and love of gardening.

"I have occasionally been consulted about similar works elsewhere, and sometimes have undertaken the laying-out of new gardens, the most important of which is Glamis Castle Gardens, Forfar, for which, at the request of the Earl of Strathmore, I prepared plans of the forcing, fruit, kitchen, and flower gardens, as also the Pinetum and surroundings, and superintended their execution.

"At a period when almost every authority on the subject was condemning grafted Conifers, we had nearly 20 acres of ground to fill, and a limited allowance to purchase plants with, which would not go far in purchasing when most of the newer sorts cost a guinea or upwards each. Unless I propagated the finer and rarer sorts by grafting—for I could not propagate many of them any other way—much of the ground must remain unplanted. Reasoning from analogy, I could not discover, if a suitable stock was chosen, and the operation properly performed, how a grafted Conifer would not grow as well as a grafted fruit or ornamental tree. I persevered in the face of much opposition, and grafted and planted by the thousand. Now, many of the finest specimens are grafted plants, from 30 to 40 feet in height. I would say to all who possess a rare Conifer, which they cannot get seed of, graft by all means; and by-and-by these grafted trees, if adapted to our climate, will ripen seeds in abundance, as not a few of the grafted Conifers here are now doing. This leads me to give my experience of a still more important matter—seedling Conifers, raised from home-grown seed; which I think, without sufficient experience, has been unjustly condemned.

"My own observation has long since led me to conclude that, if the seeds are saved from healthy trees, it will be impossible to discover from the seedlings whether the seed has been got from home-grown or foreign trees. One thing can now be demonstrated—that seedling Conifers, of numerous species, raised here and elsewhere from home-grown seed, are as healthy as it is possible for seedlings to be, not a few of which are surpassing for vigour the common forest trees amongst which they are planted, and to all appearance are as much at home as our native species."

We cannot allow this notice of so worthy and estimable a man to close without thanking him for his many valuable contributions to our columns, the last of which was the excellent series of articles on Conifers which we published in 1872. Nor can we omit

to mention that to Mr. Fowler is due the credit of inventing, about 1843, the travelling apparatus for delivering the grass from mowing machines, the right to patent and use which he many years afterwards made over to Messrs. Shanks, of Arbroath. The forcing houses at Glamis, to which allusion has been made above, are, it is only fair to state, some of the most perfect and complete we have ever fallen in with. Mr. Fowler has, on several occasions, exhibited clusters of Grapes of remarkable size, amongst them White Nice, weighing 17 lb. 2 oz., exhibited in Edinburgh in 1867.

NOTES ON THE ASH.

Strutt has well remarked in his *Sylva Britannica*, that "Perhaps there is no country in the world where an admiration of fine trees is so genuinely felt, or so generally diffused through all ranks, as in England." A consciousness of this emboldens me to continue my remarks upon forest trees, particularly those that have attained to great size or age, or present a picturesque aspect in decay. Of all British forest trees the Ash (Fraxinus excelsior) is one of the stateliest in the spread of its boughs and branches when left in a state of Nature, and standing alone in unrivalled supremacy. My sketch (fig. 120), which represents an Ash tree which stood in the grounds at Hope End, near Ledbury, Herefordshire, will give a good idea of the tree in its best aspect. Its girth round the base was very nearly 40 feet, and its height about 80 feet. There is a lightness in the foliage of the Ash, and the gracefulness of its bending branches, that gives it a character very different to that of the Oak, even when its bulk is considerable, and thus Gilpin has remarked:—"I have sometimes heard the Oak called the Hercules of the forest, and the Ash the Venus. The

Fig. 117.—Superstitious Old Ash, Birts Morton, Worcestershire.

Fig. 116.—Old Ash Tree near the Mouth of the Stour, below Stratford-on-Avon.

comparison is not amiss, for the Oak joins the idea of strength to beauty, while the Ash rather joins the ideas of beauty and elegance." But in old age this is very different; for, shorn of its boughs, and with a gaping trunk, the Ash becomes a dis-sightly object, and penetrated by the larva of the goat-moth, or bored into by the woodpecker, often looks as if it had been exposed to the fire of an invading army. Too often, also, it is submitted to the pollarding process, which at once reduces it to bare poles, and it then, if still remaining alive, throws out branches that make strange and hideous forms, while the trunk, half disbarked, puts on an appearance in the moonlight startling to benighted wanderers. I remember once meeting with a pollard Ash in Dean Forest, which, having been mercilessly hacked, had so renewed itself with dwarf branches as to look very much like a rider on a rough pony. I could have given the sketch of this, but it would hardly have been thought a possible representation. Yet old boles of Ash when not attacked by the larvæ of insects continue firm for many years, and present a solidity that defies the tempests of winter. I have marked an aged didymous tree of this description still standing in Monmouthshire, that must be many centuries old, (see fig. 118), for a footpath now goes between the boles. This is a vegetable ruin, fissured and singularly distorted, so that its age can only be a matter of conjecture, and indeed little seems to be known as to the age to which the Ash may attain. The only certain reference that I can find is Strutt's account of the Ash at Carnock, Stirlingshire, which was planted "about the year 1596," and which is now, therefore, 278 years old. It was when Strutt described it, in 1830, "in full vigour and beauty, combining airy grace in the lightness of its foliage and the playful ramifications of its smaller branches, with solidity and strength in its silvery stem and principal arms." Its girth at the ground was 31 feet, and 19 feet 3 inches at 5 feet from the base. If, then, an Ash may be in full vigour at nearly 300 years old, we may with justice, accidents and maltreatment excepted, assign another 300 years for its decline and decay, so that decayed and hollow Ash boles may have survived the mutations of 600 years. The tree I have depicted, now standing by the side of the River Teme, near Leigh, Worcestershire (see fig. 119), hollow, nearly broken into two portions, wenny, and still vigorous, though its head has been pollarded, may probably have attained that age. A large hollow and riven Ash stands in a field at Forthampton, Gloucestershire (see fig. 117), which is 35 feet round the base, and has numerous spreading lofty branches, though these are now nearly bereft of foliage, which marks the great age of the tree. I have given a sketch of an old hollow Ash bole, standing near the mouth of the river Stour, near Stratford-on-Avon (fig. 116), 18 feet in girth, which, though hollow and denuded of its boughs, stands so stiff, and has such a tough bark, that if unfelled, it may double its age, whatever that may be.

Several very large and fine Ash trees have been described by writers on forests and forest scenery, and the Rev. C. A. Johns mentions the "Cury Great Tree," 6 miles from the Lizard Point, Cornwall, as "the largest forest tree in the extreme southern promontory of England." It is 27 feet in girth near the ground, extends its bulky arms over an open space whose diameter is 70 feet, and is held in great veneration by the inhabitants of the surrounding district. It has now become hollow. But one of the most curious Ash trees is that of Donirey, near Clare, in the county of Galway, Ireland, mentioned by Phillips in his *Sylva Florifera*, which "at 4 feet from the ground measures 42 feet in circumference, and at 6 feet high 30 feet. The trunk has long been quite hollow, and a little school was kept in it. There were a few branches remaining in 1808, which were fresh and vigorous." The largest Ash that appears ever to have been noticed in Britain is one that formerly stood in the churchyard of Lochaber, in Scotland, which the late Dr. Walker measured when the tree was in a dead state. It then measured, he says, 58 feet in circumference at 5 feet from the surface of the ground. This grand tree was killed by fire being applied to it in 1746 by the Hanoverian soldiery, as standing in the burial place of Lochiel's family.

The Ash is a diœcious tree, and its dark purple clusters of flowers appear conspicuously before the leaves. The pistilliferous flowers are succeeded by pendulous seed vessels, which bear the name of "keys," and these, unless blown away, remain upon the tree until the following spring, and make a characteristic appearance. The keys, forming what botanists call a "samara," being winged, are blown about to considerable distances, and vegetate on rocks, walls, and ruined towers. They even get on the

Fig. 119.—Didymous Pollard Ash, Teme Side, Leigh, Worcestershire. (Girth, 20 ft.)

swollen heads of decaying Willows, and make growth there, throwing down roots along the trunk of the Willow till they reach the ground. Ultimately a bole is formed, which at last breaks through the case of the Willow as an independent tree. Dr. Plot mentions such a circumstance, which Gilpin quotes as "rather extraordinary," but I have noticed a similar case by the side of a brook at Wingmore, Gloucestershire, and it is not very uncommon where old lopped Willows abound in the neighbourhood of Ash trees. In like manner the Ash more than any other tree gets in the space within enclosed altar tombs in churchyards, as I have several times noticed, and in its growth breaks up the monuments that were to endure for ever.

As my notes relate chiefly to old trees, I shall leave the uses of the Ash to practical economical writers, and only take a leaf from its superstitions. The Scandinavians held the Ash in such high veneration that they pretended that man was originally formed from it; and according to the Edda, the court of the gods was held beneath a miraculous Ash called Yggdrasil, whose branches covered the surface of the world, whose summit touched the heavens, whilst its roots descended to the regions of Pluto. Serpents twined round

Fig. 118.—Ruinous Ash Trees, with a Footpath through them, Monmouthshire.

Fig. 120.—MAGNIFICENT ASH, NEAR HOPE END, HEREFORDSHIRE.

its roots, and an eagle was constantly perched on the top of the tree to observe all things. From very early times there was a superstition as to the antipathy of serpents to the Ash. It was said that serpents had such an antipathy to it that they would not even approach within its shadow; and Pliny asserts that if a fire and a serpent be surrounded by Ash boughs, the serpent will sooner run into the fire than into the boughs.

The "folk-lore" in Britain respecting the Ash is of a more homely nature than the Scandinavian, but justifies what Davies says in his *Celtic Researches*, that "we can trace in the figures of speech, in the terms, the customs, traditions, and superstitions of antiquity (both in sacred and profane writers), the vestiges of symbols adopted from various kinds of trees, and communicating ideas by parts of those trees." The Ash bears pinnated leaves, and trees thus circumstanced have often been accounted magical or protective, as the Elder and the Mountain Ash. In the ordinary growth of the pinnate leaf it bears an odd leaflet at the extremity, but this is sometimes absent; and then to pluck the even leaf, according to the vulgar belief, brings "luck or a lover," and it is cherished accordingly. It is an old tradition in Worcestershire that the branch of a maiden Ash cut fresh from the tree was used formerly as an infallible cure for the ague; but the drainage of bogs and marshes has rendered a resort to this specific unnecessary in the present day. Gilbert White mentions a cruel superstitious custom that used to prevail among rustics, and which I have myself heard of as in use within the memory of old people, of boring a hole in an Ash tree, and there inserting a shrew mouse. A few strokes with a branch taken from a tree so shrewed by this process was accounted a sovereign remedy against cramps and lameness in cattle, which the harmless shrew mouse was thought to occasion. But I believe that the shrew Ash now only exists in memory.

But there is another idea that, derived from ancient times, still lingers, and that is the efficacy of passing through the disrupted portions of an Ash tree. Distempered or ricketty children are supposed to be cured by passing through such a fissure; and married ladies desiring offspring, with which they have not been hitherto blessed, after making the passage through the tree receive the advantage they desire. Of course this is sometimes done jocularly, and I knew an instance of the success of such an adventure, though I dare say the object would have been obtained without this ceremony. Ashes in decay are very subject to split up, and I have depicted one I saw standing at Birts Morton, Worcestershire, which was peculiarly adapted for the custom that I have mentioned. (See fig. 117.)

There is another rustic saying, which has been often quoted, and is believed in by many persons, even in this age of observation, though it is certainly a vulgar error. The adage has been turned into rhyme, and is expressive of a supposed wet or dry summer, according as the Ash shows leafage before the Oak, or otherwise:—

> "If the Oak's before the Ash,
> There will only be a splash;
> But, if the Ash is before the Oak,
> There's sure to be a heavy soak."

After an experience extending over many years, however, I can say with truth, that I never knew a season in which the Ash was generally in leaf before the Oak, or even in full foliage at the same time; and all that can be said in support of the old rustic saw is, that a healthy Ash in a very favourable situation may show expanding leaves before a stunted Oak occupying an unfavourable position, though at the same time the great majority of Oaks will be showing foliage, and almost every Ash only exhibiting bare boughs. No doubt when a high temperature prevails the Ash would then exhibit foliage earlier than usual, but so with all other trees.

Sir Thomas Dick-Lauder, in his edition of Gilpin's *Forest Scenery*, without reference to the rustic idea, justly says, "The foliage of the Ash not only falls suddenly with the first frost, but it has also the disadvantage of being very late in getting into leaf in spring. Ashes, therefore, should be sparingly planted around a gentleman's residence, to avoid the risk of their giving to it a cold and late appearance at a season when all Nature should smile." Gilpin himself objects to the early nakedness of the Ash in autumn, on which account, he says, it "falls under the displeasure of the picturesque eye. Its leaf is much tenderer than that of the Oak, and sooner receives impression from the winds and frost. Instead of contributing its tint, therefore, in the wane of the year among the many-coloured offspring of the woods, it shrinks from the blast, drops its leaf, and in each scene where it predominates leaves wide blanks of desolated boughs, amidst foliage yet fresh and verdant." It may be said, however, that on dry barren banks and in rocky dingles not suited to other trees, it will do well, though its growth is slow, but its long fibrous roots will spread to a great distance along the ground. There they rise firm and hard above the surface, which has given rise to a proverb known in some parts of England—"May your footfall be by the root of an Ash;" that is, let your footing be as firm as Ash roots, in whatever you undertake.

With this tough adage I may close my Ashen memoranda, referring to old Evelyn for the numerous uses he assigns to the tree when converted into timber, for as he says, "the use of Ash is, next to Oak itself, one of the most universal." *Edwin Lees, F.L.S., Green Hill Summit, Worcester, November 2.*

Fig. 121.—OLD ASH, COOK'S HILL, NORTHAMPTON.

THE OLD WALLS AT KEW.

(*Continued from p.* 528.)

To-day I begin with an interesting trailing or creeping shrub, the Yellow Sarsaparilla or Moonseed, Menispermum canadense. It is, perhaps, worth while stopping to explain why I have not used the term climber, generally indiscriminately applied to all plants requiring support to keep them from the ground. It is for the reason that it is well to distinguish in descriptions the means by which a plant climbs. Thus, we have twiners to the left, or in the same direction as the sun takes, as the Black Bryony and the Hop; and twiners to the right, or against the course of the sun, as the Scarlet Runner Bean and major Convolvulus. Then there are plants which climb by means of spirally twisted or hooked axillary or extra-axillary tendrils, like the Red Bryony of our hedgerows, the Cucumber-plant and Passion-flowers; others, again, by means of a twist, and the petiole or leaf-stalk, as Tropæolum, Clematis, &c.; and others by means of adventitious rootlets on the young shoots,

as the Ivy: these are all true climbers. Another set of plants with slender stems creep on the ground, or trail over erect-growing plants; such are the Bramble, many of the Roses, and, apparently, the Yellow Sarsaparilla. [It certainly has twining stems. Eds.] There are several other very curious provisions for climbing amongst plants, but those cited are all familiar. Menispermum canadense is a deciduous shrub, with large heart-shaped or kidney-shaped, entire or lobed peltate leaves; that is, having the attachment of the stalk within the margin of the blade of the leaf. As the specific name implies, it is a native of North America, but it possesses an advantage over many deciduous plants from that country in retaining its foliage until late in the autumn. It is worthy of remark, that many North American trees shed their foliage earlier than allied European species. The flowers of the Yellow Sarsaparilla, and also of all the plants of the family (Menispermaceæ) to which it belongs, are small and usually inconspicuous, and frequently the males and females are borne by separate plants. Whether our plant is truly diœcious or not I have not been able to ascertain, possibly it may be polygamously diœcious—that is, with male, female, or hermaphrodite flowers on the same or different plants. Be that as it may, it fruits in this country, and fruit may now be seen at Kew in abundance on the plant against the front of No. 1 museum: aspect nearly south-west. It does not appear to fruit on the wall, but the plant in that position may be a male, or its not fruiting may be due to its position on the east side of the wall. The fruit is produced in clusters, and is of a deep purple-black, powdered over with a glaucous bloom, like black Grapes. The drupes (one-seeded berries) are nearly as large as those of the Black Cluster Grape. The bunches are large, 9 inches or more long, and loose or compact, according to the number of flowers fertilised and of drupes matured. The fruit is an instructive one to examine. Although so much like small Grapes in outward appearance, these clusters are very different in composition and the result of a wholly different structure. First of all, let me define the difference between a drupe and a berry. A drupe is a fleshy fruit, containing a stone enclosing a single seed—for example, Cherry, Peach, and Sloe. A berry is a fleshy fruit containing several seeds, which does not open to release the seeds, but frees them in decaying, like the Grape and Gooseberry. Occasionally, however, from abortion, a Grape berry contains only one, or even no perfectly formed seed. The type of drupe mentioned above is solitary—that is, only one from each separate flower—but in our plant we have from one to four developed and forming the fruit of each flower, and for the sake of distinction these are better termed drupelets. In those I have been able to examine there were usually two developed, sometimes three, but rarely only one. I have already devoted considerable space to this plant, but there are still several interesting points in the structure presented by the members of this family, of which there is no European representative. In Menispermum itself the sepals and petals are arranged in two or three series each, and the stamens are four-celled. The most important character, however, resides in the drupelets of the fruit; and this genus being amongst the first of its family known, received a name equally applicable to several others. Menispermum is from μήνη, the moon, and σπέρμα, a seed, in allusion to the crescent-shaped seed. From the growth of the drupelets being almost entirely one-sided, the scar of the style in the ripe drupelets will be found very near the base on the side next to the axis of the flower. This character in some degree is common to all of the family. The seed of Menispermum is tolerably large, and well adapted for showing the embryo in position. The seed is of the form of a horse-shoe, or rather of the bottom of a horse's hoof with the shoe attached, and the embryo is curved around within the raised part resembling the shoe, with the radicle or rootlet pointing in the exact direction of the scar of the style.

Porcher says that this plant is used by physicians, and in domestic practice, as a substitute for Sarsaparilla in scrofulous and cutaneous affections.

There is a closely allied species from North-east Asia, but this appears to be confined to the eastern half of North America.

There is another member of this family on the walls, namely, Cocculus carolinianus, also from North America. It is similar in habit to the last, but has smaller leaves. It bore formerly the name of Wendlandia populifolia. In its botanical character it differs mainly from Menispermum in only having six stamens, whereas the latter has from twelve to twenty-four. I am not aware that it has fruited in this country, but its drupelets are described as red.

The purple and yellow flowers of the Bittersweet, so common in hedgerows, are familiar, doubtless, to most of my readers, and through that I introduce another species of the same genus, namely, Solanum jasminoides. This has flowers about the size of those of the Potato, Solanum tuberosum. The corolla is white or faintly tinged with blue, and the large anthers yellow. The fruit I have not seen. It is extremely floriferous, producing a profusion of its pretty flowers all through the summer and early autumn, which is in itself a sufficient recommendation. It is a native of South America, very much resembling the Bittersweet in habit. There is a coloured plate of it in the *Botanical Register*, vol. xxxiii., t. 33. I may add that the genus Solanum is one of the largest known, embracing several hundred species, dispersed all over the world excepting the coldest parts. It is distinguished from all other Solanaceæ by its anthers opening at the tip by two pores.

We will now return to North America, and view its magnificent Magnolias, represented on the walls by the gorgeous M. grandiflora. The affinities of the Magnoliaceæ are with the Ranunculaceæ and the Menispermaceæ, but there are two remarkable characters of the genus Magnolia that I must mention, namely, the large convolute stipules, which are very early deciduous, and the arrangement of the carpels forming the fruit on a cylindrical elongated receptacle. These carpels (follicles) split open when ripe down the dorsal or outer face, allowing the red or brown seeds to fall out, and they often hang suspended by their slender threads (funicles) for a considerable time. The Tulip tree is the most familiar member of this group, its curiously shaped leaves being sufficient to distinguish it from any other tree in cultivation. Nearly all the hardy species of Magnolia, both evergreen and deciduous, are worthy of a place in the park, and it is surprising that they are not more generally planted. The North American deciduous species have a pleasing pyramidal outline, and their foliage is of the amplest, but their flowers, although very pretty, are not nearly so showy as those of M. grandiflora. In the south and west, where this will flourish, there is nothing to surpass it as an ornamental evergreen, and nothing approaching it in the beauty of its large pure white flowers. Standing out in the open ground it is said not to bear more than 20° Fahrenheit of frost without injury, but against a wall it is seldom hurt. It was introduced about 150 years ago, and there are at least half-a-dozen varieties, differing in the size of the leaves and flowers, &c.

I shall conclude my paper with a notice of Elsholtzia, a peculiar genus of shrubs belonging to the Labiatæ, and inhabiting the mountains of India and Java, represented by E. polystachya at Kew, in flower at the present. It must not be confounded with the yellow flowered annual Eschscholtzia, which belongs to the Poppy family. Its late flowering season is perhaps its only recommendation from a horticultural point of view. The flowers are small and dull-coloured, and crowded together in long terminal spikes.

(*To be continued.*)

THE CARAPA TREE.

The *Journal Officiel* of France contains the researches of the Commission that holds its sittings in connection with the Permanent Exposition of French Colonial products. Amongst these inquiries has resulted a notice of the properties of the Carapa tree, which has particularly attracted the attention of the Marseilles soapmakers, who are well known for the excellence of the quality of the articles which they produce. The Commission recommends various experiments to be tried with the seed, some at the place where the tree is grown, and others at the different manufactories in France, and for which purpose the latter have been supplied with 20 tons weight of the seed brought direct from Guiana. The Carapa belongs to a class of which there is only one kind acclimatised in the South of France, known under the name of Melia Azedarach, the "Pride of India." This tree flourishes in Guiana, more especially in the district of Cachipoor, where may be seen vast forests of its growth. The yield consists of two crops annually; the first and most prolific gathering takes place in February, continuing to the end of June; the second in September and October being much less considerable, and producing oil of an inferior quality.

The seeds fall of themselves in the course of Nature, and in such quantities that, for many miles, the soil becomes covered with a layer of several inches in depth, and in this state they are consumed by a white worm, which appears to live wholly upon this food. When fresh-gathered, they supply upon the spot under ordinary pressure 35 per cent. of oil, of a description well suited for the manufacture of soap. The oil can likewise be adapted for the ordinary purposes of lighting in competition with other descriptions used in commerce.

The difficulties that have hitherto attended the employment of the Carapa seed in any large quantities are numerous, but not insurmountable. The chief of these difficulties arises from the rapid change which the oil undergoes, unless the seed be at once boiled at a very high temperature. The gathering ought to take place at the moment of its fall, to obviate the waste consequent upon the ravages of the white worm. It is also essential to crush the seed, an operation that involves the employment of labour, which is always scarce in Guiana, and is therefore attended with considerable expense. The more expeditious method would be to submit the shell to pressure without any previous manipulation. According to the report of the Commission, the ascertained cost of each ton of the seed gathered in Guiana amounts to between 120 and 150 francs, which does not seem a particularly high price when we take into consideration the fact that the natives cannot be relied upon to assist at the gathering. The means of transport are also difficult, with the exception of one of the rivers which flows through the interior of the colony. The boats therefore generally engaged in the transport require to be small, and with a light draught of water. Owing to the expenses incurred in addition to the freight for carriage to France as an article of commerce, it would not prove remunerative. We must, therefore, look to a large supply of Indian and Chinese Coolies for the harvesting of the Carapa seed, and the extraction of the oil in any considerable quantities upon the spot. By such means an abundant supply might be obtained at a low price; and in the anticipation of the establishment of such manufacture in the vicinity of the forests the Commission have suggested the expediting, as a first attempt, a small press on the Thomasset system. This press has already been tried with advantage, and at the time of writing this notice one of these presses was being forwarded to Cayenne. The seed intended for experimental purposes in France has been distributed amongst the different manufactories at Paris, Beaumont-le-Roger, and Rouen. *B.*

Florists' Flowers.

It is a matter for difference of opinion whether the Rose or the Show Pelargonium has the greatest attraction for visitors at the large summer exhibitions held in London. As a popular flower the Rose stands at the head of all, because so beautiful, and generally so easily cultivated; but at a great show the fine examples of Pelargoniums shown by Messrs. Nye, Ward, James, and others, are always centres of great popular interest; the visitors gaze on them with wonder, and well enough they may. One of the most floriferous of plants is the large-flowered show Pelargonium, while the beautiful colouring and symmetry of an individual blossom rivals that of many of our Orchids. Then for blooming in the conservatory and greenhouse during the summer we have no plant scarcely that can compete with it; it is a great favourite with the gardener who has to supply an unlimited quantity of cut flowers, because of the number he can obtain from a few plants.

For conservatory decoration what are known as bottoms, *i.e.*, plants of one, two, or more years old, cut back in August or September, according to the time of year in which they flowered, make the best plants. The invariable rule is to stand them out-of-doors directly they have done flowering, in order to ripen their wood, the branches being cut off for cuttings if required. The plants soon begin to make a slight growth; they are then shaken out of the pots in which they bloomed, and what the old florists used to term "disrooted," that is, some of the redundant roots are cut away, and the plants re-potted into smaller pots than those in which they flowered. A good, free, yellow loam, fibry in character, some finely-sifted well-decayed manure, a good proportion of leaf soil, and sufficient silver or river sand to keep it fairly open, makes an excellent compost for Pelargoniums. When re-potted, the plants are placed in a cold frame, as near as possible to the glass, the lights kept close, and the plants shaded during the day. Air is given each morning to keep the plants dry, and as the roots reach the sides of the pots they are gradually exposed more and more to the air. It is held by cultivators that a check from cold or otherwise at this stage would do the plants great injury, hence the care observed in the cultural process.

During October, and at the latest by the end of the month, the plants, unless they can remain in a roomy, airy pit that can be heated when required, should be placed in the greenhouse. When the plants are kept out in the damp, cold air of unheated frames too long, the leaves are apt to become affected with what is known as the spot, which does them much injury, and some plants of less robust constitution quite succumb to it. A lean-to stage in a house having a south aspect, and which is near the glass, is the best adapted for Pelargoniums; if they are grown in such numbers that a small house can be entirely given up to their culture, so much the better. Plenty of air should be given to keep the plants hardy and robust. The plants required for early flowering should be shifted into the flowering pots by the middle or end of October, or early in November, and those for successional flowering a little later; but it is well to have them all in the blooming pots by the end of November. During the

winter keep the house in which they are growing dry and well-aired, but not too cold; the plants are apt to suffer if the houses are allowed to become cold and damp. As a rule, cultivators encourage their plants to make good growth during October and November, but they rest them during December and January.

Cleanliness during the winter has much to do with the successful cultivation of the Pelargonium. Neither the large specimen plants, nor the young plants raised from cuttings in the summer should be crowded closely together; they not only become drawn, but they are apt to get infested with greenfly. Some cultivators are very particular in keeping the glass of the houses, the stage, and in fact every part clean, as well as the pots and everything about them. Winter treatment requires that the house be kept dry, and not too cold at night. Plenty of air in fine weather is indispensable, avoiding cold draughts, and if cleanliness be added, good plants will reward the grower by-and-bye, when summer dawns upon him.

In this way may be set forth the rules governing the winter treatment of the show Pelargoniums. Any one intending to commence the cultivation of this splendid flower should obtain a collection without delay. There is no difficulty in obtaining nice bushy plants in 48-pots. Let them be stopped by pinching back the shoots if they are making a vigorous growth; and as soon as they break again let them be shifted into larger pots and encouraged to grow. Cleanliness is as indispensable to small as to large plants.

Here is a selection of eighteen varieties, all of fine quality and great beauty:—Achievement (Foster), Black Prince (Foster), Blue Bell (Foster), Brigantine (Foster), Captain John (Hoyle), Charles Turner (Hoyle), Claribel (Hoyle), Duke of Edinburgh, (Hoyle), Example (Hoyle), Heroine (Foster), Lord Clyde (Foster), Maid of Honour (Foster), Mary Hoyle (Hoyle), Pollie (Foster), Royal Albert (Hoyle), Sultana (Foster), Troubadour (Foster), and William Hoyle (Hoyle). These may be termed the pick of the older flowers. Of the newer forms a foremost position must be awarded to Blue Boy (Foster), Conquest (Foster), Countess (Foster), Charles Dickens (Hoyle), Duke of Cambridge (Foster), Duchess (Foster), Favourite (Foster), Protector (Foster), Othello (Foster), Purple Gem (Foster), Ruth (Foster), and Siren (Foster),—a group of twelve splendid varieties, calculated to please the most fastidious among Pelargonium fanciers. *R. D.*

Foreign Correspondence.

The New Coffee.—The Coffea liberica has been introduced into South India. About two dozen plants of this species have been sent out from Kew to the Ootacamund Botanical Gardens, where we saw them a day or two since. It speaks well for (1) the hardiness of the plants, and (2) the admirable method of packing practised at Kew, that all the plants were, when received here, in faultless condition, both as regards health and immunity from damage. If this species of Coffee answers all the expectations formed of it, we may expect something akin to a revolution on the estates, not only of South India, but of Ceylon also. To the latter country plants have been sent—to Dr. Thwaites. As its name indicates, the plant is a native of Liberia, on the west of Africa. It is described as a plant of the highest commercial importance, being far more prolific than the old Coffea arabica, of much better flavour, and producing berries double the size of that species. Added to all these advantages is another, that will commend itself to all planters who have to lament the broken-down constitutions of so many of their trees, the break-down being the result of numberless attacks from insidious enemies,—insects, fungi, &c. The advantage we have alluded to is that of a robust constitution, a characteristic we can fully believe in after having seen how thoroughly well the plants have stood the transmission from London to the Neilgherries. Those who know the plant best assert that it can be cultivated where the ordinary Coffee will not succeed. At present we believe it is the intention of Mr. Jamieson to propagate the plants of cuttings, reserving a few of the original ones that have been applied for for one of the Planters' Associations of Wynaad. Two seedlings have been planted in the Government Gardens at Burliars, one seedling at Kulhutty, and one is to be planted in Ootacamund. If it has the hardy constitution that is boasted of it, coffee-planters will soon be able to pursue their calling at elevations about the fever-line. We have no doubt that planters who contemplate an immediate opening out of new land will direct their attention to the C. liberica, for planters are acute enough to be fully alive to the simple lesson, that the possessors of a superior article—allowing this to be so—will always have the whip-hand of their *confrères* who possess only an inferior. We regret that our information does not go further—enabling us to give the results of a trial of the coffee as it comes on the breakfast table. We can only, at the present time, call to our recollection having read somewhere, in something, than the bean when roasted has a lighter colour than the ordinary coffee, and that the taste of the infusion is equally rich and well-flavoured. *Neilgherry Courier.* [We believe that Mr. W. Bull was the first to introduce this striking variety. Eds.]

Natural History.

Bee-swarming—It may interest some of your readers to hear that a neighbour of mine in this village has to-day had a fine swarm of bees, which settled in an Apple tree. Is not this rather a rare occurrence?—*G. Brunt, Gr. to C. Dickens, Esq., Gad's Hill Place, Higham.*

Galls on the Roots of the Holly.—While hunting for Fungi under a Holly tree, I came upon the enclosed galls on what I take to be the roots of the Holly. As I had never seen them before I was curious to know the sort of creature that dwelt inside, and on cutting one through I found three or four spherical cells in one gall, each inhabited by a very healthy well-grown insect, which, on being set at liberty, behaved in so cool and self-possessed a manner that one might have supposed he (or she) had been in this outer world on a previous occasion. I naturally felt some little interest in my new friend, and thought that I should like to know by what name he is known and how he got there, and whether he would have got out if I had not come to his relief, so I send a colony, house and all, to the *Gardeners' Chronicle*, and request a little information about this hermit. *William Phillips, Shrewsbury.* [The insect is no other than Cynips aptera (fig. 122), which was supposed only to be bred on the roots of the Oak and Elm, but was

Fig. 122.—Cynips aptera.

found last year on the roots of the Deodar (see p. 19, vol. i., 1874). If it can be ascertained that the roots upon which you found the galls are really those of the Holly, the fact would be interesting. Eds.]

Law Notes.

A Dispute as to Sample.—At the Bloomsbury County Court, on the 4th inst., the case of *Evans* v. *Andrews* was heard before Mr. Judge Russell, in which the plaintiff, a market gardener, carrying on business at Ilchester, sought to recover the sum of £4 14*s.*, for Potatos supplied by the defendant's orders. The plaintiff, for whom Mr. G. Searl, solicitor, appeared, put in several letters ordering the goods, and produced the various railway receipts for their delivery, as well as payments on account, for which the sum claimed was the balance due. This was the plaintiff's case, when the defendant said the first consignment of goods was highly satisfactory, but subsequently they were so bad that his customers continually complained of them, and that on examining the remaining portion found them entirely unfit for human food. It was contended by the plaintiff that the Potatos had been improperly kept. The learned Judge said that it was the defendant's duty, if he had discovered the goods to be in the state described, to have returned them at once, but as he had kept them and made no complaint as to their soundness until after the present action was brought, he must give judgment in favour of the plaintiff for the full amount claimed, with costs.

Action against a Market Gardener by the London Street Tramways Company.—*The Company* v. *Foote.*—At the Bloomsbury County Court, on the 5th inst., this case was heard before the presiding Judge, G. Lake Russell, Esq., in which the Tramway Company sought to recover from the defendant, described as a market gardener, the sum of £3 12*s.* for damage done to one of the plaintiff's cars by the negligence of the defendant's drivers. Mr. Wright, of the firm of Wright & Nicoll, appeared for the Company, from whose opening it appeared that upon August 6 last, about 1.30 P.M., the car was opposite Delaney Street, in Camden Town Road, when he whistled in order to give notice to the defendant's cart to move out of the track of the car; the defendant's cart did so, but on doing so swerved to such an extent as to cause the accident complained of. This was the plaintiffs' case, when the defendant, being called, stated that he knew nothing personally of the accident, but called his driver, Henry Blakeman, who stated that he moved sufficiently for the car to pass, but the street being crowded with fruit-sellers and others it was with difficulty that he was able to get clear of the car. The learned Judge asked whether there was sufficient room for the car to pass, which was replied to in the affirmative, and several witnesses were called in support of this statement. The driver, being recalled, stated that his off-rein broke, which rendered his horse somewhat restive; upon hearing which the learned Judge said that, although an accident was no proof of negligence, in this case it appeared to him that there was evidence that the rein had not been sound or the accident would not have occurred. He should therefore rule in favour of the plaintiffs, and give judgment, with costs.

Notices of Books.

Batographische Abhandlungen von Dr. W. O. Focke, *aus den Abhandlungen herausgegeben vom Naturwissenschaftlichen Vereine zu Bremen*, band iv. (A Treatise on Brambles, by Dr. Focke, reprinted from the Transactions of the Natural History Society of Bremen.)

We hasten to explain the contents of this small pamphlet, because there are many, doubtless, who on reading the title will expect to hear of another regiment of new species, or a lengthy disquisition on "critical species." Not so, however; it contains the following chapters:—American Brambles, Australian Brambles, African and Atlantic Island Brambles, Russian Brambles, and a general summary of the Brambles of Asia. Rubus is one of those well defined genera whose forms are exceedingly numerous and very difficult to discriminate and reduce to order, and it is one that will tax the genius of him who sees a species in almost every slight variation, equally with him who attempts to collect certain types of variation under given specific names. No wonder, then, that the extra European forms have been somewhat neglected, especially as they are not less puzzling than our native Brambles. Take the widely distributed Rubus rosæfolius, for instance, and the numerous diverse forms referred to R. australis. If Dr. Focke had taken the same view of species entertained by some writers on European Rubi, few botanists would have had the courage to try to understand him. But he has been pretty cautious about creating new species, and we rejoice in the fact, because a genus having so extensive a range of distribution as Rubus deserves the most careful study, as it may afford some clue to the distribution of plants and the origin of species.

The total number of species admitted for America, excluding introductions, is distributed as follows:—North America, twenty-seven; Central America and West Indian Islands, twenty-one; and South America, twenty-three species. Very few of them have a wide range, and only two occur in more than one of the above divisions. There are twelve new species described, whereof four are Central and eight South American. Australia, New Zealand, and Polynesia contribute nine species, amongst which there are no new ones; but Dr. Focke takes a different view of them from other writers. Thus he holds R. Hillii, F. Muell., to be distinct from R. moluccanus, in having the central lobe of the leaf narrowed towards the base, whereas in the latter it widens downwards; and R. tiliaceus, Seem., *Flora Vitiensis*, is considered to be the true R. moluccanus. He is probably right respecting the Fijian plant, but we doubt whether he would not change his views as to the Australian form with a more extensive series of specimens before him. R. parvifolius of the *Flora Australiensis* he refers to R. triphyllus, Thbg., and says that R. parvifolius of Linnæus is nothing more than the small-leaved form figured by Rumphius. He goes on—"It is said that Linnæus afterwards gave the name parvifolius to R. triphyllus, reported from India; but because he confounded two plants there is no reason why other botanists should perpetuate the error."

Africa and the Atlantic Islands are credited with fourteen species, some of which, however, are imperfectly known, and probably belong to old species. R. Steudneri, of Schweinfurth, is not mentioned, and R. exsuccus is considered to be distinct from R. apetalus, to which Oliver refers it in the *Flora of Tropical Africa.* Fifteen species are enumerated from Russia, including three new ones. A general review of the Asiatic species, of which he does not give the number, winds up with descriptions of eight new species—six from the mountains of North India, one from China, and one from Japan. The new species are chiefly from well-known collections, numbers and other references to which are given.

This is a very interesting and useful paper, especially as nearly fifty years have elapsed since the appearance of the last enumeration of extra European Rubi.

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. JAMES FRASER, HORTICULTURAL and AGRICULTURAL VALUER and AUCTIONEER, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

SIMPSON'S RED SPIDER and THRIPS, &c., ANTIDOTE.—*Bonâ fide.* See former advertisements. Prepared by JOHN KILNER, Wortley, Sheffield.

WANTED,

ON LEASE OR OTHERWISE, WITHIN A FEW MILES OF LONDON,

A PIECE of LAND and a Good RANGE or RANGES of GLASSHOUSES,

Suitable for Fruit Growing.

Apply, stating Full Particulars, to

A. D., 16, Queen Adelaide Road, Penge, S.E.

LAND TO BE LET (about 10 acres) at Fulham, for Engineering or Manufacturing Works of any kind. Address

DELTA, St. Ives Villa, Disraeli Road, Putney, S.W.

FOR SALE, a long-established Provincial NURSERY and SEED BUSINESS. The Nursery is well stocked, is within a short distance of two Railway Stations, and is well adapted for a branch business or as a feeder to a large London or Provincial Establishment.

Address B., 142, Adrian Terrace, West Brompton, S.W.

TO BE DISPOSED OF, the WHOLE or PART of an OLD-ESTABLISHED NURSERY BUSINESS, in good working order, within easy distance of London by rail. For further particulars apply to

HORTICULTURIST, *Gardeners' Chronicle* Office, W.C.

SALES BY AUCTION.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, November 10, at half-past 12 o'Clock precisely, a COLLECTION of partly established ORCHIDS from New Grenada, introduced by Messrs. Patin and Lalinde, including good plants of Bollea Lalindei, B. Patinii, Kefferstenia gemina, Anguloa Ruckerii, Batemannia Burtii, Masdevallia Houtteana, M. estradacæ, Restrepia antennifera, Odontoglossum miniatum, Cattleya gigas, Cypripedium Schlimii, Oncidium Wiltoni, O. cucullatum, Epidendrum Imperator, &c. Also an Importation from the East Indies of Dendrobium lituiflorum, a quantity of Calanthe Veitchii, C. vestita rubra occulata, Cattleya Mendelii, C. superba, Pleione concolor, P. Reichenbachiana, P. Wallichii, P. lagenaria, P. præcox; a small Collection of Orchids, the property of a gentleman. Many of these are fine specimens, and in first-rate condition.

On view the morning of Sale, and Catalogues had.

Spring Flowering Bulbs for Present Planting, just received direct from well-known Farms in Holland consisting of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, GLADIOLI, LILIUM, &c., in lots to suit large and small growers.

MR. J. C. STEVENS begs to announce that he will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY during November, at half-past 12 o'Clock precisely each day.

Catalogues forwarded on receipt of a stamped envelope.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the above Rooms, on TUESDAY, November 10, at 12 o'Clock precisely, a first-class Collection of DUTCH BULBS; 500 handsome Standard, Dwarf, and Climbing Roses, of all the leading kinds; selected FRUIT TREES, Choice Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, &c.

May be viewed the morning of Sale. Catalogues at the Rooms, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, E.

Wandsworth Common, S.W.

IMPORTANT UNRESERVED SALE of remarkably well-grown NURSERY STOCK, lotted to suit the Trade as well as private buyers.

MESSRS. PROTHEROE AND MORRIS respectfully announce that this extensive Sale will be continued on MONDAY and TUESDAY next, on the Premises, The Nurseries, Wandsworth Common, Surrey, S.W., to commence at 12 o'Clock punctually each day, by order of Mr. R. Neale.

Now on view, and Catalogues had.

Lewisham, S.E.

To GENTLEMEN, BUILDERS, NURSERYMEN, and OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. B. Maller to SELL by AUCTION, without reserve, on the Premises, the East Down Nursery, Lewisham, Surrey, on WEDNESDAY, November 11, at 11 for 12 o'Clock precisely, a large quantity of valuable NURSERY STOCK, including several thousands of Evergreen and Coniferæ Shrubs, comprising quantities of Yews, Cupressus, Aucubas, Arbor-vitæ, bushy Laurels, Ligustrum, Thujas, a fine assortment of well grown Ornamental Trees, amongst which may be found 700 unusually clean grown Horse Chestnuts, also a great variety of selected Fruit Trees, 2000 Standard and Dwarf Roses of the best varieties; 250 Irish Ivies, Virginian Creepers, &c.

May be viewed any day prior to the Sale; Catalogues may be had of Mr. B. MALLER, the Pavement, Lewisham, and of the Auctioneers and Valuers.

Hornsey, N.

CLEARANCE SALE of GENERAL NURSERY STOCK, the New River Company requiring the Land to be Cleared immediately for the Construction of their New Works.

MESSRS. PROTHEROE AND MORRIS have received instructions to SELL by AUCTION, on the Premises, Mr. Cleall's Nursery, Hornsey, Middlesex, N., close to the Hornsey Station, on THURSDAY and FRIDAY, November 12 and 13, at 11 for 12 o'Clock precisely each day, the valuable and thriving NURSERY STOCK, consisting of about 40,000 Evergreen and Deciduous Shrubs, in great variety; 20,000 Ornamental and Forest Trees, Fruit Trees, Hardy Climbers, the whole of the Stools and Layers, &c.

May be viewed three days prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, Leytonstone, Essex, E.

Edgware, N.W.

IMPORTANT SALE of CHOICE and WELL-GROWN NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, on the Premises, the Whitchurch Rectory, Edgware, N.W., on MONDAY, November 16, at 11 for 12 o'Clock precisely, by order of the Proprietor, a portion of the Valuable NURSERY STOCK, consisting of a great variety of handsome Lawn Trees, including a large number of choice Piceas, a splendid collection of Evergreen Shrubs, selected Flowering Trees, large Fruit Trees, fine Standard and Dwarf Roses, and many other Trees and Shrubs, in excellent condition for removal, having been frequently transplanted and grown for sale.

May be viewed on the Saturday prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Loughton, Essex.

IMPORTANT SALE of unusually well-grown NURSERY STOCK, particularly worthy of the attention of Landowners, Builders, Nurserymen, and others largely engaged in planting.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. W. Paul to SELL by AUCTION, without reserve, at his Branch Nursery, Loughton (ten minutes' walk from Loughton Station, and 12 miles from London), on MONDAY, November 16, and two following days, at 11 for 12 o'Clock precisely, a very superior stock of EVERGREEN TREES and SHRUBS, consisting of thousands of beautifully-grown Laurels, 3 to 7 feet; handsome Laurustinus, 2 to 4 feet, abundantly set; green and variegated Hollies; Aucubas, 2 to 4 feet; Box, fine Rhododendrons; also an immense quantity of CONIFERS, consisting principally of well-furnished Araucarias, 3 to 6 feet; Cedrus Deodara, 1 to 5 feet; choice Piceas of sorts, fine Siberian Arbor-vitæ, Cupressus Lawsoniana, 3 to 4 feet; Chinese and other Junipers, Thuja gigantea and Lobbii, 4 to 8 feet; a fine collection of Yews, and a great variety of other stock. Also an unlimited assortment of HARDY ORNAMENTAL TREES and DECIDUOUS SHRUBS, including clean fine Limes, 10 to 12 feet; Poplars, Horse Chestnuts, handsome standard Weeping Willows of sorts, Laburnums, Lilacs, 3 to 4 feet, &c., selected standard and pyramid fruit trees of clean growth, a rich collection of standard, dwarf and climbing Roses, &c.

N.B.—To gentlemen planting for immediate effect this Sale offers an excellent opportunity, as the stock consists chiefly of large handsomely-furnished plants, which, in consequence of their having been kept continually transplanted, will remove again with perfect safety. The Proprietor will remove at purchaser's expense if required.

Catalogues may be had on the Premises, of Mr. PIGGOTT; and of the Auctioneers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

In Liquidation—Camberwell.

CLEARANCE SALE of GREENHOUSE PLANTS, NURSERY STOCK, GLASS ERECTIONS, HOT-WATER PIPING, BOILERS, quantity of SHOP FITTINGS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by the Trustee to SELL the above, without reserve, on the Premises, 170, Camberwell Road, and Dowlas Street, Camberwell, S.E., on FRIDAY, November 20, at 11 for 12 o'Clock precisely.

Catalogues may be had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.

Feltham, Middlesex.

GREAT CLEARANCE SALE of 8 ACRES of beautifully grown NURSERY STOCK, consisting principally of large and well-furnished Plants, admirably adapted for effective planting, and in splendid condition for removal.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. J. & C. Lee to SELL by AUCTION, without reserve (the land being required for other purposes), at their branch Nursery at Feltham, Middlesex, ten minutes' walk from the Feltham Station, South-Western Railway, on MONDAY, November 23, and three following days, at 11 for 12 o'Clock precisely each day, the whole of the beautifully grown NURSERY STOCK, including 15,000 very handsome green Hollies, 2 to 8 feet; 2000 variegated Hollies, 500 Golden Queen Hollies, 10,000 bushy Aucubas, 1 to 3 feet; 3000 well furnished Box, 2 to 6 feet; 6000 bushy Rhododendrons, 1 to 4 feet; 1000 Picea Nordmanniana; fine Cupressus Lawsoniana, Thujopsis borealis, Thujas and Junipers of sorts, and a large assortment of other choice Evergreens and Conifers; also a great variety of Ornamental Trees, comprising 2000 Limes, 8 to 10 feet; 500 scarlet Horse Chestnuts, 200 Robinia inermis, 500 Standard Acer Negundo variegata, 1000 Oriental Planes, 100 Standard Kilmarnock Willows, a quantity of Paul's double scarlet Thorns, Poplars, 2000 Standard, Trained, and Pyramid Fruit Trees, including 500 Standard Cherries; 500 fine Standard Roses, &c.

Gentlemen residing at a distance can have their lots taken up and forwarded at the usual charges.

May be viewed three days prior to the Sale. Catalogues may be had on the Premises, of Mr. DICKSON; of Messrs. J. & C. LEE, Royal Vineyard Nursery, Hammersmith; and of the Auctioneers, 98, Gracechurch Street, E.C.

Clearance Sale.—Newell's Nursery,

Nuthurst, about 3 miles from Horsham, Sussex.

IMPORTANT to GENTLEMEN furnishing Grounds, NURSERYMEN and OTHERS.

MR. CHARLES HUNT will SELL by AUCTION, without reserve (the grounds being required for other purposes), upon the Premises, on THURSDAY, November 12, at 11 for 12 o'Clock, by direction of the Executors of the late Mr. Frederick Allman, the extensive stock of AMERICAN PLANTS, including Rhododendrons in variety, album grandiflorum, fastuosum flore-pleno; Kalmias, Azaleas, Magnolias, Piceas, Pinus, Hollies, Heaths and many others.

Catalogues now ready, and forwarded by post upon application to the Auctioneer, Horsham, or by Messrs. ALLMAN.

GRAND HORTICULTURAL EXHIBITION of CHRYSANTHEMUMS, PALMS, TREE FERNS, CONIFEROUS PLANTS, FLORAL BOUQUETS, will be held in the Royal Pomona Palace on TUESDAY, WEDNESDAY, and THURSDAY, December 1, 2, and 3.

FIVE HUNDRED POUNDS in PRIZES will be awarded for Grand Garden Fruit and Flowers, and will include:—

Foliage and Flowering Plants	Celosia pyramidalis
Greenhouse Palms	Ball Bouquets
Bay Trees	Bridal Bouquets
Ornamental Fruited Plants	Table Floral Design
Roman Hyacinths	Baskets of Flowers
Bunches of Cut Flowers	Drawing-room Plants
Japanese Plants	Hand Bouquets
Tree Ferns	Skeleton Leaves
Golden Yews	Bunches of Grapes
Table Decoration	Apples and Pears.

The Flower Show will be held in the Palace, where the graceful and lovely productions of Nature may be seen with advantage Day and Night.

The Show will be open at 2 P.M. on Tuesday, December 1; on Wednesday and Thursday, December 2 and 3, at 10 A.M.

For the benefit of the working classes, will remain open until 10 o'Clock each evening.

Admission 1*s.*, children half-price. Wednesday, 6*d.*, after 6 o'Clock.

Floral and Musical Promenade.

Prize Lists, and all other information, may be had from Mr. JAMES REILLY, the Proprietor.

TO THE TRADE.—PEAS: Laxton's Superlative, William the First, Omega, Popular, Fillbasket, Griffin's and Suttons' Emerald Gem. CABBAGE: Cocoa-nut. CAULIFLOWER: Veitchs' Autumn Giant. LETTUCE: Sugarloaf Cos. ONIONS: New Queen, Newnham Park.

JAMES CARTER AND CO. have surplus quantities of the above to offer at reasonable prices, all true to name, and nett seed of the current season's growth.

238, High Holborn, London, W.C.

Catalogues! Catalogues!!

EWING AND CO.'S PRICED, DESCRIPTIVE, and ILLUSTRATED CATALOGUES are now ready. Rose Catalogue, and Fruit Tree and General Nursery Catalogue—both are forwarded gratis and post-free to applicants.

New Apple—Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now sending out strong maiden plants of this splendid novelty, which obtained a First-class Certificate from the Royal Horticultural Society, November 12, 1873. Circulars, with testimonials and full description, will be forwarded, gratis and post free, to applicants. Price 7*s.* 6*d.* each, or three for 20*s.* The usual Discount to the Trade.

STRONG and EXTRA STRONG SEA-KALE and ASPARAGUS ROOTS for Planting and Forcing. Also Strong CROWN BOB GOOSEBERRIES. For prices apply to

Messrs. J. & G. McHATTIE, Seed Merchants, Chester.

Gooseberries and Currants.

W. TRUSLER can supply a few thousand GOOSEBERRIES and CURRANTS of the following kinds—Gooseberries: Lancaster Lad, Crown Bob, Dobson's Seedling, and Rifleman; Currants: Black Naples and Raby Castle (red)—all good strong plants.

Market Gardener, Feltham, near Hounslow.

A Queen of Lilies.

KEY to SUCCESS in GROWING the LILY of the VALLEY

MESSRS. SANDER AND CO. will be pleased to forward their BOOK, giving a simple but complete mode of treatment for these beautiful plants, gratis to all applicants.

Royal Herts Seed Establishment, St. Albans.

To the Trade.

JOSEPH SADA, NURSERYMAN and SEEDSMAN, Milan, Italy, has great pleasure in announcing that he has just published his new CATALOGUE of all sorts of TREE and SHRUB SEEDS for the Seasons 1874-75, at reduced prices. Post free upon application.

To the Seed Trade.

TO BE SOLD, a quantity of MACLEAN'S BEST OF ALL PEAS, as grown by the original grower. Apply to

Mr. THOMAS WILDE, Hathern, near Loughborough, Leicestershire.

To Curators, Contractors of Parks, and Others ENGAGED in PLANTING.

TO BE DISPOSED OF, Cheap, a quantity of DUTCH FLOWER ROOTS, comprising Hyacinths, Crocuses, Tulips, Narcissus, &c., the property of a Dutch grower. For particulars and samples apply to

H. ALEXANDER, 299, Goswell Road, E.C.

KNIGHT'S DUKE of CONNAUGHT NEW PEA.—This fine new Pea is of branching habit, about 3 feet high, very prolific, and bearing large curved pods containing seven to eleven Peas, which are of excellent flavour. Useful for second and general crops, also for late sowing, as it is never affected by mildew. It is a fine exhibition and market Pea.

NUTTING AND SONS, Seed Warehouses, 60, Barbican, London, E.C.

SPECIMEN FERNS FOR SALE.—A Gleichenia spelluncæ and a Gleichenia dicarpa, each plant a perfect specimen, 4½ feet in diameter and 4 feet from pot. Also a large LATANIA BORBONICA and one TODEA BARBARA. Apply to

WM. HENDERSON, Nurseryman and Seedsman Birkenhead.

Pelargoniums.

D. S. THOMSON begs to offer strong healthy plants of Show, Spotted, and Fancy PELARGONIUMS, in 60 pots, distinct varieties, at 4*s* per dozen.

A fine stock of WINTER BLOOMING PLANTS, comprising Ericas, Camellias, Azaleas, Citisus racemosus, Epiphyllums, Bouvardias, Poinsettias, Cinerarias, Cyclamen, single and double Primulas, Solanums (well set with berries), &c.

A large stock of CROTONS, beautifully coloured.

The Nurseries, Wimbledon, S.W.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom:—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM | CANADA, FRANCE | JAMAICA, NEW ZEALAND | WEST INDIES, UNITED STATES

£1 10s. 4d. *for* 12 *months, including postage to*—
AUSTRIA, CHINA | HOLLAND, INDIA | PORTUGAL, PRUSSIA | SPAIN, SWITZERLAND

£1 14s. 8d. *for* 12 *months, including postage to*—
RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 7, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 9—	Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Nov. 10	Three days' Clearance Sale at Hill Side Nursery, Bracebridge. Sale of Established and Imported Orchids, at Stevens' Rooms.
WEDNESDAY,	Nov. 11	Royal Jersey Horticultural Society's Show. Royal Horticultural Society: Meeting of Fruit and Floral Committee, at 11 A.M.; Scientific Committee, at 1 P.M.; Fruit and Chrysanthemum Show. Sale of Camellias, Palms, Azaleas, &c., from Ghent, at Stevens' Rooms
THURSDAY,	Nov. 12	Clearance Sale at Mr. Cleall's Nursery, Hornsey, N. Sale at Newell's Nursery, Nuthurst, Horsham. Sale of Dutch Bulbs, at Stevens' Rooms.
FRIDAY,	Nov. 13	Clearance Sale at Mr. Cleall's Nursery, Hornsey, N. Sale of Scientific Books, at Stevens' Rooms.
SATURDAY,	Nov. 14	Sale of Hardy Trees, Shrubs, and Dutch Bulbs, at Stevens' Rooms.

THE approach of the planting season again directs our attention to the CONDITION of the TREES in HYDE PARK and KENSINGTON GARDENS. The grand old trees in Hyde Park, and the beautiful woodland character of Kensington Gardens, have been for long the great charm and the chief feature of attraction of our West-end parks. For purely gardenesque beauty their younger rivals—Battersea and Victoria—are pre-eminent; but for nobility of character there is nothing to approach the magnificence and the quiet grandeur of Hyde Park and Kensington Gardens. There is, however, no glossing over the truth—there is no shutting our eyes to the painful fact, that the trees in Hyde Park and Kensington Gardens are in an exceedingly unfavourable condition. Their glory is departing, and that in a very rapid manner. The most casual visitor, if at all observant, cannot but have wondered at the enormous and ever-increasing number of dead and dying trees to be seen almost everywhere.

Hundreds, ay, thousands of the trees in Kensington Gardens are dying annually and are being cut down. We counted not a month ago, lying in one group, some 300 dead trunks of all sizes, some having been majestic patriarchs with boles 3 feet and more in diameter; and the woodmen with their axes were as busy there, as in a great timber-yard. Being curious to know if all had actually died before being cut down, we were informed on inquiry that it was so. And pointing to the standing trees, our informant added, "They're all dead." We do not overstate the facts, when we say that of the beautiful woodland portion immediately contiguous to the Round Pond there is scarcely a healthy tree, or scarcely one tree in ten that will survive the next ten years, unless some wonderful improvement in their present condition take place. The tops of the trees and the higher branches are mostly dead already. They are, in short, in the last stage of consumption. The spectacle from Kensington Palace, of a forest of dead-topped trees, is anything but a pleasant one. There is no necessity to cite particular examples, they are sadly too general. Dead and dying trees are to be seen in almost every direction and in situations considerably varied, so that it is difficult to estimate or recognise the causes which are producing such disastrous results. It is not always the biggest or the most aged of the trees that succumb. Here and there we see other examples of fine young healthy trees, apparently in the prime of life, wither up and die.

Such, therefore, being the true, if melancholy, facts of the case—*i.e.*, more than one-half of the trees in Kensington Gardens are in a dead and dying condition—it becomes a question of the deepest moment to ascertain what the causes are that are leading to so dire a calamity. Whatever agency may be at work to effect such varied and widespread results, it must be extremely subtle and extremely powerful. We scarcely pause to consider the most commonly assigned cause, viz., London smoke. It is sufficiently evident that this agency cannot be the main cause, as is shown by the many examples of beautiful and healthy trees that exist in much closer proximity to London atmosphere—even in the City itself, in Lincoln's Inn Fields, in St. James' Park, and in Hyde Park. Moreover, the trees in Kensington Gardens which are the most distant suffer the most. Besides, we question whether the air in these gardens is much more impure now than it was twenty years ago.

The next probable cause is that of old age. Have these trees lived their allotted time, and are they now dwindling into nothingness again? Partly it undoubtedly is so. What a common fallacy it is to believe that a tree should never die; yet we do force ourselves to believe this almost. Why should a tree die? Why should it not grow on, as many of them seem to do, for ever? The span of a tree's existence is far greater than ours. They are big when we are little, and they increase so imperceptibly that they seem little bigger when we are old and lose sight of them; and so it is. Yet woodreves and foresters, and all who grow timber for profit, know that at a particular time certain plantations are at maturity, and have to be cut down, or decay ensues. With such subjects as Larch this is very marked. After a certain age the decay is very rapid. With deciduous trees the age of maturity cannot be said to be so well defined. Examples are abundant of trees—Oaks, Elms, &c.—many generations old, and which are yet full of life and vigour, and many such exist in Kensington Gardens. The large Elm trees forming the avenue past Kensington Palace are far more healthy than the smaller ones in the plantation adjoining. It is worthy of note that the trees in the pleasure-grounds of the Royal Gardens, Kew, which were probably planted about the same time as those at Kensington, are also dying out in much the same manner. Many large trees die there annually, and are removed regularly, so we do not observe the losses, or have the same deplorable spectacle before us as that exhibited in Kensington Gardens.

The next point for consideration, and which governs to a great extent that of age, is no doubt exhaustion of the soil, or, in plain words, the trees do not now receive a sufficient amount of nourishment from the soil in which they are growing. Here we believe we shall find the source of a very great deal of the evil. That the supply has been sufficient at one time is evidenced by the splendid specimens of trees produced. That it is almost sufficient still in many instances is also quite patent. The avenue trees are far healthier than those in the more thickly wooded portions, and why? Because the roots have more scope, and receive more nourishment. Again, the trees in the dressed ground alongside of the Bayswater Road seem tolerably healthy, and in a sheltered hollow, the site of an old half-filled-up gravel-pit, the vigour and the luxuriance of the trees, some 30 or 40 feet high, could not be surpassed. Here there is plenty of nourishment in the shape of soil and moisture for the roots, and the trees grow with vigour. All around this oasis the trees on the high ground present a miserable contrast.

Where the ruin seems the greatest is on the higher grounds, in the thickly-wooded portions, and in other situations where moisture would be least abundant. The soil is of itself good enough, but it is over-cropped, and more moisture is required to sustain the vital powers of the trees. They are, in short, dying for want of food. The want of moisture has induced pre-maturity, and shortened their existence. Had more moisture or more food been forthcoming, the trees would have possibly lived longer.

At Kew, there can be little doubt, the trees are dying through sheer exhaustion of the soil and through age, the wonder being that they could have existed so long or attained such magnitude in such a sandbank. At Kensington, however, the decay has been so marvellously rapid and severe that we are almost constrained to admit the influence of some more immediate and direct agency. There is no evidence of any decrease in the average supply of the past few years, or nothing that could affect particular trees to any extent. We have many proofs of the injury done to trees and vegetation generally in the neighbourhood of London by the many deep railway cuttings, &c., that have been made during the past few years. Let any one look at the orchard trees in the neighbourhood of Gunnersbury Station now, and compare them with what they were a few years ago. Even the wells in that neighbourhood have had to be deepened, so great has been the drainage of the land. Are not similar agencies at work at Kensington? May not the land be overdrained by the various deep cuttings around it? Unquestionably the great metropolitan drainage system did much for the purification of London, but if we have to lay the loss of our beautiful park trees in the counterbalance, as it seems to us inevitable, the benefits derived have been procured at a high ransom. We shall return to this question on another occasion.

—— THE growth and EXPORTATION OF ORANGES from JAFFA forms an important item in the commerce of that port. Jaffa contains about 420 Orange orchards, producing annually about 33,300,000 Oranges, of the value of £23,125. Two distinct varieties are known, one of which is of a large size, oblong in shape, very juicy and without seeds—this is called the "Shammonti;" the other, known as the "Valadi," meaning indigenous Orange, is round and smaller in size. The wholesale price of the first and best kind is 210 piastres per 1500, while the second quality are worth only 90 piastres per 1500. Fresh trees are constantly being planted, thereby increasing the area of Orange culture. About a sixth part of the total number of Oranges produced in Jaffa is consumed in Palestine; the remainder is exported to Turkish ports and Egypt, for the most part in small Greek sailing vessels, which come purposely to Jaffa in the season, which is the month of November.

—— According to the *Kentish Observer*, a large kind of SLOE or WILD PLUM, peculiar to the country around Halstead, and known locally as "Skeggs," growing in hedgerows and fruit plantations, has been very abundant this year. It is estimated that in the parish of Halstead alone 8000 sieves will be gathered. It is the largest growth ever remembered in the neighbourhood, the fruits hanging in such dense clusters that the trees are obliged to be propped. A good hand can pick from ten to twelve sieves a day, and the price usually paid for gathering is about 6*d.* per sieve. The fruits are used for making what is known as British port wine.

—— Mr. DENHAM is retiring from the management of the gardens at Broxmouth Park, where he has been gardener to the Duke of ROXBURGH for more than thirty years, and his successor is Mr. WILLIAM MCKELVIE, the indoor foreman at Floors Gardens.

—— According to the *Moniteur Horticole Belge* the famous trellis of Fontainebleau, whence all the Chasselas Grapes of that neighbourhood originated, was formed in 1531 by FRANCIS I., with plants obtained from the town of Cahors. A gardener of the same town superintended the plantation.

—— VERONICA ANDERSONI (V. speciosa × V. salicifolia), and the variegated variety, are flowering on the wall of the New Range at Kew. In the West of England they form fine shrubs, and are well worth a wall, wherever they will stand in such a position. The protection of a mat should be accorded during severe weather. They may be expected to perish occasionally, but from quick growth and fine floriferous habit are worth replanting. Several New Zealand Veronicas are hardy, as for instance V. pinguifolia, usually but erroneously known as V. buxifolia, and perhaps all others are very nearly so.

—— It is certainly to be regretted that, when public men find it desirable to refer to subjects connected with SCIENCE OR NATURAL HISTORY, they do not take the trouble to ascertain that their remarks have some trace of accuracy. Clergymen are the greatest offenders in this respect; but we doubt whether any one has hitherto surpassed the following reference to the recent fungus show made by Sir HENRY JAMES, M.P. for Taunton, at a meeting held in that town on the 27th ult. This learned and witty gentleman speaks of—

"One of the societies of which I have read a little of late, which wanders about the country moved by a very firm faith—the members of it having an assured belief that there are certain fungi called Toadstools—(laughter)—which far exceed the lowest Mushroom in its nourishment for the people. They discovered it in one of these excursions. They practically display their belief, and some make sacrifices to their creed. I heard lately of these gentlemen enjoying a banquet composed entirely of fungi. (Laughter.) Even the orthodox Mushroom was not admitted. The central dish was an overgrown Puff-ball, and one elderly gentleman so appreciated its qualities that he dined off it. They rose from that banquet as the Tories from the session, light of heart, and without display of dyspeptic suffering." (Laughter.)

The old inquiry, "Understandest thou what thou readest?" might assuredly be addressed with much force to Sir HENRY JAMES. It may be doubted whether so much ignorance has ever been displayed in so few words.

—— The Pine-apple Nursery Company have now in bloom and in a high state of perfection a large collection of specimen CHRYSANTHEMUMS. They are displayed and on view in their winter garden at Maida Vale, Edgware Road.

—— Already gardeners are found deploring the extent of the RAINFALL that has already taken place this autumn. It is not, however, so much the quantity that falls as the interference caused with outdoor occupations that in all probability gives rise to complaints. We can do with considerably more rain yet. Only a very few days ago a gardener was replanting a bed of shrubs in Cambridge Terrace, Paddington, and at a little below a foot in depth the soil was literally as dry as dust. The construction of the border might have had something to do with this. The centre was some 2 feet higher than the sides, and being only some 8 feet in width, and of quite a rounded form, the rain ran from the surface instead of penetrating it. What wonder that the evergreen shrubs had a debilitated appearance. The bed is now considerably lowered, and already the replanted shrubs have taken a new lease of existence, and recent as the change has been, appear to be already benefited by it. There are many other beds of shrubs in London requiring similar treatment, at the hands of an intelligent gardener.

—— Mr. ROBERT MOULTON has resigned the management of the farm, garden, and woods at Somerville, the seat of the late Lord ATHLUMNY, and has accepted a similar appointment at Gaynes Hall Farm, St. Neots, Hunts, the seat of Captain DUHERTY.

—— The LOBELIA SUBNUDA, is a small species with prettily veined foliage, spreading in a tuft about 2 inches high. It is cultivated on the rockwork at Kew, where it was received from Mr. THOMPSON, of Ipswich, who is fortunate in possessing so interesting a novelty. The leaves have a dark metallic lustre, relieved with light green veins; they are ovate, obtusely serrated or incised, and purple underneath. The petiole rather exceeds an inch, the blade is somewhat less. The flowers are small and pale blue, in erect racemes 10 inches high. It is a native of Mexico.

—— The Jersey correspondent of the *Globe* states that the present has been the most prolific season in Jersey for APPLES and PEARS that has ever been known. The cultivation of the latter fruit especially is prosecuted with great industry, and the efforts of producers, aided considerably by the extraordinarily fine weather, have this year been crowned with most gratifying success. Numerous specimens have been exhibited, which for size and weight have never been equalled. Mr. G. THOMAS, fruiterer, St. Helier, last week exhibited three Belle de Jersey Pears which weighed respectively 3 lb. 4 oz., 3 lb. 5 oz., and 3 lb. 14 oz., making a total of 10 lb. 7 oz. The Jersey pound being 17½ oz. avoirdupois, this gives the extraordinary weight of 11 lb. 6 oz. English for these three Pears. It is further stated that they are to be sent to London for exhibition next week.

—— Messrs. JAMES CARTER & CO. offer a valuable set of prizes to be awarded for vegetables, at several meetings of the Royal Horticultural Society next year, including the "Carter" Cup, value fifty guineas, for the best twenty-four dishes of vegetables, to be competed for at the great provincial show, should such a show be held. The cup will become the absolute property of the employer to whom the prize may be awarded, and ten guineas will be given to the gardener. On June 2 and July 7 the subjects invited to compete are six dishes of Peas, and on November 10 a collection (eighteen varieties) of vegetables, and ten dishes of Potatos.

—— We learn from the *Irish Farmers' Gazette* that, through the kindness of the Earl of LIMERICK, a want long felt is about being supplied, and a great boon conferred on the inhabitants of Limerick, in the shape of a People's Park. The area of the proposed park comprises 12 acres or thereabout. The situation is most convenient, and in the most elevated and best part of the city. The estimated cost is between £2000 and £3000, the corporation providing for its maintenance by an annual grant. We believe the designs and laying-out are to be supervised by W. BARRINGTON, Esq., C.E. We trust that among the arrangements a commodious and suitable spot for holding the Limerick Horticultural Society's Exhibitions shall not be omitted. The Butter Market, where they are at present held (though a fine and commodious structure for its immediate purposes), is neither in situation, atmosphere, or surroundings, the right thing for a horticultural *fête*. We should think, that having a place so central and suitable as the proposed park, with all the advantages of an agreeable promenade, would give greatly increased *éclat* to the Limerick Society's shows, and a new impulse to horticulture in that quarter.

—— Mr. CHARLES BALTET, in the *Revue Horticole*, commends the following plan for PRESERVING VINES against frost, and which we cite here, as the same principle, it is obvious, might be adopted for other plants. At the time of pruning the long wood a trench is made 6 centimetres (2¼ inches about) in depth, and the rods laid in it and covered over, taking care that the two uppermost eyes are left out of the ground. These will come into growth early if not killed by frost, and the protected buds will be proportionately retarded. If frost ensue the upper exposed buds will be killed, the subterranean ones will be preserved. When danger from frost is over the young shoots are pruned away if frozen; if not, they are pinched in so as to equalise the growth of the long wood, which will speedily elongate and fructify. The covering up is done in February, the uncovering at the end of May. Where the French plan is inapplicable earthing-up may be practised.

—— The first ordinary general meeting of the session of the INSTITUTION OF SURVEYORS will be held on Monday, November 16, when the President, Mr. THOMAS HUSKINSON, will open the session with an address. The chair to be taken at 8 o'clock.

—— CUSCUTA REFLEXA, a species of Dodder, is very pretty in the Cape-house at Kew, where it is an excellent example of a leafless parasite. It has the advantage of being easily preserved from year to year, and seems to grow on anything with which it comes in contact, Pelargonium, Mesembryanthemum, Ivy, &c. The stems are purplish, and form a tangle of stout threads, about which Heath-like flowers are freely produced; they are white, with a few purple spots. It is a native of the Coromandel Coast. After flowering it usually dies away to short pieces of stem where attached to the supporting plant.

—— Mr. MUNBY, of The Holt, Farnham, requests us to state that he has still a small quantity of bulbs of CORBULARIA CANTABRICA, and will be happy to send a few to any amateur who wishes to cultivate this charming flower.

—— In the light and rather moist sandy loam which prevails in the nurseries of Mr. JOSEPH F. MESTON, at Addlestone, Surrey, the leaves of some of the deciduous trees and shrubs are beautifully coloured just now. The Liquidambar is a fine feature; the golden amber leaves are fast changing to a bright red hue, and with the foliage supplying these two tints, an excellent contrast is afforded. Salisburia adiantifolia has its leaves of a pure golden tint, and in this soil, in common with those of the Liquidambar, the leaves hang on the branches till a sharp frost sends them fluttering to the ground. In stiff, clayey, bedding soils, the leaves are yet green. The common American Oak is also peculiarly attractive, the large leaves partake of quite a sanguineous hue, contrasting markedly and even oddly with the strong succulent growth of Forsythia viridissima close by. Other shrubs might be instanced as remarkable for their bright leaf-coloration. A light moist soil appears to exert a great influence in the production of glowing tints of foliage; and the village of Addlestone abundantly illustrates the fact at the present moment.

—— The SOUTH ESSEX CHRYSANTHEMUM SOCIETY will hold its sixteenth annual exhibition in the Town Hall, Stratford, on November 14 and 16; and on the two following days the STOKE NEWINGTON AND HACKNEY CHRYSANTHEMUM SOCIETY will hold an exhibition in the new Town Hall, Hackney.

—— The pretty salmon-red ESCALLONIA RUBRA is now blooming freely on walls, and growing as a shrub in the open ground. The appearance of the flowers reminds one of a greenhouse Erica inured to culture in the open air. All autumn-flowering shrubs possess a special value because blooming when the generality of flowers are fading, and this charming Escallonia has a claim to notice on that ground.

—— An important product of Bahia—SUGAR—has until a comparatively recent period enjoyed some reputation in the European markets; latterly, however, it has become greatly depreciated, so that the imports have continued to decline. The chief cause of this is probably to be traced to the prevalence of the disease in the Sugar-cane in Bahia, which continues to ravage the plants, no scientific means being adopted to stay its progress. A few years ago a variety of the Sugar-cane, known as the Salangora cane, was imported into the country to supersede the Cayenne cane, and with the hope also that it would prove less liable to attacks of the disease. It is stated to be "now more attacked by the disease than its predecessor, and to that degree that very few districts are now exempted from the plague." Besides the diminished yield of saccharine matter obtainable from each plant so affected, the actual area of Sugar-cane cultivation is being diminished, as many planters are turning their attention to Coffee growing, and utilising their old sugar plantations for what at present promises to be a more profitable crop.

—— FOURCROYA UNDULATA is flowering in the succulent-house at Kew. It is a rare species and quite distinct. The name occurs in JACOBI's list, but no description or figure has been published. Its leaves are spreading, very dark green, not plicate, in this case 18 inches long by 2 inches in breadth; the spines are reddish-brown, almost black, thickly placed, and in form like those of F. Selloa. Of this specimen the scape is about 7 feet high, bearing a panicle of flowers very similar to those of other species. Throughout the genus they appear so nearly alike, as to be of little value for specific distinction. Four kinds have flowered in this house during the past summer.

—— The appearance of the PHYLLOXERA in Lower Austria has been formally noted. It is supposed to have been introduced with Vines from America. In spite of the ravages of this insect, and of the destructive spring frosts, the vintage in France is stated to have been unusually abundant and good.

—— In a recent issue we had occasion to notice the beautiful and singular plant called ERYTHROCHITON HYPOPHYLLANTHUS, now in bloom in the Palm-stove at Kew, and which bears fragrant white flowers on the under surface of the leaves. The plant was first described by PLANCHON and LINDEN, under the above name, in the *Annales des Sciences Naturelles*, ser. iii., t. 19, p. 75. It was subsequently figured by REGEL under the name of Hypophyllanthus Lindeni, in the *Gartenflora* for 1866, p. 132, tab. 507; and again in the *Botanical Magazine* for 1870, tab. 5824, under the name originally proposed. Its handsome foliage and pure white fragrant flowers render it a desirable plant for stoves, apart from its structural peculiarities. Through the courtesy of the Director of the Royal Gardens, Kew, we have had an opportunity of examining a specimen of the flower and of noting sundry points heretofore either imperfectly recorded, or not at all. Judging, indeed, from the figures and descriptions there is a good deal of variation in individual specimens. The first point we examined was the unusual position of the flower-stalks which spring apparently from the under-surface of the midrib of the

leaf. An examination, however, of the course of the vascular bundles shows that there is here a congenital union, or as we should prefer to call it, an arrest of development entailing a lack of separation between the main flower-stalk and the midrib, so that, on cutting across, the latter two sets of vessels are seen:—thus ⌀, the upper belonging to the midrib, the lower to the flower-stalk. A section beyond the place whence the flowers spring, that is, nearer to the point of the leaf, shows only a single ring of vessels, thus, ○. In the *Botanical Magazine* the flower is shown in one case as springing from between two leaves, the upper surface of one looking towards the lower surface of the other. This second leaf is probably only a more highly developed condition of one of the scaly bracts usually found at the base of the flower-stalk. The primary flower-stalk is really axillary to the leaf next below the one to which, from the want of separation just mentioned, it is attached. In the flower itself the principal structural points are the irregularity in the number of parts; thus in the flower before us there are three sepals, five petals, seven stamens, four of which are sterile, three fertile—the latter opposite to a single petal and with the anthers cohering one with another at the base, while the apices are free. Lastly, the pistil consists of five elements. How this curious numerical irregularity, technically called anisomery, is brought about, the specimen before us does not enable us to determine. Another species, E. brasiliensis, is also grown at Kew. This, though perhaps handsomer by reason of its scarlet calyx, is less interesting, as its flowers are in all ways more conventional and less eccentric.

—— Some time since we gave an illustration of a "clipped garden" in Westmoreland, one of the finest and most singular specimens of its class. Our present view (fig. 123) represents a portion of the garden of the Earl of HARRINGTON at Elvaston, near Borrowash. The general features of the place, with its sinuous hedges of clipped Yew and scarcely less formal Araucarias, are well shown. Of course there is no gainsaying private taste in such a case as this, but at any rate we may say that it is not a model suitable for general adoption. The avenues and other plantations of Conifers are remarkable, and not less the lake with its islands, formed by Mr. BARRON, now of Borrowash. Of Mr. BARRON's skill as a designer, and of his success in transplanting large trees, former volumes of the *Gardeners' Chronicle* give abundant evidence.

Home Correspondence.

Auction Sales and Nursery Stock.—In the *Gardeners' Chronicle* of October 24 I see an advertisement that puzzles me. One of our principal firms of nurserymen advertise their hardy trees and shrubs, fruit trees, &c., and they say "the stock is large and fine, and unimpaired, not having been weakened by frequent or periodical auction sales." What does this mean? I have had trees from many nurseries, and know that they cost more than at auction sales, and have willingly paid more, thinking that trees properly educated—that is, frequently moved, judiciously trained, &c.—were worth more. I know, too, that if pressure of work in spring prevents nurserymen from putting their quarters together, and the trees make a strong growth, they do not move so well the next season, and have to be sold by auction. How does this weaken the stock? Will any of your correspondents enlighten me? *H. H.*

The Euonymus.—The Euonymus, about the derivation of the name of which the writer of the interesting articles on "The Old Walls at Kew" is in some difficulty (p. 495), is said to be named after Euonyma, the mother of the Furies, on account of the pernicious and painful effects of its seeds when swallowed. I found the Euonymus europæus or Spindle tree growing in a tangled and extremely diversified hedge, in a field upon the hill overhanging Guildford. *John M. Gillington, October 28.*

The Old Walls at Kew.—Your correspondent mentions Ilex latifolia as growing on the walls at Kew. Thirty years ago, when it was first introduced, I tried several plants of it, but they all died. I believe it is quite tender in this part of England. I have been equally unsuccessful in growing Ilex cornuta and Ilex furcata. The Ilex latifolia must be a beautiful tree, I should think. It ought to be hardy in the West of England. Cannot any of your correspondents tell us of a tree of it 10 or 12 feet high in Devonshire or Cornwall? Is there not a specimen of it at Carclew? The Euonymus japonicus is hardy near the sea in Yorkshire [and on the south coast generally], but not inland. Does it bear fruit at Kew? It is very common in the gardens in the South of France, and bears seed abundantly, which adds much to the beauty of the plant, although the capsules are not in themselves so handsome as those of E. europæus, or of the still handsomer E. latifolius. I can add a few to the list of wild flowers in autumn. The common pink Lychnis is still in flower in the hedges, and still more conspicuously the pretty Geranium pyrenaicum; and the cliffs near Filey are covered with the Geranium sanguineum, which is found there, and nowhere else in Yorkshire until you come to the mountain limestone scars of Malham and Settle in the West Riding, 100 miles away—a remarkable fact in the distribution of plants, and the more so because it is not a singular one, there being, I believe, other precisely similar cases. *C. W. Strickland, Whitwell Hall, York.*

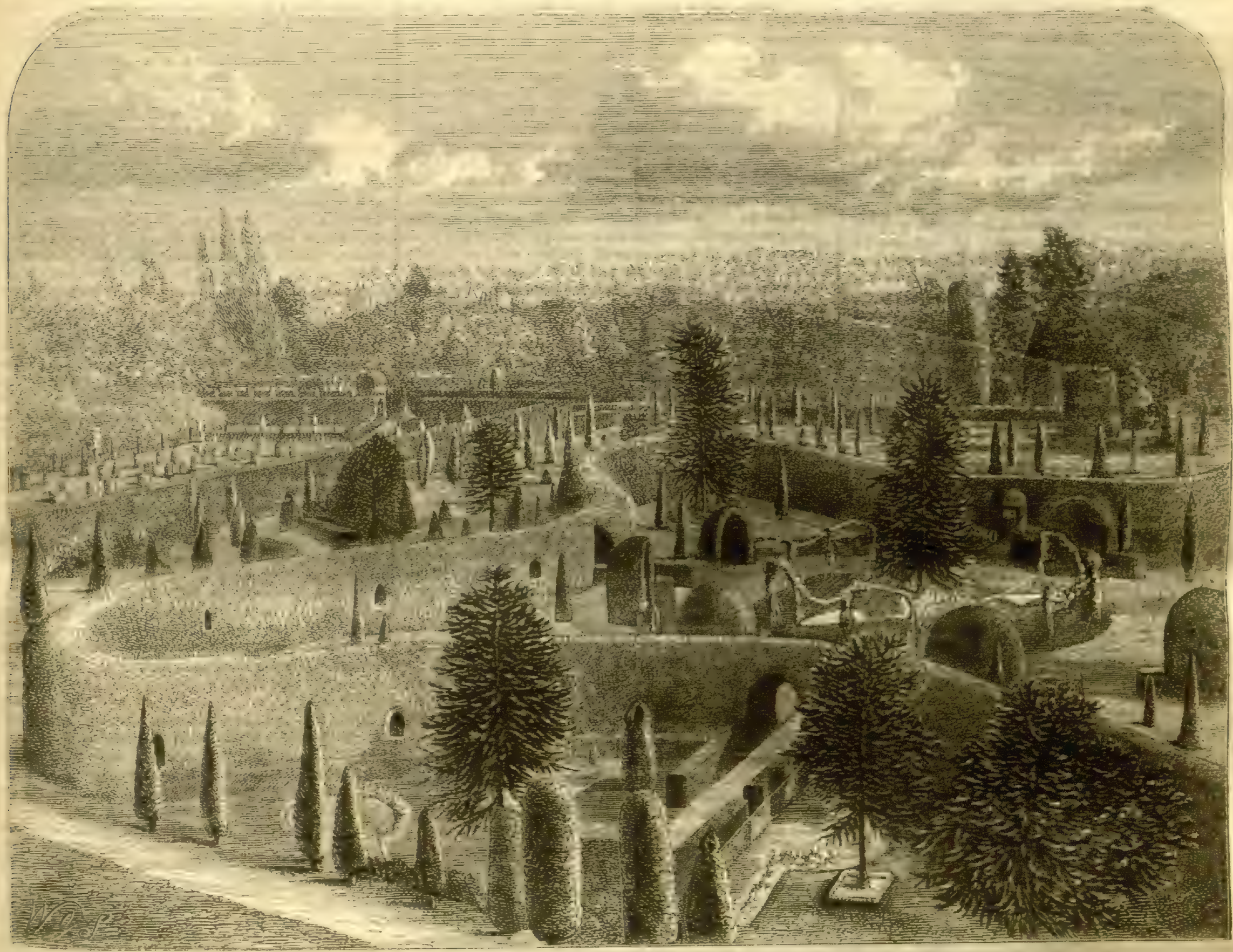


FIG. 123.—VIEW IN THE GARDENS AT ELVASTON CASTLE.

A Fine Pine-apple.—What may be considered, I believe, one of the finest Pine-apples ever grown in Cornwall, was gathered last week by Mr. Nisbett, the gardener at Westbourne, the residence of R. Hawke, Esq. The plant from which it was produced was, I am informed, put in as a sucker in March, 1873. It weighed 9¼ lb., was 18½ inches in circumference, and 12 inches in length, and was a most handsome fruit, of the Smooth Cayenne variety. *J. L.*

Our Liberal Nurserymen.—I don't think any other country can boast of so many liberal nurserymen as we can in England, and the munificent prizes some of them offer for horticultural productions. There are the Messrs. Carter's and Suttons' prizes for vegetables, Mr. Bull's for plants, the Messrs. Veitch's for fruit, which has given them a high reputation at horticultural shows. But in writing of horticultural shows, are we not having too many of them? We have had

the Tricolor rage, the Zonal rage, the Bicolor rage, the Bedding rage in its various forms, the large sensation bunch of Grape rage—presently we shall have the big Potato rage, now we have the flower show fever—in fact it has become so contagious that a traveller cannot enter a village or hamlet—we won't write of towns—but the first thing that generally catches his eye is a large bill intimating in glowing terms that a grand flower show is to be held there in a few days, and such and such a brass band will be in attendance. Perhaps we may hear of some member intending to introduce a bill into the House to put some of them down, as flower shows are no doubt overdone. I am persuaded a great many of the readers of your journal would be delighted to see a little change; at least, it cannot be out of place to make a few suggestions in a different line, and cordially to invite the opinions of your numerous readers upon the subject. Your correspondent, "York," throws out the hint for prize vineries: it is an idea that has long been in my mind, and I trust before long to see a Prize Vinery Society established on a broad and liberal basis. I hope that some of our high-spirited, liberal nurserymen will come to the front, and set the society agoing. I am confident it would ultimately become one of the most popular societies in the kingdom. Prizes should be given for the finest vinery of Grapes in each county or shire, the points to be considered, health and vigour of Vines, size and uniformity of bunch, beauty of bloom, evenness of crop over a given surface; and here I think a little difficulty would be experienced as regards size of vineries, but these would be details to be worked out in committee when the points the vineries were to be judged by would be settled. *W. F. Bowman, Leybourne Grange.*

Viola cornuta.—Mr. Bennett (see p. 498) has done well in drawing attention to the merits of Viola cornuta as a summer bedding plant. Of late years it has been very generally neglected. I saw a short time since a long line of it at Penrhyn Castle in the greatest perfection, and certainly no plant of the same colour could produce such an effect. Mr. Speed treats it liberally, and the result fully justifies his practice. Many things are well done at this fine place, notably a portion of the flower garden planted entirely with foliage plants and arranged in excellent taste. *B.*

Digging and Dunging Fruit Trees. — Mr. Sheppard appears to dislike very much the heading which I put to a few remarks on an examination I made some years ago of some fruit trees under my care. He wrote the two first paragraphs, I should say, with a strong feeling against stable-dung—perhaps with ammonia on the brain. I cannot see that he finds fault at all with what I did to the borders afterwards. Did I not describe the roots as being warty, with bundles of suckers, &c., before I began to do anything to the trees? How, then, could I, by putting what he himself recommends into the border, assist decay, or lead to the formation of fungus? I have not seen the roots since to describe them. Perhaps I ought to have said a little more than I did at the time; I might have said I never "dung" the trees but with turf. With the exception of growing a few seeds, I never crop the Peach border. I allow no "digging," but for the examination of the roots of sickly or barren trees, after the shedding of the leaf, I annually scrape out all the loose soil from the wall back about 3 feet, for the destruction of all eggs, weevils, &c. I never cut turf except in the winter when the grass is short, and very seldom use it freshly cut, but let it rot; and in the above instance it proved all we could wish for. I always stand on the turf when making a border, so as to tread it firmly down. Those who will read my remarks and also Mr. Sheppard's, excepting the first part of his letter, will not go wrong, and those who enter fully into the spirit of the heading I put to mine will do well. I may add we have gathered this year from Peach trees planted in the border described at p. 528, and from one tree which was planted there before that, and which was then "dug about and dunged" scores of fruit 8 oz., a good many 8¼ oz. weight. A veteran in gardening—not Mr. Rivers, whose works I read and some of whose trees I have had and often wish I had some more—called here and saw the Peach trees and weighed one picked off by chance, it proved 8 oz.; and this having put the idea into my head caused me to weigh some more, which proved heavier, one weighing nearly 8½ oz. *H. M.*

Tacsonia Van Volxemii.—Your inquirer at p. 562 must have got either Tacsonia ignea or manicata instead of Van Volxemii. The two former are very shy bloomers in a conservatory temperature, and when they do show bloom it frequently turns yellow and falls off. Van Volxemii blooms freely in a low temperature, and could not fail to do so with Mr. Clark on such growth as he describes unless his plant is very much shaded. Here it is rarely out of bloom all through the year, and is a perfect gem. T. Van Volxemii may be easily distinguished from all the others by the great length of its thread-like flower-stalks. Tacsonia mollissima is another of the freest and most beautiful of the Tacsonias, and should be in every conservatory. The hybrid T. exoniensis, from such a parentage as Van Volxemii and mollissima, must be beautiful indeed. *J. Sheppard.*

Pyrus (Cydonia) japonica.—At Ash Park, the residence of Lieutenant-Colonel Portal, there are two plants of the above loaded with fruit, two of which I send you by this post. They are grown as shrubs in the border. Is it not rather uncommon to see trees fruiting in this way? I have never noticed fruit on them at any place till this year. *N. Kneller, Malshanger, Basingstoke.* [We have seen them heavily laden with fruit in Kent this year; and remember them as fruiting annually in West Surrey, if the season was at all favourable, full forty years ago. EDS.]

Silphium Plant.—I have not seen the original article on this plant, mentioned in your number of October 17, published in the *Bulletin Mensuel de la Société d'Acclimatation de Paris*, of March, 1874, but as you say the "historical portion has already gone the round of the journals," I will briefly give my own observations concerning the plant, from a botanical point of view. Recent authors seem to be agreed that the Silphium of the ancients is the Thapsia garganica of Linnæus, and if such be the case there would be no necessity to introduce it into Algeria, as it covers immense tracts of clayey soil in the neighbourhood of Blidah and Oran. Dr. Della Cella, who travelled in Cyrenaica (called Silfifera by Herodotus and Strabo), gathered the plant and sent it to Viviani of Genoa in 1820. Viviani named it Thapsia Silphium, and the original specimens are now deposited in the herbarium of the University of Genoa. Dr. Cosson of Paris, in 1865, examined all the specimens contained in this herbarium, and pronounced the Thapsia Silphium of Viviani to be a slight variety of T. garganica, differing only by the winged fruits being a little narrower. The seeds of all the species of Thapsia are very liable to be attacked by insects, but it is scarcely credible that "its reproduction by seed is impossible." I send you a small umbel of "ripe seed," and you will observe that they are "all perfect." Thapsia garganica is a tap-rooted perennial plant, and consequently cannot "spread in all directions." The Arab chiefs in Algeria, who think that corpulence is the chief beauty in a woman, make use of the roots of this plant by cutting it into small pieces and boiling it to extract the acrid principle, and then feed their wives on it with the object of producing *enbonpoint.* I have been told that this root forms the basis of an empiric medicine sold in France, the name of which I forget at this moment, but I think it is Revalenta Arabica. Its curative effects in tubercular phthisis may be accounted for by the quantity of nutritive matter it contains. The juice of Silphium was sold by the Cyreneans for its weight in silver, and was a Government monopoly. Any one interested in this plant will find a detailed account of it in Della Cella's *Narrative of an Expedition from Tripoli in Barbary to the Western Frontier of Egypt*, translated by Mr. Aufrere, and published in London in 1822. This work also contains, p. 127, a figure of a coin which bears on one side the head of Jupiter Ammon, and on the obverse a representation of the plant Silphium. *G. M.*

Climatal Changes.—I notice the statement of flowers and fruits in the neighbourhood of Edinburgh indicative of the singularly mild season. I have notes of a similar kind to offer, such as Strawberries in blossom, Snowdrops showing their spikes, buds on Currant bushes almost bursting into leaf, and a second crop of Plums which has come forward on a wall tree at Lynwood, near Hawick. But I am not convinced that the seasons have permanently changed, and that we shall never again have what are called old-fashioned winters. Phenomena similar to those now recorded have been often witnessed before. From the file of an old newspaper I take some notes of the year 1787 which will illustrate this. On January 12 it is recorded as follows:—"For a fortnight past the weather has been remarkably mild for the season, the thermometer at noon 40° to 50°, an unusual heat in mid-winter." On February 16 it is recorded that "several Primroses, in full blow, were plucked near Whitehaven on Friday se'nnight. There is at present in the garden of Mrs. Dalton, at Carlisle, a Cherry trees in blossom. Several of the buds appeared so early as the middle of January, and are now perfectly blown." On February 23 it is recorded that "so mild is the present season that an Apple tree growing in an orchard belonging to Sir John Lingard, of Leeshall, near Oldham, has budded, blossomed, and brought forth fruit in the present winter, without any other assistance than its own natural ground; and though it may appear strange, it is an absolute truth that an Apple was plucked off on Wednesday last much about the size of a common nutmeg." At Kelso, Roxburghshire, on the same day the thermometer on a wall with a northern exposure stood at 53°. On February 17 a linnet's nest with three eggs was discovered at Limehouse Bog, a mile north from Glasgow. On February 26 the thermometer at Kelso stood at 55°, and it was said "the present mildness of the season is unprecedented in the memory of any person now living." On March 24 Cauliflowers were cut in the garden of Mr. Waldie, at Hendersyde, near Kelso, which had been planted out in the middle of January. On April 6 Sweet William was in flower at Nisbet Boathouse, near Jedburgh, though usually it did not flower till the end of June; and at the same date a gentleman had a pair of doves sitting on eggs for the third time since January. On April 3 a large dish of new Potatos, raised without the help of a hothouse, was presented by the Deacon of the Gardeners to the Deacon of the fourteen incorporated trades of Glasgow. On March 26 a tenant of Sir Wm. Cunningham, of Livingstone, began to cut Clover and Ryegrass for his cattle, and some of the grass measured 18 inches long. It is sad to mention that after the mild winter there were long-continued easterly winds in spring, which ruined the fruit crop, though there had been a great show of blossom. On June 5 there was ice the thickness of half-a-crown at Aberdeen. On August 17 there were two Pear trees in full bloom at Belford, in Roxburghshire. On September 8 there was in the parish of St. David's, Exeter, an Apple tree in blossom for the third time that season, two crops of fruit having been gathered. Like that of the present year the harvest was one of the finest ever known in the memory of man; but Hops and Apples were a poor crop. With October and November came heavy and constant rains, and the autumn was the dampest that had been known for twenty-five years. The rainy weather continued till December 7, when some snow fell: but on the 10th of the same month there was a hurricane with incessant rain all day. January began with a severe black frost; and a drought continued during the spring which caused a short hay crop. On October 14, 1788, a bird's nest with eggs was found on the farm of Netherhouse, parish of Monkland; aud on November 14 there were at Tannochside, in the parish of Bothwell and shire of Lanark, young crows nearly ready for flight, and full blown Roses. The previous autumn had been uncommonly wet, but that of 1788 was so remarkably dry that on November 27, at Edinburgh, a new species of smuggling was begun. Several watermen were detected secreting water in cellars during the time the wells were running, with a view to sell it at a higher rate when the water was turned off. On January 18, 1789, we find this entry: "On Sunday and Monday we had the most intense frost with the wind at south-west that we have seen here this season. Both nights at 12 o'clock a Fahrenheit thermometer in an open window, exposed to the south-west, stood at one degree below zero. On Tuesday the wind blew hard from the north-east, accompanied with a heavy fall of snow, since which the weather has been very moderate, and rather inclined to fresh." That reads very like the account of a week's weather in January at the present day. To show that the summers were not so hot as is generally supposed, we may mention that in the summer of 1788 the thermometer at Kelso never was above 60° at 9 in the morning, and at that point only on the 2d, 3d, and 4th of July and 7th of August. There are specimens of materials in my possession from which I may some day, with your permission, try to show that the seasons have not essentially changed, that the years now generally thought to have been ordinary specimens in the days of our grandfathers were really abnormal, and such as we have occasionally still, and that, therefore, the recorded phenomena regarding flowers and trees must be accounted for in some other way. *T., Roxburghshire.*

The Temple Chrysanthemums. — There are some points in the Temple show this year which are worthy of note. One is the extremely forward and early blooming of the plants. Taken as a whole the flowers are a good fortnight earlier than usual, those of the Inner Temple being a little in advance of the Middle Temple collection, as has generally been the case. I find that the Chrysanthemums are very forward everywhere, probably from the great heat of the early summer. Being kept constantly watered and richly fed they grew in our gardens here to a prodigious size, some 8 feet high, with woody stems as large as a man's finger. Some of the blooms are of unusual excellence, and one is absolutely unique. In the Inner Temple gardens I see a lovely new flower, called George Glenny; it is of a pale yellow colour, not very large, but absolutely perfect in form and quality. I have no doubt it is a yellow sport from Mrs. George Rundle. But there is a single blossom in this garden (Mr. Newton's) of another variety, which stands absolutely alone. It is named Golden John Salter. I have resided in the Temple for sixteen years, and have taken the deepest interest in all the shows; and I pronounce, without hesitation, that this is the best Chrysanthemum bloom that has been produced in these gardens during the many years I have been here. It is of enormous size, and is perfect in every quality; indeed I have never seen anything quite up to it at any show anywhere. I recollect that, some ten or twelve years ago, Mr. Dale,

of the Middle Temple, produced a larger flower in Orlando. This bloom was 22 inches in circumference—the largest Chrysanthemum I ever saw; but the flower is always inferior to John Salter. It is quite worth a visit to the gardens to see this single flower. *J. S.*

Salvia splendens.—This grand old autumnal flowering plant is not so often met with as its merits deserve, for in addition to its flowers being of the most brilliant description, they are produced in the greatest profusion, and last in perfection at least two months, and this at a time when bright flowers are scarce—from October till near the turn of the year. After blooming, it is sufficient to save only a plant or two to propagate from, as young plants can be grown to any size required, and are far preferable to old ones, and much valuable room is saved during the spring months by discarding old plants that have done blooming. If large specimens are required, the old plant should be placed in heat early in March to get a batch of cuttings from, and as these strike in a few days they may be potted on and kept growing in a warm moist house or pit till the middle or end of May, when they may receive their final shift into suitable sized pots. If previously hardened they should then be plunged out-of-doors in a nice open situation, as they do far better grown in this way than when coddled under glass, but they should be housed by the middle of September, as cold nights soon cause the foliage to turn yellow. If small plants are required, they should be propagated later, plants struck as late as June will make nice useful stuff, and if they receive no check the individual spikes will be as large as those on plants propagated earlier. During the summer months they must be carefully attended to with water, for if allowed to become dry at the roots they will lose a good many of their under leaves, thereby in a great measure spoiling the beauty of the plant. They should be grown in a mixture of loam and well decomposed cow-dung, and as soon as the pots become full of roots they should be assisted by watering once or twice a week with clear soot-water. Salvia splendens is a plant I should be sorry to be without, and one I can strongly recommend to any one having a conservatory to keep gay, or a supply of flowers to keep up. Salvia Heerii is equally valuable, and comes into bloom in February, continuing till near the end of April, thus compassing several of the dullest months of the year with flowers of the most brilliant hue. The treatment recommended for S. splendens will suit the latter in every way. *J. Sheppard, Woolverstone Park.*

Incorrect Measuring Tapes.—Are there any tapes ever made and sold which will measure correctly? I have had the opportunity of testing a few, but not one of them is quite correct. Some are an inch or two one way or the other; others are nearly a foot wrong at 66 feet. Chesterman's patent is one of the best for quality, but two I have had are 11 inches short on 66 feet. They were tested by a correctly marked staff. In measuring masonwork, &c., with them, it sometimes turns out a serious business. They are worse than useless, and, as occurred in my presence a few days ago, a cause of dispute. *H. M.*

The Paraffin Lamp.—"W. T. P.," in your Home Correspondence of October 24, has a paragraph in reference to heating horticultural structures with mineral oils. During the last three years I have raised considerable numbers of Pelargoniums from seed and have used no other artificial heat but what the common paraffin lamp gives off, and have managed to carry them through the last three winters under "Horley's Patent Economic Garden Frame," 8 feet by 4 feet, one lamp to each frame. The lamps I use are low glass ones, cost 1*s.*, with ¾-inch burner and chimney ready for use; will hold half a pint of oil, which will maintain them at perfect combustion more than twelve hours. I have had two burning low for the last fortnight (forty-eight hours each without trimming), just to give sufficient heat to root some late cuttings and to bring on some late seedlings: also I have strong seedlings under the same frames, and enclose a few leaves from these to show that the fumes of paraffin do not injure the foliage of coloured Pelargoniums when combustion is kept low. *W. H. T.*

Keens' Seedling and other Strawberries.—My estimate of the quality of Keens' Seedling has been formed from an acquaintance of it grown on a loam, a stiff clay, a gravelly soil worked into a good staple, and on a poor peat. If the individual fruits are grown to a presentable size the flavour is insipid, though small fruits are sweet. I do not think I am mistaken about the identity of Keens' Seedling; however, I would be obliged to Mr. Wildsmith for a few runners to try it again. It was grown here at the express wish of my employer, but discarded on account of its want of flavour. There is, perhaps, no Strawberry so generally grown, as Mr. Wildsmith remarks, but that does not prove its superiority. There are Eclipse, Eleanor, Elton Pine, all extensively grown, perhaps more on account of the inherent conservatism of we "Britishers" than for any other reason. The same may be noticed with other fruits and flowers and vegetables which happen to occupy the position of old friends, and are therefore kept, to the exclusion of newer and better sorts. Dr. Hogg I at present consider the sweetest Strawberry (excluding new sorts, with which I have no acquaintance as yet); next comes British Queen and Mr. Radclyffe, then Vicomtesse Héricart de Thury, President, Cockscomb, Lucas, President Wilder, La Constante, and Souvenir de Kieff; but little inferior are Sir Harry, Premier, and Sir J. Paxton. Frogmore Late Pine, despite the touch of acidity never absent in the best ripened samples, is a very free fruiting and valuable late variety. John Powell I do not know, but it is spoken highly of. I may say that I take the supply of Lettuces between the middle of September and the middle of November from between the rows of the young Strawberries. *R. P. B.*

The Mole as a Vegetarian.—In answer to your correspondent, W. Earley (p. 471), as to whether the mole is a vegetarian, my experience answers—No. We have had two or three moles in the vegetable garden here for the last two or three seasons, and I never could see that they ate any vegetable substance, although I have watched their movements very closely. Any roots they may gnaw will be attacked for the sake of larvæ or insects they contain. How a mole could "eat up through the stem of Savoys" I am at a loss to understand, and I am very much inclined to believe that "A Gardener Down West" (p. 534) has charged the mole with a wonderful operation he never would be inclined to perform. *J. Taylor, Isel.*

The Glass Range at Frogmore.—Please permit me to correct the statement occurring in your descriptive account of the Royal Gardens at Frogmore, in reference to the range of metallic hothouses, and which attributes its erection solely to Mr. Clark. The metallic hothouses at Frogmore were erected by Messrs. Clark and Jones, from the designs and estimates, and under the personal superintendence, of Mr. Jones, whom Mr. Loudon styled "the best hothouse builder in Britain." My uncle Clark had no practical acquaintance with hothouse building. My father, Mr. Jones, actively managed the works, and had great skill as a practical horticultural engineer, and he erected some of the most important and durable conservatories and ranges of metallic hothouses in the kingdom. The system of ventilating and the improved mechanical appliances for moving the lights were chiefly invented and perfected by my father. I am able to speak with a degree of confidence upon this subject, as the original drawings for the complete ranges of metallic houses at Frogmore are now in my possession. *Harriet Ingram, Belvoir.*

Pot Vines at Grimston (see p. 560).—Had I known that Mr. Wildsmith intended noticing in your columns the pot Vines here, I would have been more explicit in my remarks to him about them. Permit me to rectify one or two mistakes of his and to supplement his remarks with a few of my own. Firstly, we only let our Vines run to about 13 feet long, and not 16 feet. Mr. W. mistook the length, as he easily might do on a passing look, of the Vines, for the length of the rafter, forgetting to deduct the distance the pots stand from the front, viz., 3 feet. Secondly, we never give them any manure-water until the fruit is formed. I am not aware they have had a drop this season. We mulch with mushroom-dung a good thickness, to save watering. Possibly Mr. W. mistook the fruiting year for the growing year, when he mentions this, as I remember telling him that we gave it to them then as is usually done. The vinery we use for potwork is an ordinary lean-to, 40 feet long, consequently it holds 20 Vines, at 2 feet apart—the distance we grow them, standing the pots on a platform over the front pipes, as Mr. W. describes. The diameter of the pots across the top is 2 feet. I am aware this is much larger than is usual with pot Vine growers, but they answer well with us, require less attention in watering than smaller pots, and the berries swell out to a finer size. Our main object is to grow the Vines and fruit them in the same house each year, thereby obviating the great objection of many to pot Vine culture—viz., having to grow the Vines in one house this year, say, and fruit them next. We have hitherto accomplished this without difficulty. The way we go to work is as follows:—We propagate the required number of eyes in February, grow them on the side benches of a Pine-stove close by to about 4 feet long; then, as soon as we can get the early forced Grapes used from last year's Vines, we clear them out soil and all, and replant with the young Vines from Pine-stove. We had this done the past season on June 15. I should have liked it done ten days sooner, but did not get the early Grapes used. The days being long at that time, with ordinary vinery treatment—viz., plenty of air, heat, and water judiciously given—they soon rush up to the required length. I have to-day (November 2) pruned them, and enclose you a fair sample of the wood. We have not yet had any bunches more than 1½ lb., though I believe I may fairly say this year's Vines look more promising than before. I may add, that I sent you a sample of this year's fruit on May 30, which you may remember. Your opinion of them is given in Answers to Correspondents, in the number for June 6, under the signature "H. C. G." *H. J. Clayton, Grimston Gardens, Tadcaster.*

THE FARM.

Wheat as a Feeding Stuff.—As at the present time Wheat will be found to be the cheapest corn, and, we think, the cheapest feeding-stuff in the market, it may be well to offer a few notes on the practice and theory of feeding with this grain. With regard to the price of Wheat compared with that of other corn, we would state that never before this year do we recollect that taking 100 lb. of each, Wheat, Barley, and Oats, the former would be the cheapest of the three; but the fact may be gathered from the following market quotations, obtained in the last week of October of the present year:—Wheat, 62 lb. per bushel, 40*s.* per quarter; Barley, 56 lb. per bushel, 48*s.* per quarter; Oats, 45 lb. per bushel, 40*s.* per bushel. Old Beans, 7*s.* 6*d.* per bushel; old Peas, 7*s.* per bushel.

Now these quotations must convince any one that, supposing our live stock can thrive as well on Wheat as on Barley or Oats, the former must be considerably the cheaper, and therefore it follows that, at present, Wheat will prove to be the most economical feeding-stuff.

For ourselves, we confess that we have no personal experience of the merits of Wheat in the fattening of beeves, as we have as yet never used it for this purpose, but we have always found that in the rearing of calves a little Wheat, even when its price is greater, is always of service. In the fattening of pigs we are at present using Wheat somewhat extensively, and we therefore give the following details of the treatment of this kind of stock:—

Our "hard pigs," after stubbling, were put up on a diet of house-wash in which was mixed a quantity of the diseased Potatos, boiled and mashed. After a few days a mixture of equal parts of red Wheat and tail Barley, ground into meal, was added to the Potato diet; and all we can say is that never do we remember to have had pigs get on better, and we hope soon to be able to produce a few sides of bacon as economically, if not more so, than usual. We have thirty porkers doing well on the same food, as they are not only growing, but fattening rapidly.

Our success with Wheat as pig-food has induced a trial of it in horse-feeding. On our own farm we have as yet used Wheat boiled instead of Oats, as an adjunct to chaff, grains, and hay, and we cannot but think that its use has been salutary and economical. We have, however, better evidence upon this matter from some friends than our own personal experience will supply.

A neighbour who has a very large farm tells us that all through his this year's ploughing for Wheat he has fed his horses on boiled Wheat and wheat-straw chaff solely, and that they were never stronger to labour or looked better. We hope soon to try the same system, as both our Oats and hay were but a scanty crop, and our wheat-straw is unusually clean and good.

So much, then, for the practical part of this subject, upon which we confess that we anxiously await further experience; but, in order to be sure of the ground upon which we stand in this matter, we have carefully examined what Science has to teach us in regard to the feeding qualities of Wheat. To illustrate this we present our readers with the following—

Proximate Analyses of Wheat and Barley.

	Wheat, air dry.	Barley, air dry.
Water	14.83	13.90
Gluten	19.64	12.88
Albumen	0.95	0.30
Starch	45.99	48.06
Gum	1.52	3.87
Sugar	1.50	3.75
Oil	0.87	0.34
Vegetable Fibre	12.34	13.34
Ash	2.36	3.56
	100.00	100.00

Now these analyses are by Fresenius, and were, therefore, not made with the position we now wish

to advocate in view, and in introducing them we find the following remarks from the pen of Professor Voelcker :—

Wheat.—"The relative proportions of these constituents vary greatly in the various cultivated kinds of Wheat, and according to the circumstances of their growth. We shall, for this reason only, cite one analysis, which represents the average composition as derived from many different samples of Wheat."

Barley. — "The grain of Barley, when ripe and dried in the air, still contains about 14 per cent. of water; this, in some varieties, is increased to 17 per cent., in others it is as low as 10 per cent. Fresenius gives the average composition of the grain as deduced from numerous analyses." *

Now these analyses differ in some very important particulars, *e.g.*, gluten abounds in the Wheat while the Barley contains more starch. This points to the observed differences in their use: thus, Wheat may be expected to restore strength—hence Wheat is the best for working cattle; while Barley, at ordinary times, is the cheapest fattening grain, but, at the present price of Wheat, it is much cheaper in every respect.

Another point of importance is brought out by the ash analysis of Wheat and Barley, namely, the quantity of potash and phosphoric acid in the former as compared with the latter, as seen from the following—

Ash Analyses of Wheat and Barley.

	Wheat Ash.	Barley Ash.
Potash	29.97	15.61
Soda	3.90	5.03
Magnesia	12.30	8.04
Lime	3.40	3.06
Phosphoric acid	46.00	35.68
Sulphuric acid	0.33	1.22
Silica	3.35	28.97
Peroxide of iron	0.79	1.24
Chloride of sodium	0.09	0.45
	100.03	99.30

So that in every way, while the relative value of different feeding stuffs remain what they are Wheat will be found to be the most economical.

Still, there is a great deal of objection urged against its use: our men call it wicked, and predict that animals cannot prosper if fed upon Wheat; but, as it should be the object of the farmer to utilise his products to the best advantage, he will trust more to Science and Practice than to sentimentality.

* Morton's *Cyclopædia of Agriculture*, articles "Wheat" and "Barley."

The Villa Garden.

WINTERING BEDDING PLANTS.—Still the weather remains mild, and many tender plants are yet flowering in our gardens, and there is a natural indisposition to disturb them so long as they remain green in leaf and bright in hue of flower. But the end cannot be far off. Frost must come before very long, and in the absence of frost, dull leaden days bereft of solar light, and cold, damp foggy nights are hastening on decay among the late summer flowers as fast as possible.

Many who are in the rudiments of flower gardening are asking for information as to the best mode of saving bedding plants through the winter. They have no fire-heat, but they are very desirous of preserving some of their plants if it can be managed. Now, such things as Verbenas, Calceolarias, the blue Salvia patens, Fuchsias, Pelargoniums, Cuphea platycentra, and other bedding plants of the old-fashioned type, and which are generally used by persons without means for winter plants, will endure a good amount of frost, provided they are under cover and can be kept dry. If they chance to get frosted they should be allowed to thaw gradually when the frosty weather breaks up and mild weather returns. A homely frame can be constructed with but little cost, in which many things can be wintered with safety during the winter. If an ordinary glass garden frame can be employed for the purpose, then let a quantity of brick rubbish be obtained from the ruins of a house that is in course of demolition. A bed of this should be made, about 12 or 15 inches in depth, with a margin of some 6 inches to the bed all round. The frame should be set firmly on this bed; and it will be an additional protection if some pieces of turf are put up round the wooden part of the frame. Inside the frame place a layer of dry ashes to keep the surface smooth, so that the plants can be firmly placed on the bottom. The plants to be wintered should be potted in some nice light soil, pressed firmly about the roots, and if the pots are plunged in ashes, light dry garden mould, or cocoa-nut fibre, an additional source of protection is provided. In arranging the plants in the frame, the aim should be not to allow the foliage of the plants to be too much crowded together; and this can be avoided to a great extent by placing large and small specimens side by side. In this way a good number of plants can be disposed of during the winter, and while fine weather prevails all the air possible must be given. Very little water indeed, if any, will be required during the winter; the material placed about the pots will keep the soil sufficiently moist and cool. Dryness is a most important point; damp does much more harm to plants than frost. When heavy rain sets in it will be well to keep the frame close, unless the wet weather lasts for a few days, then the lights should be raised at one end. As soon as frosty weather appears imminent some covering must be used, such as garden mats, which form an excellent protection; and leaves can be piled up round the frame. All the time hard frost prevails keep the frame quite close, and if there is reason to think the frost has been intense enough to penetrate to the plants, keep the frame closed for two or three days after a thaw sets in, so as to allow the plants to thaw as gradually as possible.

If there are no glass-lights to make a covering for the frame, something must be contrived to take their place. A wooden framework should be first constructed, of a size suited to fit nicely into the frame containing the plants, and covered with well-shrunk calico, which should be stretched across the framework, and nailed tightly to it at the sides. Then let the calico be well oiled and dried, and this will be found a good and serviceable protection, as useful for shade during the hot weather of summer as for protection from frost during winter.

A great many plants can also be stored away within-doors, if the inside sills of the windows are used for the purpose. A great number of cuttings of choice Geraniums, either in store-pots or singly in small pots, can be wintered in this manner; they require but little water, and when the weather is mild, air can be given by opening the windows. If the windows in which the plants are placed during the winter have a south aspect, more water will be required than in a window in a northerly direction, because the influence of the sun will be more direct. We have known many plants successfully wintered in a garret, being kept pretty dry, or only moist enough to preserve life in them. A garret is often the warmest and driest part of the house, and if the plants are stood in earthen saucers no water passes on to the floor of the room. Many hundreds of plants may be successfully wintered in this way, and made to do useful service the following summer. Even a dry dark cellar can be turned to account for plants like Fuchsias in pots, Scarlet Pelargoniums that have been cut down, Dahlia roots, and others not needing foliage to ensure their vitality may be preserved in this manner, but they require watching during the winter, and when the weather is mild and balmy they may be taken to the open air occasionally to be looked over. If the cellar is infested with mice or rats, it is likely to go hard with the plants, and they should not be placed there if exposed to this danger. In the employment of this and other methods that will readily suggest themselves to the ardent cultivator, many plants may be safely kept through a hard winter. If there be a sufficient regard for the plants to induce the necessary attention, satisfactory results will be certain to reward the painstaking cultivator.

ON WINTERING PLANTS.—Will you kindly tell me how I may succeed in wintering several scores of scarlet, Mrs. Pollock, and Bijou Pelargoniums; scarlet, white, and purple Verbenas, and Calceolarias; and also in making the best use of the two frames which I have just built? Each is 12 feet long, 4 feet wide, 3 feet high at back, 2 feet at front. The walls are 4-inch brick, Portland cemented outside — should they be plastered and whitewashed inside? The floors are of thick flags on dry rubble foundation, and a grating is let in the flags in the corner of each frame, under which is a pot-gully and drain to carry off the water after watering. A 2-inch pipe runs round each frame, and is heated from a boiler in my house cellar. By a valve between the two frames the hot water can be confined to one frame, leaving the other cold. I have about 450 plants, and each frame will hold about 300. To begin with, the plants of all kinds have just been taken from the beds and potted as they are in 48's singly, and placed on tiers of deal boards close to the glass. As this climate is very damp, and the Pelargoniums grow like Cabbages, and flower very little, the soil being also very rich, I want to try to keep the old plants and plunge them in their pots in the beds next summer. Are Verbenas and Calceolarias to be treated in a similar way? As I intend to buy a fresh lot of bulbs every year, so that by turning them out of the borders as soon as they are past their prime I may gain a lot of space for successions of flowers, I shall need to propagate in the frames a variety and quantity of summer and autumn flowering plants, and on account of the proximity of the house I do not wish to have a hot-bed. Can I manage to get three successions, say (1) spring bulbs; (2) brief flowering summer plants (what kinds?); (3) autumn flowers like Gladioli and Tritomas brought forward in frames and plunged in their pots? Can I make any use during the winter of a well-built but unheated summer-house that can be made either very light or darkened? I shall be greatly obliged if you will kindly instruct me how to treat my bedding plants, and also to get the greatest possible advantage from my frames. *A Lancashire Amateur, October* 20.

[If "A Lancashire Amateur" had informed us what part of the county he lives in, we should have been in a better position to give him advice as to the treatment of his plants winter and summer, there being as much difference in climate and soil on the coast of the extreme western part of the county from the eastern portion as there exists betwixt Devon and Derbyshire. We will first speak of "An Amateur's" pits. No plant structure should ever be plastered inside, as the plaster is apt to peel off with damp; the joints should be well pointed, two coats of thick limewash given, and one each succeeding year, so as to make them as light as possible. The Pelargoniums will do in the pots described for the winter, giving no more water than will just keep the soil from getting over-dry until they begin to push more growth in the spring. It is usual to strike Verbena cuttings in August, and keep them through the winter in store pots; then in March pot them singly and bed them out at the proper time. Calceolaria cuttings (about three joints of the soft points of the shoots) are put in frames or, for removal, in boxes, 3 inches apart, kept moist, and little air given until they have struck; in March these are planted out in cold frames 6 inches apart, the frame just protected with mats or other covering at nights from frost; at the proper time the plants are removed to their summer quarters, with all the roots and soil that will adhere to them. It is now too late to strike cuttings of Verbenas, as also for Calceolarias, unless in experienced hands; so "An Amateur" had better winter some of his old Calceolarias and Verbenas; but these must not be treated like the Pelargoniums in respect to water, they must have the soil kept quite damp. By the end of February take off the young shoots of the Verbenas and Calceolarias, and strike them in the pit that is nearest the boiler, which must be kept warm regularly for the purpose, shutting off the heat, except so far as to exclude damp or frost, from the furthest pit by the valve betwixt them; all the old Pelargoniums and other plants should then occupy the pit that is kept cool. After the bulbs, which it is proposed to plant, have flowered, allow them to stay in the beds until towards the end of May, which is as early as safe to turn out the summer bedders; then carefully remove them, with the least injury to the roots, to where they are to remain. In the pit where the cuttings are, in February sow seeds of Blue Lobelia, which pot when large enough, and grow on for bedding-out; in March, sow in the same place Asters and summer Stocks, of which, when large enough to handle, place three or four in 48-sized pots for bedding-out. Cuttings of Fuchsias, Heliotropes, and anything of similar nature, may also be put in. The ground the Pelargoniums are to occupy should not receive any manure, but the plants should be turned out, not plunged in the pots—a condition in which they seldom look happy. If the stems are too long, when planting, lay the plants down on their sides, pegging the shoots over the ground. In respect to the scarlet sorts, in a damp situation a free-flowering dwarf variety, such as Vesuvius, should be grown. Half a dozen cuttings inserted round the sides of a 5-inch pot the first week in September, placed out-of-doors fully exposed, and wintered in the pit, potted singly in March, will be much preferable to wintering the old plants. No doubt it would be possible to grow Gladiolus in pots and then transfer them to the beds, but nothing would be gained by it, as the summer bedding plants will last as long as the Gladiolus. The Tritomas would not be likely to succeed so treated. What we should advise would be to plant a few Tritomas and Gladiolus in the spring thinly amongst the beds occupied by the bedding plants, unless there is room for them apart, where they will do better, and be easier to manage. After the bedding plants are removed from the pits in the spring, Cucumbers and Melons may be introduced and grown through the summer, but do not over-

crowd or attempt too much. The summer-house, unless it has roof-light and is warmed in the winter, is not likely to be of any use for plants. EDS.]

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 4, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
Oct.	In.	In.	°	°	°	°	°	°			In.
29	29.86	+0.13	58.2	48.7	9.5	52.1	+ 5.3	50.6	95	E. : S.	0.01
30	30.01	+0.27	52.3	49.2	3.1	50.3	+ 3.7	49.5	97	N.E.	1.12
31	30.08	+0.34	52.5	46.0	6.5	48.7	+ 2.2	44.8	86	ENE : E.	0.00
Nov.											
1	30.02	+0.26	49.9	43.6	6.3	46.8	+ 0.4	45.1	94	E.	0.00
2	29.92	+0.16	54.0	45.0	9.0	49.4	+ 3.1	49.0	99	E.S.E. : S.W.	0.00
3	29.95	+0.18	58.0	44.0	14.0	49.4	+ 3.3	46.2	89	WSW	0.00
4	30.00	+0.22	59.8	40.8	19.0	50.7	+ 4.8	49.4	96	WSW : S.W.	0.00

Oct. 29.—Generally cloudy. Rain fell occasionally.
— 30.—Overcast. Heavy rain fell during the greater part of the day.
— 31.—Overcast generally.
Nov. 1.—Generally overcast and dull; misty in morning.
— 2.—Misty and foggy in morning: the amount of cloud was large throughout the day.
— 3.—Dense fog in early morning; generally cloudless and very fine afterwards. Heavy dew at night.
— 4.—Foggy in morning; the amount of cloud was small during the morning and at night; partially cloudy in afternoon.

—— In the neighbourhood of London the reading of the barometer, at the level of the sea, decreased from 30.12 inches at the commencement of the week to 30 inches by 9 A.M. on the 25th, increased to 30.19 inches by the morning of the following day, decreased to 30.01 inches by the afternoon of the 28th, increased to 30.29 inches by the morning of the 31st, and was 30.26 inches at the end of the week. The mean reading for the week was 30.11 inches, being 0.15 inch higher than that of the week ending October 24, and 0.20 inch higher than that of the corresponding week, as deduced from eighteen years' observations.

The highest temperatures of the air at 4 feet above the ground ranged from 52¼° on the 30th to 65° on the 27th, the mean for the week being 58½°. The lowest temperatures at night varied from 46° on the 25th to 54¼° on the 26th, with a mean value of 49½°. The mean daily range of temperature was 9°, the greatest being 13° on the 27th, and the least 3° on the 30th.

The mean daily temperatures of the air were all much above their averages, the values being as follows:—25th, 53°.3; 26th, 56°; 27th, 57°.2; 28th, 55°.4; 29th, 52°.1; 30th, 50°.3; 31st, 48°.7; and their departures in excess of their respective averages —5°.4, 8°.4, 9°.9, 8°.4, 5°.3, 3°.7, 2°.2. The mean temperature of the air for the week was 53°.3, being 6°.2 higher than that of the same week, as deduced from observations extending over a period of fifty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 106°.7 on the 28th and 97° on the 27th, while on the 25th and 31st the highest values were both 64°, and that on the 30th as low as 55°. The minimum readings at night of a thermometer placed on grass, with its bulb fully exposed to the sky, were mostly above 40°, and that on the 26th was 52°, but on the 25th the lowest value was 38½°.

The direction of the wind was W. or S.W. on the first three days, but during the remainder E., N.E., and S.E. winds were prevalent.

The sky was generally cloudy, wholly so on the 25th, 26th, 30th, and 31st; the weather was very mild.

Rain fell on five days to the amount of 1.29 inch, of which 1.12 inch fell on the 30th.

In England the extreme high day temperatures ranged from 68° at Sunderland to 60¼ at Wolverhampton, the general average over the whole country being 62¼°. The extreme low night temperatures varied from 46° at Blackheath and Hull to 42° at Norwich, the general average being 44¼°. The mean range of temperature in the week from all stations was 18°, the greatest being at Sunderland, 25°, and the least at Bradford, 15½°. The mean high day temperatures ranged between 58½° at Blackheath and 54¾° at Wolverhampton, Liverpool, and Bradford, with a general average of 56½°. The mean low night temperatures varied from 49½° at Blackheath and Bristol to 45° at Sunderland, with an average value of 48°. The mean daily range of temperature was 8½°, the greatest range being at Sunderland, 12½°, and the least at Wolverhampton, 6¼°. The mean temperature for the week was 51¼°, the highest being 53¼°, at Blackheath, and the lowest 49¾°, at Bradford. Rain fell on every day in the week at Portsmouth and Leicester to the amount of seven-tenths of an inch respectively; this amount, however was exceeded by six-tenths of an inch at Blackheath on five days, and by six-tenths of an inch at Sheffield on six days, but at Norwich rain was only measured on three days, the amount being one-tenth of an inch, the average fall over the country was seven-tenths of an inch.

The weather during the week has been mild, but dull and very cloudy.

In Scotland the highest temperatures ranged from 58¾° at Leith, to 55° at Greenock, the lowest temperatures varied from 35° at Greenock to 29° at Aberdeen, their averages being 57¼° and 32° respectively. The mean temperature for the week was 44½°, the highest being at Leith, 45½°, and the lowest at Glasgow, 43¾°. The amounts of rain measured at these stations varied from three-tenths of an inch at Glasgow and Aberdeen, to one-tenth at Greenock; at Dundee, however, no rain was measured: the average fall over the country was two-tenths of an inch.

At Dublin the highest temperature was 59½°, the lowest 33½°, the mean 49°, and the fall of rain 0.57 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—Hard-wooded stove plants do not require nearly such a lengthened rest as they very often receive. With most of them eight or ten weeks is much better than longer; this rest they should undergo during the concluding weeks of the year, instead of, as often, its being extended far into the winter. This especially applies to *Ixoras*, *Dipladenias* and *Allamandas*, which should be in a condition to receive a few more degrees of heat by the middle of January; consequently their treatment from the present until the close of the year should be such as so prepare them. This does not alone apply to those intended for exhibition purposes, but for ordinary decoration, &c., furnishing flowers for cutting, than which no other plants will produce such quantities, and over such a length of time when well-managed; but, if allowed to rest too long the season is half over before they get into good bloom. To cause this necessary rest, reduce the temperature in the night to about 60° to 65°, but not lower; by keeping the roots moderately dry, and the atmosphere correspondingly so, induce the required rest. *Hyacinths*, *Narcissus*, *Crocuses*, should at intervals be introduced to heat, so as to have some in flower to succeed the autumn blooming plants, when there will be comparatively little to fall back upon, except such as are grown in heat. *Roses* are always acceptable, but never more so than in the winter. If the last year's forced plants have been treated as advised through the season, they will now be full of good growth, well ripened; they should be thoroughly washed with tobacco-water, in which is dissolved 2 oz. to the gallon of Gishurst Compound, to destroy greenfly, red-spider, and their eggs; their shoots should then be nicely trained round neat sticks, not touched with the knife further than removing any too weak to flower. Surface the pots with a little new soil, and place the plants in a temperature of from 46° to 50° in the night, not more; do not keep them too wet or admit a current of side air, or mildew is certain to make its appearance. Some of the strongest plants of *Poinsettia* should now be placed in the stove to bring them into flower forthwith; also of *Euphorbia jacquiniæflora*, but with the latter keep them, as before advised, as near the glass as possible without their absolutely touching it, to induce a condition such as will enable their standing when cut, otherwise half their utility is lost. *T. Baines.*

ORCHIDS.—The gradual lowering of the temperature has brought such plants as *Aerides*, *Vandas*, *Saccolabiums*, *Phalænopsis*, and similar kinds into a partial state of rest; therefore just sufficient water should be given at the roots to keep the moss damp, if allowed to get too dry the bottom leaves are apt to shrivel and fall off. The premature growth of the plants will be prevented by keeping the house comparatively dry and cool. A little water should be poured over the paths on fine mornings with a view to create a moist atmosphere. Air should be admitted through the bottom ventilators, though very little will be required, except to keep down the temperature; a cool system of treatment at this season is most desirable. Imported plants which have not completed their growth should be kept in a moist atmosphere and watered; plants growing on blocks must be examined and watered as they require it. *Cypripediums* do not require any rest; water must be given in liberal quantities at all seasons. Most of the *Dendrobiums* will now be at rest: these require to be kept cool and dry. *Cattleyas* should be kept rather dry; they require a long season of rest to enable them to make a vigorous growth in the spring. The bulbs must not be allowed to shrivel. Very little water is now required to keep them plump. Plants of *Lælia purpurata* which have not completed their growth should be set in a favourable position at the warmest end of the house. *Cattleya Warscewiczii* is now on the move, and will make a grand display of flower during the winter months. They require a light situation in the house, also to be kept free from drip, otherwise the buds will frequently rot off while in the spathe. *Calanthe vestita* coming into flower should have very little water supplied; the plants frequently drop their buds just before they expand; this is caused from too much atmospheric moisture and insufficient light, therefore they should be fully exposed in the driest part of the house. *Lycaste Skinneri* is another fine winter-flowering plant. It is a water-loving plant, but requires less at this season, though the roots must not be allowed to become too dry, or the bulbs will shrivel in a few days. These plants should be well elevated, so as to allow the water to pass freely off from the base of the bulb, otherwise the flower-buds will rot off when they attain to about an inch in length. Many of the *Odontoglossums* and *Masdevallias* are still growing freely; these must be kept moist at the roots. Although these plants require plenty of water at their roots, care should be taken at this dull season not to get a saturated atmosphere; the rot which attacks the leaves and bulbs is caused from too much moisture. *O. nævium* and *O. Phalænopsis* require a little more warmth at this season; these should be placed at the warmest end of the house, or in the Mexican house. *G. Baker, Clapham Common.*

FRUIT HOUSES.

PINES.—Persist in the course of treatment as before advised. Look over the fruiting plants occasionally and remove all superfluous suckers, retaining the best one on each plant. In the case of successional plants remove all suckers that appear before the fruit is visible, unless it be a variety the stock of which it is desirable to rapidly increase. In many places where Pine-apples are cultivated, a large proportion of the young stock is grown in fermenting beds until the plants are in a proper state for fruiting purposes; and this method of treatment under such conditions is most suitable; but for fruiting plants a considerable advantage is obtained by having hot-water pipes as a medium for supplying the necessary heat to the roots. In the case of fermenting beds it is usual at this time of the year to replenish or make new beds, as may be necessary for this purpose in pot cultivation. Tan is undoubtedly the best material, if it can be obtained at a reasonable cost, by reason of its durability and its invigorating effect on vegetation. Where this material is not obtainable leaves are the best substitute, those of the Oak and Beech being the best for the purpose. These should be collected together in as dry a state as possible, and when the bed is made it should be firmly pressed; but tan beds should be placed lightly together. See to the supply of soil on hand, and provide for future requirements in that respect. Newly cut stuff should have about ten months, by that time the herbage and fibrous matter will be sufficiently decomposed as to be fit for use. *G. T. Miles, Wycombe Abbey.*

VINES.—The keeping of late Grapes in good condition up to the end of the fourth month in the year having been reduced to a certainty, the whip-and-spur system of very early forcing has in many places been given up. But where it is still necessary to have new Grapes in April, the first set of Vines should now be started: if in pots, a good supply of fermenting material for giving bottom-heat to the roots should be in readiness, but if the more preferable way of having the Vines planted out in inside borders is adopted, a good bed of Oak or Beech leaves with a little horse-dung added will greatly facilitate the breaking process, and will be more beneficial to the Vines than fire-heat alone. Vines started at this season will require a higher range of temperature to excite the buds than those which are shut up in December. A temperature of 50° to 55° by night, and 60° to 65° by day, will not be too much to start with. Syringe three times a day, and keep every part of the house moist by sprinklings in bright mild weather. Assuming that all fruiting pot Vines have been pruned, washed, and dressed with the usual preventives of mildew and insects, the successions should be placed where they can be kept dry and cool, and have protection from frost until they are wanted. Remove all leaves from Vines going to rest without loss of time, and keep the house dry, cool, and airy. Push on the pruning and cleansing of successional houses as fast as possible. Many Grape growers do not sufficiently appreciate the advantages which follow early pruning. The past season having been highly favourable to the development of red-

spider, a little extra care in painting and dressing will be well repaid in next year's routine. *W. Coleman.*

CUCUMBERS.—Continue the treatment advised in the last Cucumber Calendar, with this slight exception, that the mean temperature may be reduced by 2° or 3°. Avoid sudden fluctuations in the temperature, and especially as winter approaches, for many failures can clearly be traced to this source. I have so repeatedly urged that a close and regular attention be bestowed upon the Cucumber, that to do more than thus refer to it might be considered superfluous; still it is an element that cannot be too persistently brought under the notice of the cultivator. The autumn fruiters are now in good general bearing, and are in constant request for stewing, as well as for serving up raw with fish. Stewed Cucumbers make a capital dish, and are mostly served up with haunch or saddle of mutton, ornamented with dressed Tomatos. Be careful that the water applied to the roots be of about the same temperature as the house. I believe much of the so-called Cucumber disease is attributable to cold water at the roots. Allow the winter fruiters to advance well up the trelliswork before stopping, and afterwards train the growths at right and left angles from the primitive stem. Remove all tendrils and male blossoms as fast as they appear, and continue to add a little fresh soil, which has been previously warmed, as fast as the roots have fairly covered the surface of the bed. *Thomas Simpson, Broomfield Lodge.*

KITCHEN GARDEN.

Complete the taking up of root crops, such as *Carrots, Beet,* &c. *Parsnips* also may be taken up, but if the ground is not immediately wanted, these may remain in the ground for some time yet. Late sown *Turnips* should be looked over, and those fit for use taken up; this will benefit the remainder of the crop, which may stand for later use or for greens if required. On a dry day take up *Cauliflowers* fit for use, and stow away in a pit or other sheltered situation. Clear off the haulms of *Asparagus*, and give the beds a dressing of well decomposed dung, to be afterwards earthed over with the soil from the alleys between the beds. The decayed leaves of *Seakale* may also be removed and the crowns covered with a little exhausted tan or sawdust, but when this is grown extensively for forcing under cover it is better to take up the roots at once and lay in, in a sheltered spot, so as to be easily got at when required, covering only the crowns of that intended to be forced or bleached outdoors. Complete the earthing up of the later crops of *Celery* as also *Cardoons*. On the first indications of frost, *Lettuce* and *Endive* fit for use should be taken up and laid in pits, if to spare. *Cauliflowers* should now be pricked out from the seed-beds into pits or frames. A first sowing of *Peas* may now be made. *William the First* will be found one of the best for very early use. For dwarf kinds to plant under walls, *Maclean's Little Gem* and *Carter's Premium Gem* are very productive. These also answer well for early spring sowing, and save the trouble and expense of staking. In the forcing department a succession of *French Beans* should be put in, keeping those more advanced as close to the glass as possible. A few roots of *Rhubarb* and *Seakale* should now be put in the Mushroom or other warm house, and, providing dung and leaves have been duly fermented, a first bed of *Asparagus* may be planted. Little advantage is, however, gained by starting very early unless the demand is urgent and continuous, and the resources adequate. *William Cox, Madresfield.*

Enquiries.

He that questioneth much shall learn much.—BACON.

20. THE TANKARD APPLE.—Do any of your readers know a late keeping, large, yellowish Apple, under the name of Tankard? I have searched through several Catalogues, but cannot find one of that name. If known, I should be obliged for any information as to where I can get it. *G. R. F.*

21. ROSE CATERPILLARS.—For the last four years I have been troubled with the caterpillar upon my Roses, which make their appearance about the time they come into flower. Can I do anything this winter by way of destroying their eggs? If so, which is the best way to proceed? Any information will greatly oblige me. *X. Z.*

22. TURNIPS.—What is the difference between Green Globe Turnip and the White Globe with Green Top? *J. H.*

Answers to Correspondents.

ANEMONE HONORINE JAUBERT: *R. P. B.* This plant is supposed to be a garden hybrid between A. vitifolia, Ham., and A. japonica, S. and Z.

EUGENIA UGNI: *G. R. F.* Treated as a greenhouse plant it fruits freely enough.

FUNGI: *S. C., Great Gearies.* The large specimens belong to Agaricus procerus, one of the very best of the edible series; the small white ones to Hygrophorus virgineus, also edible; and the yellow Fungi, shaded with green, are Hygrophorus psittacinus. Specimens of this are sometimes eaten, but we cannot recommend them for the table.

GREENHOUSE: *J. R. H.* We do not undertake to recommend one more than another of the advertisers in our columns.

GUM: *Japonica.* A thin solution of gum-arabic will answer well.

NAMES OF FRUITS: *J. K. Pear:* Beurré d'Aremberg. *Apples:* 1, Augustus Pearmain; 2, Winter Codlin; 3, Cockle Pippin; 4, Emperor Alexander.—*R. J. P. Apples:* 1, King of the Pippins; 2, Autumn Pearmain; 3, Ords'; 4, Holland Pippin; 5, Blenheim Orange.—*J. C. A. Apple:* Paradise. *Pears:* 2, Beurré Rance; 3, Beurré Rance; 4, most probably Glou Morceau, an exceedingly bad specimen.—*E. Sang & Sons. Apple:* Emperor Alexander. *Pears:* 5, Beurré Diel. The others are all strangers to us, and are of very poor quality.—*J. M.* 1, Hacon's Incomparable; 2, Beurré d'Aremberg; 3, La Juive; 4, not known; 5, Reinette du Canada. Pear without a number, Chaumontel.—*G. B. Pears:* 1, Beurré Clairgeau; 3, Winter Crassane; 4, Hacon's Incomparable; 5, Althorp Crassane; 6, Jersey Gratioli; 8, Gansell's Bergamot. — *W. Hopkins, Wimborne. Pear:* Beurré de Capiaumont.—*W. F. Radclyffe.* The Apple sent is an extra large specimen, 15¼ inches in circumference. We do not know the name Astrachan Clane given to it. It appears to us like a monster specimen of the Beauty of Kent.—*H. Bryant. Apples:* 1, Blenheim Orange; 3, Alfriston; 4, Bess Pool; 5, Waltham Abbey Seedling; 6, Round Winter Nonsuch. All very handsome.—*R. M. Apple:* Winter Greening.

NAMES OF PLANTS: *J. W. Shaw.* An Epimedium—we cannot say which one without flowers.—*N. G.* The white flower is Lycaste Barringtoniæ. The dark flowered Orchid is a species of Maxillaria, which we have been unable to determine. Will you favour us with another flower? The Fern is a Gleichenia, but it is indeterminable without fructification. — *W. K.* Escallonia rubra.—*P. H. G.* Zingiber sp., probably Z. officinale, but indeterminable from flowers alone. —*H. W.* Oncidium reflexum and Trichopilia laxa.—*Shem.* Bromus unioloides.—*B. W.* Jasminum fruticans, and Physalis Alkekengi (red fruit). — *C. W. D.* Antirrhinum Orontium.—*Alfredo.* Plagianthus sidoides. — *B.* Zygopetalum crinitum. — *E. G., Manchester.* 1, Chrysanthemum frutescens; 2, Chrysanthemum uliginosum.

SEEDLING PEAR: *G. Swailes.* Unfortunately all the fruits sent were quite decayed when received, so that we can pass no opinion on its merits. It is of medium size, of true Bergamot shape, and appears to be distinct.

THE GARDENER: *F. F.* The specimen you refer to was struck many years ago from a cutting, and has lately become rather drawn, and run to seed.

VIBURNUM MACROCEPHALUM: *G. Wood.* We cannot tell you on what stock this plant is grafted or budded. The question was asked in these columns a few weeks ago, but elicited no reply.

VINERY: *An Amateur.* If the roots of the Vines are in an outside border, and they have no means of access to the raised earth inside, by all means have the latter removed if it is objectionable to you. It has probably only been put there to stand plants upon, instead of an ordinary stage.

COMMUNICATIONS RECEIVED. — X. Y. — W. P., Edinburgh (please send us your private address).—O. P.—E. Wood.—W. Smythe (thanks).—J. K.—J. S.—W. L., Halifax.—J. M.—E. S. D.—J. B. — W. W. S.—W. E.—F. A. D.—A. M.—Elmside.—M. S.—J. S.—E. L.—J. C.—A. F.—G. J.

Markets.

COVENT GARDEN, November 5.

There is nothing to add to last week's report, the markets remaining much the same, with very little change either in supply or demand. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Nuts, Cob, p. lb.	1 0– 1 6
Filberts, per lb.	1 0– 1 6	Oranges, p. 100	10 0–15 0
Grapes, English, p. lb.	2 0– 6 0	Pears, p. doz.	2 0– 3 6
— Muscats, do.	2 6– 6 0	Pine-apples, p. lb.	3 0– 6 0
Lemons, per 100	10 0–15 0	Plums, ½-sieve	2 0– 3 6
Melons, each	2 0– 6 0	Walnuts, p. bush.	16 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Beans, Scarlet, bush.	3 0– 5 0	Mint (green), p. bun.	0 6– ..
Beet, per doz.	1 0– 2 0	Mushrooms, per pott.	1 0– 2 6
Broccoli, p. bundle	0 9– 1 6	Onions, young, bun.	0 4– 0 6
Brus. Sprts., p. bush.	5 0– ..	Parsley, per bunch	0 4– 0 6
Cabbages, per doz.	1 0– 2 0	Parsnips, p. doz.	0 9– 1 0
Carrots, new, p. bun.	0 4– 0 6	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	— black, Turnip, do.	– 0 6
Celery, per bundle	1 6– 2 0	Seakale, per bundle	1 6– 2 6
Cucumbers, each	0 6– 1 0	Shallots, per lb.	0 3– ..
Endive, per doz.	1 0– 2 0	Salsify, per bundle	1 6– ..
Herbs, per bunch	0 2– 0 4	Spinach, per bush.	2 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Tomatos, per doz.	1 0– 3 0
Leeks, per bunch	0 2– 0 4	Turnips, per bundle	0 3– 0 4

New Potatos: — Round, 60*s.* to 90*s.* per ton; Kidneys, 90*s.* to 120*s.* per ton.

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Asters, per dozen	4 0– 8 0	Fuchsia, per dozen	4 0–12 0
Begonias, do.	6 0–12 0	Heaths, in var., do.	12 0–30 0
Bouvardias do.	9 0–18 0	Liliums, in var., each	1 0– 3 6
Coleus, p. doz.	3 0– 9 0	Mignonette, per doz.	4 0– 6 0
Chrysanthemums, p. dozen	4 0– 9 0	Myrtles do.	3 0– 9 0
Cyperus, per dozen	6 0–12 0	Pelargoniums, dble., per doz.	4 0– 9 0
Dracæna terminalis	12 0–30 0	— Scarlet, per doz.	3 0– 9 0
— viridis, per doz.	12 0–24 0	Primula sinensis	4 0– 8 0
Ficus elastica	1 6– 7 6	Solanums, per doz.	6 0–18 0

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Asters, per doz. bun.	4 0– 6 0	Mignonette, 12 bun.	2 0– 6 0
Camellias, 12 blooms	3 0– 9 0	Pelargoniums, per 12 sprays	0 6– 1 0
Carnations, doz. bun.	6 0– 9 0	Pelargoniums, Zonal, per 12 sprays	0 3– 0 9
Corn-flower, doz. bun.	3 0– 6 0	Roses, indoor, p. doz.	2 0– 6 0
Dahlias, p. doz. bun.	3 0– 6 0	— Outdoor, do.	0 6– 1 0
Eucharis, per doz.	4 0– 9 0	Spiræa, per 12 sprays	1 0– 2 0
Eschscholtzia, 12 bun.	2 0– 6 0	Stephanotis, 12 sprays	5 0– 7 0
Gardenias, p. doz.	3 0– 9 0	Tuberoses, p. doz.	1 0– 2 0
Gladiolus, doz. sprays	1 0– 2 0	Violets, p. doz. bun.	0 9– 1 6
Heliotropes, per doz. sprays	– 0 6		

SEEDS.

LONDON: *Nov.* 6.—Inactivity, as might be expected, now characterises the agricultural seed trade. Red Clover seed, notwithstanding the easier terms on which it can be obtained, fails to find buyers. Cable advices from New York quote a further reduction of 1*s.* per cwt., whilst from France offers now come to hand at very reasonable rates. Very little home-grown seed has yet made its appearance in Mark Lane. Alsike seed continues in some request, but white Clovers and Trefoils meet with no attention. The few small orders which still drop in for winter Tares are executed at full prices. Canary seed still realises very extravagant rates. The high values at which spring Tares are held in Kœnigsburg prevent orders being sent out. Linseed, Hemp, Rape, and Mustard-seed, are without change. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

Business at Mark Lane was very quiet on Monday. English Wheat remained nominally the same as on the previous Monday. New American spring Wheat was fully 1*s.* lower on the week. Other foreign dull and unchanged. Flour met only a limited inquiry, and that in favour of buyers. Malting Barley steady. Grinding sorts were 1*s.* to 2*s.* dearer on the week. Beans were rather easier to buy. Peas were unaltered in value. Oats continued in moderate supply, and were the turn dearer on the week.—Dulness again prevailed on Wednesday, and prices remained as on Monday. Wheat was very difficult to move, but factors were not generally inclined to press sales. Grinding Barley was firm, but malting qualities were rather weak. Malt was inactive, and little inquiry existed for either Oats, Maize, Beans, Peas, or flour, but the value of these articles was maintained.—Average prices of corn for the week ending October 31: Wheat, 44*s.* 1*d.*; Barley, 42*s.* 11*d.*; Oats, 27*s.* 11*d.* For the corresponding week last year:—Wheat, 59*s.* 10*d.*; Barley, 43*s.* 1*d.*; and Oats, 25*s.*

CATTLE.

With full supplies of stock and mild weather, the trade throughout was dull on Monday, prices generally tending downwards. The number of beasts on sale was large, and sales difficult to close. For the best English and Scotch fed, 6*s.* 2*d.* to 6*s.* 4*d.* were the topping rates. Middling descriptions sold badly, and generally at reduced prices. In sheep there was a dull trade. Last Monday's rates were hardly obtainable for the most suitable description, and 6*s.* was quite an extreme quotation for prime Down wethers. The few calves at market hung on hand. Quotations:—Beef, 1st quality, 5*s.* 6*d.* to 6*s.* 4*d.*; inferior, 3*s.* 8*d.* to 5*s.*; mutton, 1st quality, 5*s.* 8*d.* to 6*s.*; inferior, 4*s.* 6*d.* to 5*s.* 2*d.*; veal, 1st quality, 5*s.* to 5*s.* 4*d.*; inferior, 4*s.* to 4*s.* 8*d.*—At Thursday's market the quotations of Monday were freely given for choicest beasts, in a few instances these being exceeded; otherwise trade was dull. Supply and demand in the case of sheep were about equal,—small; but choicest qualities made more money than on Monday. Calves were plentiful, and trade slow, at late rates. No alteration reported in the trade for milch cows.

HAY.

At Whitechapel there were fair supplies of fodder, for which rather a quiet demand prevailed. Prices, however, were steady. Prime Clover, 100*s.* to 124*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 114*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load. Cumberland Market quotations: Superior meadow hay, 112*s.* to 126*s.*; inferior do., 88*s.* to 105*s.*; superior Clover, 120*s.* to 130*s.*; inferior do., 100*s.* to 108*s.*; and straw, 38*s.* to 42*s.* per load.

POTATOS.

The supply of Potatos on sale at the Borough and Spitalfields markets has been moderate, but sound descriptions of produce are scarce, and command full prices. Otherwise the trade has been slow. Regents, 70*s.* to 80*s.*; choice Yorkshire, 100*s.*; rocks, 65*s.* to 70*s.* and kidneys and Victorias, 80*s.* to 100*s.* per ton.—The imports of foreign Potatos into London last week amounted to 11,690 bags from Antwerp, 113 packages from Rotterdam, 10 bags from Bremen, 111 from Brussels, 521 from Dunkirk, 100 from Harlingen, 7[illegible] tons from St. Malo, and 318 bags from Ostend.

COALS.

Best house coals were steady at market on Monday, and seconds advanced 6*d.* a ton. On Wednesday the market was without alteration, with the exception that Hartleys fell 6*d.* a ton. Quotations:—Bebside West Hartley, 22*s.* 3*d.*; West Hartley, 22*s.* 3*d.*; Walls End Kelloe, 24*s.* 6*d.*; Walls End East Hartlepool, 25*s.* 9*d.*

PLANTING SEASON.

LARCH, SCOTCH FIR, ENGLISH OAK, and all other Forest Trees.
QUICK, and all other Hedge Plants.
COVERT PLANTS in great variety.
FRUIT TREES, including all the best and most esteemed varieties—quarter of a million trees.
ROSES, Standards, Dwarfs, the newest and best varieties—100,000 to select from.
VINES, all the leading varieties in 2000 well ripened canes for fruiting in pots and for planting out.
EVERGREENS in great variety, including large quantities of all the choicest Hollies, &c.
CONIFERS, including Picea Nordmanniana, &c.,
ORNAMENTAL TREES and Plants of all sorts.
*** The whole in very great quantity and stout vigorous condition, with fine roots, for safe removal.
Priced LIST and all particulars on application.
JAMES DICKSON AND SONS, **Newton** Nurseries, **Chester.**
☞ The "Newton" Nurseries are within eight minutes' walk, by the new road, from the Chester Railway Station.

B. S. WILLIAMS,
VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON,
Respectfully invites inspection of the choice and very extensive
Stock of Plants which he now has for Sale.
They comprise all the recent Introductions of Merit now to be found in European Gardens, as well as vast quantities of handsome Specimens, both large and small, of CAMELLIAS, AZALEAS, CAPE HEATHS, for Winter and Summer flowering, NEW HOLLAND PLANTS, a large and choice assortment of STOVE PLANTS, both flowering and ornamental leaved kinds, whilst the Collections of ORCHIDS, TREE FERNS, PALMS, and Succulent Plants are unsurpassed in the Trade.
The Cool-house Specimens, both large and small, are this season in splendid condition, and will amply repay a visit from any one about to furnish New Greenhouses or Conservatories; whilst the Stock of Winter Blooming Plants are extra fine, and well set with buds.
CATALOGUES gratis, and post free, on application.
VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON, N.

NEW APPLE.
PEASGOOD'S NONESUCH.
Handsomest, and one of the Largest Autumn Apples in Cultivation.
AWARDED:—
First-Class Certificate at the Royal Horticultural Fruit Committee, September 18, 1872;
First-Class Certificate, Crystal Palace Show, September 8, 9, and 10, 1874.
See *Gardeners' Chronicle* Report, September 12; and Advertisement, September 19.
IN USE, SEPTEMBER TO NOVEMBER.
Strong Maidens, ready in November, 7s. 6d. each.
Trade Terms on Application.
Coloured Plates are now ready, and will be sent Free to all Purchasers.
The following Firms have ordered plants:—

Blyton, Edward	Woodhall, Horncastle
Backhouse & Son	York
Cranston	Hereford
Cripps & Son	Tunbridge Wells
Clibran & Son	Altrincham
Crossland, B.	Richmond, Sheffield
Cypher	Cheltenham
Downie & Co.	Forest Hill, London, S.
Downie, Laird & Laing	Edinburgh
Dickson, F. & A.	Chester
Dancer, A.	Fulham, W.
Dickson, James, & Son	Chester
Francis, E. P., & Co.	Hertford
Fraser, John	Lea Bridge, London, E.
Fisher & Holmes	Handsworth, Sheffield
Holmes, Edward	Lichfield
Harrison & Sons	Leicester
Hewitt, Thos.	Solihull, Birmingham
Lawson & Sons	Edinburgh and London
Lane & Sons	Berkhampstead
Lee, J. & C.	Hammersmith, London, W,
Little & Ballantyne	Carlisle
Mobbs	Daventry
Noble, Charles	Bagshot
Osborne & Sons	Fulham, W.
Perkins, Thomas	Northampton
Parker	Rugby
Paul, W.	Waltham, London, N.E.
Perkins, John, & Son	Northampton
Rush & Yeates	Chester
Shaw, J.	Manchester
Slater & Son	Malton
Stuart & Mien	Kelso
Simon-Louis, Frères	Metz
Swailes, George	Beverley
Shaw, H.	Richmond Hill, Sheffield
Thomas & Son	Rodnersham, Sittingbourne
Turner, Charles	Slough
The Heatherside Nurseries Company	
Veitch & Son	Chelsea, S.W.
Veitch, Robert	Exeter
Wood & Ingram	Huntingdon
Williams, B. S.	Holloway, London, N.
Wood & Son	Maresfield, Uckfield
Warner, T.	Leicester
Yates, R. S.	Sale, Manchester

PLANTS ARE NOW READY.
W. & J. BROWN,
NURSERYMEN, STAMFORD, LINCOLNSHIRE.

To Gardeners.
Gardeners are most respectfully Invited to Visit
THE PINE-APPLE NURSERY,
MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.
JOHN BESTER, Manager.

PLANTING SEASON.
RHODODENDRONS
WILL BE SUPPLIED,
In Fifty of the most Popular and finest known Hardy Kinds,
Sturdy, Bushy Plants, 1½ to 2 feet high, at
£10 per 100,
Carriage Free to any Railway Station in England.
Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.
A Descriptive Catalogue free on application to
ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

ROSES, ROSES, ROSES.
SECOND TO NONE IN THE TRADE.
Extra Strong Plants of the Best Exhibition Varieties of
HYBRID PERPETUAL ROSES
At 9*s.* to 10*s.* per dozen; 60*s.* to 65*s.* per 100.
Catalogues Free on Application.
ALSO, LARGE STOCKS OF
Fruit, Ornamental, and Forest Trees,
In fine Condition.
THE DORSET NURSERIES, BLANDFORD,
H. BLANDFORD, Proprietor.

MAURICE YOUNG'S
NEW DESCRIPTIVE CATALOGUE
Is now ready, and may be had on application.
IT COMPRISES:—
HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.
DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.
MILFORD NURSERIES, near GODALMING.

TO GARDENERS.—A family of ten persons REQUIRE a WEEKLY SUPPLY of VEGETABLES of all sorts except Potatos, and, if sent from a farm, Eggs, Butter, and Poultry may be added. Address T. V., Wade & Son, Newsagent, High Street, Kensington, W.

Manure.
WANTED, about thirty loads of good short DUNG, to be delivered at Lee, Kent (6 miles from London Bridge).
Address, stating price and where it may be seen, to M. C., Mr. Horne, Stationer, Lee, Kent, S.E.

Government Emigration.
SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under 12, £2 15*s.*
For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

BOROUGH of BIRMINGHAM.—Landscape Gardeners and others desirous of SUBMITTING DESIGNS for Laying-out and Planting about Nine Acres of Land, recently purchased for a Public Recreation Ground, and situated between Alcester Street and Moseley Road, are informed that lithographed plans of the site, with the levels marked thereon, together with printed particulars and conditions, may be obtained on application to the Borough Surveyor, Public Offices, Moor Street.
Premiums, one of £20, and the other of £10, will be given for the first and second best Design respectively.
The Designs, Estimates, &c., which are to be distinguished by a Motto, and accompanied by a sealed envelope, containing the name and address of the Competitor, are to be sent to the Baths, Kent Street, not later than the 12th day of December next.
By order,
EDWIN JOHN HAYES, Town Clerk.
Town Clerk's Office, Temple Street, October 29, 1874.

TO BE SOLD, a quantity of second-hand GREENHOUSE LIGHTS. Apply to Mr. J. BRANDE, Ansford Cottage, North End Road, Fulham, W.

JOHN WEST, DECEASED.—Pursuant to the Act of Parliament, 22d and 23d Victoria, c. 35, intituled "An Act to further Amend the Law of Property, and to Relieve Trustees," NOTICE IS HEREBY GIVEN that all the Creditors and other Persons having any Claims, Debts, or Demands against or affecting the Estate of JOHN WEST, late of Green Lanes, Stoke Newington, in the County of Middlesex, Nurseryman (who died on the 7th day of July, 1874, and whose Will was proved on the 9th day of October, 1874, in the principal Registry of Her Majesty's Court of Probate, by Samuel Woolcott and John Whitcher, the Executors therein named), are hereby required to send in to the Executors, at the Office of the undersigned Thomas Gregory, the Solicitor of the said Executors, situate at No. 18, Clement's Inn, Strand, London, on or before the 28th day of November, 1874, the full particulars in writing of their Claims against the Estate, and of their Securities (if any) held by them; and that the said Executors will, after that day, proceed to distribute the Assets of the said deceased amongst the Parties entitled thereto, having regard only to the Debts, Claims, or Demands of which the said Executors shall then have had Notice; and that they will not be liable for the Assets, or any part thereof so distributed, to any Person of whose Claim the said Executors shall not then have had Notice.
Dated this 17th day of October, 1874.
THOMAS GREGORY,
18, Clements Inn, Strand, London,
Solicitor for the said Executors.

Loam, Loam, Loam.
THE TOP SPIT of a MEADOW, delivered at Bexley Railway Station, at 5*s.* per yard. Sample and Testimonials on application to
J. ELLINGHAM, Bexley Heath, Kent.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

Autumn Sowing.
ODAMS' MANURES,
Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.
Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

MILDEW
May be entirely prevented as well as cured by
EWING'S INFALLIBLE COMPOSITION.
Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions for use.

Russia Mat Merchants.
MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., IMPORTERS of ARCHANGEL MATS. Large stock of heavy ST. PETERSBURG and close-woven MATS now arrived.
N.B.—Heavy St. Petersburg are best for covering purposes.

Protection from Frost.
TRELOAR AND SONS' COCOA-NUT PALM-LEAF GARDEN MATS will keep out many degrees of frost. Price 30*s.* per dozen.
TRELOAR AND SONS, 69, Ludgate Hill, London, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing, Second sized Archangel, 100*s.*; Petersburg, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton, and the late Professor Lindley, &c., &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.

PROTECTION FROM COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 4d. per yard.

"FRIGI DOMO" CANVAS.

Two yards wide .. .. 1s. 10d. per yard run.
Three yards wide .. .. 3s. per yard.
Four yards wide .. .. 3s. 10d. per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.

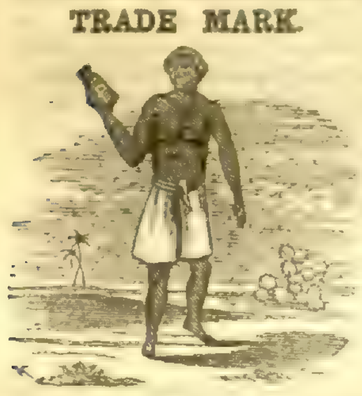
NOTICE.—REMOVED from 3, CANNON STREET, CITY.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

TRADE MARK.



Entered at Stationers' Hall.

F. STEVENSON'S ABYSSINIAN MIXTURE, Warranted to Destroy Mealy Bug, and all Insects infesting Plants. Unequalled as a Winter Dressing for Vines and Fruit Trees.

Sold by all Nurserymen and Seed Merchants, in Bottles, 1s. 6d., 3s., 4s. 6d. & 5s. 6d. each.

Inventor and Sole Manufacturer, F. STEVENSON, STAMFORD ST., ALTRINCHAM, CHESHIRE. (Late of Lark Hill, Timperley.)

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

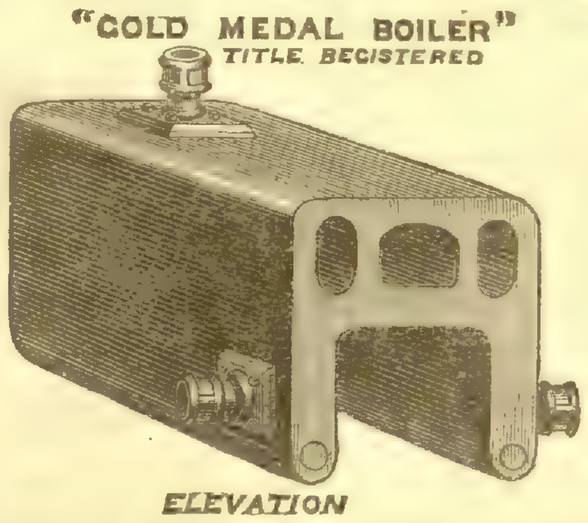
OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

SURREY SIDE, BLACKFRIARS BRIDGE,

Have the largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.

"GOLD MEDAL BOILER"
TITLE REGISTERED

HOT-WATER BOILERS,



ELEVATION

PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

NEW PATENT "CLIMAX" BOILER (1874). See p. 666, *Gardeners' Chronicle.*

"GOLD MEDAL" BOILER (Birmingham, 1872).

PATENT "EXCELSIOR" BOILER (1871).

"WITLEY COURT" BOILER (Silver Medal, 1872).

"TRENTHAM IMPROVED" BOILER, with Waterway End and Smoke Consumer.

"TUBULAR," and every other Boiler of known merit or excellence.

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

SEVEN INTERNATIONAL MEDALS AWARDED TO

JAMES GIBBS AND COMPANY,

SOLE MANUFACTURERS OF THE

PATENT AMMONIA-FIXED GUANO,

The Cheapest and Best Manure in use. Consumers are warned that none is genuine unless the Bags bear the TRADE MARK, and are secured with a Leaden Seal.

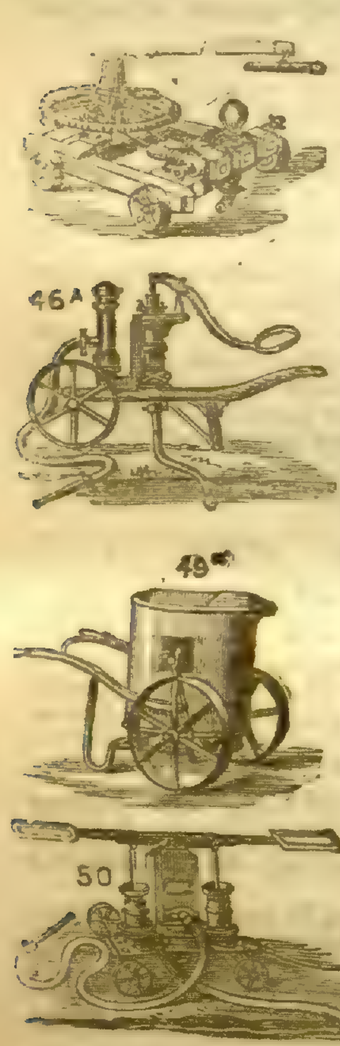
ALSO BONE AND SPECIAL MANURES,

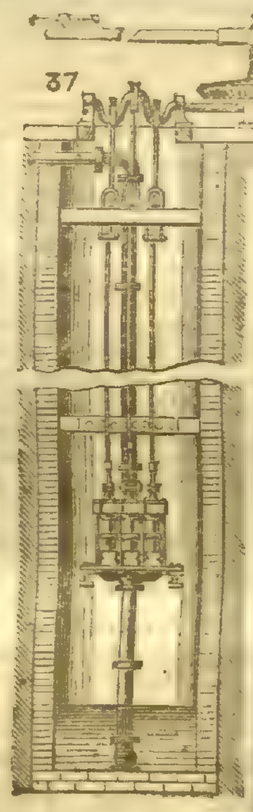
OF THE BEST QUALITY, AND IN THE HIGHEST CONDITION.

PARTICULARS OF

JAMES GIBBS AND COMPANY,

Works—Victoria Docks, London, E., and Cattedown, Plymouth. Offices—16, Mark Lane, London, E.C.

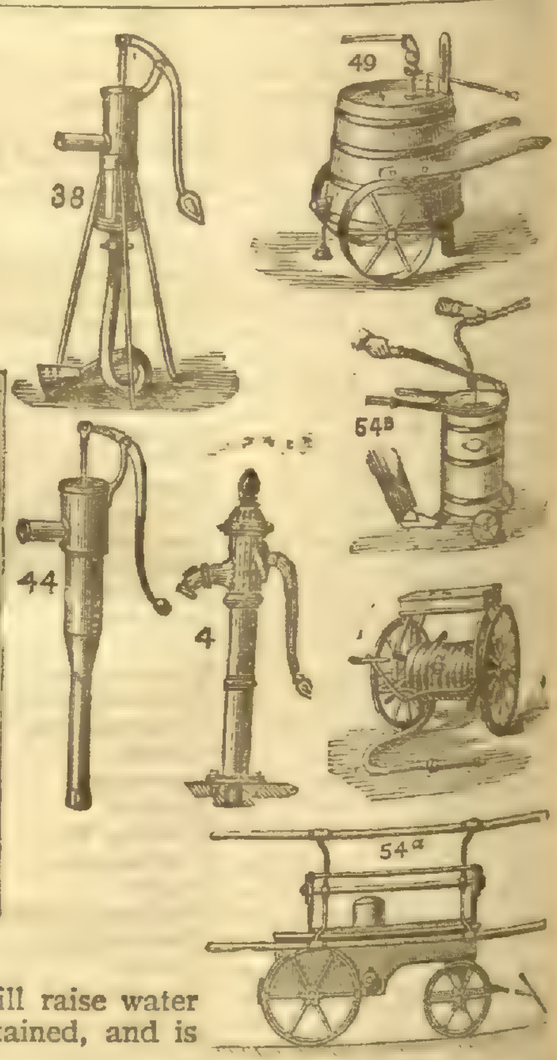




S. OWENS & CO.,

HYDRAULIC ENGINEERS,

WHITEFRIARS STREET, LONDON, E.C.



THE IMPROVED SELF-ACTING HYDRAULIC RAM.

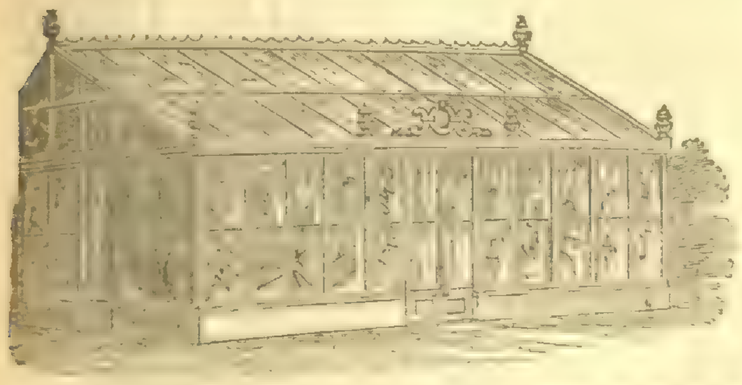
This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
No. 63. PORTABLE IRRIGATORS with Double or Treble Barrels for Horse or Steam Power.
No. 46a. IMPROVED DOUBLE ACTION PUMPS on BARROW for Watering [Gardens, &c.
No. 49a. GALVANISED SWING WATER CARRIERS, for Garden use.
No. 50 and 54a. FARM and MANSION FIRE ENGINES of every description.
No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.
No. 49. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.
No. 54b. THE CASSIOBURY FIRE EXTINGUISHER, as designed for the Right Hon. the Earl of Essex.
No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.
No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.
No. 39b. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution. FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.

J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

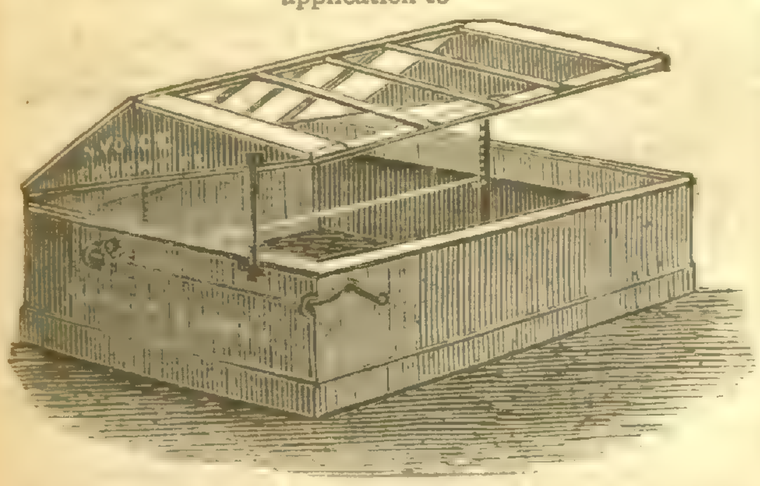


200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

HORTICULTURAL BUILDINGS

Designed, Built, and efficiently Ventilated and Heated.

Estimates given to Architects' Plans, or to Rough Sketches, with Sizes, &c.

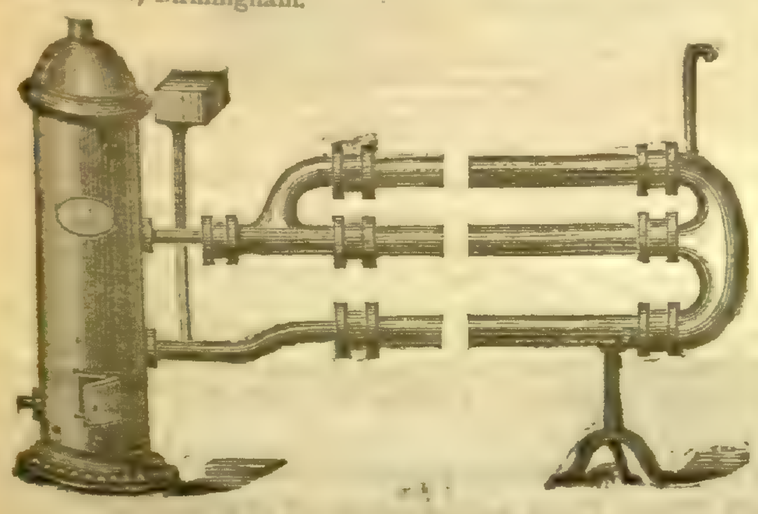
A PAMPHLET with Illustrations, Testimonials, &c., and PRICE LISTS of Sir J. Paxton's Hothouses, for 3*d.* post free.

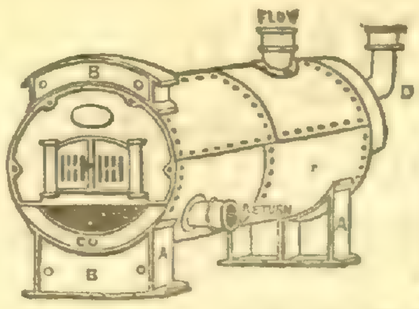
A HANDBOOK of Vine and Fruit Tree Cultivation, with Plans of Glass Houses, Heating, &c., post free, 13*d.*

HEREMAN & MORTON,
HORTICULTURAL ENGINEERS,
14, TICHBORNE STREET, REGENT QUADRANT,
LONDON, W.

HOT-WATER APPARATUS

(Heated by Gas)
FOR SMALL CONSERVATORIES, GREENHOUSES, &c.
Price from £3 3*s.* To be had of
JOHN GILL AND CO., 299, Oxford Street, London, W., and of all Ironmongers.
Wholesale only of JOHN WRIGHT AND CO., Essex Works, Broad Street, Birmingham.





STEVENS'
TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

ESTABLISHED 1856.

KEEP OUT THE FROST.

WILLIAM H. HONEY'S PORTABLE
VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

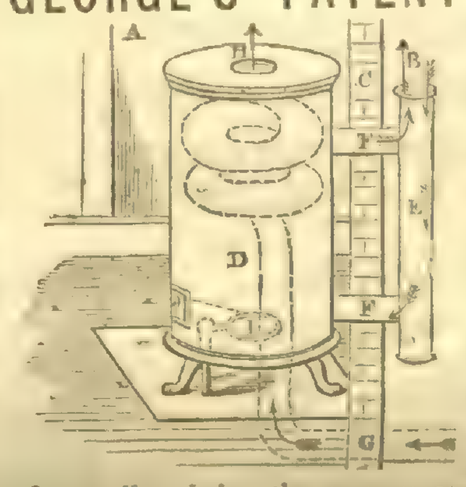
They will not injure the most tender exotics, nor are they in any way injurious to the health.

Prices, in block tin, 30*s.*; in copper, 50*s.* Copper, with glass, to give light and heat, 55*s.* Either will be sent on receipt of Post-office Order.

To be seen in operation at
WILLIAM H. HONEY,
263, REGENT STREET, W.
Catalogue free. No agents appointed.

GEORGE'S PATENT CALORIGEN,

FOR WARMING AND VENTILATING.

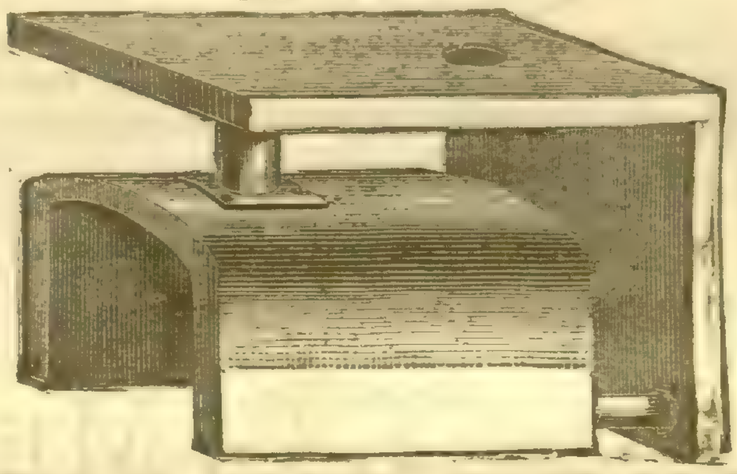


COAL CALORIGEN,
£6 6*s.*
Height, 36 inches; diameter, 21 inches.
GAS CALORIGEN,
£3 3*s.*
Height, 28 inches; diameter, 14 inches.

The only Gas Stove which retains the whole of the heat given off by the gas without vitiating the atmosphere. The "Coal Stove" consumes the smallest amount of Fuel—2*d.* per diem being the average cost. It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).

Illustrated Prospectuses and Testimonials on application.
J. F. FARWIG AND CO., 36, Queen Street, Cheapside, E.C.
This Stove introduces a strong current of warmed (not burnt) fresh air.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0
30 ,,	30 ,,	72 ,,	2,600	35	0	0
36 ,,	36 ,,	96 ,,	4,500	50	0	0
48 ,,	48 ,,	108 ,,	7,000	75	0	0
48 ,,	48 ,,	144 ,,	10,000	100	0	0

And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

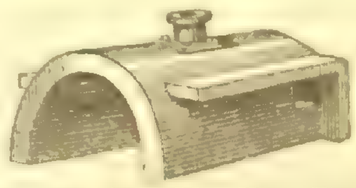
HOT-WATER APPARATUS!

If you want to know the Cheapest and Best Way to Heat your Greenhouse, send Two Stamps for a fifty-two page Catalogue, containing 100 illustrations.

J. MUSSETT,
Winstanley Road, Clapham Railway Junction, London, S.W.

First-class Certificate.

THE TERMINAL SADDLE BOILER is by far the cheapest and best, and is working its way into general favour.



The following Letter from Mr. WM. THOMPSON needs no comment:—

"Tweed Vineyard, March 21, 1873.

"Dear Sir,—I have now had your Terminal Saddle Boiler heating two large Span-houses, 21 feet wide and 15 feet high, containing 1484 feet of 4-inch pipe, and it does its work to my entire satisfaction. In fact I know of no Boiler of the same size and cost that will do the same amount of work with the same quantity of fuel. It is an excellent Boiler. You should advertise more than you do, for it deserves to be better known than it is.—Yours truly, WM. THOMPSON."

Illustrated Circulars, post free.
THOMAS JONES, Temple Street, Manchester.

The "Victoria" Hot-water Circulator.

THE ONLY APPARATUS thoroughly adapted for its purpose. No other possesses half the merits and advantages. Warranted for ten years. Also guaranteed to far surpass and give much more satisfaction than the common Boilers. A break-down never yet known. See Illustrated Prospectus and Testimonials from most eminent men, sent post free.

Patronised by H.R.H. the Prince of Wales.

The Gardens, Sandringham, October 28, 1874.

DEAR SIR,—I am in receipt of your Warranty, and am now able to tell you, after my having tried all kinds and all sizes of Boilers for the last twenty-five years, your Hot-water Circulator beats them all—not by a head, but it is a simple walk over—for economy and power. I think I may say, we shall never need any further research for a thorough good Boiler.

I am, dear Sir, yours truly,
Messrs. Cannell & Co. CHAS. PENNY.
P.S.—You are at liberty to make what use you like of this.

HOT-WATER CIRCULATOR COMPANY,
48 and 49, King Street, Woolwich, S.E.

GALVANISED WROUGHT IRON

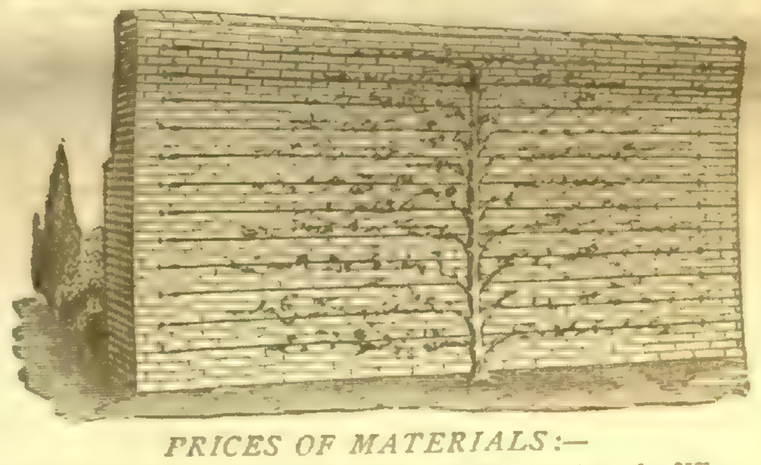
FITTINGS for WIRING WALLS,

For the Purpose of Training Fruit Trees

ON THE FRENCH SYSTEM,

and as recommended by Mr. W. ROBINSON, F.L.S., in his new work, "The Parks, Promenades, and Gardens of Paris."

By this system nails and shreds are entirely dispensed with, the walls are not injured, and no harbour is afforded to small insects. The Tying of the Fruit Trees is effected in one-fifth of the time required by the old system. The arrangement is so simple, that it can easily be applied to any Walls by inexperienced hands.



PRICES OF MATERIALS:—

GALVANISED RAIDISSEURS for Tightening the Wires. One of these required for each Line of Wire.

No. 900. 4*s.* per doz.

GALVANISED WALL EYES, 6*d.* per dozen.
GALVANISED TERMINATING HOLDFASTS, 2*s.* per doz.
GALVANISED WIRE, 2*s.* 6*d.* and 3*s.* per 100 yards.

ILLUSTRATED LISTS, with full particulars of the above, and of FITTINGS for ESPALIER TRAINERS, on very economical principles, free on application to

BARNARD, BISHOP & BARNARDS,
NORFOLK IRONWORKS, NORWICH.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

AGRICULTURAL LOCOMOTIVES,

STEAM PLOUGHING MACHINERY,

ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES, STEAM ROAD ROLLERS.

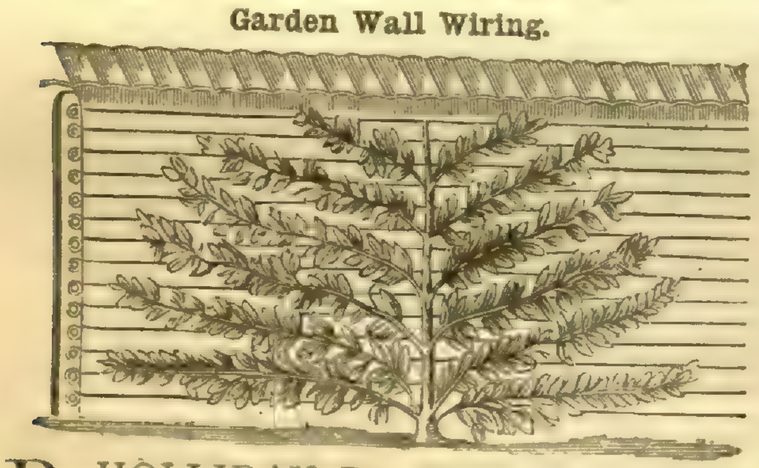
For Prices, Description, and Reports of Working, apply to the Manufacturers,

AVELING & PORTER,

ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

Garden Wall Wiring.



R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.

For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.

Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

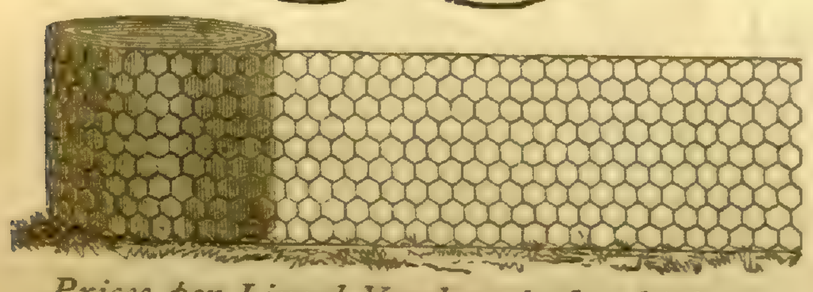
Messrs. J. B. Brown & Co.'s VIENNA PRIZE WIRE NETTING.

THE MEDAL FOR MERIT

At the Vienna Universal Exhibition, 1873,

Was awarded to Messrs. J. B. Brown & Co., for "excellence and perfection in material and

workmanship, large extent of production, and cheapness of produce."



Prices per Lineal Yard, 24 inches high:—

Size of Mesh.	Mostly used for	Gauge.	Or Light Quality. s.	d.	Gauge.	Or Medium Quality. s.	d.	Gauge.	Or Strong Quality. s.	d.
2 in.	Dogs or Poultry	19	0	3¾	18	0	4½	17	0	5¾
1⅝ in.	Small Rabbits, &c.	19	0	4¼	18	0	5¼	17	0	6¼
1½ in.	Smallest Rabbits	19	0	5¼	18	0	6¼	17	0	8

*** Circulars, with Prices and further particulars of Wire Netting, also of Iron Fencing, Espalier and other Materials for Wiring Garden Walls for Fruit Trees on the French System, on application.

Messrs. J. B. BROWN & CO.,

Offices—90, CANNON STREET, LONDON.

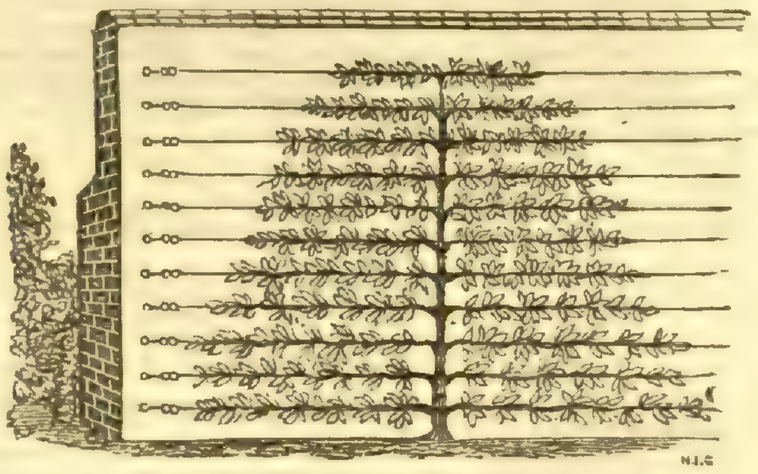
THOMAS'S

GALVANIZED

WROUGHT-IRON FITTINGS

FOR WIRING WALLS, FOR THE PURPOSE OF TRAINING FRUIT TREES

On the French system, and as recommended by Mr. W. Robinson, F.L.S., editor of *The Garden*, and author of "The Parks, Promenades, and Gardens of Paris."



Prices of Materials. Per doz.—*s. d.*

GALVANISED RAIDISSEURS 4 0

GALVANISED TERMINATING HOLDFASTS .. 2 0
(Two required for each line of wire.)

GALVANISED WALL EYES 0 6

GALVANISED WIRE, 2*s.*, 2*s.* 6*d.*, and 3*s.* per 100 yards.

Illustrated Lists, with full particulars of the above, and Fittings for Espalier Trainers, on very economical principles, free on application.

Five per cent. discount allowed for prompt cash on orders amounting to 20*s.* and upwards. Special quotations for larger quantities.

J. J. THOMAS & CO.,

PADDINGTON WIRE WORKS, 285 and 362, EDGWARE ROAD, LONDON, W.

Illustrated and Priced Catalogues of every description of Horticultural Wirework on application.

THE FRENCH SYSTEM

OF WIRING WALLS, &c., for

TRAINING FRUIT TREES.

Prices on application to

J. B. BROWN AND CO., 90, Cannon Street, E.C.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

THE THAMES BANK IRON COMPANY

(Successors to LYNCH WHITE),

Old Barge Wharf, Upper Ground Street, London, S.E.,

ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.

Price List on application, or six stamps for Catalogue.

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard .. .. 3*s.* 4½*d.*
3-inch Pipe, per yard .. .. 2*s.* 8½*d.*
2-inch Pipe, per yard .. .. 1*s.* 8*d.*

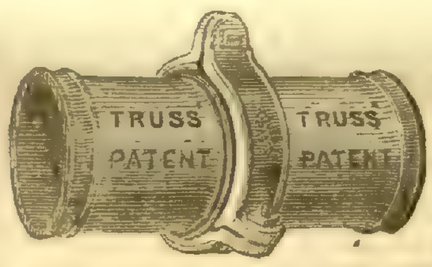
Connections at proportionate prices.

Illustrated Price List free on application to

T. G. MESSENGER, Hot-water Engineer, Loughborough.

HOT-WATER APPARATUSES.

CONSERVATORIES,
HOTHOUSES, CHURCHES,
PUBLIC BUILDINGS,
PRIVATE RESIDENCES,
&c.,

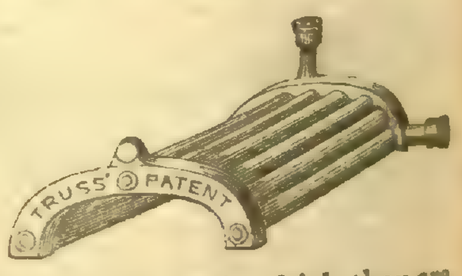


HEATED WITH

TRUSS' PATENT PIPES

AND BOILERS,

Complete with Universal, Flexible, and Leakless Joints.



The prominent advantages of these Pipes and Joints are the rapidity with which they are fixed, dispensing entirely with the tedious, expensive, and insecure socket or flange jointing, the facility for alterations or removal of apparatus, with a considerable saving in cost in comparison with any other system.

First-class Workmen kept for Fixing Apparatus complete in any part of the Kingdom.

SOLE PROPRIETORS AND MANUFACTURERS—

C. AND F. SANDERSON, IRON and BRASS FOUNDERS, MANSFIELD, NOTTS.

T. G. MESSENGER,

CONTRACTOR, MIDLAND HORTICULTURAL BUILDING AND HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH,

Begs to inform his numerous Patrons and the Public generally, that since his recent disastrous fire he has erected new, more extensive, and commodious works, fitted with the best steam-power machinery, for the construction of Horticultural Buildings in wood or iron, plain or ornamental, of any required dimensions. T. G. MESSENGER is now, therefore, in a position, from his great facilities and experience, to carry out with dispatch and in the best manner, at moderate cost, the orders with which he may be entrusted. Glasshouses erected on Messenger's Patent principles are, owing to mechanical arrangements, very strong, *most durable*, light, *elegant; perfect efficiency* for purpose intended is *guaranteed;* are economical in cost and maintenance. Hot-water engineering in all its branches. Messenger's Patent Hot-water Boilers, Flexible Jointed Hot-water Pipes and Valves, are now in use in many thousands of instances, with the greatest success. Particulars on application.

Plans and Estimates forwarded. Ladies and Gentlemen waited upon. The Plans of Architects and others carried out.

A richly Illustrated CATALOGUE forwarded Post Free on receipt of 33 Stamps.

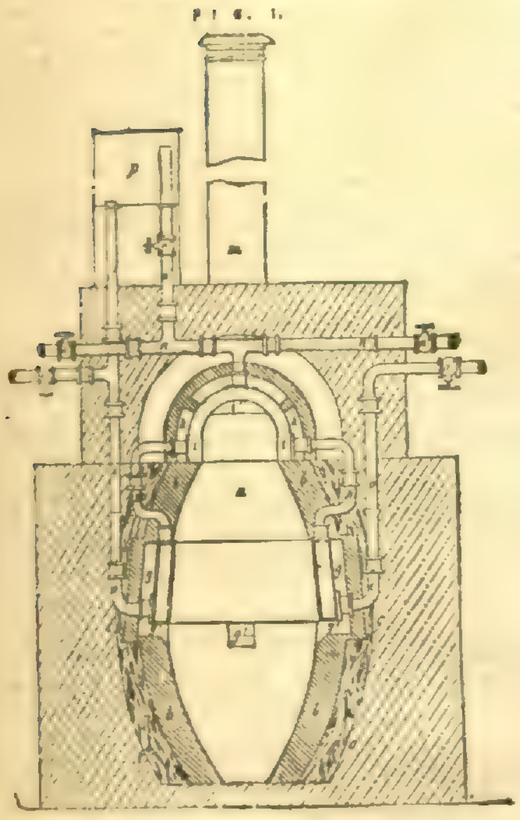
THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company, having purchased from the Dromore Patent Heating Company Mr. Cowan's valuable Patents for the United Kingdom, is now prepared to undertake the Erection of Apparatus on that System in all parts of the Country.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

THE SUCCESS OF EVERY APPARATUS ERECTED BY THE COMPANY IS GUARANTEED.



Full Particulars of this System, Testimonials, and Opinions of the Press, can be seen in the Company's Illustrated Pamphlet, which can be obtained, post free, on application.

The Company has an Efficient Staff of Engineers, and send at any time to inspect places where the idea is entertained of Erecting the Apparatus.

The System has lately been adopted at Hazelwood, Herts, the seat of Lord Rokeby; Stackpole Court, the seat of the Earl of Cawdor; Ripley Castle, Yorkshire, the seat of Sir H. D. Inglby, Bart.; Langleybury House, Herts, the seat of Jones Lloyds, Esq.; and at many other places.

The Company also undertakes the Erection of all other kinds of Heating Apparatus, and of Horticultural Buildings.

PLANS AND ESTIMATES FURNISHED ON APPLICATION.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

Office: 4, LOTHBURY, BANK, LONDON, E.C.

LASCELLES' PATENT CURVED STRUCTURES

Are constructed entirely of Wood, Bent on his Patent Principle, whereby each Bar forms a complete truss. They are strong, light, cheap and durabl .

DRAWINGS AND ESTIMATES, WITHOUT CHARGE, ON APPLICATION TO THE PATENTEE,

W. H. LASCELLES, 121, BUNHILL ROW, FINSBURY, LONDON, E.C.

GARDEN REQUISITES.—Tobacco Paper and Powder, Insecticides, Manures, Tools, Syringes, Labels, Bouquet Papers, and Sundries of every description, can be obtained at lowest prices of

POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, London, E.C.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of

CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

Labels—Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3*s.* 6*d.* per 1000, or 30*s.* per 10,000; if eyeleted, 4*s.* per 1000. Vellum Cartridge, 4 inches long, 3*s.* per 1000 for 10,000. Sample Labels sent on receipt of Postage Stamp. Orders delivered free in London.

JOHN FISHER AND CO., Label Works, Boston.

SPECIAL NOTICE.

F. K. BELL'S

IMPERISHABLE METAL LABELS
FOR
HORTICULTURE, WINE BINS, ARBORICULTURE AND MACHINERY.

THE ORIGINAL MANUFACTORY

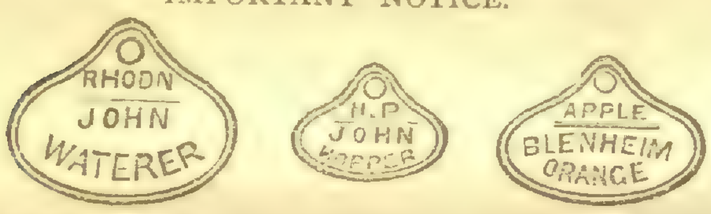
of these Labels (which have given such general satisfaction throughout the United Kingdom) has been removed ENTIRELY from Stratford-on-Avon to

EASTBOURNE, SUSSEX,

Where all Orders should be addressed, and shall receive prompt attention. Catalogues and samples on application.

F. K. BELL,
LABEL FACTORY, EASTBOURNE.

The Improved Imperishable Labels!!!
IMPORTANT NOTICE.



J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.

J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose. The Labels are made of a white metal with RAISED BLACK-FACED LETTERS.

All future orders will be executed with the new type.

Samples and Price List free.

Address—J. SMITH, Label Factory, Stratford-on-Avon.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

The Royal Pottery, Weston-super-Mare.

UNDER ROYAL PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.

JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars, and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

To Advertisers.

ADVERTISEMENTS are being received for INSERTION in the forthcoming PRIZE SCHEDULE of the GREAT INTERNATIONAL FRUIT SHOW, to be held in Edinburgh, in SEPTEMBER, 1875. LIST will be closed on the 25th inst. Terms on application to

WM. YOUNG,
33, South Bridge, Edinburgh. Assistant Secretary.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

Now Ready, Fifth Edition, considerably Extended, with 40 Wood Engravings, Frontispiece, and 8 new Panoramic Maps, post 8vo, 12*s.* 6*d.*

WINTER and SPRING on the SHORES of the MEDITERRANEAN; or, the Rivieras, Italy, Spain, Greece, Constantinople, the Archipelago, Corsica, Sicily, Sardinia, Algeria, Tunis, Smyrna, with Biarritz and Arcachon, as Winter Climates. By Dr. HENRY BENNET.

J. AND A. CHURCHILL, New Burlington Street, W.

Belgian.

BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAICHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid 10*s.* per annum.

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

New Works by the Rev. J. G. Wood, M.A.
Author of "Homes without Hands," &c.

OUT of DOORS; a Selection of Original Articles on Practical Natural History, uniform with "Strange Dwellings" by the same Author; with Six Illustrations from Original Designs engraved on Wood by G. PEARSON. Crown 8vo. Price 7*s.* 6*d.* cloth.

INSECTS ABROAD; a Popular Account of Foreign Insects, their Structure, Habits, and Transformations. With 600 Figures by E. A. SMITH and J. B. ZWECKER, engraved on Wood by G. PEARSON. Forming a Sequel or Companion Volume to "Insects at Home" by the same Author. 8vo. Price 21*s.* cloth.

London: LONGMANS AND CO.

Works on Botany, by Dr. Lindley.

THE VEGETABLE KINGDOM; or, THE STRUCTURE, CLASSIFICATION, AND USES OF PLANTS Illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25*s.*, with upwards of 500 Illustrations.

EXTRACT FROM THE AUTHOR'S PREFACE.

"The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be brought by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter deported from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects."

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents,
59, Fleet Street, E.C.

THE AGRICULTURAL GAZETTE,
SATURDAY, NOVEMBER 7, 1874,

Contains—

ORIGINAL ARTICLES on Wheat—Clovers—Swine—Indications of Age by Dentition (Illustrated)—The Ligurian Bee—A Second Crop of Plums—Strawberries Flowering in October—Calceolarias—Agricultural Machinery (Illustrated)—Eastern Counties Farming—Dairy Notes (Illustrated)—The Wheat Crop of 1874—The "Cambridgeshire Week"—Cricket in 1874—Coursing—Village Sanitary Reform—The *Journal of the Royal Agricultural Society*—Numbering Cattle (Illustrated)—Reserved Shorthorns at Wateringbury—The Shorthorn Herd Book—The late Sir H. S. Meysey-Thompson, Bart. (with Portrait), &c.

HOME AND FOREIGN CORRESPONDENCE on Linseed and Cotton-seed Cake—Destruction of Couch—Cautions to an Experimentalist—Cruelty to Animals—The Labourers' Movement.

FARM NOTES AND MEMORANDA from a large number of Counties in Great Britain and Ireland.

REPORTS OF SOCIETIES, FARMERS' CLUBS, &c.

ALSO—

The Veterinarian—The Poultry Yard—The Garden of the Farm—The Beekeeper—Dairy Notes—The Weather—Reports of Markets, Notices of Books, &c.

Price 4*d*.; post free, 4½*d*. Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

To Farmers.

BOARD and RESIDENCE REQUIRED by a young GENTLEMAN in a Farmhouse, where Pupils are not received. A comfortable home would be thoroughly appreciated. Advertiser has some knowledge of Agriculture, having lived with a Farmer.—State size of farm, if near a railway station, lowest terms, &c., to R. W., Post Office, Ashford, Kent.

WANTED, a PARTNER to join a practical Man in a Nursery Business, close to London. Valuable Lease of Ground has been secured; Pits, Sheds, and Greenhouses erected. £150 to £200 required.—For particulars apply to G. N., 44, Vorley Road, Junction Road, Holloway, N.

WANTED, a competent MAN, to Superintend the Landscape Gardening Department for a large Nursery Firm; must understand Drawing Plans and Executing the same.—W. H. C., *Gardeners' Chronicle* Office, W.C.

WANTED, to APPRENTICE a YOUTH, age 15, in a Nobleman's or Gentleman's Garden, where he will have an opportunity of learning the various branches of the profession. A Premium of £20 will be given.—GEORGE GIGG, Catt's Malthouse, Kingsclere, Newbury, Berks.

WANTED, a WORKING GARDENER, who thoroughly understands the profession; must be sober, honest, and industrious. One Man under him. As he would live in the lodge, a married Man without children preferred.—Address by letter, stating age, wages expected, qualifications, and references, Mr. W., 6, South Park, Sevenoaks.

WANTED, an UNDER SHOPMAN in the Seed Department, and to make himself generally useful.—Address, stating age, former experience, and wages expected, to THOMAS DAVIES AND CO., Nurserymen and Seedsmen, Wavertree, near Liverpool.

WANTED, a KNIFEMAN and GENERAL PROPAGATOR (Outdoors). Must thoroughly understand Fruit Trees, Roses, Conifers, Evergreens, and the general routine of Nurserywork. Good reference required.—Apply, in own handwriting, JAMES W. TODMAN, Eltham Nursery, Kent, S.E.

WANTED, as GARDENER, a first-class, practical Man, age 35 to 40, married, and without family. A Second Man kept. State wages required with lodge rent free.—Address C. C., Post Office, Kingston, Surrey.

WANTED, a WORKING FOREMAN, to undertake the Management of large Enclosures where bedding is carried out on a large scale. Must understand the laying-out of New Ground, Jobbing, Furnishing, &c.—Apply, stating age, amount of experience and where obtained, salary required, &c., M. W., Wilkinson's Library, 8, Church Road, Granville, Brighton, Sussex.

Gardener and Wife.

WANTED, as HEAD GARDENER, a steady, middle-aged, married Man, without encumbrance, to reside in the house (at Twickenham); his Wife as COOK. Both must be experienced and of unexceptionable character for honesty, sobriety, diligence, and good temper. They would not be required immediately but any time this month.—Apply by letter, stating the respective wages required, to H. G. BOHN, Esq., 18, Henrietta Street, Covent Garden, London, W.C.

WANTED, an ASSISTANT SHOPMAN.—Apply, stating age, references, and wages expected, to DOWNIE, LAIRD, AND LAING, Edinburgh.

WANTED, an experienced, trustworthy CLERK, in a large Provincial Nursery; must be well recommended, sober, middle-aged, and understand keeping Cash Accounts and Posting a Ledger.—Address, stating length of time in last situation, and wages expected, NURSERY, Messrs. Hurst & Son, Seedsmen, 6, Leadenhall Street, E.C.

WANTED, a respectable, well educated YOUTH (about 15 or 16 years of age), to Learn the Seed Trade, in one of the largest and oldest established houses in the suburbs of London.—Apply, in own handwriting, to W. T., *Gardeners' Chronicle* Office, W.C.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD), where three or more are kept.—Has a thorough practical knowledge of the profession in all branches. Highest references as to honesty, sobriety, &c.—A. B., 35, Mountash Road, Sydenham, S.E.

GARDENER (HEAD).—Age 32, married, no family; thoroughly experienced in the profession. Good character.—Address, with full particulars, the GARDENER, Denham Rectory, Uxbridge, Bucks.

GARDENER (HEAD).—JAMES FREEMAN, who was Gardener to the late and present Lord Derby at Knowsley for eleven years, is now open to an engagement. References permitted to late employer and Dowager Countess of Derby.—31, Green Lane, Stoneycroft, Liverpool.

GARDENER (HEAD).—THOMAS WOODFORD, eighteen years at Eastwell Park, Ashford, Kent, with the Right Hon. the Earl of Winchilsea, and His Grace the Duke of Abercorn, is desirous of an engagement in a first-class Establishment. Will be at liberty after November 13.—Address as above.

GARDENER (HEAD).—Age 29, single at present; thoroughly understands the Cultivation of Vines, Pines, Peaches, Figs, and all the various ways of Forcing Fruit and Vegetables. Thoroughly well up in Growing Native and Exotic Gigantic Plants, both Flowering and Foliage; and excellent in Growing Decoration Plants. Also a good Plan Drawer for new Flower Gardens.—A. B., Mile End, Capernaum, Romsey, Hants.

GARDENER (HEAD).—Age 35, married; thoroughly understands the profession in all its branches, the forcing of Pines, Vines, Peaches, Melons, Stove and Greenhouse Plants. Character will bear the most strict investigation on every point.—RUSH AND YEATS, Eaton Road Nurseries, Chester.

GARDENER (HEAD).—Age 40, married, no incumbrance; a first-class practical Man, fully competent in every branch of modern Horticulture, especially in Pines, Grapes, and choice Fruit under Glass, Early and Late Forcing, Kitchen Gardening, &c.; has had much experience in Laying-out and the Decoration of Ornamental Flower Gardens. Five years' good character.—HORTUS, Post Office, Manningham, near Bradford.

GARDENER (HEAD, WORKING), where three or four are kept.—Age 27, married; nine years and eight months experience in large Establishments. Can have good references from past and present employer.—H. T., The Gardens, Beddington House, Beddington, Surrey.

GARDENER (HEAD, WORKING), where two or more are kept.—Age 32, single; seven years in last situation. Good character.—W. M. B., Post Office, Crouch End, Hornsey, N.

GARDENER (SINGLE-HANDED).—Age 28, single; thoroughly understands Greenhouse, Flower and Kitchen Gardening: nine years' experience. Four years' good character from last situation.—G. A., 7, Arundel Place, Lewisham, Kent, S.E.

GARDENER (under a Foreman), in the Houses, in a Gentleman's Establishment.—Age 21. Four years' character.—J. S., Shirley's, Broadway, Tooting, S.W.

GARDENER (UNDER).—Good experience in Forcing both Flowers and Fruit. Good references.—E. C., Ebenezer Cottage, Windsor Street, Putney, S.W.

MANAGER, or GENERAL NURSERY FOREMAN.—Twenty years' good practice.—S. D., Mr. Knight, Nurseryman, Whitmore Reans, Wolverhampton.

FOREMAN, in a first-class Nobleman's or Gentleman's Garden.—Age 26; has had several years' experience. Two years in present situation, and can be well recommended.—G. R., Post Office, Worksop, Notts.

To Nurserymen.

FOREMAN (GENERAL).—Twelve years' experience in all branches of the Nursery business. First-class references from previous employers.—J. R., The Nurseries, Inverurie, Aberdeen.

AN energetic, pushing Man, of long Trade experience, offers his services as TRAVELLER and ASSISTANT to any Firm desirous of working up a good business. Has an excellent trade connection, and a sound knowledge of the value of In and Outdoor Nursery Stock. Would not object to fill up the leisure time during summer in the Nursery. Creditable reference and security if required.—G. W. R., *Gardeners' Chronicle* Office, W.C.

ASSISTANT, or MANAGER of a BRANCH in a good Nursery business.—An experienced young Man is desirous of procuring a situation as above.—D. N., *Gardeners' Chronicle* Office, W.C.

TRAVELLER, or ASSISTANT TRAVELLER, to Work Seeds, Manures, Feeding Stuffs, Agricultural Implements, &c.—Age 21; bred to the Nursery and Seed Business.—AGER, Messrs. Downie, Laird & Laing, 17, Frederick Street, Edinburgh.

TRAVELLER or WAREHOUSEMAN.—Age 29; fourteen years' experience in Wholesale Seed Trade. Knows West of England, South Wales, Ireland and Scotland. First-class references.—J. S. B., *Gardeners' Chronicle* Office, W.C.

Seed Trade.

SHOPMAN and TRAVELLER, or in a Wholesale London Warehouse.—Age 33; has had seventeen years' experience. First-class references.—SEEDSMAN, Mr. John Taylor, 16, Fore Street, London, E.C.

SHOPMAN (SECOND).—Apprenticeship just expired. Good reference.—J. S., John Stewart & Sons, 21, Nethergate, Dundee.

To Seed Merchants.

SHOPMAN (ASSISTANT).—Age 22. Seven years' experience. First-class references.—D. G., 2, Livingston Place, Leith.

CLERK and SALESMAN.—The Advertiser, who has had almost eleven years' experience in the Seed and Nursery Trades, is now open to treat with any good Firm as above.—Full particulars and first-rate references may be had on applying by letter to J. B. S., 175, Seymour Street, Euston Square, N.W.

IMPROVER, in a Nobleman's or Gentleman's Garden.—Age 18. Good recommendation.—A. B., Post Office, Wendover, Bucks.

KINAHAN'S . LL . WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES,
in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Lea & Perrins' Sauce,

THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.

ASK FOR LEA AND PERRINS' SAUCE.
BEWARE OF IMITATIONS,
and see the names of LEA AND PERRINS on all Bottles and Labels.
Agents—CROSSE AND BLACKWELL, London; and sold by all Dealers in Sauces throughout the World.

DINNEFORD'S FLUID MAGNESIA.

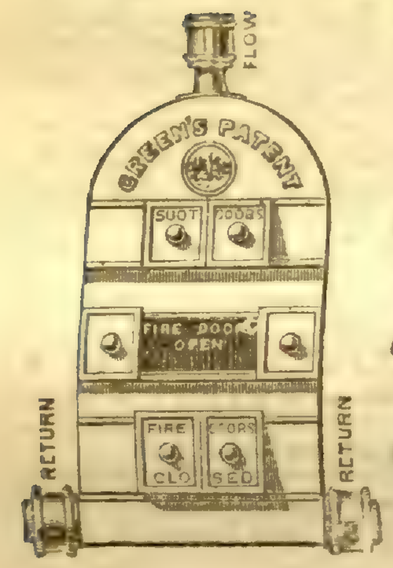
The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

AT THIS SEASON PARR'S LIFE PILLS are USED by THOUSANDS. They clear from the body all hurtful impurities, and promote a regular and healthy action of the Liver and Bowels.
PERSONS SUFFERING from HEADACHE, INDIGESTION, Pains in the Shoulders and the Back, Gout, Rheumatism, and General Debility, are particularly recommended to try PARR'S LIFE PILLS. They have never been known to fail in affording immediate relief.
SOLD BY ALL CHEMISTS.

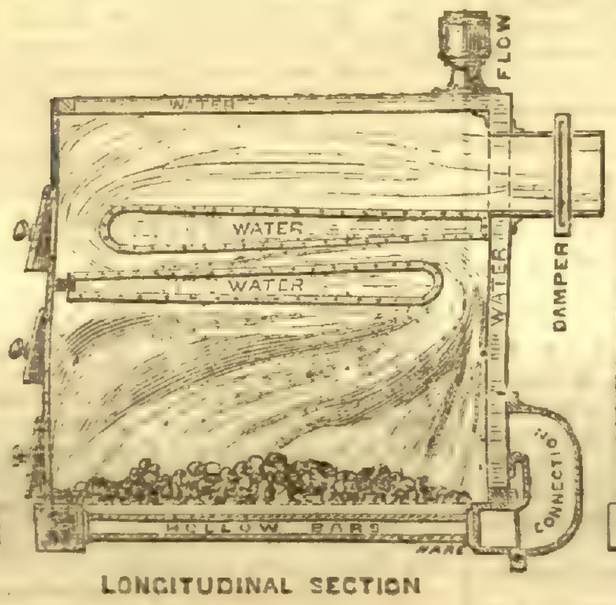
GREEN'S PATENT
WROUGHT-IRON HOT-WATER BOILERS,
WITH SHELVES AND HOLLOW GRATE-BARS.

They are specially adapted for Heating Greenhouses, Conservatories, Churches, Chapels, Schools, Public Buildings, Entrance Halls, Warehouses, Workshops, &c., &c.

They are the Neatest, Cheapest, most Effective, and Durable of any that have yet been invented.

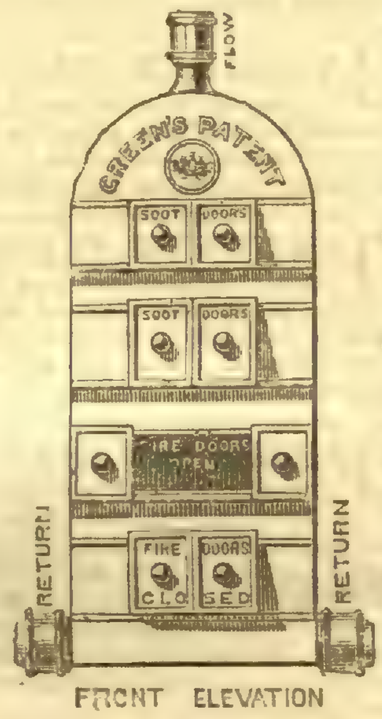


FRONT ELEVATION

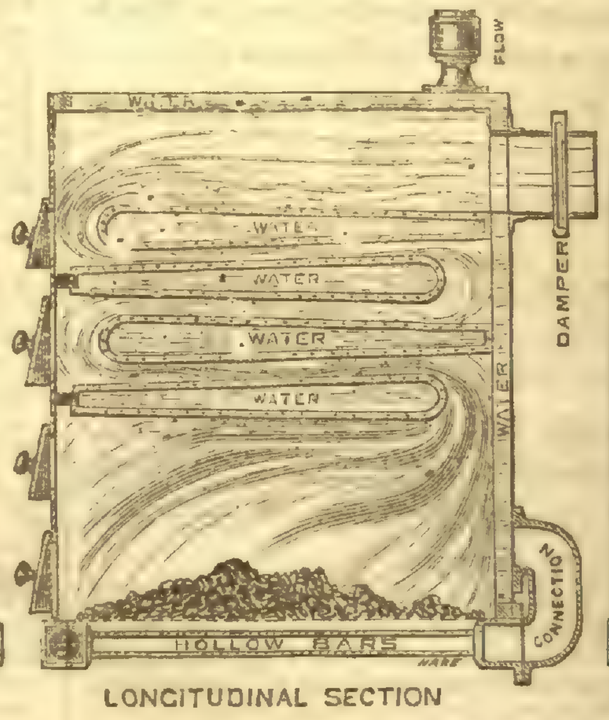


LONGITUDINAL SECTION

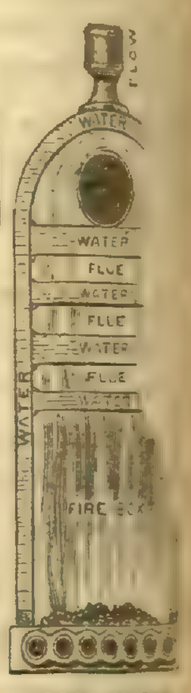
CROSS SECTION



FRONT ELEVATION



LONGITUDINAL SECTION



CROSS SECTION

The cross section gives a view of the fire-box, flue, and water space of the boiler.

The longitudinal section shows the hollow grate-bars, the edge of the water shelves, flue, &c.

The front elevation shows the fire and soot doors, which when open expose the interior of both the fire-box and the flues, so that they can be readily inspected, and easily and thoroughly cleaned out.

Sizes and Prices of Boilers with TWO SHELVES, including Hollow Grate-Bars, or with Cast-Iron Sole-Plate and ordinary Grate-Bars, Fire-Door, Dampers Top and Bottom, and one Flow and one Return.

Boilers.	Width.	Length.	Height.	Length of 4-inch Piping calculated to heat	Price.
	ft. in.	ft. in.	ft. in.	ft.	£ s. d.
*A	1 0	by 2 0	by 2 4	400	10 0 0
*B	1 3	,, 2 6	,, 2 6	600	16 0 0
C	1 6	,, 3 0	,, 2 9	800	22 0 0
D	1 9	,, 3 6	,, 2 11	1100	29 0 0
E	2 0	,, 4 0	,, 3 2	1400	36 0 0
F	2 3	,, 4 6	,, 3 4	1700	43 0 0
G	2 6	,, 5 0	,, 3 6	2000	50 0 0
H	2 9	,, 5 6	,, 3 9	2500	60 0 0
I	3 0	,, 6 0	,, 4 0	3500	70 0 0

Sizes and Prices of Boilers with FOUR SHELVES, including Hollow Grate-Bars, or with Cast-Iron Sole-Plate and ordinary Grate-Bars, Fire Door, Dampers Top and Bottom, and one Flow and one Return complete.

Boilers.	Width.	Length.	Height.	Length of 4-inch Piping calculated to heat	Price.
	ft. in.	ft. in.	ft. in.	ft.	£ s. d.
*A	1 0	by 2 0	by 3 4	500	12 10 0
*B	1 3	,, 2 6	,, 3 6	700	20 0 0
C	1 6	,, 3 0	,, 3 9	1000	27 10 0
D	1 9	,, 3 6	,, 3 11	1400	36 0 0
E	2 0	,, 4 0	,, 4 2	1800	45 0 0
F	2 3	,, 4 6	,, 4 4	2300	54 0 0
G	2 6	,, 5 0	,, 4 6	2600	62 10 0
H	2 9	,, 5 6	,, 4 9	4000	75 0 0
I	3 0	,, 6 0	,, 5 0	6000	87 0 0

* N.B.—The A and B Boilers have the fire-box large enough to hold that quantity of fuel which will keep the fire burning for a period of ten or twelve hours, and in the larger sizes much longer, without requiring attention.

The advantage gained by having a Four-Shelf Boiler over the Two-Shelf one, is, that the same quantity of fuel in the former will heat a much larger volume of water than in the latter one, as all the heat is utilised.

TESTIMONIALS.

From E. G. Henderson & Son, *Nurserymen.*

St. John's Wood, *October* 7, 1873.

Mr. Thomas Green.

Dear Sir,—The Boiler is at work and answers A 1. Our man says it will heat double the quantity of water that "Weeks' Tubular" did, and which this one replaces, and fuel used is comparatively nothing, but, as the plan and structure of this Boiler is of recent introduction, it will require a longer period of use to test its durability in comparison with others.

The large one now at work in our establishment is 4 feet 6 inches in length, 4 feet 6 inches in height, and 2 feet 4 inches in width; heating most efficiently 3393 feet of 3 and 5-inch piping, part of which is 240 feet from the boiler, and a considerable extent of it is 200 feet distant, whilst its present power is such as to warrant in milder weather an average circulation of 500 to 800 feet further in extent. The Boiler admits of 80 square feet of heating surface fully exposed to the action of the fire, which acts on four flat water-plates across the Boiler, each plate being 2 feet in width by 4 feet in length, the collective heat being utilised within the Boiler without waste in the flue or chimney, thus heating a greater extent of surface than any other boiler yet known to us. Amongst its advantages are the following:—When placed in the usual recess, under cover, it requires no brickwork in setting. In the event of any injury or accident, the Boiler can be removed by an efficient workman, without interfering with the bottom tubular bars, and be replaced with another in nine hours.

Royal Horticultural Society's Gardens,
South Kensington, *December* 18, 1873.

Messrs. Thomas Green & Son.

Dear Sirs,—I am instructed by the Council of the Royal Horticultural Society to acknowledge the receipt of your letter of the 12th ult., and to inform you that the Boilers supplied by you to the Society continue to give the most entire satisfaction.

The C Boiler fixed at Chiswick heats two ranges of plant pits containing 780 feet of 4-inch piping. The quantity of fuel consumed is remarkably small, and the attention required about equal to that required for the old "saddle backs."

The large Boiler fixed at South Kensington, for the heating of the Great Conservatory, has attached to it 6264 feet of 4-inch piping and 375 feet of 6-inch. This heats most effectually. The quantity of fuel required is from nine to twelve sacks of coke per twenty-four hours, according to the weather.

I have much pleasure, therefore, in being able to communicate to you such very gratifying results.

I am, dear Sirs, your very obedient Servant,
A. F. Barron

Confirmed by
J. S. Davenport, A.S.

Messrs. Green & Son may remark that they are now making the Boilers of much stronger plates than those of which Messrs. Henderson's Boiler was made.

DETAILED PARTICULARS and ESTIMATES for HOT-WATER APPARATUS given on application to

THOMAS GREEN & SON,
SMITHFIELD IRONWORKS, LEEDS; and 54 & 55, BLACKFRIARS ROAD, LONDON, S.E.

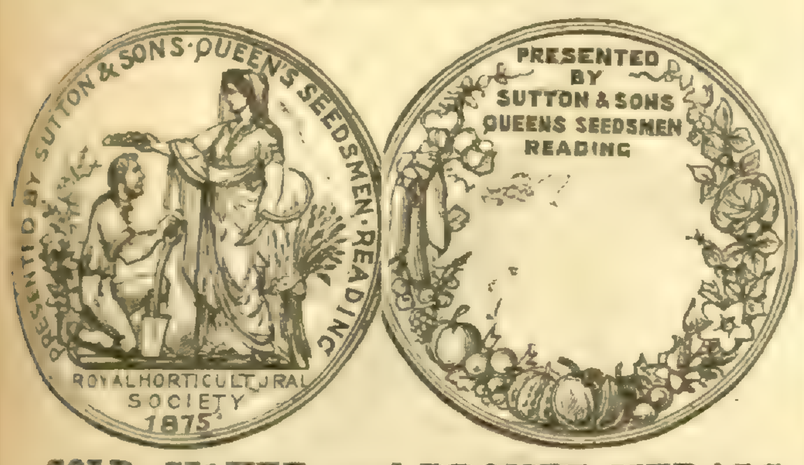
Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, November 7, 1874.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

IMPORTANT ANNOUNCEMENT.

SUTTON & SONS

Will have the pleasure of offering through the medium of the Royal Horticultural Society during the ensuing season,

SIXTEEN



GOLD, SILVER, and BRONZE MEDALS,

AND VALUABLE MONEY PRIZES,

FOR THE BEST

Collections of Vegetables, Flowers,

FRUITS, AND POTATOS,

As see the following particulars :—

Date of Meeting, 1875.					
June 2.—For the best six dishes of PEAS (½ peck of each to comprise a dish), to include Suttons' Emerald Gem, Suttons' Ringleader, and Suttons' New Early Dwarf Wrinkled Pea, Bijou	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
For the best four sorts of MELONS and four sorts of CUCUMBERS, one brace of each, to include Suttons' New Scarlet-flesh Hero of Bath, Read's Hybrid Scarlet-flesh, and Suttons' Royal Horticultural Prize Melons, and Suttons' Duke of Connaught and Marquis of Lorne Cucumbers	Gold	1st Prize, Medal and	£3	3	0
	Silver	2d Prize, Medal and	£2	2	0
	Bronze	3d Prize, Medal and	£1	1	0
July 7.—For the best six dishes of PEAS (½ peck of each to comprise a dish), to include Suttons' Duchess of Edinburgh, Suttons' Giant Emerald Marrow, Suttons' Duke of Edinburgh, and Maclean's Best of All	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
Sept. 1.—For the best collection of twenty-four ASTERS, twelve varieties, consisting of the varieties offered in Suttons' *Spring Catalogue and Amateur's Guide for* 1875	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
Nov. 10.—For the best twelve "Suttons' Improved" Reading ONIONS	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
For the best collection of POTATOS, twelve dishes, eighteen tubers to comprise a dish, distinct kinds, half Kidney and half Round, to include Suttons' Hundredfold Fluke and Suttons' Red-skin Flourball	Gold	1st Prize, Medal and	£3	3	0
	Silver	2d Prize, Medal and	£2	2	0
	Bronze	3d Prize, Medal and	£1	1	0
For the best six CAULIFLOWERS (Suttons' King)	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0

CONDITIONS OF COMPETITION.

These Prizes are confined to Noblemen's or Gentlemen's Gardeners and Gentlemen Amateurs, and (excepting Fruits) must be grown without forcing and in the open ground.

Full particulars of several Novelties will appear in

SUTTONS' SPRING CATALOGUE

And AMATEUR'S GUIDE for 1875,

Gratis to any Member of the Royal Horticultural Society, or intending competitors for the above prizes.

Sutton & Sons

THE QUEEN'S SEEDSMEN, READING.

SATURDAY, NOVEMBER 14, 1874.

WINTER READING.

NOW that the constantly shortening days and autumnal chills make the fireside and a pleasant book particularly enjoyable to those who are in a position to procure them, a word may not come amiss as to those amongst us who would much benefit by some similar mental recreation if they had it within reach, and whose useful and cheerful occupation of their leisure hours would in turn much benefit their employers.

Of course, in large horticultural establishments or in the vicinity of towns there is either careful provision or at least ample opportunity for the useful employment of the long winter evenings; but in many places this is not the case. The farm and garden labourers have often no means at all of getting at a book, or are thrown for their reading on the parish lending library, which (for their special needs) is too often but a broken reed to trust to. The formation of these lending libraries in many places seems precisely what is not wanted for young men either desirous of improving themselves in their own special branch of work, or of simply spending a spare hour on some book of general information, not the less profitable that it is entertaining and cheerful. Of course excellent books are sometimes forthcoming, but the mass of histories of the variety of mischief got into by every kind of ill-doing urchin, and the tracts and admonitions encumbering the shelves, are too often of a sort much more likely to send a tired man to seek for some degree of cheerfulness elsewhere, than to draw him from foreign entertainment to his cottage.

Whilst endeavouring in some degree to meet this want in a rural neighbourhood, I have been offered piles of old rubbish, for the most part sermons, simply because, as the offerers said, "We do not know what to do with them," and the harm these contributions cause is enormous. Those who read little, and that little when they are tired, want something with a point in it—facts entertainingly described, or animated narrative, rather than dry dissertations, especially of a sort left as totally unreadable by those better off; and here, independently of lending libraries, some help from resident employers, or members of their families who have leisure to attend occasionally to the matter, to their labourers, would often be of the greatest use; and not the less that it would frequently consist in a little advice or in writing for a book rather than an outlay of money.

In some cases much assistance may be given by procuring (not giving) the books wished for in some reasonable space of time. The rural labourer has no idea how to procure a book, and the bookseller in a little country town will often keep him waiting for weeks till both the leisure and inclination for study may have passed, and when the book does arrive he probably has to pay full price instead of getting the benefit of discount, which is no small matter where every penny has its use.

Another point where help may be often given is in the choice of books for elementary study from which the learner may acquire a correct general view of the subject selected, without being daunted at the very outset by minutiæ, which after a while would almost fall into their places without mental effort to the learner. Geology and Botany, Chemistry and Entomology, are all useful studies to the young horticulturist desirous of rising in his profession, and are sciences of which the smallest amount of sound knowledge cannot fail to be of service to him, but the mere formulæ and minutiæ of classification will do no good, till the broad facts and divisions are fixed in his head. Occasionally injudicious help disheartens and retards a diligent scholar by placing before him the very difficulties he need never have coped with. There are excellent books on these subjects to be had, giving general and useful knowledge clearly and correctly, and also in an entertaining form, and a little aid in procuring these, or even in furnishing their names, will usually be very gratefully received.

Another useful and entertaining study to the young gardener lies in elementary mathematics. The pencil and paper work necessary for drawing out the few simple problems of service in laying out grounds or flower-beds, are amusing in themselves, and may probably lead to some use of drawing materials, and to artistic ideas professionally valuable. Similarly general laws of perspective as applicable to landscape gardening, and the relative and positive effects of colour would all be of use and would be often eagerly studied if the means of acquiring the knowledge were procurable. For general cottage reading the most popular books appear to be biography and tales of real adventure or fact, whether of discoveries, travel, arctic or tropic life, or anything that has a point in it, made into narrative with plenty of dialogue, illustrations if possible, good type, and, above all, as few reflections as may be. For religious reading, "Sunday books" as it is expressed, I have found the same style—that is, short and clear Scripture biography or history, or some fact made into an entertaining story—much sought after, and especially Bibles in a good readable type; but (as far as I can venture to judge after many years of lending rural literature) I should say that tracts with terrifying denunciations conveyed in specially large letters, sermons laid aside because they are too dull to be got through, and long religious treatises, were decidedly inapplicable.

The comfort of the readers is much added to by good brown paper covers being put on the books, which preserves the binding, so that the reader may study in peace without his attention being distracted by the possible effect of a state of fingers not beneficial to smart bindings, but as a general thing I have found the lent books treated with the greatest care. I cannot recall any wilful damage being done on any occasion by the adult class of borrowers; and the comfort and pleasure of an unfailing source of amusement to their people during the long winter evenings, may perhaps tempt some with a little leisure time for the subject to contribute to their gratification. *O.*

New Garden Plants.

RAPHIDOPHORA LANCIFOLIA, *Schott.**

We lately received from Messrs. Maule & Sons, of Bristol, a flowering specimen of this Aroid, which appears not to have been previously noted as being in cultivation in this country. It is an evergreen stove climber, with fine dark green foliage and cream-coloured spathes, which render it a desirable acquisition for covering the back walls of a stove or other similar situation.

The stem is cylindrical, furnished here and there with aërial roots. The leaves in our specimen are 9—10 in.

* Petiolus longus ultra apicem in geniculum imum usque vaginatus; lamina lanceolata basi rotundata l. subcuneata apice longe cuspidata l. longe cuspidato-acuminata l. ovato-oblonga basi rotundato-cuneata apice sub-acuminata, venis 5—6 remotiusculis patentibus l. erecto patentibus, marginem versus sursum arcuatis exortu costæ decurrentibus, venastris paulo tenuioribus parallelis remotiusculis 3—4 intervenia occupantibus. Spatha ovata longe acuminato-cuspidata inferne sordide fuscescenti rubens. Spadix tenuis diametro 4—5 lineari spathæ acumine brevior. Khasia, Silhet.—*Schott, Prodr. Syst. Aroid.* (1860), p. 380, *et in Bonplandia* (1857), v., p. 45.

long, 2½ in. wide, inæquilateral, dark shining green above, paler beneath, quite glabrous, lanceolate, entire, with a long gradual acumination, rounded or subcuneate and oblique at the base, with a prominent midrib and secondary veins, arching towards the margins, and with smaller venules between them. Petiole nearly as long as the blade, dilated at the base, thickened and geniculate at the apex, and provided on either margin with a deciduous membranous border. The young leaves are convolute (sinistrorse) in vernation. The spathe is 3—4 inches long, 2½—3 inches wide, raised on a cylindrical green stalk of about equal length, ovate-acuminate, open, with somewhat involute margins, coriaceous, apricot-coloured, slightly rugose outside and spotted with green, conchoidal and salmon-coloured within. The spadix is about 2 inches long, cylindrical, erect, obtuse, free at the base, and covered throughout with hermaphrodite flowers. In the specimen before us the stamens have withered and the ovaries are nearly ripe, whitish, each wedged-shaped, with a truncate, flattish, six-sided top, and a small central stigma. Each ovary is two-celled, with numerous erect stalked anatropal ovules springing from the base. In the ripe fruit, according to Schott, the ovary is only partially two-celled, but it was completely so in Messrs. Maule's specimen. *M. T. M.*

THE GARDENS AT TRENTHAM IN AUTUMN.

WE have several times in these columns essayed to describe the noble gardens at Trentham Hall, but they are so extensive that their interest seems to be inexhaustible. Without, therefore, attempting now to enter on a description of the whole establishment, we propose to record, in the form of desultory notes, some of the impressions left on the occasion of a recent visit.

The flower garden in front of the Hall is one of the most complete of its kind we have anywhere met with. A view of this, looking towards the Hall, was given in our volume for 1872, at p. 840. As seen from the windows of the Hall, or from the terrace, the scene is one of surpassing grandeur. The geometrical garden on the upper terrace is one, the equal of which, for extent and good taste, as well as for efficient planting, is very rarely seen; and here Mr. Stevens, whose position as a thoroughly skilful and practical gardener is so well and so widely known, shows his appreciation of the feelings and wants of the times, by introducing so much variety into his bedding arrangements as effectually to do away with the monotony and glare which are the objectionable parts of the present bedding-out system. The date of our visit—about the middle of October—however, precludes us from dwelling on this feature, since many of the plants were removed to their winter quarters. We hope at some future time to give a plan of this garden, and an inventory of its furnishing, but meanwhile we may note a very successful hit in planting, which was brought about by accident. In the centre of this terrace garden is a handsome fountain, and just outside this fountain, surrounded by stone edgings corresponding with it in architectural features, is a series of small circular beds, in which it was usual to plant out Humeas—a plant which was always so well grown as to form a conspicuous feature of the terrace garden, and the secret of the successful growth of which was, we learn, the furnishing it with a liberal supply of water daily. Last year some mysterious disease took off the Humeas, and casting about for something to replace them, Mr. Stevens hit upon the Typha or Reed Mace—a stately water plant, which was planted, and succeeded perfectly, giving quite a new and most appropriate surrounding to the fountain. Clematis Jackmanni has been introduced with good effect into this garden, at various points where it fell in with the design; it is used in the form of globular specimens on a slender trellis, some 2 feet high and about the same in breadth, over which the branches are trained. Thus treated, the flowers, we were informed, have been most effective throughout the entire blooming season.

The view from this garden, looking over the lower terrace, 10 acres in extent, with its slopes and sunken panels of the freshest turf, and its simple but symmetrically-disposed beds of flowers, dotted with round-headed standards of dark green Portugal Laurels, and columnar Yews, and terminated at the head of the cunningly disposed lake of nearly 100 acres in extent, by a fine stone balustrading, is, we think, scarcely to be equalled as a home view from which the distant country is shut out. It is backed up by well-timbered hills, is flanked on the right hand by a noble bank of forest trees, and trends away on the left into a picturesque pleasure-ground, which in the spring must be all ablaze with Rhododendrons.

This allusion to the Rhododendrons reminds us that this part of the pleasure-ground has been much altered and improved since we last saw it a couple of years ago, new walks having been made, and a much more effective disposition of the shrub masses having been adopted. Here we found that Mr. Stevens had been for some years accumulating materials with which to carry out a system of massing individual kinds and forms, in the manner we have of late so frequently recommended. For example, we found set down in one place a bed of some fifty or one hundred finely-grown plants of Noble's Queen Rhododendron; another group, not in each case a separate bed, but occasionally a bold promontory forming part of a larger mass, consisted of the high-coloured John Waterer, another of Concessum, of Mrs. John Waterer, of Blandyanum, of Lady Eleanor Cathcart, of Brayanum, Celebrandum, Michael Waterer, Princeps, Minnie, Mrs. Clutton, &c.—varieties which, by their striking and dissimilar colours, produce a far more telling effect when thus planted in masses, than when promiscuously intermixed. Though plagued with a smoky and murky atmosphere, the outcome of the industry of the district, Rhododendrons thrive exceedingly well, and bloom in a very satisfactory way, the moist atmosphere and veil of smoke enabling even such varieties as Lady Eleanor Cathcart, the blossoms of which are apt to burn in the south, if exposed, to

FIG. 124.—RAPHIDOPHORA LANCIFOLIA. LEAF AND SPATHE.

The smaller figures represent the female flower, and a vertical section of the same, with ovules enlarged 5 diam.; and the abundant raphides in the cellular tissue (enlarged 100 diam.)

open their flowers unharmed. These beds of shrubs are everywhere seen sitting on the grass, with no raw sharply-defined bed-edges to offend the eye, but with the branches falling down to kiss the green turf, of which there are fine open breadths, forming vistas extending in all directions. The one blot of the pleasure-ground is the Trent itself, which flows through it. This, unfortunately, is polluted by the filth of the Pottery towns, which gives an ink-like colour, and at certain periods no very pleasant odour to the water, which at great expense is kept out of the lake by means of a new cutting. We should be sorely tempted to try the effect of General Scott's process before the stream reaches the vicinity of the Hall—that is, to filter the water, and to convert the deposit into cement by the admixture of lime, for which there must be abundant use on the estate.

In the conservatory attached to the mansion (a view of which is given at p. 841, 1872) were some blooming plants of Bambusa gracilis, large specimens of which with their long arching stems, large enough to stand far above the heads of the diners, form truly graceful objects for the decoration of the dinner-table. Curiously enough this plant, which has not flowered before at Trentham, is this year blooming freely on old and young plants alike.

That portion of the pleasure-ground immediately in front of the Hall is separated from the kitchen garden department, and the rest of the pleasure-ground, by the River Trent, over which a neat iron footbridge leads to another large square ridge-and-furrow conservatory, which is chiefly devoted to winter flowers. Here are splendid bushes of Camellias, which must furnish an inexhaustible supply of blossoms; a grand plant of Luculia gratissima, now showing flower all over, occupying a conspicuous position on the north wall, and others trained up the pillars; while such subjects as Tree Ferns, Palms, Bamboos, Dracænas, &c., most of them in pots, are set in to fill the spaces in the beds, such plants as these being required from time to time for table decoration. A very effective basket-plant used in this house is the Sedum carneum variegatum, whose pinkish stems and silvery leaves contrast strongly with the deep green which surround them; the stems are allowed to hang down on an average about 2 feet in length. Tacsonia Van Volxemi and other creepers drape the roof; and towards the front is a pretty model of a fragrant bower, in the form of a large Heliotrope trained so as to form a back and overarching cover to a reclining seat, and which is so pruned as to bring out its gratefully odoriferous blooms during the winter season.

In several of the vineries the back wall is occupied by Camellias, which do well in such a position, and furnish a useful supply of cut blooms at various seasons, according to the heat maintained in the house. In the Muscat-house a grand plant of Inga pulcherrima occupies a similar position, and flowers splendidly during the months of May and June.

Orchids are very largely and most successfully grown by Mr. Stevens, for the decoration of the dinner-table, and are found to furnish some of the most *recherché* materials for this purpose. In the tropical division were some splendidly-grown examples of Dendrobium Devonianum, with stout stems 3 to 5 feet long. The secret of growing this plant successfully, Mr. Stevens told us, is to treat it almost as an aquatic, giving it unlimited water while growing, and then ripening it by full exposure to the light, close to the glass. On the back wall of the house in which these were growing are two much neglected but exceedingly ornamental plants, creeping like Ivy over the damp surface of the wall, and throwing out pendent wreaths of showy flowers, namely Æschynanthus Lobbianus and Æ. Boschianus, both velvety scarlet, the one with a purple and the other with a green cup-shaped calyx. The barren clinging shoots with their two-ranked leaves, spreading out flat against the wall, give them a peculiar appearance.

A cooler division of this same north aspect house, devoted principally to Odontoglossums, is filled by a fine lot of useful sized plants, amongst which O. Pescatorei and O. Alexandræ are conspicuous. These plants are so successfully managed that at one time during the flowering season Mr. Stevens had over 700 fully expanded flowers of O. Pescatorei at one time; and as this plant holds its blossoms from two to four months, it is at once evident how valuable it is for the purpose of table decoration. Here, also, are many healthy bits of the charming Masdevallia Veitchiana, M. Harryana, and other choice varieties. Here, too, was growing the curious Drosera binata, a plant which seems to repudiate being classed amongst the carnivora. In the atmosphere of the Odontoglossum-house the plant grows freely, throwing out its forked leaves in succession. By-and-by, as the leaves grow on towards maturity, a small black ant is attracted to them and held fast by the viscid fluid secreted by the glandular hairs; but it is found that as soon as these ants die and begin to decay, the leaf dies off gradually, commencing at the tip, and not necessarily in close contact with the decaying animal matter. This looks very much as if animal food is not always favourable to Droseras. The *régime* adopted here for the treatment of Odontoglots and other cool Orchids, is to give them water most profusely, the cold rain-water which falls from the roof being used summer and winter, and to allow fresh air to circulate freely amongst them at all times, night and day, except in very severe weather. The natural water at Trentham, as does any other water containing lime, kills the Sphagnum used for potting these plants, and this is most inimical to the plants, which never thrive so well as when the Sphagnum keeps fresh and in a growing state. Mr. Stevens pointed out in respect to Sphagnum a fact which does not appear to be generally known, namely, that amongst the different species the best for potting Odontoglots and similar plants is a dense-growing compact kind, whose very compactness gives it a sponge-like consistency, and enables it to suck up and retain water freely. This is what the Odontoglots like. This same kind of Moss, however, when used for blocking Phalænopsis is fatal to them, apparently from its holding too much water; for these the coarser looser kind, which can only be packed more openly about the roots, should be used. The back of this house is clothed with, probably, the finest plant of Lapageria alba to be found in this country; this is one of the most useful of all flowers for cutting, its pure colour and wax-like consistency being remarkably effective when it is introduced into decorations to be seen by artificial light.

Fig. 125.
HORNBY'S MOVABLE GARDEN SCRAPER.

In the various plant-houses are to be seen splendid specimens of foliage plants, such as Crotons, Dracænas, Palms, Ferns, and such like. Some of the Crotons of the older kinds are particularly fine, but getting too large for the purposes for which they are required. Mr. Stevens thinks C. Weismanni the best of the long-leaved yellow variegated type; the leaves are very long, flat, about an inch wide, and constantly and beautifully marked with a rich golden variegation, while the constitution is hardy and the habit vigorous, which, it seems, is not the case with all the varieties. It certainly is a very handsome and effective plant, and cannot fail to become a general favourite.

Much of the space in the different "growing" houses and pits is occupied by plants being prepared for use about Christmas and onwards, some of the more striking of which we shall mention. The first on our notebook is the Epiphyllum truncatum, of which a considerable number of standard plants some sixteen or eighteen years old are grown, and introduced successionally from their resting quarters into very moderately warmed houses, but with a closer and damper atmosphere, where their buds soon begin to swell out and prepare themselves for a more rapid advance should it be necessary. The cutting of the flowers, which are usually gathered with one joint of the stem attached, keeps the heads compact and within bounds. They are mostly grafted on the Cereus speciosissimus, the succulent portion of which had, in one or two instances, been accidentally removed, showing that, if desired for appearance sake, the succulent angles might be neatly cut away without injury, leaving the woody centre intact. Of Calanthe Veitchii and C. vestita a very fine lot were starting nicely for bloom; these are indispensable for decorative purposes. Eucharis amazonica is grown in quantity; old plants shifted towards the end of September, and grown gently on, furnish good materials for the Christmas season; others, if divided about the same time, and the leaves entirely cut off, throw up three or four small neat leaves, and make exceedingly useful small flowering plants. Adiantum macrophyllum is treated in a similar way, except that the plants must be established and begin to throw up fronds before they are cut down. These are divided into single crowns in September, and, as soon as the young fronds begin to sprout, the old ones are all cut away, and thus a neat tuft of small, clean, nicely-tinted fronds is evolved, which makes such plants most useful for decoration. Poinsettias are, of course, largely grown for decorative work, as also are Thyrsacanthus rutilans and Justicia speciosa. The Rivinas, with their brilliant drooping racemes of scarlet berries, are largely employed; neat dwarf plants, 6 to 8 inches high, with four or six shoots, full of flowers now, and to be laden with berries hereafter, will be exceedingly effective. Other plants provided for this purpose, and to be seen in quantity, were the ever welcome Luculia gratissima, and Tabernæmontana coronaria flore-pleno. A fine houseful of Azalea indica, admirably grown, and forming neat, moderate sized specimens, will come in for similar use in due season. We quite agree here with Mr. Stevens in preferring free open natural growth, when so regulated as to form a properly balanced head, to the stiff crinoline training which is so offensive to the eye at most flower shows, but which public taste seems to be gradually and generally proscribing.

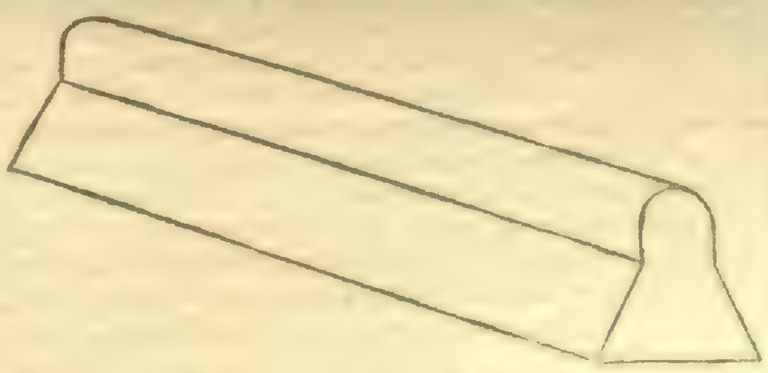


Fig. 126.—STEVENS' GARDEN EDGING BRICK.

In the kitchen garden department Mr. Stevens is doing away with live edgings, such as Box and Ivy, which have been formerly used, and after two years' experience is preparing to replace them by a light stone-coloured brick edging of his own, which is one of the neatest and best we have as yet met with. Its form admits of its being laid so firmly as to be practically immovable, its colour gives it the appearance of stone edging, and its form is so simple and neat as to be thoroughly unobtrusive, though perfectly efficient. With an edging of this sort the walks can be kept clean with the least possible trouble by adopting the system of dressing them with salt, which is always a risky experiment when live edgings are made use of. Of this edging brick, which is 18 inches long, 5 inches high, and 5 inches wide at the sole, 2¼ inches being set above ground, we subjoin an illustration (fig. 126). The great merit of this edging is the combination of elegance with durability and efficiency. This durability of course is due to the particular material of which it is made.

We noticed in use in this department a thoroughly useful garden utensil, and one of which gardens are too commonly deficient, namely, an effective movable garden-scraper, of which a sketch is subjoined (fig. 125). This is the invention of Admiral Hornby, late of Knowsley, from whom Mr. Stevens obtained his model. On the score of utility it speaks for itself, for it will be seen that it is easily removable as well as completely efficient; with this scraper workmen, when occupied on any particular quarter of ground, have only to set down the utensil at the point where they are likely to go off, and then there need be no occasion to carry dirt on to the gravel or other principal paths, which ought always to be kept clean, smooth, and orderly. The foot or scraper, which is made of 1-inch wide flat iron, ¼ inch thick, is 8 inches wide, and the handle, of ½-inch rod iron, is 2 feet 6 inches high.

Amongst the growing crops we noticed the American Strap-leaved Turnip, which is here held in high esteem as an autumn crop, since it comes in quickly after sowing, and stands well, owing to the upright foliage, besides having the quality of bearing to be sown thickly, and to be thinned out as required for use, in this way yielding a succession of moderate-sized, but sweet and pleasant-flavoured roots. Suttons' King Cauliflower was just come in, but was not much approved, the habit of the plant being too coarse and spreading, leaving the young flower-head exposed. The true Walcheren, with its compact and self-protecting growth, was considered much preferable.

Amongst forcing fruits the true Sir Harry Strawberry is considered to be one of the best, but it is said to be often confused with Keens' Seedling; the true kind is dark seeded, and of a paler crimson than Keens'. The latter is not, however, by any means to be despised for general purposes by the forcing gardener.

In the cold damp climate of Staffordshire outdoor wall fruits, except of the very hardiest kinds, rarely come to perfection; hence, a large proportion of the garden walls at Trentham are covered by a very characteristic glass case figured in a previous volume, 1872, p. 507. Some of these are heated sufficiently for vineries and Fig-houses, and they prove very useful adjuncts to the large houses. Others, more moderately warmed, serve for accelerating Peaches, Nectarines, Cherries, and Plums, while other unheated portions serve to provide successional crops;

these cases, moreover, being particularly useful in bringing on good sized trees as they are needed to supply deficiencies in the regular forcing-houses. These glass cases, though a feature of the garden at Trentham, are scarcely to be recommended on the score of economy, as a good lean-to house might be erected for the same cost, and would be far more useful.

Mr. Stevens thinks highly of the Early Louise Peach on account of its precocity, since a late-moved tree, which flowered in February, when fruits of Royal George were as large as blackbird's eggs, ripened early in May, yielding a larger supply at that date than the earlier started Royal George. Of course the crops in these glass cases had been removed by October, the date of our visit, but one interesting feature remained, in a considerable number of the Calville Blanche Apple, cultivated in pots; the fruit are allowed to hang on the trees nearly up to Christmas, when they furnish for some two or three months a supply of dessert Apples which are really fit to eat. This fact is suggestive that in the more northerly parts of the country, where some of the finest late Pears cannot be got to perfect themselves outdoors, they would probably do so if grown in pots, and allowed to hang on the trees, under glass, till a later period than is possible outside.

Mr. Stevens is just fitting up a limekiln boiler on Cowan's principle. As yet there has not been time to test its efficiency, but we may hope to hear more of the results shortly. The improved Cornish boiler, figured at p. 580 of our volume for 1871, still continues to give the greatest satisfaction, not only in regard to its heating powers, but also as to its durability, and the saving of labour in stoking. One boiler, which has been in use for eight years, has never required the slightest repair of fire-bars or any other part, and Mr. Stevens believes that they will last five generations without repairs at all, whereas, even with the good old saddle boilers, the fire-bars proved a continual source of trouble and expense.

We were particularly glad to see that a most substantial and commodious residence had been lately erected by the noble proprietor of Trentham for the comfort of the young men employed in the garden. We merely allude to it incidentally as being an example worthy of being followed by others who desire to have well ordered garden establishments, since we hope to describe it more fully hereafter, and to give the detailed plan and elevation of the building.

THE PHYLLOXERA AND A NEW INSECT POWDER.

M. DUMAS has made a communication on this subject to the Paris Academy of Sciences, announcing the scientific solution of the question, and the approaching practical method of destroying this terrible insect.

In the meantime the pest continues its progress towards the north. M. Maurice Girard has reported to the Academy its ravages in the two departments of the Charentes, it is found everywhere in the environs of Cognac, Libourne is attacked in the most serious manner, and the pest has reached Châteauneuf and Angoulême. The progress of the creature is, however, capricious; one district of vineyards is attacked, while another, where the soil and kinds of Vines cultivated are the same, escapes entirely. The insect is also reported to have appeared in Champagne, in lower Austria, and in the environs of Geneva.

M. Dumas, noticing the unusual development of the winged Phylloxera, remarks that it coincided with the holding of the insect exhibition in Paris, and complains that it was a very injudicious act to bring Vines infected with the insects to Paris, and that it may cause the pest to appear in the vineyards around Paris and in the great Grape growing establishments in the Forest of Fontainebleau. Up to the present time, he says, the annual flight of the creatures has not exceeded 12 or 15 miles. They took two years to reach Burgundy, and much longer to arrive in Champagne. If Paris were infested by them, Burgundy would be placed, as it were, between two fires, Champagne would be seriously menaced, and all the grand *crus* of France would be compromised.

M. Lichtenstein believes that the Vine Phylloxera attacks and flourishes on the kermes-bearing Oak, but M. Balbiani considers the Oak insect a different one. Four varieties indeed are mentioned—those found respectively on the pedunculated Oak, the white Oak, the kermes Oak, and the Vine, but all but the last are considered harmless.

The period of hibernation of the Phylloxera differs in hot and cold countries. M. Girard has observed near Cognac the influence of temperature on the insect. In the early days of October, when the weather was rainy at intervals, and rather cold, with white frost in the mornings, no eggs were to be found, but the warmer weather which followed caused their reappearance. In this they resemble other insects. It seems probable that the slower progress in northern vineyards may be due solely to a more prolonged hibernation, but without warranting the assumption that the cold will kill them completely.

The sulphocarbonates suggested by M. Dumas for the destruction of the insects are said to give certain results. He made experiments in his laboratory, first on the plants, and, secondly, on the insects themselves, and found that plants did not in any way suffer from being syringed with weak solutions of these salts, while the insects which were placed near the substances impregnated with the solution invariably perished.

M. Girard made experiments at Cognac with sulphocarbonate of potassium, prepared by the old costly method, and found that when some of this salt was placed at the bottom of a jar, and the insects introduced into the air in the upper part of the vessel, they soon died. As an insect powder he considers this salt as at least as effective as cyanide of potassium.

The next step was to procure it by a less costly method; and M. Dumas found that without the use of alcohol, hitherto believed to be necessary, the sulphide of potassium dissolved in water, and the sulphite of carbon would mix when certain pains were taken. A wholesale manufacture of the salt was undertaken on this principle by M. Dorvault, and the necessary cheap materials procured for further experiment.

M. Monillefert undertook the experiments at Cognac. Vines in pots bore for a long time the effect of the solution without any injury, and, where Phylloxera were present, they were all dead in a few days. The experiments were then extended to the open air, and it was found that plants of very different kinds were entirely unaffected by the solution. In the vineyards the effects were the same, or rather they were *nil*; and in the case of Vines infested by the insects the destruction of these was so complete and so rapid that M. Monillefert, who is well acquainted with all known insect-destroying substances, declares this solution to be the most powerful he has ever met with. It remained to be ascertained how deeply the solution would penetrate the ground; whether aged Vines would support its application as well as those in full vigour; and, lastly, to find out the best method of applying the solution. It was found that from 30 to 40 grammes (1 oz. to $1\frac{1}{3}$ oz.) of dry sulphocarbonate of potassium dissolved in water and poured into holes around the stem of the Vine, destroyed the insects in the case of Vines more than a century old without harming them in the least.

Another series of experiments had been made by M. Petit of Nismes, and others: namely, the application of coal-tar, and with various results, when M. Balbiani took up the subject and arrived at the conclusion that the tar which he used, obtained from the coal of Bességes, was a perfect destroyer of the insects. M. Dumas promises shortly a chemical and physiological analysis of this special coal-tar; and M. Balbiani is now engaged in experiments with other sorts. It is not with respect to the Phylloxera alone that careful experiments and investigations of this kind are valuable.

AN OLD LANCASHIRE BOTANIST.

REFERENCE has frequently been made in the columns of the *Gardeners' Chronicle* to the celebrated "Scientific Men in Humble Life," of whom South Lancashire has so much reason to be proud. The race is now fast diminishing in number—a circumstance obviously attributable to the facilities of travel given by the railway system, to the multiplication of books, and to the more general diffusion of knowledge. At the period when the celebrity of these men was established, say during the first quarter of the present century, they lived in comparative isolation. Now the isolation alike of abode and opportunities has been cancelled, and as a consequence the old botanists, as individuals somewhat conspicuous in their way, have slowly disappeared. The ancient spirit, nevertheless, is as keen as ever, and the love of botany is quite as honourably and intelligently represented. If we can no longer single out men very particularly remarkable, it is not that the old ones forgot to drop the mantle; it is simply through the estates of those elder ones having been divided, as it were, among many descendants. At no period, probably, was there ever a larger number of simple and true-hearted naturalists, persevering, acute, and industrious men, engaged in South Lancashire, in the pursuit especially of the knowledge of botany, than may be reckoned at the present moment. They cannot, of course, make their mark upon the progress of scientific discovery in the way that was done by the preceding generation, but they accomplish every bit as sound a result, namely, an immense amount of salutary intellectual pleasure for themselves, with perfect severance from low and debasing "enjoyments" miserably thus miscalled—the term "enjoyment" being applicable to such things only in irony; and in doing this they fulfil the part also of excellent moral exemplars to their neighbours and their families.

The disappearance, the other day, of another of the famous old school is an event accordingly which cannot but attract one's notice. On June 23 died at Boothstown, a quiet little village some 8 miles to the west of Manchester, Joseph Evans, "medical botanist," or, as he was familiarly known in the neighbourhood, after the manner of rustics and the uneducated, "Dr. Evans." The profession of "medical botanist" has in towns become so much vulgarised, not to say degraded, that it may be well to remind the reader that in bygone times it held, as to this day in rural districts, high repute; and that, to all practical intents and purposes, "medical botany" is still, and will for ever continue, one of the special and most important branches of the science of plants and their uses. The desecration of an art is by no means to be confounded with its legitimate province, and its faithful and unostentatious application; and though belief in the healing virtues of herbs may not be as popular with ourselves as with our ancestors, somehow there is a strong body of evidence in their favour yet to be seen in those thousand little receptacles in the apothecary's shop; and could the average or the percentage of the ingredients in physicians' prescriptions be ascertained, there can be little doubt that the balance would be on the side of medicines obtained directly from plants and trees. The reason that so many drugs of mineral origin have come to be employed in preference to vegetable ones is that in these modern days of haste and hurry, *hilariter et celeriter*—the *hilariter* not always realised—men want to be cured promptly of their ailments, preferring a rapid though, perhaps, perilous agent, to one that takes time, making, however, less demand, as it does its work, on the constitution.

In many rural districts, to this day, botany specially means the knowledge of the pharmaceutical virtues of plants; and when medical schools were first instituted, the "botany" required to be taught therein was unquestionably that which would enable the students to recognise Digitalis, and Belladonna, and Conium, and every other important medicinal plant, and to form correct ideas of the properties, known or probable, of plants in general. Singular is it, to say the least, that the communication of botanical knowledge of this description has now been discontinued in the Medical School of Manchester—the very centre of a neighbourhood not only pre-eminent from time immemorial for its love of medical botany, but always so famed for the practical character of all it does. The bearing upon the student's future expertness in matters of practical medicine, of minute acquaintance with cell-membrane and zoospores—charming as it is to the man of leisure as a noble, intellectual pastime—each young doctor will, of course, verify for himself when the need arrives. The change in question has been made since the addition of the Medical School, now some fifty years old, to the Owen's College. What are now called "Botanic Gardens" were also, in their primitive idea, "Physic Gardens" establishments devoted to the cultivation of pharmaceutical plants. Such were the gardens formed prior to 1533, when the first general collection Europe knew was commenced at Padua, by Antonio Musa Brasavola, one of the most enlightened men of his day, and author of *Annotations upon the Aphorisms of Hippocrates*—not, however, for his own pleasure, but for Gaspar de Gabrieli, a wealthy Tuscan noble, who may be considered, accordingly, the father of what has, in the course of the three following centuries, developed itself so splendidly and so extensively. "Botany," in its earliest and simplest sense, was a term of very humble signification, denoting nothing more than "a plant," and more exactly and specifically, the herbage of the meadows and pastures, such as furnishes food to cattle. It occurs in this latter sense in old Homer, 900 B.C., also in Theocritus, and in a characteristically bold metaphor in Pindar.* To pull up weeds was βοτανίζω, whence came *botanismus*, the act of weeding, which latter term, adopted from Theophrastus by Pliny,† is the only word of the Greek pedigree which occurs in classical Latin. When "botany" in any sense was first employed as an English word would require much research to determine. It does not occur in the first of the English dictionaries, namely, the curious old *Guide into Tongues*, compiled by Minshew during the reign of James I., and published in the first year of Charles I., or A.D. 1625, a work in six languages, though βοτανη is given therein as the Greek equivalent of "hearbe," while φυτον is the equivalent of "plant." Soon afterwards, however, we have "botanical" in Sir Thomas Browne, and "botanick" in Cudworth; while Casaubon, in his curious treatise *Of Credulity and Incredulity in Things Natural, Civil, and Divine*, speaks of "botanicks or herbarists." Evelyn, in his Diary, under date April 12, 1694, refers to a young friend of his as "an excellent botanist." Ray adverts to his intention of "improving his skill in botanics." The inscription on the wall near the entrance gate of the Chelsea Physic Garden is "Hortus Botanicus Societatis Pharmaceuticæ Londinensis, 1688," the date probably referring to the erection of that particular wall, the garden itself having existed

* *Odyssey*, x., 411; *Idyll*, xxv., 87; *Nemean*, vi., 71.
† Lib. viii., cap. 18.

long before. And lastly, not to be tedious, in Bailey's *Dictionary*, second edition, 1736, we have the whole set of words at present employed, with, in addition, botanosophist, botanology, and botanomancy—the last denoting a singular kind of divination by means of leaves, especially those of Sage and the Fig tree, derived from the ancients, and by means of which people thought to read futurity. The Latin *botanicus* seems to have been first employed by Isidore. What precise idea these various writers attached to the word is not worth minute inquiry. The prominent one was clearly that of botany being subservient to medicine, and to botanise was much the same as to collect medicinal herbs, formerly spoken of as "simples," apparently because in a vegetable medicine we naturally suppose something artless, straightforward, and intelligible. One of the old poets has the amusing couplet—

"While botanists, all cold to smiles and dimpling,
Forsake the fair, and patiently go simpling."

I have wandered rather from my particular purpose, which is to give some little account of the old botanist whose fame rests on his knowledge of plants useful in medicine, and on his wise employment of them. Born in 1803, old Evans was early initiated into the botany of that now distant historical epoch, his father, William Evans, having been a member of the famous botanical society which, encouraged by Sir Joseph Banks, and including Caley, Dewhurst, and other local celebrities, was accustomed to meet at the Manchester Grammar School. The lad, when only ten years of age, used to be taken to the meetings, walking of course, every inch of the way, both there and back. He was also a constant companion during his father's rambles in the fields. Ah, how much is imbibed under such kindly teaching, and how much more than we actually learn is excited and animated! It is not so much what a man, even one's own father, tells us, that does the good for one's entire lifetime, as what he inspires us with. The man, or the woman either, upon whom we look back as having supplied the aurora of our mental day, when we think it out carefully, is he who taught us, not so much how to write and cast accounts, as how to see and to feel—to see the wild flowers and the snow crystals, and the darting dragon-flies in their beautiful blue corselets, and to feel that "he prayeth best who loveth best all things both great and small." Evans was taught, when no more than ten years old, how to contemplate the immortal beauty of Nature, and therein, doubtless, is to be found much of the secret of his after-success as a practitioner.

"What the Boy admires,
The Youth endeavours, and the Man acquires."

Like his father before him, he had very little book-learning; but he fed abundantly on the best and truest source of great and worthy ideas—simple and meaningful Nature. He had, in truth, but little chance of extended book-learning, father and son being alike handloom weavers by occupation. From his earliest youth he was, nevertheless, as diligent a reader as opportunities permitted, sparing no pains to master every book on botany that was accessible to him. A vigorous frame and an admirable constitution enabled him to undertake journeys on foot that to many would now be positively affrighting. There was not a wood or a glen, a moor or a pond, within 20 or 30 miles but he knew the way to it, and its botanical contents; and even the hills of North Lancashire, Westmoreland, and the West Riding of Yorkshire were often trodden by him. The results of these long rambles are still manifest in the trim little garden adjoining the cottage wherein he resided for the last thirty years of his peaceful life—every new plant that he discovered and could carry home finding a place in his miniature Kew. So far as could be judged in the month of October, when we last saw it, the number of species (all curious and interesting) would be about 300. This, be it remembered, in an area about equal to that of a first-class London dining-room.

Let us not forget either, the cottage itself, clean and bright as a sea-shell just washed by the waves, in that neat and chaste little place, and in every part and detail. If the love of the clear purity of wild flowers kept alive in Mr. Evans the love of one thing more than another, it would seem to have been that of an abode absolutely spotless. The good and worthy wife, now a sort of Rose in the snow, to whom the care of the cottage was entrusted, and who has done her part so well, has been left, we are glad to hear, what people call "comfortable." So sound was the health of the old man that for thirty years he never drew "sick-pay" from his club. Love of the fields and their simple pleasures clearly carries with it something of the nature of the alchemist's *elixir vitæ*. When he died, at 71, it was not of disease but from simple natural decay. In figure Mr. Evans was tall and rather thin, a lofty forehead conferring a dignity on his appearance that invariably attracted strangers. Never was this more observable than when his patriarchal form was encountered at one of the great *soirées* of the Manchester Field Naturalist's Society, held at that period in the Athenæum.

Evans early gave his attention to medical botany, and for many years has been looked upon by the population of his district, say from Warrington to Wigan, and, in the other direction, to Eccles, as almost infallible. He had sufficient good sense to know where to stop, which is more than many men have. Not being pledged to work miracles, as many people seem to think their doctors are, he told his patients just how far he could go, and for what lay beyond always referred them to the gentlemen who hold diplomas. So astonishing, however, was his success in the treatment, more particularly, of external injuries, such as wounds and scalds, tumours also, and similar things, that from 6 A.M., when he was accustomed to commence receiving patients, up to 4 or 5 P.M., he was seldom unemployed, many coming in conveyances from a distance of several miles. What particular plants be employed for his curative measures, unfortunately, is not known; or rather it is not known after what manner he employed them with the best effects. His selection was not large, but of how he dealt with it there are unfortunately no memoranda. The garden contains Aconite, Hellebore, Stramonium, Euphorbia Lathyris, Gentiana lutea, and many other plants of old repute, but he appears to have resorted quite as frequently to the indigenous productions of the woods and hedgerows. In character, old Mr. Evans was singularly mild and affable. He was as great a lover of poetry as of flowers, and delighted in the society of genial people. Of children, too, he was remarkably fond—people of his kindly temperament are always so. Between them there lies that sweetest of all sympathies, the sympathy of simplicity. Hence, at the time of the interment of his remains, which are laid in the beautiful and garden-like graveyard of St. Mark's, in the adjacent village of Worsley, the procession, which comprised no fewer than 1040 persons, so profoundly was the old botanist beloved and venerated, included 170 of the little folk he had been accustomed to caress. We often hear of magnificent funerals—chariots and plumes—I think I would quite as soon have my remains followed as were Evans' by 170 not yet in their teens, who should think of me with children's boundless love and reverence. The circumstances of another thousand people attending as spectators of the final ceremony; and of £150 having already been subscribed towards a monument, intended to be of red granite, show that Evans was no ordinary man. The clergyman of Worsley is not only a reverend but a titled member of the Ellesmere family, to one of whom, now deceased, Mr. Evans is understood to have once done good medical service. Unusual honour thus attended even the reading of the burial service. Upon the coffin, in addition to the usual chaplet of white and green, was placed a beautiful coronal of midsummer wild flowers. It may be added, that in money matters Mr. Evans was liberal to what his friends thought almost a fault. He proved, however, that "There is that scattereth, and yet increaseth." It may be worth saying, also, that in politics he was one of the famous old Samuel Bamford school, *i.e.*, one of a class of opinion that was 50 years in advance of the times. His favourite Scripture text was, "Lord, remember me." Though not a regularly qualified member of the medical profession, his signature was received by the authorities, and (at all events, of late) he was regarded as a sort of privileged auxiliary. No one takes his place, and Lancashire boasts one less of its long-honoured botanical worthies. It is but fair to add that to the elder Evans and his colleagues, and subsequently to the younger one, just deceased, is chiefly attributable the determination of the flora of the Manchester district. Recent observers have enlarged the list of localities, but scarcely a species has been added to the catalogue as it existed in the time of George Crozier. The list of Thallogens, it is true, has yet to be completed. This work the old botanists, destitute of adequate microscopes, could not be expected to accomplish, though they have proved in the best manner that they had adequate eyes. *G.*

MULCHING.

The past dry seasons have taught many lessons, and, among others, the great necessity of shading the roots of plants and trees, and the beneficial effects arising from the same. Even old established trees having their roots deep down in the earth have suffered severely, and with others recently transplanted, or naturally shallow-rooted, such as Rhododendrons, it has been a life and death struggle, many having succumbed.

The rainfall during the autumn and winter was most scanty, and there was therefore but little moisture in the earth to supply vegetation and meet the demand caused by evaporation during one of the driest and most trying seasons on record, for, in addition to the great heat, gales of wind at times prevailed that passed over the country like a hot blast, licking every particle of moisture from the soil, causing trees to flag and lose many of their leaves prematurely, while on the weather side they present an exceedingly scorched appearance. These drying winds were very destructive to the fruit crops, especially on light lands, as the fruit were easily shaken off, owing to the exceedingly exhausted and flaccid state of the trees. In such dry seasons watering without a good mulching is a waste of labour, especially if given in dribblets, and this should be avoided at all times, as it induces the roots to come to the surface, and as the atmosphere quickly absorbs what is given these surface roots dry up and perish.

When water is given it should always be in sufficient quantity to thoroughly soak the whole of the soil, and be then discontinued till it becomes moderately dry again. By so doing the soil will at all times be sweet and healthy, and an active root action will be the result.

In pot culture this is the more essential, and a stricter observance of this would save many failures in plant cultivation, for how often we see the soil in pots sodden, sour, and inert from a too free use of the waterpot—plants watered to-day that should have stood till to-morrow or later.

Few gardens have had an adequate water supply during the past season, and where mulching has not been resorted to crops have suffered severely. The whole of our Apricots, pyramidal Pears and Peaches were fortunately mulched in February, and although large trees of the former were moved in the autumn for the purpose of pointing the joints of the wall and trellising the same they have borne good crops of fruit. Those not moved did not require any water, but appeared to enjoy the excessive heat, and ripened off one of the finest crops of fruit I ever saw. Those transplanted had one good watering in July, and were occasionally syringed overhead to keep the bark plump and counteract the exhausting effects caused by rapid evaporation. Thus treated the trees are now fully established, and show no sign of recent removal. The effect of the mulching on the Peaches and Nectarines has been equally satisfactory, as the growth is all that can be desired, and the absence of red-spider shows that the trees have found sufficient root moisture, as a lack of it is sure to bring a prolific crop of this pest. For freshly transplanted trees and shrubs mulching is absolutely necessary, as it almost ensures the life of the plant. If transplanted in autumn it protects the mutilated roots from the action of frost and drying winds, keeping a uniform temperature round the ball of the plant by preventing the heat buried during the summer from escaping too rapidly, thereby aiding a rapid formation of roots. For spring transplanting the benefits are equally great, and if this were more attended to in connection with planting the losses would be few indeed. Rose growers appear fully alive to the necessity of shading the roots of fresh planted Briars, as I remember, when budding for the Messrs. Garraway, of Durdham Down, some twenty years ago, that they had acres covered with stable manure; and as this encouraged a rapid formation of roots, and kept the plants in active growth, we were enabled to continue budding right through the season with the greatest success. Old Mushroom dung forms a capital mulching, and I always use it for our flower-garden. This year it has saved much labour in watering, and such moisture-loving plants as Calceolarias, Violas, dwarf Ageratums, &c., have been a great success. A mulching of this kind is not at all objectionable, if the mushroom beds are made up from pure droppings free from strawy particles, as it can scarcely be distinguished from the soil of the beds. Where spent Mushroom dung cannot be obtained for this purpose, a good substitute will be found in rotten leaf-mould. A slight mulching of this kind prevents the surface of the soil from becoming washed, and afterwards baked by the sun, causing innumerable cracks that let in the sun and air, and rob it of its moisture.

Plants requiring large supplies of water, such as Celery, &c., should always receive a good mulching directly after planting, as it tends to keep the roots cool, and uniform as to moisture, and saves the disappointment of having a large number "bolt," which they are sure to do if they receive a check through lack of moisture. Where sea-weed can be obtained no better mulching can be had, especially for all the Brassicas, as they like a smack of the briny. It is, I believe, much used in Cornwall to mulch Raspberries, and for manuring Asparagus beds, for both of which it is highly prized. It has answered admirably here this season for Peas, French Beans, Celery, and Cauliflowers, and has saved much labour in watering. In dry seasons like the past trenching is one of the greatest aids to successful cultivation, as it allows the roots of plants to penetrate deep in search of moisture, and it is almost impossible to grow good succulent vegetables without it.

Peas especially delight in deep fresh-trenched land, and it is useless attempting to keep up a supply of this esteemed vegetable unless the ground is previously well prepared by deep cultivation, and if accompanied with a good mulching, a soaking or two of water suffices to carry them successfully through. Treated

as above we have had a good supply all through the season, and have this day (October 23) picked a peck of British Queen. Stiff clay or marl is invaluable for mixing with light soil during the process of trenching. For Pears on the Quince, and indeed for all kinds of fruit trees in light soil, I have found much benefit from its use. By mixing it well up with the soil, and keeping it 6 inches or so below the surface, it is most retentive of moisture, and the roots of plants appear to search it out and feed on it greedily, for on lifting some trees and Rose bushes I find the roots clinging to it most tenaciously; and it likewise shows itself in the increased health and vigour of the plants. The benefits resulting from its use in this way have, during the past dry season, been very great. So convinced am I of the utility of it that I am now having a large quantity worked into the soil of our pyramidal Pear garden. The Quince is such a moisture-loving plant that it is impossible to obtain anything like satisfactory results with this as a Pear stock unless it can find plenty of root moisture at a comparatively shallow depth, as the Quince does not emit its roots so deep in the earth or ramble so far in the search of moisture as the Pear. It is therefore of the greatest importance that Pears on the Quince stock should receive a good mulching, for, if the fruit receive any check in swelling, they are not only small in size, but inferior in quality. Mulching should not be deferred till summer, when the sun and air will have robbed the soil of most of its moisture, but it should be put on directly the winter rains are over, and the soil will then retain its moisture that would otherwise be lost by evaporation. I have endeavoured to point out some of the advantages derived from mulching; and I am convinced that, by its use, the injury such dry seasons entail on vegetation may be much mitigated, but to obtain the full measure of success it is necessary to have a good supply of water, and no garden is complete without it.

Where water can be had in quantity, and can be forced to a sufficient height by a ram or other appliance, it is good economy to lay it on all over the garden, and any amount of watering can then be done with a minimum of labour. Of the many improvements carried out by your able correspondent, Mr. Tillery, in the princely gardens at Welbeck, I note that he looks on this as the principal, and no doubt it is so, and insures success; but where such appliances do not exist, I would say—mulch, but mulch early, for it is Nature's way of protecting the roots of plants. *J. Sheppard, Woolverstone Park.*

PLANT GOSSIP.

TRICHOMANES PETERSII is a recent acquisition of much interest in the collection of filmy Ferns at Kew. It forms a dense and even surface. Of those in cultivation the most nearly allied is T. MUSCOIDES, from which it is quite distinct. The fronds are much smaller and different in form, though variable in this specimen, occurring from linear to orbicular, spathulate, and obovate. They are simple and crenate, scarcely lobed. The stipes are from 1 to 5 lines long, and the fronds 2 to 4, but are described as attaining half an inch. It is native near a waterfall in Winston Co., Alabama. We are indebted to Dr. Hooker for the information that the rock on which it grows is a conglomerate sandstone next above the coal measures of the tertiary series. It has also been received among mosses from Florida. A description is given in the *Synopsis Filicum* and in *Sill. Am. Journ.* by Dr. A. Gray, the author of the species.

—— A fine specimen of ARALIA SIEBOLDI (now called Fatsia japonica) is flowering in the temperate-house at Kew, where it is strikingly ornamental, from the white stems of its large inflorescence, and also from the umbels of white flowers. In this house, for continuity of bloom, there is nothing to excel HABROTHAMNUS FASCICULATUS; its panicles of red flowers are very attractive, its habit is good, and when planted out it grows freely, increasing in proportion the quantity of bloom. No plant can be more suitable for greenhouse pillars.

—— The following advertisement is taken from No. 5248 of the *Kentish Post, or Canterbury News-Letter*, bearing date "from Wednesday, March 23, to Saturday, March 26, 1768," and may be of interest to lovers of the flower therein mentioned:—

"This is to acquaint all Lovers of AURICULAS, THAT on Thursday the 7th of April will be at Sarah Gilbert's at the Sign of the White horse in Bridge, an Auricula-Feast:—The best Flower produced will be entitled to a Guinea; the second best to Fifteen Shillings; the third best to Half a Guinea; and the fourth best to Five Shillings.—Each flower that is entitled to a Prize must have six Pips, and every Person that shews a Flower must have it in his own Possession fourteen Days before the Day of shewing, which must be attested upon Oath if required.—No Person will be entitled to a Prize but who has subscribed Half a Crown Three Months before the Day of shewing, unless he makes it up Five Shillings on the Feast Day before One o'clock.—No Flower to be entitled to a Prize, unless it is in the House before One o'clock; and no Person to win Two Prizes. Every Person, that shews a Flower, to appoint an Umpire.—N.B. There will be a good Twelvepenny Ordinary at One o'clock.

The prices quoted for "Good Wheat" are 46*s.*, 51*s.*, and 52*s.*, a very few superfine 53*s.*; "New Hops in Bags," £4 10*s.* to £5 5*s.*; "New Pockets," £5 to £6; "Old Hops," from £4 to £4 12*s.*

—— PLATYSTEMON CALIFORNICUM (PAPAVERACEÆ) is very pretty in the herbaceous ground at Kew. It is an annual of considerable merit, sowing itself without becoming a weed, and almost the year round finds it covered with pale yellow flowers. The leaves are greyish-green, lanceolate, in whorls of three. It grows in height about 8 inches.

—— In connection with St. George's Church, Campden Hill, Kensington, an exhibition of Chrysanthemums was held on Thursday, November 5, and two following days, in the ground opposite the church, the profits being devoted to increasing the funds of the St. George's Home for Aged Poor. The plants exhibited were the joint production of two gentlemen, residents in the locality, viz., W. C. Alexander, Esq., and A. Fraser, Esq., who kindly lent them for the purpose. In a tent 30 feet or more in length, with a walk extending down the centre, was neatly arranged a fine bank of plants, each gentleman's occupying opposite sides. They consisted of the most popular varieties. The majority were tall, being cultivated for size of bloom; among them were such as would have been an acquisition to any exhibition. Of others there were large specimens, especially of Pompons, and they were well flowered. The whole reflected great credit on the gardeners in the employ of the above gentlemen, viz., Mr. S. Monk and Mr. Gough.

—— Excellent displays of CHRYSANTHEMUMS are now on view at Messrs. Veitch's Royal Exotic Nursery, Chelsea, and at Messrs. William Cutbush & Son's nursery at Highgate.

—— DAHLIA IMPERIALIS is strikingly handsome in the Palm-house at Kew. We do not hear of it as a popular subject for decorative purposes at this season of the year, and which is to be regretted, since it has been found that, by grafting on dwarf kinds, the strength of its growth is reduced, and the habit improved—all that was apparently required to make it generally of value. A single experiment inclines to prove that a strong-growing kind used as a stock will not have the same dwarfing effect as a liliputian. It was surmised at p. 595 (1870) that the result would be the same, and the hope was also expressed that, for physiological reasons, the surmise was incorrect—such from this one experiment seems to be the case. It would be unfortunate that this fine subject should not attain the full development of its capabilities for want of the requisite, and, perhaps, very simple treatment.

CATTLEYA GIGAS.

THIS fine Cattleya, of which we are happily able to give an illustration, is one of the very finest of the genus; in point of grandeur and beauty there are only two which can equal it as far as at present known, namely, C. labiata autumnalis and C. Dowiana. The subject of our illustration (fig. 127) has been introduced into Europe about two years and a-half; as yet only about four or five plants have flowered, and those only in a comparatively small state. According to its first introducer—Mr. Linden, of Ghent—it carries in its native country seven to nine flowers on a single stem or bulb, each flower 7 to 8 inches in breadth, and 9 to 10 inches in length; its most conspicuous characteristic is the two large pale yellow eye-like spots at the mouth of the throat, together with a mottled lip of very bright carmine on a deep rose-pink ground. The petals stand forward after the manner of those of C. Dowiana, and are, together with the sepals, of a beautiful rosy-pink colour. C. gigas, like most other Cattleyas, requires a considerable amount of heat to grow it satisfactorily, especially during the summer months, say about 70° by night to 85° by day. When the short days come on, about the end of October, a night temperature of about 58° will suffice, with a rise, by fire-heat, to 65° by day, allowing an additional rise of 10° by sunshine. The Cattleya in question will grow well on blocks of rough-barked Thorn or Pear; if the above is not procurable, then very fibrey peat may be used to pot it with, taking care that the pot is always rather too small for the plant, for if over-potted, and it should ever get too wet, every root would quickly perish. This species, like C. Dowiana, is delicate in its root action, and must never have a mass of material unless very great care is used in watering. The atmosphere, on the other hand, should be kept as moist as possible. Our illustration was prepared from a specimen in Lord Londesborough's collection at Norbiton, and to Mr. Denning, his lordship's gardener, we are indebted for the hints on the culture of this plant.

GREENHOUSE PLANTS.—XVII.

THEIR CULTURE AND MANAGEMENT.

POLYGALAS.—These handsome and very distinct plants are natives of the Cape, and are deserving of general cultivation, not alone for exhibition purposes, but as ordinary decorative subjects. Why they are not more generally grown seems strange, as their colour (bright reddish purple) is scarce amongst hard-wooded plants, and their distinct appearance, either in or out of flower, from most things requiring a similarity of temperature and general cultural treatment. They are also of much easier growth than many hard-wooded subjects, not being liable to get out of health or go off suddenly. They are plants that I should strongly recommend to beginners in the cultivation of hard-wooded greenhouse plants, who sometimes get disheartened by beginning to grow the most difficult plants first, which often slip through the fingers of even those who have had long practice, and have patiently studied their peculiar habits and requirements. Polygalas are very free rooters, and are not nearly so impatient of the slightest excess of moisture at the roots as many Cape plants are. They will grow in either loam or fibrous sandy peat, but I much prefer peat where it can be had in anything like good quality. Procure during the autumn or winter good, healthy, free-growing plants, that have been properly started by being pinched and cut back from their first stages of growth after leaving the cutting pot, so as to induce the close, compact condition so essential in the formation of the future specimen. Inattention to this point in their early existence has a worse effect upon these plants than many others. Choose such as are young and strong and not pot-bound, as mere size is of little importance, more especially with free-growing things like Polygalas. The plants when procured, say, in 6-inch pots, will most likely have all their previous summer's growth upon them. If this has not been stopped during the season, it will be 12 inches or more in length by the end of February; cut these preceding summer's shoots back to within 6 inches of where they had been shortened to the year before, and place them in a house or light pit where they can be kept at a night temperature of 45°; here they will soon break, and by the middle of May will be in a condition for repotting. With these plants it is neither necessary nor advisable, as in the case of many of the hard-wooded section, to pot twice in the course of the first season, their free habit of growth rendering such unnecessary; consequently, if they have plenty of roots they should receive a liberal shift—4 inches will not be too much. Break the peat into pieces about the usual size for a young hard-wooded plant, with a good sprinkling of sand, and make the soil quite firm. At this season the sun is powerful and the air begins to get much drier than earlier, consequently they will require both shade in the middle of the day and the house keeping closer, by the absence of side air, for two or three weeks; the stage upon which they stand must also be regularly damped morning and afternoon, closing whilst the sun is yet upon the glass. At this time the points of the shoots should all be brought down low so as to induce a compact bushy habit, with a disposition to clothe the base of the plant well down to the bottom. After they have taken to the new soil, which will be apparent from their young shoots commencing to grow freely, give air as ordinarily, and commence syringing them overhead every evening; get the water well under the leaves and to every part of the plant, so as to keep down spider. By the beginning of July pinch out the points of the shoots, to induce them to break back; attention to this matter is of more importance with Polygalas than most plants, as their natural upright disposition of growth, if not checked, induces a thin straggling bottom, and, if not stopped in the summer, they will require cutting back in the winter to within the distance already prescribed to the previous year's cutting, which is a loss of time by reducing their size. Keep the shoots well spread out, and support them with a few nice sticks, so as to keep the young plants in shape without inducing too much formality. As the pots get filled with roots the syringing overhead and consequent wetting the surface of the ball makes it a little more difficult to ascertain the condition of the soil underneath as to water, necessitating closer observation in this matter; but they must not be allowed to get dry at the bottom of the ball, or growth will be seriously checked and insects encouraged. By the end of August the plants will be benefited by the admission of more air and the absence of shading, so as to harden them up for the winter, during which season keep them in a temperature of 40° or near it. Again, about the end of February, as last season, cut back the shoots to within 6 inches of where they were stopped to in summer, and encourage them at once to push young growths by keeping a little closer, as recommended for last spring. Pot at the same time as then advised, giving 3 or 4-inch larger pots, according to the strength and condition of the

FIG. 127.—CATTLEYA GIGAS. SKETCH OF A PLANT IN LORD LONDESBOROUGH'S COLLECTION.

plants, tying them nicely, so as to preserve compact shapely outline, keeping all the strongest shoots well down, which will have the effect of balancing the growth, which in these, more than many plants, has a disposition to run up in the centre, leaving the bottom bare. Attend, after potting, as advised last season—to shade, moisture, and air, with the regular evening's syringing; and again, by the end of June, stop all the shoots, both strong and weak, back to within 6 inches from the place they were shortened to in the winter. This is necessary, for two reasons—to produce an even head of bloom and insure its all coming in at one time, which will not be the case unless the above conditions are complied with. As the end of July approaches give more air for a week or two, preparatory to turning them out-of-doors. The beginning of August place them in the full sun, and screen the sides of the pot from its direct action. Continue to syringe overhead well every dry afternoon. They may remain here until the middle of September, if there is an appearance of fine warm weather, after which it will not be safe to leave them outside. Place for the winter in a good light house near the glass; this, with the hardening process they have gone through, will secure their flowering freely the coming spring, when they will make nice decorative plants for the conservatory—to prepare them for which let them be nicely tied through the winter, using no more sticks than necessary to keep them from having a straggling untidy appearance. If the object is to get a portion of the plants up to large specimen sizes as soon as possible, then the strongest should, as heretofore, be cut back in the winter, not allowing them to flower in the spring, potting at the time before advised, and in every way treating similarly through the season. Such as are allowed to flower must afterwards be cut back again, not leaving more than 6 inches from where stopped to the previous summer. Through all the stages of the existence of these plants it is necessary to stop or cut them back to something near this length, otherwise they get an unsightly naked appearance which destroys the effect of even a full sheet of bloom. Encourage them to break by slightly syringing and keeping a little closer, and when they have pushed a couple of inches of growth they should be moved into pots 3 inches larger—keeping the house a little warmer through the admission of less air for a short time, until they have taken to the new soil. They should be, as in the previous season, placed for a few weeks in the open air to induce a disposition for flowering. As the plants will now be getting large enough even for exhibition purposes, a minimum temperature of 35° in the night through the winter months will be sufficient; by this means their flowering will be retarded in the spring, which in many cases, where required for exhibition, will be an advantage. Where it is the intention to so use them the tying must be more particularly performed than for home decoration, for unless the plant has sufficient support when it comes to be carried any distance, it has a loose untidy appearance; but instead of the use of a large number of sticks, three-fourths of the branches may be secured in their places by stout black thread.

Polygalas are subjects that bear retarding much better than some, being stronger in constitution, but where they are to be kept back for any particular time it is well to do it in the early stages of the flowers' development, so as to be able to give them genial treatment whilst opening, or they will not have either the size or colour they naturally possess. Each season after flowering cut them back as near as already advised, which will cause them to last much longer in a stout shapely condition. It is not advisable to move them on into pots larger than 18 or 20 inches, as these, with the assistance of weak manure-water during the season of growth, will keep them in condition for several years; but as soon as they get in any way naked and leggy, it is better to consign them to the rubbish heap, and grow on others to take their places, for which purpose a few young ones should be started every second year.

There are two varieties well worth cultivating. *P. Dalmaisiana* is the strongest grower, of the most robust constitution, and its flowers are proportionate in size, and produced freely from the points of the shoots, as with the others. This is the best variety for exhibition, its colour (purple) harmonising or contrasting well with almost any other flower.

P. oppositifolia is more of a reddish purple in the colour of its blossoms, is very free in growth and flower; it is somewhat weaker in habit, but is a desirable plant, requiring the same treatment as to soil, temperature, stopping, and general routine. It does not generally attain so large a size.

There is one thing that renders these plants worthy of cultivation—it is their immunity from mildew, the worst pest that the grower has to contend with. Scale, both brown and white, will live upon them; if they get infested with the latter the best thing is to destroy them, as any application that will kill the insect will also kill the leaves. Brown scale can be removed with the sponge and brush, but it is better to deal with after the plants have been cut back when

their blooming is over; a good washing with insecticide will then destroy the insects without injuring the plants. They are very subject in the summer to the attacks of red-spider, which if not at once removed will in a short time destroy the leaves—in which case the plants are not worth much, as it induces a hard stunted condition, from which they are difficult to recover. A free use of the syringe all through the growing season, whilst the weather is warm and favourable to the development of the insects, will keep them down; but the water must be directly applied to both the upper and under sides of the leaves where they harbour. *T. Baines.*

THE FARM.

THE WEATHER.—There can be no doubt that the climatal conditions which have prevailed during the present autumn have exerted as decided an influence on the farm as on the garden—on the former all the more from the drought of summer, for, though the effects of want of rain can be partially remedied in the garden by the use of the watering-pot, yet this aid cannot be resorted to in the larger field of operations. One of the most noticeable effects of a hot, dry summer has been to develope the Wheat crop to a state of perfection, whilst, for the most part, Barley and Oats suffered much from this cause, as did also Peas and Beans; and hence at the present moment we find that 60 lb. of Wheat is absolutely cheaper in the market than 60 lb. of any other kind of corn; whilst, if we look to the relative constituents of the different kinds of grain, it will be found that 60 lb. of Wheat will be found to yield a greater amount of flesh-forming or muscle-restoring matter than the like quantity of any other grain.

It was, then, this knowledge, besides the proof of its correctness as ascertained from direct experiment, that induced us in our last issue to advocate Wheat at 20*s.* a sack as a cheap and sound feed for horses.

There is, however, another aspect of the question, forced upon us by the weather, and it is as follows. Both hay and Swedish Turnips have utterly failed in many districts; thus, for ourselves, we did not make a bit of meadow hay during the past summer, and so have had to content ourselves with about two-thirds of a crop of seed hay; and while we have but 10 acres of passable Swedes where we usually have 50 acres, unusually good both in quantity and quality, it follows that some little difference in management has to observed.

Let it then be stated that our common Turnips, such as Tankard Swede, really a Turnip, and Green Ring Turnip, are better than usual—arising from the wonderful autumn weather.

Well, the mildness of the season has caused our ewe flock to do very well up till the last fortnight on the stubbles in the pastures and about on the different bits of feed the warm autumn has so forwarded, but now they are upon the roots and Rape, and in the meadows for an occasional change; and still the weather has enabled us to get on well without either hay or corn or cake, but experience has shown that common Turnips are not the best for gravid ewes—the more "proofy" Swedes being more suitable.

Well, then, this very mildness of the season makes Wheat sink lower and lower week by week; we must however, thresh it, as we want the straw.

In this state of the case, then, the question arises, why not keep the Wheat at home? It has a greater amount of valuable manurial matter than any other grain, though in fat-forming principles it is below the percentage quantity of that of Barley or Oats, while in its muscle-making matter it is greatly superior.

Cakes, again, are dearer than usual, and as none of them are richer in manurial matters or flesh-forming principles, these facts seem to us to point to the expediency of using coarsely-ground Wheat for the ewe flock. This flock has to be kept up in strength—too much fat not being desirable—while it has to build up the bones and sinews of a new creature. The question then arises, cannot the meagre feeding Turnip be supplemented by Wheat? and, as we mean to try this ourselves, it will be well to state how it is proposed to act. Our plan, then, will be to slice the roots with the usual field turnip-cutter, sprinkling over them the coarsely-ground meal, always preparing this feed the day before, so that the meal would be moistened and adhere to the slices of root. This, we think, will enable us to get on with the use of but little hay. However, we confess that the idea is so new to us that we shall watch the results with scrutinising care, and if any of our friends should have used wheat-meal in this way, or intend to do so, we shall at all times welcome every kind of information on the subject, as though in this paper we have rather expressed theoretical views as regards its value in sheep-feeding, yet these are much encouraged by the use of meal in horse and cattle-feeding, and we doubt not that practice will confirm science in this as in many other matters.

Prejudice, however, may still stand in the way with some, as it has hitherto done, or we should possess more real experience in the matter. The exceptional weather, then, leading to such exceptional prices as we have adverted to, may in the end be of great advantage. There is an old saying that "Circumstances alter cases," and we hope in the case before us we may say with the poet—

> "Who does the best his circumstance allows,
> Does well, acts nobly; angels could no more."
> *Young's Night Thoughts.*

Forestry.

AT the 21st session of the Scottish Arboricultural Society, opened in Edinburgh last week, Mr. Gorrie, Rait Lodge, Trinity, read a paper on "THE PLANTING OF TREES FOR LANDSCAPE EFFECT." Were the question, he said, merely whether grouping or mixed planting was most productive of landscape effect, the unanimous verdict would be in favour of judicious grouping, and that on all sizes of landed properties, from the 2 or 3 acre villa plot, where groups were necessarily restricted to a few specimens, to the large estate, where groups might form masses of ten, twenty, or hundreds of trees of the same or closely allied kinds of trees. But were grouping only to be deemed admissible on condition of its being equally profitable with mixed or promiscuous planting, he feared that its most strenuous advocates would fail in its defence, more especially were it required that its landscape effects should be maintained unimpaired by other kinds of nurses from the time that the young trees attained to sufficient sizes for concealing the natural herbage of the ground surface. He then went on to discuss the merits of grouping of trees for landscape effect under the following heads:—1. Soil and situation.—For choice of these a widely extended knowledge of arboricultural botany was needed, and a knowledge of the wind-resisting powers of different kinds of trees, in order that they might be arranged so that the stronger should shelter the weaker. 2. The form and size of the groups.—The form of groups should be irregular, and without hard or harsh outlines, as exemplified on a large scale by the few native forests that are still left in this country. 3. Grouping with the same and allied kinds of trees.—By far the most commendable mode of group planting was that of associating species with their varieties and others belonging to the same or allied genera. 4. Grouping with different kinds.—Trees widely different in their affinities, but having a resemblance to one another in size and form of their leaves, might be associated in groups. Mixture of kinds was, however, most commendable when they possessed some other marked characteristic in common, such as colour of foliage, bark, habit of growth, &c. 5. Grouping with respect to size, colour, and form of leafage.—In planting, as in painting, light and dark colours, as well as sizes of detail, imparted apparent nearness or distance when the trees were equally removed from the observer. One of the seemingly most difficult problems that the landscape forester had to solve was that of making straight lines appear crooked, and stiff ones easy, but it could be successfully accomplished by attending to the grouping of variously-coloured trees. 6. Park belts, clump groups, and solitary trees.—Belts and clump groups were usually planted with unsightly mixtures of overcrowded ordinary kinds of forest trees rising abruptly to full height from the fence enclosures. They should be rounded or sloped down so as to associate harmoniously with the surrounding turf, and this was secured by planting ornamental trees of diminishing stature and shrubbery underwood. Park belts and clumps were admirably adapted for grouping trees, and underwood and detached clumps were specially suited for grouping the different families apart. 7. Avenues.—These might either be straight or curved, and were generally associated with a roadway or a grassy ride. They might either be composed of two lines, all of one kind of tree, four lines of two kinds or tribes of trees, or what might be termed the arboretum avenue, in either two or four rows, all of distinct sorts, grouped or brought together in families. The first, when intended to form a close Gothic arch-like covering, should be planted near to one another in line, and they might be as near to the roadway on each side as half its width. The second, or double avenue, should generally have the rows next to the roadway or drive of one kind, and the other two rows of a different kind, but full space should be allowed for the after development of every tree from the ground upwards, without touching one another, encroaching on the roadway, or concealing from it the trees in the back rows. A very usual and generally commendable practice was to have two corresponding rows deciduous and the other two evergreens. The third, or arboretum avenue, was better in four than in two rows, where sufficient space could be devoted to them, as they allowed of the dwarfer kinds being kept in front and the taller ones behind; and in both the second and third kinds of avenues the back lines might be associated with openly-grouped underwood and shrubbery when adjoined by plantations, or where concealment of or from the outside was intended. After touching upon fences as an important item in landscape arboriculture, Mr. Gorrie concluded as follows:—Applying some of the preceding remarks to examples of avenue treatment near at hand, you will, on visiting Sir Walter Scott's Monument and the renowned Edinburgh Meadows, have opportunities of estimating the arboricultural taste and skill of our city rulers. At the former you will see avenue trees selected with the utmost disregard to their adaptation for the soil and situation—the kind being the common or Wych Elm, one of the most capricious of ordinary forest trees—each with a few feet of stem surmounted by a besom-like head of numerous contending branches—as if (should they ever attain to sufficient size) for the easy ascent and comfortable accommodation of city youths when viewing passing processions. At the Old Borough Loch, according to R. Maxwell, of Arkland, Mr. Hope, of Rankeillor, commencing about 1722, "raised beautiful hedges and trees, made rich meadows and pleasant walks where gentlemen and ladies resorted." In Campbell's *Journey through North Britain in* 1810, the meadows are described as "a mall lamentably unlike St. James's, being shamefully neglected avenues, where there was no longer pleasure in wandering among broken-down hedge-rows and blasted trees"—a description highly applicable to their management up to the present time, as you will see by their general appearance, and especially by that of the murderously mutilated, ill-grown, distorted, unsightly avenue trees which cut in two the lengthy expanse of grassy meadow, and regarding which so much has of late been said and written.

Mr. Dunn, Dalkeith Palace Gardens, said that if the principles laid down by Mr. Gorrie were applied by foresters with the ordinary materials at hand, the landscape effect of the country would be vastly improved.

A vote of thanks was accorded to Mr. Gorrie for his valuable paper, which it was agreed to print *in extenso* in the Society's *Transactions.*

THE INJURY DONE TO FOREST TREES BY WILD ANIMALS AND BIRDS.—Mr. M'Corquodale, Scone, opened a discussion on the above subject. It was, he said, the experience of every extensive planter that where game was numerous there was very great difficulty in getting up young plantations. Rabbits, hares, deer, and squirrels were relatively the most destructive to trees, and the best remedy was shooting down the game, although few proprietors would allow that to be done. The outline fence of plantations should be made proof against game, and for this purpose he used wire netting, with 1½ mesh, 3 feet high. Rabbits, however, sometimes climbed over such a fence, and it was absolutely necessary to keep a sharp look-out for burrows, and fill them up to prevent the rabbits and hares getting into the wood below the fence.

Mr. Dunn, Dalkeith Palace Gardens, said that if proprietors really knew the great amount of injury done by game to young plantations, and the immense loss sustained, they would not be so fond of keeping up a large stock of game. Rabbits did more injury to plantations than all other animals put together, though destruction was caused by hares, squirrels, deer, rats and mice (especially the short-tailed mouse) and moles. He then proceeded to read a very interesting paper on the injury done to young trees by birds. He showed the crops of Capercailzie, which he reckoned the chief offenders, containing no fewer than 266 shoots and buds. Where these buds were taken off by birds, he explained, the effect was to stop the growth of the trees for that year. Black game, wood pigeons, the tomtit, and the bullfinch were also very destructive to young trees.

Mr. James Rait, Castle Forbes, said that in Aberdeenshire foresters were much troubled with rabbits and red and roe deer. He saw lately a wood of 42 acres which had been all destroyed except 2 acres; another of 1300 acres, a large proportion of which had been destroyed by hares, rabbits, and roedeer; and another of 300 acres, almost entirely spoiled. He maintained that it was far more to the interest of proprietors of hill lands to plant them than to stock them with game, for by planting them they would give a return of £1 per acre, if not more. As an illustration of this, he instanced a wood of 300 acres which had lately been sold for £17,000, whereas if the land had been let for shootings it would during the whole time

not have brought in more than £500. He was anxious that the Society should take up this subject in thorough earnest.

Mr. Lorraine, The Riding Mill, Northumberland, said that if they shot down the birds they would have a plague of insects which would destroy everything.

Mr. Maxwell of Munches said that birds did damage, but to a very small extent. It was the rabbits and roedeer that made the greatest havoc with young plantations, and it would be one of the greatest blessings to the country if the rabbits could be exterminated.

Mr. M'Corquodale said that plantations returned £1 per acre for every year, and he illustrated this by a wood of eighty-five years' growth, which he had lately sold at £132 per acre, and another of forty-five years' growth, which realised £70 per acre clear profit.

Mr. France recommended that the rabbits should be shot down in the summer, when young.

The Chairman, in closing the discussion, said that many interesting facts had been elicited, and pointed out that the effect of such meetings would be to extend useful arboricultural knowledge all over the country. *Scotsman.*

Foreign Correspondence.

Gardening in Florida.—The following extract from a letter I lately received from a friend in Florida speaks for itself. *William Falconer, North Easton, Mass., U.S.A.*

"Our people are beginning to take great interest in having more comforts around them in the shape of fruits, and ornamenting their grounds with trees and flowers, than they used to do. The Vine is attracting considerable attention, from a few having established vineyards, and made wine-making profitable, and there is a prospect ahead of a demand for a large number of Vines. Fruit trees grown in this climate do better than those brought from the north, and the people are aware of the fact, and buy their trees from nurseries as far south as they can get them. The nearest nursery to us is that of P. J. Buckman, Augusta, Ga. Parts of this State are being rapidly settled up by northern and western men, the majority of whom seem to have a mania for growing Oranges and other semi-tropical fruit, and the demand for plants is large. 1-year Orange trees are worth 20 dols. per 100; 2-year, 50 dols.; 3-year, 100 dols.; and 4-year and 5-year, from 4 to 5 dols. each. Banana plants are worth from 25 to 30 cents each. They come from suckers from around the old plant. Each plant will give from eight to ten yearly; these bear fruit in from fifteen to eighteen months after setting out; about 435 bearing plants to the acre. Figs and Pomegranates grow to perfection; Peaches, Pears, and Strawberries do well; wild Blackberries abound, of the largest sizes, and the woods are filled with wild Grapes. In gardening for early northern markets we have great advantages in latitude and climate, the only drawbacks are missing occasionally the northern boats at Savannah, and in getting honest commission merchants in the northern cities. Snap Beans and Cucumbers are the principal garden crops, next new Irish and Sweet Potatos, and Tomatos and Strawberries. We can ship Hartford Prolific Grapes the latter part of June; Concord, Ive's, Diana (all native), early in July. I have fruited the Black Hamburgh in outdoor culture, also the Malaga, and I believe the Golden Chasselas will do well. Every one that has visited Middle Florida is pleased with the general appearance of the country, its fine climate and productive soil. Most visitors have gone to the eastern part of the State, which is a rather low, flat, Pine-wood country, and has none of the attractions of this except the climate; yet the lands are being bought up rapidly for the purpose of Orange-growing and for winter homes. This State has become as fashionable a resort in the winter for northern and western visitors as the springs north in the summer. Forty thousand visited Florida last winter, and we expect a larger number next. In the next few years I think this country will be settled up rapidly, which it ought to be from its superior soil and climate. I am situated 5 miles from the city of Tallahassee, the seat of government of the State, in the midst of a high, rolling Oak and Hickory country, fertile soil, beautiful views, and near a lake, 1 mile long by ¾ mile wide, 60 feet deep in the middle, filled with fine fish. My Orange trees have had to have the branches propped this year to keep the fruit from breaking the limbs; it is not, however, a certain crop in this section of the State. The last three years have been propitious. I made money before the war in Cotton planting, and have lost some 15,000 dols. since in carrying on the same business with unreliable labour. I can hire good negro labour here at from 8 to 10 dols. a month and their rations, and this labour I use in the work of hoeing and ploughing, getting cut and pulling up posts for Vines, &c., but have an experienced man for the finer work. The most common, ignorant, uneducated white man would no more think of eating with the negros, or placing himself on an equality with them, than he would think of driving to Heaven with a horse and buggie."

Notices of Books.

Die Rohstoffe des Pflanzenreiches, &c. Von Dr. Julius Weisner. 8vo, pp. 848. (The Raw Materials of the Vegetable Kingdom, &c.) Williams & Norgate.

With the exception of that most useful little work, the *Treasury of Botany*, we have nothing approaching a complete account of the products of the vegetable kingdom, and that work, from the comprehensive and popular nature of its contents, is necessarily imperfect on many points. Why is it that, in a country such as our own, which prides itself on its industries and manufactures, and in which, probably, a greater variety of vegetable products are utilised than in any other, we have no really good books devoted to their history, sources, and applications? We fear it is because there is not a sufficient demand for works of this class to induce publishers to run the risk of bringing them out. It certainly cannot be from lack of materials for the purpose, or competent persons to undertake the task. The book before us is one that we should have expected to appear in England rather than Germany, or from the pen of a Vienna professor of botany. Both French and Germans contrive to publish valuable works on subjects which our publishers have not the courage to offer the public; and after a time we are presented with the translation of a book, the subject-matter of which might have been worked up much more thoroughly in this country, if only some of our leading scientific men would, following the example of Messrs. Flückiger and Hanbury, to whose work on the natural history of drugs we lately alluded, devote a portion of their time to such labours. Dr. Weisner has produced an exceedingly useful, tolerably complete work, but a translation of it would only stand in the way of a more exhaustive treatment of the subject. Nevertheless, it would be very valuable to any one writing on the same subject. It is exclusively devoted to the raw products of the vegetable kingdom employed in the arts and manufactures, including, however, such drugs as opium and cinchona, as their preparation may be considered a branch of industry. From the foregoing remarks it might perhaps be inferred that we have formed rather a low estimate of the value of the book, but we hasten to remove that impression. We have said that it is tolerably complete. This requires some explanation. The information given is, in most cases, sufficient and accurate, but there are some important omissions, to which we shall refer as we go on. The numerous references to other works under each division form a very useful feature in the book. They are an acknowledgment of the sources of information, and at the same time a guide for the reader to fuller details in many instances. In an introduction of about thirty pages the author reviews the literature on economic botany, more especially this branch, and describes the plan and scope of his work. He arranges the products under twenty heads, namely:—1, gums; 2, resins; 3, caoutchouc group; 4, opium; 5, Aloes; 6, catechu group; 7, fats and oils; 8, vegetable wax; 9, camphor; 10, starch; 11, fibres; 12, barks; 13, timber; 14, underground parts of plants; 15, leaves and herbaceous stems; 16, flowers and parts of flowers; 17, seeds; 18, fruits; 19, galls; and 20, thalloid fungi. This classification is, perhaps, on the whole, as convenient as any that could be devised, certainly better than placing the products under the families which yield them, and easier to consult than an alphabetical arrangement. There is an index of the products, and another of the Latin names of the plants which furnish them. The first group, gums, occupies twenty-eight pages, and is treated as follows:—Definition of Gums, Physical and Natural History Characteristics (surface, colour, degrees of transparency and lustre, optical properties, density, and microscopic character), Chemical Characteristics (arabin, cerasin, and bassorin), Origin of Gum in Plants, Occurrence of Gum (enumeration of the various kinds under the families), and special consideration of the various kinds of gum. Thus the arrangement of the matter is highly practical, and the information is conveyed in simple intelligible language, aided by numerous woodcuts illustrating the structure and anatomy chiefly of different products. Here is his general definition of gum:—"Gums are vegetable substances belonging to the chemical group of hydrocarbons, which, in outward appearance resemble the most important representative of this division—the well known gum arabic. Like the latter, when water is added, they usually form a viscous fluid, or often only a sticky gelatin. All gums in common are perfectly insoluble in alcohol, and possess the peculiarity of changing through the intermediate substance, dextrine, into sugar."

Nearly one hundred pages are devoted to the more important division of resins, which are distinguished as ordinary resins, gum resins, and balsam resins. These are treated much in the same way as the gums. Here we find all the later determinations of Hanbury, Flückiger, and others. Twenty-one species of resin in the different varieties are described, namely, gamboge, asafœtida, galbanum, ammoniacum, turpentine, ordinary resin, balm of Mecca (Gilead), balsam of capivi, the elemi group, mastic, sandarac, dammar, gum-lac, resins of the copal group, guaicum, balsam of Peru, balsam of Tolu, storax, benzoin, dragon's blood, and Xanthorrhœa. Here, as in all parts of the book, the substances only, not the plants, are described. In addition to the foregoing principal groups of resins many less important kinds are enumerated, whilst others, such as the Silphion or Asa dulcis, are not mentioned, probably on account of their not being actual articles of commerce.

The tenth division, devoted to starch, is a very interesting chapter of fifty pages. This is certainly one of the most important and one of the most abundant of organic substances, and it will not be thought that Dr. Weisner has given it undue prominence. Following his account of the origin and peculiarities of potato, rice, wheat, sago, tapioca, arrow-root, and other varieties of starch, he gives an instructive sketch of wheaten flour and other kinds of meal used as food, with indications how to detect adulterations by means of the microscopic structure.

Upwards of 150 pages are given to fibres, all the important and many unimportant ones being described or mentioned; but there are so many fibre-producing plants known now that one would scarcely expect to find all noticed that are known in this country. Dr. Weisner describes the anatomical structure and chemical composition of plant hairs (Cotton, &c.), and bast fibres (Flax, Hemp, &c.), and gives characters by which some of them may be distinguished. He thinks, if subjected to a thoroughly scientific examination, it is possible that characters might be discovered by which nearly all of them could be determined. So far as chemical reagents are concerned, they are of little value for this purpose, either for the raw fibre or when bleached, as they are all composed of pure cellulose; but a solution of potash is useful in estimating the quality of fibres. Barks are chiefly employed for dying and tanning, and stopping bottles, but above all there are the Cinchona barks, which duly find their place. Cinnamon is also included. But we are puzzled to know why many other things are left out when we find that none of Dr. Weisner's reasons would account for cinnamon and many other things being described, and coffee, pepper, rhubarb, ipecacuanha, sarsaparilla, senna, &c., not being mentioned under any heading. Then, again, under timbers we miss the Deodar, &c. However, it is possible that some of these things mentioned above have been overlooked by us.

And here we have to mention that common fault of German books—a defective index. A bad index is worse than none at all. If we had relied upon it in this instance, we should probably have recorded the absence of a great many substances that are described in full. The little use we have yet made of the book has convinced us of the uselessness of consulting the index. We looked for the Red Cedar, Juniperus virginiana, but could not find it under either name, though we afterwards came upon it in the body of the work.

The microscopic sections of different woods are very interesting and instructive.

The remaining chapters on leaves, fruits, seeds, &c., are equally interesting, but open to the same objection respecting what is included and what excluded. But in spite of these little inconsistencies it is a most useful book.

—— The current number of the *Botanical Magazine* is devoted to the illustration of the following plants:—Passiflora (Tacsonia) manicata, a very beautiful climber, sometimes known in gardens as T. ignea, but which has the reputation of being a shy bloomer. Even in the South of Europe, where the plant is very abundant under the name of T. ignea, you may find it flowering profusely in one garden, and almost destitute of bloom in the next. Cerinthe gymnandra, an Algerian plant, very like the common C. major. Melaleuca Wilsoni, a charming lilac-coloured species. We should gladly see the old taste for these splendid plants revive; Dr. Hooker attributes their decline to the treatment they have received, viz., watering in season and out of season. Iris lævigata, a purple-flowered hardy Iris, native of Japan, supposed to be the normal form of the Iris Kæmpferi, lately mentioned by us. Polygonatum vulgare var. macranthum is, as Dr. Hooker remarks, apparently only a trifling variety of the well-known Solomon's Seal. Lastly, Blumenbachia contorta is one of those very handsome Loasa-like plants which every one should see, and nobody touch.

—— The last part of the *Journal de la Société Centrale d'Horticulture de France* contains an elaborate article on the germination of the seeds of various Lilies, and on the formation of the bulbs, by M. Duchartre. We shall probably revert to this important memoir on another occasion.

—— *British Wild Flowers* (Part vii., Van Voorst), of which we have often spoken, has now advanced as far as the Umbelliferæ. The new edition of the *Micrographic Dictionary* (Van Voorst) has progressed as far as the word "Whalebone."

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not xceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under 12, £2 15s.

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

WANTED,

ON LEASE OR OTHERWISE, WITHIN A FEW MILES OF LONDON,

A PIECE of LAND and a Good RANGE or RANGES of GLASSHOUSES,

Suitable for Fruit Growing.

Apply, stating Full Particulars, to

A. D., 16, Queen Adelaide Road, Penge, S.E.

Eligible Opportunity for Starting in Business.

TO BE LET at Christmas, about 3 Acres of GROUND, that has been used as a Nursery Garden for years. No outlay in coming in. Is situate in Berkshire, near Market Town and Railway Station. Address by letter, B. J. E., Mr. H Brooks, 4, Bells Buildings, Salisbury Square, E.C.

Farms to Let in Yorkshire.

TO BE ENTERED UPON AT LADYDAY NEXT.

MARTON and NEWBY ESTATES, the property of H. W. F. Bolckow, Esq., M.P.

NEWBY and GRANGE FARMS, containing:—

	A.	R.	P.
Arable Land	212	3	19
Grass Land	106	0	2
Total	318	3	21

SUNNY CROSS FARM, containing:—

Arable Land	22	0	22
Grass Land	41	2	17
Total	63	2	39

HARKER HILL FARM, containing:—

Arable Land	93	3	7
Grass Land	30	0	30
Total	123	3	37

ANTELOPE LODGE and VIEWLY HILL FARMS, containing:—

Arable Land	172	1	0
Grass Land	25	3	22
Total	198	0	22

NEWBY FARM, containing:—

Arable Land	66	3	0
Grass Land	13	2	3
Total	80	1	3

MARTON LOW FARM, containing:—

Arable Land	53	0	18
Grass Land	55	2	9
Total	108	2	27

These Farms (with the exception of Harker Hill and Marton Low Farms) have been and still are in the occupation of the owners. They will be let Tithe Free, either on lease for fourteen or nineteen years, or from year to year. The whole (excepting Marton Low Farm) containing 788 acres or thereabout, may be let as one Farm, affording a rare opportunity to a Tenant of capital and enterprise, or they will be let separately.

Offers will be received for any of the Farms separately, or for the whole as one Farm, up to December 1 next, addressed to

JAMES RUTHERFORD,
Estate Office, Coatham, Redcar,

of whom further particulars, if required, may be obtained.

The Farms will be shown by Mr. JAMES COOK, Bailiff to Edward Robson, Esq., Newby.

The Owner reserves the right to accept any or none of the offers.

Estate Office, Coatham, Redcar, November 10, 1874.

FOR SALE, a long-established Provincial NURSERY and SEED BUSINESS. The Nursery is well stocked, is within a short distance of two Railway Stations, and is well adapted for a branch business or as a feeder to a large London or Provincial Establishment.

Address B., 142, Adrian Terrace, West Brompton, S.W.

TO BE DISPOSED OF, the WHOLE or PART of an OLD-ESTABLISHED NURSERY BUSINESS, in good working order, within easy distance of London by rail. For further particulars apply to

HORTICULTURIST, *Gardeners' Chronicle* Office, W.C.

SALES BY AUCTION.

Edgware, N.W.

IMPORTANT SALE of CHOICE and WELL-GROWN NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL by AUCTION, on the Premises, the Whitchurch Rectory, Edgware, N.W., on MONDAY, November 16, at 11 for 12 o'Clock precisely, by order of the Proprietor, a portion of the Valuable NURSERY STOCK, consisting of a great variety of handsome Lawn Trees, including a large number of choice Piceas, a splendid collection of Evergreen Shrubs, selected Flowering Trees, large Fruit Trees, fine Standard and Dwarf Roses, and many other Trees and Shrubs, in excellent condition for removal, having been frequently transplanted and grown for sale.

May be viewed on the Saturday prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Loughton, Essex.

IMPORTANT SALE of unusually well-grown NURSERY STOCK, particularly worthy of the attention of Landowners, Builders, Nurserymen, and others largely engaged in planting.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. W. Paul to SELL by AUCTION, without reserve, at his Branch Nursery, Loughton (ten minutes' walk from Loughton Station, and 12 miles from London), on MONDAY, November 16, and two following days, at 11 for 12 o'Clock precisely, a very superior stock of EVERGREEN TREES and SHRUBS, consisting of thousands of beautifully-grown Laurels, 3 to 7 feet; handsome Laurustinus, 2 to 4 feet, abundantly set; green and variegated Hollies; Aucubas, 2 to 4 feet; Box, fine Rhododendrons; also an immense quantity of CONIFERS, consisting principally of well-furnished Araucarias, 3 to 6 feet; Cedrus Deodara, 1 to 5 feet; choice Piceas of sorts, fine Siberian Arbor-vitæ, Cupressus Lawsoniana, 3 to 4 feet; Chinese and other Junipers, Thuja gigantea and Lobbii, 4 to 8 feet; a fine collection of Yews, and a great variety of other stock. Also an unlimited assortment of HARDY ORNAMENTAL TREES and DECIDUOUS SHRUBS, including clean fine Limes, 10 to 12 feet; Poplars, Horse Chestnuts, handsome standard Weeping Willows of sorts, Laburnums, Lilacs, 3 to 4 feet, &c., selected standard and pyramid fruit trees of clean growth, a rich collection of standard, dwarf and climbing Roses, &c.

N.B.—To gentlemen planting for immediate effect this Sale offers an excellent opportunity, as the stock consists chiefly of large handsomely-furnished plants, which, in consequence of their having been kept continually transplanted, will remove again with perfect safety. The Proprietor will remove at purchaser's expense if required.

Catalogues may be had on the Premises, of Mr. PIGGOTT; and of the Auctioneers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

In Liquidation.—Camberwell.

CLEARANCE SALE of GREENHOUSE PLANTS, NURSERY STOCK, GLASS ERECTIONS, HOT-WATER PIPING, BOILERS, quantity of SHOP FITTINGS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by the Trustee to SELL the above (unless previously disposed of by Private Contract) without reserve, on the Premises, 170, Camberwell Road, and Dowlas Street, Camberwell, S.E., on FRIDAY, November 20, at 11 for 12 o'Clock precisely.

Catalogues may be had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C.

Feltham, Middlesex.

ALTERATION OF DATE.

GREAT CLEARANCE SALE of 8 ACRES of beautifully grown NURSERY STOCK, consisting principally of large and well-furnished Plants, admirably adapted for effective planting, and in splendid condition for removal.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. J. & C. Lee to SELL by AUCTION, without reserve (the land being required for other purposes), at their branch Nursery at Feltham, Middlesex, ten minutes' walk from the Feltham Station, South-Western Railway, on MONDAY, November 30, and three following days, at 11 for 12 o'Clock precisely each day, the whole of the beautifully grown NURSERY STOCK, including 15,000 very handsome green Hollies, 2 to 8 feet; 2000 variegated Hollies, 500 Golden Queen Hollies, 10,000 bushy Aucubas, 1 to 3 feet; 3000 well furnished Box, 2 to 6 feet; 6000 bushy Rhododendrons, 1 to 4 feet; 1000 Picea Nordmanniana; fine Cupressus Lawsoniana, Thujopsis borealis, Thujas and Junipers of sorts, and a large assortment of other choice Evergreens and Conifers; also a great variety of Ornamental Trees, comprising 2000 Limes, 8 to 10 feet; 500 scarlet Horse Chestnuts, 200 Robinia inermis, 500 Standard Acer Negundo variegata, 1000 Oriental Planes, 100 Standard Kilmarnock Willows, a quantity of Paul's double scarlet Thorns, Poplars, 2000 Standard, Trained, and Pyramid Fruit Trees, including 500 Standard Cherries; 500 fine Standard Roses, &c.

Gentlemen residing at a distance can have their lots taken up and forwarded at the usual charges.

May be viewed three days prior to the Sale. Catalogues may be had on the Premises, of Mr. DICKSON; of Messrs. J. & C. LEE, Royal Vineyard Nursery, Hammersmith; and of the Auctioneers, 98, Gracechurch Street, E.C.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the above Rooms, on THURSDAY, November 19, at 12 o'Clock precisely, a first-class Collection of DUTCH BULBS; 500 handsome Standard, Dwarf, and Climbing Roses, of all the leading kinds; selected FRUIT TREES, Choice Hardy CONIFERÆ, SHRUBS, AMERICAN PLANTS, &c.

May be viewed the morning of Sale. Catalogues at the Rooms, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.; and Leytonstone, E.

HANDSOME SYMMETRICAL STANDARD BAYS.—Two or three pairs of exceptionally handsome plants, to be Sold for a quarter of their value, for the want of room.

B., *Gardeners' Chronicle* Office, W.C.

PINE PLANTS for SALE.—Charlotte Rothschild and Smooth Cayenne, both Fruiting and Succession. Very fine, from a stock that never had scale.

M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

SEED POTATOS, a good sample, and true to name.—Early Vermont, 80s. per cwt.; Rivers' Ashleaf, 10s. per cwt.; Carter's Main Crop, 10s. per cwt.; Dalmahoy, 6s. per cwt.; Early Goodrich, 10s. per cwt. Snowflake (new), 2s. 6d. per lb.

H. JACKSON, Blakedown, Kidderminster.

To Nurserymen and the Trade.

SEAKALE ROOTS for Forcing (very fine), 9s. per 100, 80s. per 1000. ASPARAGUS ROOTS, 2-yr. old, 3s. per 100, 25s. per 1000; 5-yr. old, for forcing, 6s. per 100. Terms, cash on delivery.

SAMUEL ALLAWAY, Earl's Court Farm, Old Brompton, London, S.W.

Twelve Camellias, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon, can now supply beautiful young bushy plants, 12 to 18 inches high, full of buds, and choicest distinct sorts, at 21s., 30s., and 42s. per dozen. Package and delivery to any Railway in London, for cash with order included.

N.B.—A few fine half-specimens, in 8-inch pots, finest sorts, and full of buds, 84s. per dozen, 10s. 6d. each.

GRAND HORTICULTURAL EXHIBITION of CHRYSANTHEMUMS, PALMS, TREE FERNS, CONIFEROUS PLANTS, FLORAL BOUQUETS, will be held in the Royal Pomona Palace on TUESDAY, WEDNESDAY, and THURSDAY, December 1, 2, and 3.

FIVE HUNDRED POUNDS in PRIZES will be awarded for Grand Garden Fruit and Flowers, and will include:—

Foliage and Flowering Plants	Celosia pyramidalis
Greenhouse Palms	Ball Bouquets
Bay Trees	Bridal Bouquets
Ornamental Fruited Plants	Table Floral Design
Roman Hyacinths	Baskets of Flowers
Bunches of Cut Flowers	Drawing-room Plants
Japanese Plants	Hand Bouquets
Tree Ferns	Skeleton Leaves
Golden Yews	Bunches of Grapes
Table Decoration	Apples and Pears.

The Flower Show will be held in the Palace, where the graceful and lovely productions of Nature may be seen with advantage Day and Night.

The Show will be open at 2 P.M. on Tuesday, December 1; on Wednesday and Thursday, December 2 and 3, at 10 A.M.

For the benefit of the working classes, will remain open until 10 o'Clock each evening.

Admission 1s., children half-price. Wednesday, 6d., after 6 o'Clock.

Floral and Musical Promenade.

Prize Lists, and all other information, may be had from Mr. JAMES REILLY, the Proprietor.

STANDARD TRAINED PEACHES, NECTARINES, and APRICOTS, fine Trees of the hardiest and best sorts, with all other forms of Fruit Trees in great variety. Descriptive Price Lists gratis.

RICHARD SMITH, Nurseryman, Worcester.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three and four years old.

Price per 100 or 1000 on application.

ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

SPRUCE FIRS, strong, twice transplanted, 3 to 4 feet, and 5 to 6 feet; also about 150 extra strong Standard PEARS, of best leading sorts. For price, &c., apply to ROBERT F. DARBY, Cirencester Nurseries.

Roses—Roses—Roses.

CHARLES VERDIER, FILS, NURSERYMAN, 28, Rue Baudricourt (late 12, Rue Duméril), Paris, begs to inform his numerous Clients that his stock of ROSES (Standards, Half-standards, Dwarfs, &c., on own roots), for this Season, is very large and in the finest possible condition.

FRUIT TREES.—One hundred thousand strong Standard and Pyramid Cherries, Apples, Pears, and Plums, from 75s. per 100. Gooseberries, 3-yr., from 10s. per 100; Currants, 3-yr., from 6s. per 100. CATALOGUES on application to

T. EVES, Gravesend Nurseries.—Established 1810.

To the Trade.

CAULIFLOWER, Veitch's Autumn Giant, true, direct from the raiser. CUCUMBER, Telegraph: we hold perhaps the largest stock of the true Rollisson's Telegraph in the country. Special low quotations on application to

F. SANDERS AND CO., Seed Growers, St. Albans.

Seed Potatos.

H. AND F. SHARPE'S Wholesale Special Priced LIST of SEED POTATOS is now ready, and will be forwarded, post free, on application. It includes all the best English and American sorts in cultivation, and the prices will be found very moderate.

Seed Growing Establishment, Wisbech.

Potatos, Potatos.

MYATT'S PROLIFIC, RED-SKINNED FLOURBALL, BRESEE'S PEERLESS, and CLIMAX—all extraordinary Croppers—are now ready for delivery, in any quantities. Wholesale and Retail Prices on application.

CHRISTMAS QUINCEY, Seedsman, Peterborough.

Gooseberries and Currants.

W. TRUSLER can supply a few thousand GOOSEBERRIES and CURRANTS of the following kinds—Gooseberries: Lancaster Lad, Crown Bob, Dobson's Seedling, and Rifleman; Currants: Black Naples and Raby Castle (red)—all good strong plants.

Market Gardener, Feltham, near Hounslow.

To the Trade.

JOSEPH SADA, NURSERYMAN and SEEDSMAN, Milan, Italy, has great pleasure in announcing that he has just published his new CATALOGUE of all sorts of TREE and SHRUB SEEDS for the Seasons 1874-75, at reduced prices. Post free upon application.

To the Seed Trade.

TO BE SOLD, a quantity of MACLEAN'S BEST OF ALL PEAS, as grown by the original grower. Apply to

Mr. THOMAS WILDE, Hathern, near Loughborough, Leicestershire.

EMILE DESMET, 2, Hundelghem Street, Ledeberg, near Ghent, Belgium, offers to the Trade:—

1000 SPIRÆA JAPONICA, for £6.
100 ROSES, Standards, good sorts, for 50s.
100 ROSES, Half Standards, for 40s.
100 LILY of the VALLEY, for 65s.

Gladioli.

CHARLES VERDIER, FILS, NURSERYMAN, 28, Rue Baudricourt (late 12, Rue Duméril), Paris, has just published his CATALOGUE of GLADIOLI, containing all the Novelties of the Season. It will be sent post free on application to

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Rhododendrons.

HENRY FARNSWORTH, Matlock Bank, Derbyshire, has to offer a fine stock of the following sizes, and at a very reasonable rate:—

3-yr. Seedling (fine).
3-yr. Seedling and 2-yr. transplanted.
3-yr. Seedling and 3-yr. transplanted.
4 to 8 inches, very bushy.

For prices and samples apply as above.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. *for* 12 *months, including postage to*—

AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10s. 4d. *for* 12 *months, including postage to*—

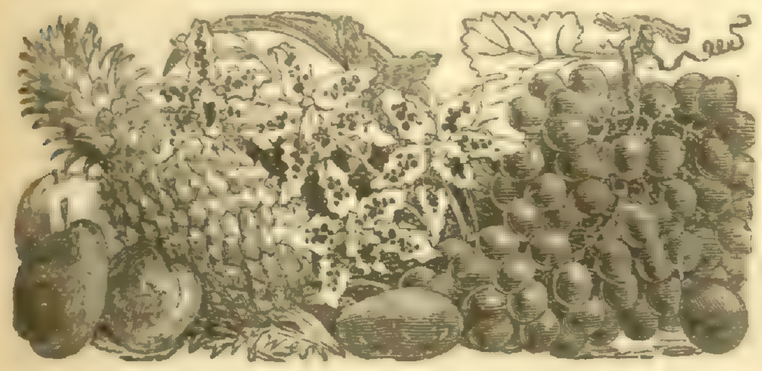
AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14s. 8d. *for* 12 *months, including postage to*—

RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.



THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 14, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 16	Meeting of the Entomological Society, at 7 P.M. Three days' Sale at Mr. W. Paul's, Loughton Nursery. Sale of 1000 Lots of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Nov. 17	Sale of 350 Pens of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Nov. 18	Sale of Plants from Ghent, and Dutch Bulbs, at Stevens' Rooms.
THURSDAY,	Nov. 19	Meeting of the Linnean Society, at 8 P.M.
FRIDAY,	Nov. 20	Clearance Sale at 170, Camberwell Road.
SATURDAY,	Nov. 21	Sale of Hardy Trees, Shrubs, Roses, Dutch Bulbs, &c., at Stevens' Rooms.

NOW that the exhibition season is virtually over, it may not be out of place to say a few words retrospective and prospective upon HORTICULTURAL EXHIBITIONS generally. The great increase in their number far and wide through the kingdom, in almost every town and village, is a conclusive evidence of the continually spreading taste for gardening pursuits. That the extent of their influence in advancing the pursuit they represent must be commensurate with the soundness of the principles on which they exist, is so evident as not to require notice. That on the whole there is little of a seriously objectionable nature in the arrangements general with most of the principal societies is evident from the success they attain, which is no bad gauge of the soundness of the regulations. Yet, as circumstances in the course of time become altered, matters that once were of little consequence and which might be overlooked, now assume an importance that will not bear to be passed over lightly. There is one thing that must be clearly evident to the promoters of the principal exhibitions—it is that the number of important shows is increasing much faster than the productions wherewith to make the shows. This refers more particularly to large flowering plants, which, despite all that was said against them in times past, are indispensable in any exhibition having pretensions to importance. Consequently, the societies that offer the most substantial inducements and the best guarantees that real merit will receive its due, are those which are certain to command the most support from exhibitors that have such things to show. Another matter of importance is that all rules should be well weighed by those competent to know and judge of their general effects. It frequently happens that rules exist which do nothing to promote the success of the exhibition they are intended to serve, and which yet offer serious obstacles to exhibitors.

The railway companies now carry plants, &c., to these exhibitions at reasonable rates, and so they ought to do, for in the case of the principal shows they are by far the greatest gainers; and it is a question whether at the large provincial exhibitions, where they carry their tens of thousands of passengers, whose money they would not see were it not for the shows in question, it would not be to their interest to offer exhibitors still greater advantages. There is one company that finds it answer its purpose, year after year, to carry all plants to and from one of the leading provincial shows free of charge, and, in addition, to offer the principal prizes given, of course looking to be recouped through the passenger traffic. At all events this is a subject that the committees of the great provincial shows might entertain and urge in the right quarter. That it would be to the interest of the companies is evident, as the public will only support these exhibitions by their presence so long as they keep up to their past excellence, and that can only be done by drawing more exhibitors from distant places.

The exorbitant demands that exhibitors are often obliged to pay for the horses required to convey their productions to and from the railway stations and exhibition ground is a matter requiring alteration. Many societies provide horses for the purpose, but at the Royal Horticultural Society's provincial shows those who provide the horses are allowed to make their own charge, and they avail themselves of their knowledge that those who come from distant places have neither time nor opportunity to resist their extortionate demands. On the occasion of the Society's visit to Bath, we heard of an exhibitor being charged £3 for two horses and two men, employed for six hours and a-half, reckoning the extreme time from the horses leaving the stable until their entering it again. Such things as this deter exhibitors from going long distances, and it is to the interest of societies to make such arrangements as will secure exhibitors against being imposed upon.

So far as the pecuniary means of any society permit, prizes should be offered for collections of all the principal subjects in general cultivation—plants, fruits, and culinary vegetables; yet nearly all the leading societies, except the Royal at their country show, confine their schedule to comparatively few classes, and these such things as are the most attractive to the public. This arises, no doubt, more from necessity than from choice, for unless high prizes are offered to attract the best productions in the kingdom the exhibitions lack sufficient interest to attract the public in such numbers as to make the societies self-supporting, and consequently independent of annual subscriptions—a position indispensable to permanent stability. Few societies can rely upon subscriptions as a certain continuous source of income, as they generally show a falling off after the society has been a few years established, consequent, no doubt, upon the waning attractions in novelty. Although no society can calculate upon being established on a permanent basis that is dependent upon subscriptions, yet it is of great importance as far as possible to induce individuals who are disposed to further the interests of horticulture to offer special prizes for such productions as they may feel disposed to encourage. Such prizes generally create an interest beyond their actual value, not only amongst exhibitors, but among the public who visit the shows where such are offered.

It is often said that many of those who attend flower shows, and who are not absolutely engaged directly in horticultural pursuits, go simply to see and be seen, caring little or nothing for the productions displayed. In the metropolitan shows such may be the case, as also to some extent in the provincial; but the great bulk of the people who attend the leading country exhibitions after the first day, when the admission is reduced, and on whom financial success so largely depends, give evidence by the great interest they take in the objects displayed that they are drawn by the attractions of the products in competition. To secure a still larger attendance of this and all other classes of visitors should be the aim of the different societies; yet it can hardly be said that all that is possible is done in this direction.

To induce the public to attend these displays everything exhibited should, so far as possible be made intelligible to them. The interest taken will naturally be found proportionate to the opportunities for fully comprehending all they come to see, instead of which in many even important shows little is done to convey this information. The prize cards in many instances are far too small, and the objects for which the awards are made are printed in type impossible to be read by a continually moving crowd. Often and often have we heard expressions of disappointment at the scanty information vouchsafed on these occasions.

At one of the largest shows held during the past season, the prize cards were little larger than ordinary playing cards, with the name of the exhibitor, and 1st, 2d, or 3d prize, as the case might be, upon them, but not a sentence to indicate what the things were that the awards were made to.

Then, again, in the different classes many have ceased to distinguish the individual competing collections in each class from others adjoining by the usual bit of ribbon or coloured tape. The effect in some cases of late has been that the judges have found the greatest difficulty in making out the competing exhibits. Where valuable prizes are offered not in the form of money they are much more acceptable in the shape of some article of plate other than cups, of which the principal exhibitors often get more than they know what to do with; still better would it be to allow the successful competitors the choice of such articles as would be most useful to each individual. The objectionable nature of challenge cups for horticultural exhibitions has been more than once pointed out. Further opportunities of forming an opinion upon them have led us to doubt their efficacy except in special cases, as most of the exhibitors would have competed without them. Wherever prizes are offered for unlimited collections of plants, fruits, cut flowers, or vegetables, under the impression that a great display will certainly be made, the object is certain to defeat itself by deterring distant exhibitors and those who possess the best in quality, through the fear of being swamped by mere quantity. Except in special well-defined instances, and with the exception of cut flowers, in vases or epergnes, bouquets and dinner-table decorations, preference to the best arrangement should never be given, as it always leaves room for cavil, perplexes the judges, and places good cultivation, which should always stand first, in the background. It rarely happens now that an individual who can grow a first-rate lot of plants cannot place them on the exhibition stage in a way most conducive to their general effect, as well as to display their individual merits. In defining the way in which the different productions are to be exhibited, the first consideration entertained should be to so exhibit them as to enable the judges with little difficulty to determine the merits of the competing exhibits from a purely cultural point of view. Committees may rest assured that the further they depart from this the more they do

to sap the groundwork upon which the success of their exhibitions depends, despite what may be said to the contrary by those who are continually seeking after novelty in arrangement, even at the cost of retrogression. It is in human nature to require change, and laudable to carry it out, but, even in such matters as exhibiting flowers, of the two it is better to be charged with sticking to old-fashioned usage, even if inelegant, than change for what is obviously calculated to defeat the primary object in all exhibitions, which should be to encourage good cultivation and improvement in variety, though when properly carried out this by no means need interfere with artistic arrangement.

There are some shortcomings on the part of exhibitors that require notice. The first is the very objectionable practice of entering large collections, which are never sent. All calculations as to space are thus upset, and serious inconvenience caused to those who have the arrangement of the staging. When, as in times past, all the competing exhibits were placed side by side, the arrangement was very simple, and easily carried out, but now, when it has become an essential that the whole should be grouped so as to produce the best effect, there is much more difficulty in staging, and much more time and forethought required. There are many exhibitors also who, especially at provincial shows, delay staging their plants so long as to seriously shorten the time bestowed by the judges in making their awards. It ought to be remembered that the separation of the competing collections, often to a considerable distance, makes the work of judging double what it was before the present system was adopted, though in some cases this might be obviated by adopting the Continental system of re-arranging after the judges have done their work.

There is another matter in which there appears to be a growing negligence on the part of exhibitors, even at some of the principal provincial shows—that is, the omission to label fruit and vegetables. At some of the shows this year not more than half the things exhibited in these departments were labelled at all. This may appear of little importance to gardeners who are supposed to know varieties at sight, but, even in their case amongst hardy fruits, except in the case of well marked sorts, soil and situation have such an influence that half the varieties are of doubtful recognition. Not only those intimately conversant with gardening, but also the public, who pay their money to see these exhibitions carried out in a way intelligible to them, have a right to expect that their wants may be studied; and if exhibitors systematically omit to name their productions the committees should enforce its being done under pain of disqualification. *X.*

THE SKATING RINK now in course of formation in the Royal Horticultural Society's Garden at South Kensington, may at first sight appear to have little that is horticultural about it besides the surroundings; and in truth, looking the matter directly in the face, though it will furnish a source of recreation to resident Fellows and their friends, it has nothing horticultural about it. Indirectly, however, it may have a considerable influence upon horticulture, since it is intended as a means of furnishing the "sinews of war," without which neither the Royal Horticultural nor any other Society can accomplish its proper work. The Society, in order to secure bare existence, must pay its way, and before it can do this honourably it has to clear off an appalling accumulation of old debts, the legacies of former Councils—at least, so we are informed on very sufficient authority. The present Council is loyally attacking this hydra-headed monster—debt, and is doing its best to clear off the incumbrance, and thus to liberate funds which of right belong to horticulture. Skating is one of the aristocratic pastimes, and the Skating Rink, therefore, is one of the sources of income which the Society can entertain without blotting its scutcheon.

We understand that terms very favourable to the Society's financial position have been arranged, and that, without any risk to the Society, a considerable amount of income will be realised; while the Fellows of the Society and the public will be able to enjoy the pastime without materially interfering with each other, since on certain days none but subscribers will be admitted.

—— AT a preliminary meeting of those interested in the formation of a new HORTICULTURAL CLUB, which took place at St. James's Hall on Wednesday evening, a long list of names of gentlemen desirous of becoming members was read. The proposal, as we have already stated, is to secure in some generally accessible locality in the West-end of London a place of meeting, and the usual Club accommodation for gentlemen specially interested in horticulture. Considering the limited and tentative nature of the steps hitherto taken, the prospect held out is very encouraging. The want of some such institution has been greatly felt for several years, and is attested in an emphatic manner in the letters we ourselves and others have received on the subject. Negotiations are, we understand, in progress with one of the largest of the West-end hotels to supply the necessary accommodation for the exclusive use of the members of the Club. It is very desirable that those gentlemen interested in the matter, especially those in the provinces, should communicate at once with one or other of the committee, among whom occur the names of Rev. S. R. Hole, Caunton Manor, Newark; Hon. and Rev. J. J. Boscawen, Lamarron Probus, Truro; Dr. Hogg, *Journal of Horticulture;* Dr. Masters, F.R.S., *Gardeners' Chronicle;* W. A. Lindsay, Esq., Secretary, Royal Horticultural Society; H. J. Veitch, Esq., King's Road, Chelsea; W. Bull, Esq., King's Road, Chelsea; Sir Edward Lee, Alexandra Palace; Martin H. Sutton, Esq., Reading; T. Laxton, Esq., Stamford; J. Lee, Esq., Hammersmith; James Cutbush, Esq., Highgate; C. Turner, Esq., Slough; or to Rev. H. H. Dombrain, Westwell, Ashford.

—— At the meeting of the PELARGONIUM SOCIETY held on Wednesday last good progress was made in the work of organising the Society, and the desirability of encouraging the introduction of Cape species for hybridising and other purposes was strongly impressed. Prizes will be offered to stimulate botanists and hybridists to increase and develope the materials now in the hands of the lovers of this class of plants. Some remarks of Mr. PEARSON'S on the subject will be found in another column. The following additions were made to the SCHEDULE OF PRIZES for 1875:—

Class 4.—Six ornamental Cape Pelargoniums, dissimilar. Open. £3, £2.
Class 5.—Best hybrid Pelargonium, of a distinct character. Open. £2, £1.
Class 6.—Twenty-four Pelargoniums, cut blooms, single trusses, dissimilar. Open. £2, £1.
Class 7.—Twelve Pelargoniums, cut blooms, single trusses, dissimilar. Amateurs. £2, £1.

It was also determined that the Chiswick standard should be adopted in measuring the size of the pots.

—— The Rev. H. N. ELLACOMBE sends us a NOVEMBER NOSEGAY, the materials of which are noteworthy, seeing that the plants furnishing them are all hardy in Gloucestershire. Brugmansia sanguinea, Boussingaultia baselloides, Solanum jasminoides, Iberis semperflorens, Gaura Lindheimeri, Exogonium Purga (Jalap), Erica codonodes, Clematis cirrhosa, Abutilon megapotamicum (syn. A. vexillarium), Allium suaveolens, and Saxifraga Fortunei.

—— In August of last year we gave a summary of the reports received by the German Pomological Society respecting the prospects of THE FRUIT CROPS IN VARIOUS PARTS OF GERMANY. It will be remembered that the crops in this country were very uneven, the late frosts having injured the bloom very much in some of the low-lying districts; but the hardier sorts, or cider Apples, were very abundant. Pears were thin, as were also Plums and nuts, with the exception, perhaps, of Walnuts. In Germany the results were much the same, though the actual deficiency was far greater, and Walnuts were almost a total failure. The reports referred to above foretold a great scarcity of fruit in nearly all parts of Germany and Austria, which the later reports fully bore out. In some districts of Bavaria, Brunswick, Lower Alsace, the Rhine Provinces, Westphalia, and South Hungary only, were the crops good. The members of the Society were requested to name in their second report the varieties of Apple and Pear that had turned out best, and the full reports of Dr. LUCAS and Professor KOCH have lately reached us. Some particulars respecting the most productive sorts will be of interest to home growers. As some of the names are unfamiliar, though probably synonymous with others in use in this country, we will confine ourselves to well-known varieties. Fifty-two members responded to the requisition to the report on the prospects, whereas only thirty-four reported on the results, to which the following remarks refer. With regard to the best bearing sorts of Apple, the Golden Winter Pearmain heads the list with twenty-two voices, out of thirty-four, in its favour from various parts of Germany. Grosse Rasseler Reinette was reported good from thirteen districts, Reinette du Canada from thirteen, Emperor Alexander from eleven, Grey French Reinette from eleven (chiefly North), Gravenstein nine, Red Autumn Calville eight (both from the North and South), Champagne Reinette seven, English Golden Pippin seven, and Cardinal from seven districts. Red and White Astrachan, Ribston Pippin, and London Pippin were also amongst those bearing well in some districts. Amongst the most productive Pears we may note Beurré Diel, ten; White Autumn Beurré, ten; Grey Autumn, ten; Beurré de Capiaumont, nine; Beurré Napoléon, nine; Williams' Bon Chrétien, eight; Marie Louise, eight; Beurré Clairgeau, eight; and Hardenpont's Winter Beurré, seven. The tabular list from which we have extracted the foregoing is supplemented by a somewhat elaborate report on the primary causes of the great deficiency in the crops; and Professor KOCH seems to be of opinion that the late frosts were more disastrous in their effects on account of the unripe state of the wood, due partly to a deficiency of the necessary mineral constituents in the soil. It is quite possible that the soil may have become exhausted of certain mineral matters in some districts, and this is a point worthy of the attention of the fruit grower; but we are inclined to ascribe the deficient crops entirely to the climatal conditions of the previous autumn and succeeding spring.

—— We learn from a report of a monthly Council meeting of the Royal Agricultural Society of England, in the last number of the *Agricultural Gazette*, that the POTATO DISEASE Committee presented the following report, whereby it will be seen that their trials of so-called disease-proof Potatos has ended—as most people anticipated—in the failure of the varieties sent in to resist disease:—

"The judges appointed to inspect the growth of the six varieties of Potatos which were entered for competition as disease-proof, and planted in trial plots in twenty different places in England, Scotland, and Ireland, have reported that none of the varieties have resisted the Potato disease. During the period of vigorous growth, in all the varieties, in five out of the twenty localities the disease was virulent, and by the end of the season it was found that in almost all these places more or less disease was apparent; so that the question of disease-proof Potatos, as far as these trials are concerned, has been practically decided in the first year. The note-books of the growers, and the reports of the judges, contain much valuable information as to the influences of soil, climate, and various methods of cultivation upon the action and progress of the Potato disease. The committee, therefore, recommend that Mr. CARRUTHERS, who has carefully inspected every trial plot, be requested to collate these experiences for publication in the next *Journal* of the Society. The Potatos which were grown upon the trial plots, after having been carefully examined by the judges, and the percentages of diseased tubers ascertained, have been sent to the Agricultural Hall. It is proposed that the competitors shall have the first offer to purchase the produce of their own entries, and that if they, or any of them, decline, the Potatos shall be sold by auction, or by salesman, as the committee may determine. It will be remembered that the Council reserved a power to enforce a penalty of £20 in case of the failure of the entries of any competitor to resist the disease, but the committee recommend that this be not enforced in any instance.

"Most important communications have been received from Professor DE BARY, who has ascertained, by recent experiments, that the Potato disease is not propagated by infected tubers; that although the mycelium of the fungus (Peronospora infestans) was distinctly apparent in the stalks of plants raised directly from diseased tubers, no conidia, or germs, were evolved. The Professor remarks upon this curious circumstance, that he is struck by this result of seeing the fungus with the naked eye during two or three months in his little field, and all the plants and leaves intact.

"Professor DE BARY, in a later communication, expresses sanguine hopes that he has at last discovered the certain nids, or resting-places, of the oospores, or active primary germs of the fungus, which, as he says, would essentially accomplish its life history; and the great practical results of these discoveries, if perfected, will obviously be, that measures may be taken by Potato growers to avoid planting Potatos after, or in the immediate vicinity of, plants known to be suitable to the development of the oospores of the fungus, or that steps may be taken to destroy them *in situ*."

To this we may add that a private gentleman in this country has, we believe, made a discovery of equal, or even greater, importance than that of Professor DE BARY, but to which it is at present inexpedient to refer further.

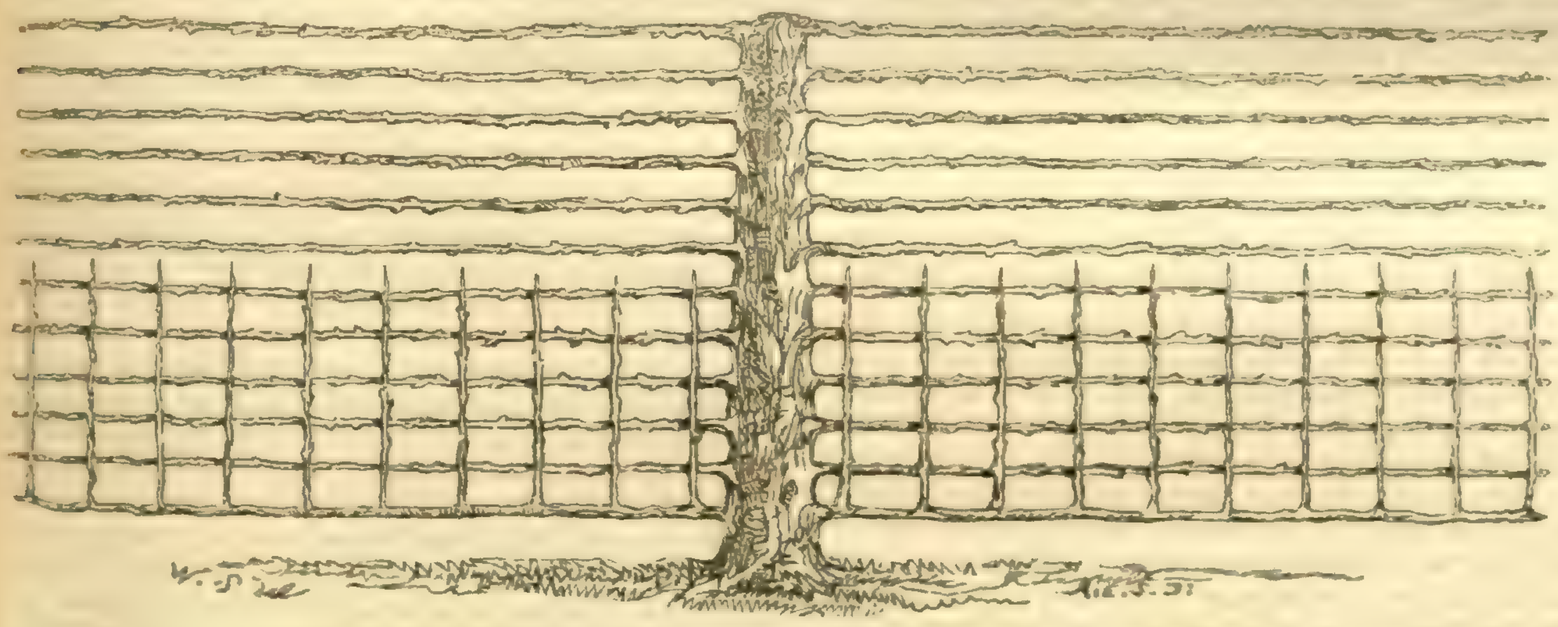
Home Correspondence.

Pelargoniums and Geraniums.—I cannot help thinking that one of the effects wrought by the new Pelargonium Society will be to convince us that Pelargoniums and Geraniums are not distinct genera. I take it that if a plant raised between two supposed distinct species or genera prove infertile it may be considered a mule, and goes to prove that its parents are distinct, whilst if it prove fertile it proves the contrary. For several years E. J. Lowe, Esq., of Highfields, Nottingham, has been trying to raise a blue Geranium by crossing the Geranium sanguineum with Madame Vaucher Zonal Pelargonium. Many of these seedlings have produced red, rose, and white flowers, some with curious foliage, but few would believe they were really the result of the cross attempted. The only thing which made me doubt was, that I could not imagine, if they were not so raised, how such queer things could be produced from Madame Vaucher. He has just sent me two plants in flower much alike in every respect and I think no one who sees them can doubt that they are really raised between the hedge Geranium and a Zonal. The foliage, the way the flower-stalks grow, and particularly the colours and veining of the petals, convince me at any rate that such is the case. Having often laughed with and at Mr. Lowe over these queer seedlings of his I hasten to humbly "eat the Leek," and declare myself a convert. If I live I will bring one of them to the Society's first show, if in flower, and then it can be examined by the *savants*, and we shall hear what they say about it. For the information of the curious I may say the flowers are lilac-pink (some see blue in them), and that the shape of the flowers is the exact opposite of what a florist would consider perfection, the petals being long and narrow, reminding one as much of the shape of a Pancratium as of a round Zonal "Geranium." Though the plant will be despised by the florist it will be admired by the lovers of curious things, for when well flowered it is really pretty as well as curious. Mr. Lowe thinks it a mule; I do not much doubt being able to seed it; time will show which is right. *J. R. Pearson, Chilwell.*

The Regent Potato.—The origin of the name, and the history of so universal a favourite as the Regent Potato, could not fail in being interesting to your readers generally; hence I ask you to allow me to inquire whether any one can furnish trustworthy data in regard to it. As probably bearing on its earlier history, a fact has come to my knowledge, which makes it more than probable that it had its origin from that most excellent kind known as the Fortyfold, as I have had a Regent "set" placed before me this season bearing excellent examples of both Regent proper and parti-coloured Fortyfolds together upon the same haulm. The fact immediately gave rise to the impression that the good old Fortyfold is very much like the Regent in all details excepting it be in the peculiar bicolor markings of the former. Be the real issue what it may this fact is worth recording, and I give it as an aid in the solution of the query. *William Earley, Valentines.*

Renovating Old Pear Trees on Walls.—There are some Pear trees on walls here which, though over 100 years old, were in a very healthy condition, but unsightly, and only bearing fruits at the extreme points of the branches. They were all trained horizontally, and the stems measure 5 feet 6 inches in circumference. They produced so little fruit that something had to be done to improve them in this respect; and I tried on a large Jargonelle tree the plan of training up, vertically, young shoots, about 12 inches apart from the lowest pair of branches, as shown in fig. 128 A. In four years the new growths covered the wall, 11 feet high and 30 feet in length; the original tree was cut down, leaving the renovated tree in the manner shown in fig. 128 B, and having the appearance of fine young trees. They produce fine crops of good fruit yearly, and are much admired by all who see them. I consider this by far the best way of treating old Pear, Plum, and Cherry trees, as the walls are more quickly and cheaply covered with fruit-bearing wood. I also treated in the same way a large Gansel's Bergamot Pear tree, covering a wall 40 feet long and 20 feet high; but grafted every six shoots with different varieties, all of which do equally well, and grow uniformly together. *William Smythe, The Gardens, Elmham, Norfolk.*

A



B

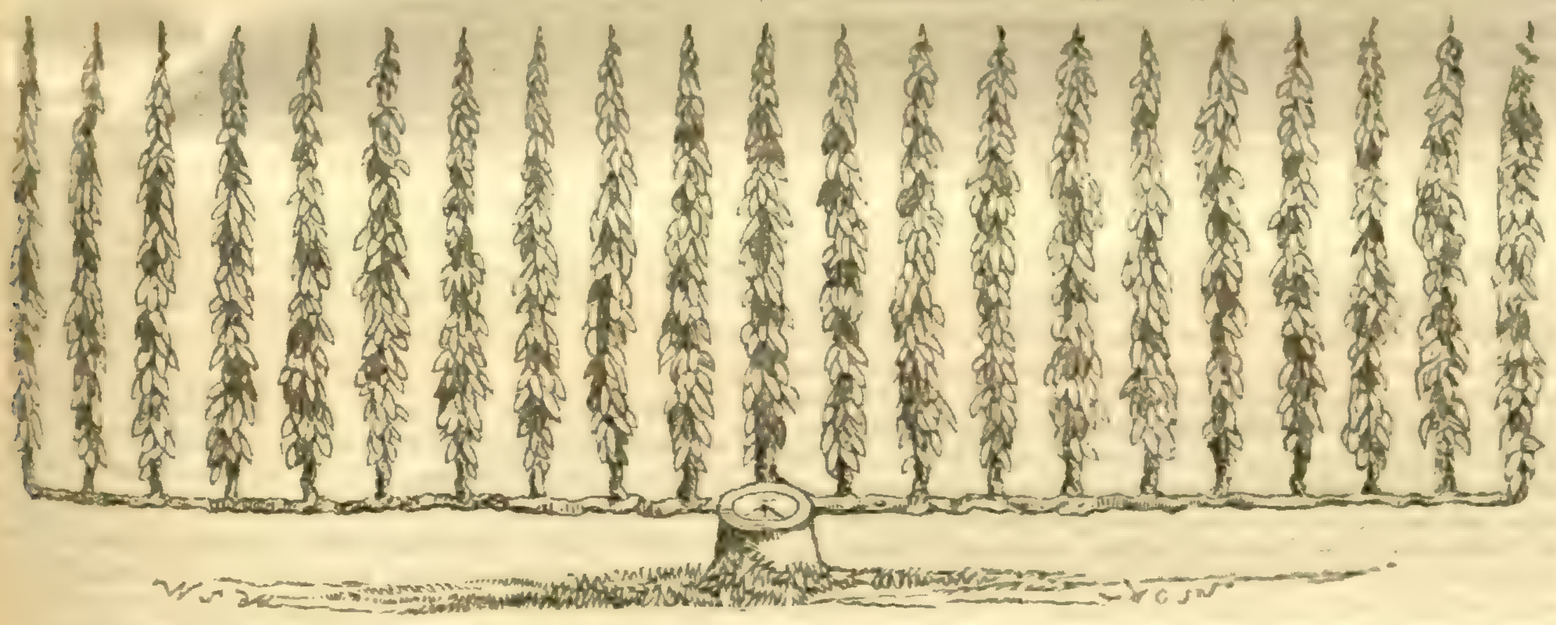


FIG. 128.—METHOD OF RENOVATING OLD PEAR TREES ON WALLS.

Tree Carnations.—The best pot-grown Tree Carnations I have met with for some years past are a collection with scarlet flowers, now in full bloom, in the Gardens of the Royal Horticultural Society, Chiswick. In answer to my inquiries, Mr. Barron informs me that they were struck from cuttings in the ordinary manner, and after their first shift had been transferred at once into the flowering pots which they now occupy. To all who visit Chiswick they will afford pleasure; and it is possible Mr. Barron may stage them in the conservatory at Kensington, to give others an opportunity of making their acquaintance. *William Earley, Valentines.*

Thujopsis Standishii and Thuja gigantea.—I send you a spray and cones of the so-called Thujopsis Standishii, and a spray and cones of Thuja gigantea (Menziesii or Lobbii), that you may satisfy yourself, as I have done, that the so-called Thujopsis belongs to the genus Thuja—that is, if the species called Thuja gigantea be a Thuja. Not only do their cones resemble each other in size and shape, but the valves of which they are severally composed differ so little with respect to number and form, that it would puzzle even our most notorious species-mongers to produce words to convey the difference. Moreover, you may observe that the form and regular arrangement of the leaves of this species indicate its generic relationship to the Thuja. The only two species of Thujopsis known, namely, dolabrata and lætevirens—species, by the way, that have cones more like those of Biotas than Thujas—have curious hatchet-shaped leaves, whereas the species under consideration has not. It is probably the only species of Thuja indigenous to Japan, and, considering its geographical habitat, we may look upon it as being the nearest existing Thuja relative of the Biotas. I find that Mr. Gordon, author of the *Pinetum*, in giving this species the name of Thujopsis Standishii, was nevertheless in doubt as to the genus to which it belongs. *G. S.* [We had not previously seen the fruit of the so-called Thujopsis Standishii, but its foliage had suggested to our mind the relationship to the Thujas. From an examination of the specimens sent us we have no hesitation in adopting the view taken by our correspondent, to the extent (that is) of holding T. Standishii to be a Thuja and not a Thujopsis. *Andrew Murray.*]

The Double Blue Lobelia.—At the beginning of last August the double blue Lobelia, employed as a border, was in great beauty and a mass of colour in the Jardin Vauban, at Lille. It would be a pity to condemn so pretty a plant too hastily. Those who have been disappointed this season might, therefore, follow "T. H. S.'s" recommendation to give it another trial, and to use less water on their flower-beds—a piece of advice applicable to several other bedding plants. *E. S. D.*

Moles as Vegetarians (p. 471).—I believe that the mole is erroneously accused of being a devourer of vegetable matter, and that the cases given by your correspondents, "A Gardener Down West" (p. 535), and Arthur Madgett (p. 559), would be more correctly attributed to the water-rat, which may have followed the run of a mole, and eaten into the Beets and Savoys, as mentioned. I have traced them here burrowing under and devouring the roots of shrubs (Roses) in my garden, and even under the front wall of a vinery, and eating the roots of Vines. The water-rat, which I am satisfied is a strict vegetarian, has also been unjustly charged with the destruction of fish and their spawn, and even of young ducks. *W. C. Trevelyan, Wallington, Nov. 8.*

—— I have been much interested with Mr. W. Earley's question (p. 471), and the answers, with respect to the mole as a vegetarian. Some years ago I had my attention called to some red Cabbage which had grown to a very large size. On being cut it was found that some of them were eaten up the stalk as described in the case of the Savoys, and to each one that was eaten was a run similar to that of the mole. As a mole was at work in the garden we instantly came to the conclusion that it was that animal which had caused the mischief; but we ultimately found out that it was effected by rats. On tracing the runs they were found to lead to a larger one, and then to a hole, and there we found a quantity of gnawed Cabbage stalk, Potatos, &c. *W. Gamble, Gardener, Tapton House.*

Sedum pulchellum (p. 552).—This plant was sent to me by Professor Thurber, of New York, and he tells me that in America it flowers in July, and "from the peculiar disposition of the racemes its common garden name here is Widow's Crop." *H. N. Ellacombe, Bitton.*

Vellosia cœrulescens, which I believe to be an exceedingly rare plant (and which I received some time ago from Mr. Van Houtte, of Ghent), is now coming into bloom in my stove. The white variety of this plant, V. candida, which bloomed some years ago in the gardens of the Royal Dublin Society, at Glasnevin, near Dublin, where it was raised from seed sent from Brazil to the learned curator, Dr. David Moore, is well figured in the ninety-first volume of the *Botanical Magazine*, tab. 5514. The foliage of this plant resembles that of a rather narrow-leaved Pandanus, and the flowers, which are produced singly on the top of a slender stem from the centre of the foliage, somewhat resemble in shape those of one of the Zephyranthes, but are somewhat broader in the throat. These plants appear to be common about Rio Janeiro. *W. E. G., Belgrove, Queenstown, Cork.*

The Silphion of the Ancients.—Of late years the old controversy as to the species of plants to which the σιλφιον of the Greeks is to be referred has waxed rather hot, but without yielding results at all in keeping with the learned verbosity spent on the subject. The ancient descriptions are too vague for us to gain much assistance from them, and the main grounds on which the various supposed identifications have been made on the rude figures on vases, coins, monuments, and such like (the vases of Arcésilas, for example). From the same premises different scholars and botanists have come to very different conclusions. Desfontaines, for example, in 1798 referred it to

Thapsia garganica, L.; Sprengel, in 1807, to Ferula tingitana, L.; Link, in 1808, to Laserpitium gummiferum, Desf.; the *Dictionnaire d'Hist. Naturelle*, to Ferula Asafœtida; while Mace, in his *Numismatique de l'ancienne Afrique*" (1857), comes to the conclusion that it is Laserpitium Siler, L. In all the recently revived controversies, the exhaustive memoir of the late Prof. Œrsted, of Copenhagen, entitled, *Et Bidrag tel Tydning af den i Oltiden under Navn af Silfiion meget anvendte og höit skattede, men senere forsvundne kryderplante* (Remarks on the interpretation of the famous plant, the identity of which is at present a matter of dispute, known in ancient times under the name of Silphium), in the *Oversigt over d. K. D. v. Selksk. Forhandl. o. s. v. f.* 1869, pp. 21—30, has been neglected. Œrsted believed that it was a plant allied to Narthex Asafœtida. If the figures of Silphium on ancient coins or vases are brought to the same scale with those of Narthex Asafœtida, it will be found that the two plants agree very exactly. The stem, the form and the position of the leaves and the inflorescence are the same. The rhizomes of the two plants are the same in form and even ramification. The thick stem, straight and marked with deep longitudinal furrows, so characteristic of Narthex is also seen in Silphium, and these furrows are always very distinctly marked on the figures on the ancient coins. The leaves of the two plants, especially if we take as comparison those figures of Silphium on coins which are apparently the best executed, are very much alike. The form and size of the inflorescence are the same in both plants. The fruit is of the true umbelliferous type, though in the rude figures it might belong to either Ferula or Narthex, indeed rather to the latter than the former genus. But the general character and habit of the plant forces us to consider it as coming within the genus Narthex. Œrsted, however, considers that it can scarcely be considered identical with Narthex Asafœtida, both on account of the different shapes of the two fruits, but especially from the well known fact that the Asafœtida furnished by the Narthex is entirely different from the valuable spice which the ancients obtained from Silphium. He proposed the provisional name of Narthex Silphium for the ancient plant. At the time of writing his paper Professor Œrsted was quite aware that Viviani (*Flora Libyeæ Specimen*, 1824) had named an Algerian plant Thapsia Silphium, which Cosson afterwards pronounced to be a slight variety of Thapsia garganica, and that this was looked upon by Desfontaines as the ancient Σιλφιον; but with this identification he was not, like many others who had studied the subject, at all satisfied. I confess, after paying a little attention to the subject, that I agree with my lamented friend, though whether he was right in classing it as a near ally of Narthex Asafœtida is quite another matter. *R. B., Edinburgh, November* 7.

Wintering Echeverias.—Echeverias which have served for borders, beds, or floral inscriptions during summer, if potted to pass the winter, are liable to rot or to spindle up. A method of preserving them, which occupies practically no room whatever, and which avoids the above-mentioned inconveniences, is to shake out the earth from their roots when taken up in autumn and suspend them, heels upwards or anyhow, tied in small bunches, on strings stretched horizontally, like linen hung on a line to dry, beneath the roof of a cool greenhouse, which just keeps out the frost. *E. S. D.*

Ilex latifolia.—On p. 591 of your last issue, I notice Mr. Strickland's request for information respecting Ilex latifolia. In reply to his question—"Is there not a specimen of it at Carclew?" I beg to state that we have a plant here of I. latifolia, 15 feet high, its general appearance reminding one very much of a plant of Magnolia grandiflora. We have also a nice specimen of Ilex dipyrena some 20 feet in height. *G. P.*

Wasps.—The statement of M. Van Hulle, mentioned in the number for October 24, that he saw Tomatos planted in a vinery to keep off wasps, reminds me that some ground vineries which were infested with wasps last year were this year completely free from them, not a wasp appearing near them, and that this year there was a bed of Tomatos along the side of the frames which was not there previously. *A. Boyle, Whitland.*

Long Cucumbers.—As there appears now quite a rage for long Cucumbers I think it will be as well for judges and societies to lay down specific rules for judging. The late George Glenny, in his last Almanac, ridicules the idea of length as a test. His rules for judging are, I think, good, and should be adopted:—"Length, nine diameters; skin, smooth; spines, black, the thicker the better; colour, dark green; bloom, perfect; shape, round—equal the whole length—except half a diameter for neck, and half a diameter for the nose; the flowers remaining on the fruit." *W. S. G.*

Reports of Societies.

Royal Horticultural: *Nov.* 11.—W. A. Lindsay, Esq., in the chair. At this meeting the Rev. M. J. Berkeley directed attention to several of the subjects exhibited or brought before the Scientific Committee, a report of which appears elsewhere.

Scientific Committee.—A. Murray, Esq., in the chair. The Rev. M. J. Berkeley commented on some specimens of the fungus (Hemileia vastatrix) now causing such ravages in the Coffee plantations of Ceylon, and which has been figured and frequently alluded to in our columns.

In allusion to this subject Professor Dyer read the following—

Extract from a Letter of Dr. Thwaites to Dr. Hooker.

"Peradeniya, Sept. 14, 1874.

"The Secretary of the Planters' Association in Ceylon has sent me for perusal to-day some reports from the estate superintendent as to the condition of the Coffee as regards the Hemileia. I can glean little news from these reports. They demonstrate the fecundity of the worst phase of the disease, so that in future the time of its occurring may be predicted. Flowers of sulphur would doubtless be useful if a few trees only were to be treated; but when their number is legion, and each tree carries upon it the seeds of infection to an inconceivable extent, a cured tree, as soon as the sulphur had been washed off by a heavy shower, would be liable to contract the disease again. I have ascertained that the filaments produced from a spore of the Hemileia can and do penetrate the stomata of the underside of the leaf from the outside. This was made evident in a specimen I was examining under the microscope, and of which I made a rough sketch. This simplifies matters very considerably. It was difficult to understand what should determine the outbreak of the disease in certain parts of the leaves, the intermediate parts seeming to be quite free from it."

Mr. Berkeley showed the scape of an Onion—Allium rotundum—which had been partially broken across, and which had produced small bulbs at the injured spot [A not very unfrequent occurrence under similar conditions in A. vineale. Eds.] The production of bulbs was the more remarkable in that the species in question does not usually produce bulbils in the inflorescence, as some other species do.

Mr. Berkeley also showed roots of Apple unusually severely affected with American blight—Eriosoma lanigera—and nodulated in consequence. As a remedy, Mr. Berkeley expressed his confidence in the application of a mixture of tar and grease, such as is used to prevent cracking of the hoofs of horses.

Mr. Webb forwarded specimens of Pears attacked by Helminthosporium pirorum.

Professor Dyer then read the following note from Dr. Kirkman Finlay, of San Fernando, to Dr. Hooker, on the *Dehiscence of the Pod in a Species of Swartzia.*

"I send you the pod of Swartzia grandiflora, the dehiscence of which presents a singular phenomenon, which I have observed in no other Leguminosa, and that only recently. In a late botanical excursion I met with a fine bunch of the above pods in maturity. I secured them. On my return, on opening my vasculum, I found several of the pods lined with a row of seeds. This surprised me, for the pods had not changed at all in outward appearance. On pressing them, however, I felt they were empty. I took the remaining pods that had remained full, and hung them up to dry. The next morning I found the pods exactly the same in outward shape as when I had hung them up, only every one bore on one side a certain number of seeds hanging by their respective funicles. These seeds were very glossy, covered with a coat of unctuous mucilage, to facilitate, no doubt, their exit from the pod. The latter, as I said, was quite closed, and the coaptation of the sides through which the seeds had slipped was quite perfect, while the moniliform appearance was wholly preserved."

Dr. Gilbert contributed, on the part of Mr. Lawes, a very suggestive communication entitled—

Note on the Occurrence of Fungi on the various Plots devoted to Experiments with different Manures on Permanent Meadow-land, in the Park, Rothamsted, Herts. By J. B. Lawes, F.R.S., F.C.S.

November 5, 1874.—Fungi were more abundant, and a greater number of species was represented on the permanently unmanured than on any other plot. No fungus of more than 1 inch in diameter across the cap was found on any plot, excepting on the unmanured plot (3), that with superphosphate of lime alone (plot 4), that with superphosphate, and salts of potass, soda, and magnesia, for six years, after ammonia salts for thirteen years previously (plot 6), and that with superphosphate and salts of soda and magnesia, without potass (plot 8). On plot 6, that is the plot manured with superphosphate and salts of potass, soda, and magnesia, a Mushroom of 7 inches diameter was found.

In other words, there was no luxuriant growth of fungi excepting on the unmanured plot, and on the plots receiving mineral, without nitrogenous, manure; and by far the most vigorous growth of grass in "fairy rings" was on the superphosphated plot, and that receiving superphosphate with salts of soda and magnesia, without potass.

Where ammonia salts alone, or ammonia salts and mineral manure, or ammonia salts, mineral manure, and organic matter (applied as cut straw), were used, scarcely any fungus was observed. On plot 17, with nitrate of soda alone, one species, and on plot 16, with nitrate of soda and mineral manure, two species, occurred.

It would appear, therefore, that the fungi flourished best where the development of the grasses was the least, and where the limited growth of these was due to a deficient supply for their requirements, of nitrogen, or of potass, or of both.

The question obviously arises, whether the great prevalence of fungi under such conditions is due to the manurial conditions themselves being directly favourable for their growth, or whether other plants, and especially the grasses, growing so sluggishly under such conditions, the plants of the lower order are the better able to overcome in the competition, and assert themselves? On this latter point the further question arises, whether the fungi prevail simply in virtue of the absence of adverse and vigorous competition, or whether to a greater or less extent as parasites, and so at the expense of the sluggish underground growth of the plants in association with them?

According to the published analyses of various fungi from one-fourth to one-third of their dry substance consists of albuminoids, or nitrogenous matter. Yet, as in the case of the highly nitrogenous leguminous crops, direct nitrogenous manures, such as ammonia-salts or nitrate of soda, do not seem to be specially favourable to their growth: but they develope and assimilate an enormous amount of nitrogen, under conditions in which the Graminaceæ, which flourish so remarkably under nitrogenous manuring, languish. The dry substance of fungi is further shown to contain from 8 to 10 per cent. of mineral matter or ash, of which about 80 per cent. is phosphate of potassium. Yet the greatest development of the fungi was on plots on which, so far as the requirements of the grasses are concerned, potass was relatively deficient.

Mr. Berkeley determined the fungi exhibited as follows:—On the unmanured plot, Boletus erythropus, Hygrophorus pratensis, H. coccineus, H. virgineus, Agaricus geotrupes, A. æruginosus. Where superphosphate of lime alone was used (plot 4) the species found were Hygrophorus coccineus and Clavaria vermicularis. On the plot manured with superphosphate and mixed alkalies (plot 6), Agaricus arvensis was the only species found. On a corresponding plot from which potass is excluded (plot 8) two species were found—*i.e.*, Agaricus nudus and Hygrophorus virgineus. Where the nitrate and mineral had been applied (plot 16), Hygrophorus virgineus and Agaricus furfuraceus were observed; and on plot 17 (nitrate of soda alone), the only fungus found was Hygrophorus virgineus.

In the discussion which followed on the reading of this paper, Dr. Voelcker confirmed the experience of Mr. Lawes to the extent that fairy rings occur most abundantly on poor pastures, and that one means of extirpating them consists in the application of nitrogenous manures.

Mr. Renny considered that the physical condition of the soil had much influence on the production of fungi. Rank-growing grass was not nearly so favourable for the growth of fungi as old pasture or common land.

Dr. Masters alluded to the fact that at present we knew very little of the parasitic habits of this class of fungi—an observation which elicited the statement that very few Agarics were known to be parasitic on grasses. Dr. Masters also remarked on the fact observed by Mr. Lawes, that in the plot manured with decaying organic matter, as also with ammonia salts, Fungi were not specially produced—a circumstance apparently antagonistic to generally received notions about fungi, and opposed to garden practice, as in the culture of Mushrooms.

The same gentleman exhibited some remarkably beautiful photographs of Stapelias and other plants taken by Dr. Bornet in the garden of M. Thuret at Antibes; and also laid on the table specimens of a curious variety of Calluna vulgaris gathered by Mr. James Salter, F.R.S., and in which the branchlets were so densely packed and so contracted in their growth as to suggest resemblance to a round-headed Acacia. Whether this peculiarity was due to browsing of cattle, or to exposure to winds, or to some internal cause not yet determined, could not be ascertained.

Mr. Bennett exhibited leaves tunnelled by the caterpillar of a moth.

Chrysanthemum and Fruit Show.—Given the sum of about two hundred pounds, proportionately distributed over sixty-six classes, and it is very doubtful whether such a display as was brought together on Wednesday last in the conservatory and western arcade could anywhere else have been got together, and the members of the Council may take the flattering unction to their souls that their vigorous management is meeting with its due reward in undiminished popularity amongst the craft. The display of Chrysanthemums in pots, which occupied the whole of the wide stage down the centre of the conservatory, was decidedly the best that has been held here for many years; while amongst the cut flowers, all of great merit, there were two of the finest groups of Japanese varieties that it has ever been our good fortune to see, and which earned deserved praise for

the skill of their producers. Of the fruit, Apples and Pears especially, it is a question whether greater numbers have not been staged at previous exhibitions (about 1500 dishes were shown on this occasion), but our recollection does not enable us to say that the quality, which run of a high order of merit throughout, was ever better. The Jersey growers were, as usual, well to the front, carrying off all the leading prizes for Pears, and many for Apples. It was a subject of general comment among the horticulturists present, that by having all the classes open English growers who desire to compete are obliged to do so at an immense disadvantage with their *confrères* in the Channel Islands; and as for all the other shows held during the year the Society is almost entirely dependent upon the co-operation of the English growers, it is a question of very great importance for the Council to consider, whether they should not modify their schedule of prizes issued for next year, so as to confine the Channel Islands' growers to competition amongst themselves. Certainly it would only be doing an act of justice to the class who accord them the greatest measure of support at the exhibitions. The irritation (if the word may be used) caused by the circumstances above commented upon was anything but abated by the discovery by the judges of a questionable procedure on the part of a Jersey exhibitor of a dish of large Apples, who, having damaged, it is presumed, one of his finest fruits, got over the difficulty by repairing the specimen in one place in "cheese-tasting" fashion, covering the "sore place" over with a piece of Apple skin. We do not remember to have come across a case of pomological surgery of this kind before, but however clever the practice may be considered, it is certainly deserving of severe condemnation.

CHRYSANTHEMUMS, &c.—It seems ungrateful—where the collective qualities of a large number of plants are so good as was the case with the Chrysanthemums on this occasion—to find fault with the details, but we cannot help calling attention to the bad practice, abundantly shown, of tying the plants, or rather of torturing them in such an abominable manner as is too largely practised, to keep the plants low. The Chrysanthemum is above all things a decorative plant—and few other subjects lend themselves more perfectly to a natural style of training, if only the foundation for the future specimens be properly made at the right time. That they can be so grown was well shown in several instances, and it is to be hoped that these will have had a salutary effect, and be the means of abating, if not of abolishing, the practice complained of.

In the open class for twelve large-flowered varieties the best specimens came from Mr. James, gr. to W. F. Watson, Esq., Isleworth, followed by Messrs. W. Cutbush & Son, Highgate, and Mr. J. Hemmington, gr. to James Price, Esq., Larkbere, Thornton Road, Clapham Park. Mr. James' plants were of medium size, but well flowered, and full of quality in both flowers and foliage. Specimens of Faust, Empress Eugènie, Jardin des Plantes, Mrs. Halliburton, Julia Lagrave, Antonelli, and Lord Derby, were remarkably good. The quality of the flowers in Messrs. Cutbush & Son's collection was also good, but as specimen plants Mr. J. Hemmington's were, we thought, much the best, being trained as natural as possible compatible with the use of stakes and matting.

The amateurs' class for six was productive of an excellent competition, and a capital lot of plants. The 1st prize went to Mr. W. Hall, gr. to W. Stevens, Esq., Springfield, Lower Tulse Hill, who had a remarkably neat and well-flowered group of which specimens of Guernsey Nugget, Lady Hardinge, and Mr. Gladstone, formed a conspicuous feature. A very fine lot from Mr. J. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, came in 2d, and Mr. James was 3d. Aurea multiflora, White Venus, and Prince of Wales, belonging to Mr. Douglas, and Mrs. Talford and Gloria Mundi from Mr. James, were much admired. The open class for twelve Pompon Chrysanthemums brought out four competitors, of whom Mr. J. Douglas stood 1st with an exceedingly neat and well furnished group. This grower follows closely in the steps of Mr. Adam Forsyth, late of Stoke Newington, and ties his plants well in to secure uniformity in outline and size, but his plants have such a superabundance of foliage that all contortions are hidden, and we are compelled to admire them. Messrs. Cutbush & Son were again 2d. The leading varieties were white, yellow, lilac, and brown Cedo Nulli, James Forsyth, St. Michael's, Bob, Mr. Murray, and Miss Julia.

Seven competitors appeared in the amateurs' class for six Pompons, and the result was a close contest, as may be gathered from the fact that equal 1st prizes were awarded to Mr. James Douglas and Mr. A. Harding, gr. to the Rev. W. Arthur, Clapham Common. The plants of the latter were somewhat of a cone shape, but slightly tied in and loosely flowered. Mr. Butcher, gr. to R. A. Glover, Esq., The Priory, Radley, Barnet, Mr. James, and Mr. J. Clarke also competed well. The varieties above-mentioned were also prominent in this class, together with Madame Marthe, Antonius, Brilliant, Salamon, &c.

The best specimen large-flowered Chrysanthemum amongst nurserymen was a very fine plant of the new George Glenny, soft primrose-yellow, shown by Messrs. Cutbush & Son; while in the amateurs' class Mr. Douglas was 1st with a Mrs. Rundle, of great size and grand quality. A large example of our old acquaintance, Bob, from Mr. R. Biggs, Lewisham, was the best of the productions in the nurserymen's class for a single Pompon, while in the corresponding class of amateurs Mr. James came in 1st with a first-rate white Cedo Nulli. The 1st prize stand of twenty-four cut blooms, contributed by Messrs. W. Cutbush & Son, contained a very fine lot of blooms, of varieties before mentioned. Second and 3d respectively in this class were Mr. J. Aldous, South Kensington, and Messrs. T. Jackson & Son, Kingston. As regards the varieties shown, the same may be said of the amateurs' class for twelve cut blooms, but there was a much larger competition. The 1st prize was awarded to Mr. E. Smith, gr., Bristol House, Putney, and equal 2d prizes to Mr. J. H. Hinnell, gr. to F. A. Davis, Esq., Surbiton, and Mr. J. H. Hillier.

The finest dozen blooms of Japanese varieties that we have ever seen came from Mr. J. H. Hinnell, and included magnificent blooms of The Sultan, Aurantium, Red Dragon, Fair Maid of Guernsey, Baron de Prackley, James Salter, Meg Merrilies, and The Daimio. In the miscellaneous class Messrs. James Veitch & Sons contributed a grand stand of these singular flowers, and a fine collection of the large-flowered kinds.

Amongst miscellaneous subjects must be mentioned an interesting and attractive group of stove and greenhouse plants from Mr. B. S. Williams, and which included neat examples of various Palms, Ferns, Orchids, Dracænas, and other fine-foliage plants; a group of Tree Carnations from Messrs. E. G. Henderson & Son; a very attractive collection of Cyclamens, just coming into full beauty, from Mr. R. Clarke, Twickenham; a group of various sized specimens of that beautiful columnar shrub, Cupressus Lawsoniana erecta viridis, from Mr. Anthony Waterer, Knap Hill; a fine and extensive collection of trained Ivies, and a group of well-flowered Bouvardias from Mr. Turner; and a similar group of Bouvardias and several other plants, including the white Azalea narcissiflora, from Messrs. Standish & Co.

PINE-APPLES.—Prizes were offered for two Queens, two Smooth Cayennes, and one Pine, any other variety; but very few fruit were staged, and no Queens. The best Smooth Cayennes were two, as usual, large and handsome fruit from the Royal Gardens, Frogmore, staged by Mr. Jones. Mr. W. Chamberlain, gr., The Warren, Bushey Heath, Herts, was 2d with very good examples; and Mr. Sage, gr. to Earl Brownlow, Ashridge, 3d, with small fruits composed of very perfectly developed pips. In the any other variety class Mr. G. Ward, gr. to T. N. Miller, Esq., Bishop Stortford, was 1st with a Charlotte Rothschild, weighing 6¾ lb.

GRAPES.—Of this fruit there was a fairly good show, considering the lateness of the season. The gold medal in the class for a collection of not more than ten kinds, two bunches of each, was won by Messrs. H. Lane & Son, of Berkhampstead, who put up large and excellent samples of Muscat of Alexandria, Bowood Muscat, Muscat Hamburgh, Gros Colman, Trebbiano, Lady Downe's, Black Prince, Mrs. Pince's Black Muscat, &c. The silver-gilt medal was taken by Mr. Meredith, of Garston, the only other exhibitor, who had good samples of Madresfield Court, Black Alicante, Trebbiano, Lady Downe's, and others. Of Black Hamburghs or Frankenthals there was only one dish, and that a poor one, neither was there any competition with Black Alicantes. In the class for three bunches of any other black kinds, Mr. Wildsmith, gr. to Lord Eversley, Heckfield Place, came in 1st with a splendid sample of Lady Downe's, first-rate in bunch, berry, and colour. Mr. Bannerman, gr. to Lord Bagot, was 2d, with fine Barbarossas; Mr. Meredith 3d, with Madresfield Court; and Mr. W. Hall 4th, with Black Prince. The best three bunches of Muscat of Alexandria came from Messrs. H. Lane & Son, followed by Mr. W. Cole, gr. to J. S. Budgett, Esq., Ealing Park, and Mr. Thomas Wattam, Shendish Gardens, Hemel Hempstead—all being very good. The last-named exhibitor came in 1st in the any other white Grape class, with a nice sample of Foster's Seedling; and Mr. Meredith was 2d, with Trebbiano. The heaviest bunch of black Grapes was one of Barbarossa, very well finished, and weighing 6¼ lb., from Mr. Meredith; and Gros Colman, with very fine berries, and weighing 5 lb. 12 oz., came from Mr. Wildsmith. A 4 lb. bunch of Trebbiano from Mr. Meredith was the heaviest in the corresponding class for white Grapes.

DESSERT APPLES.—These were staged in very considerable numbers, and of grand quality all through. The class for twenty-four distinct varieties brought out ten competitors, every one of whose collections was deserving of a prize, if more than two could have been given. As it was the gold medal was won by Mr. J. Pluck, of New Street, Jersey; and the silver-gilt one by Mr. G. Thomas, of Barnard Street, Jersey. In the collection from the first-named were many specimens of remarkable size and colour, and especially of Blenheim Orange, Red Calville, Court-pendu Plat, Lemon Pippin, Reinette Doré, Cornish Gilliflower, Reinette du Canada, Golden Pippin, and Reinette de Caux, &c. Prominent amongst the other competitors were Mr. G. T. Miles, Mr. Scott, Merriott; Mr. R. Webb, Culham House, Reading; Mr. W. Gardiner, Eatington Park; Mr. Sydney Ford, Leonardslee; and Mr. Rutland, Goodwood. There were eighteen competitors with six dishes each, and the judges had no little difficulty in coming to a just conclusion as to which were the best. When the prizes were awarded it was found that Mr. Charles Ross, gr. to C. Eyre, Esq., Welford Park, Newbury, was 1st; Mr. J. Pluck, Jersey, 2d; and Messrs. G. & J. Lane, St. Mary's Cray, Kent, 3d. Where all were so good, and there was a great similarity in the varieties shown, it will be useless to say more than that Mr. Ross' six included Cox's Orange Pippin, Blenheim Orange, Scarlet Nonpareil, White Nonpareil, Cornish Aromatic, and Golden Reinette. Out of twenty-four competitors in the class for three dishes, Mr. Bannister, gr. to H. H. Ames, Esq., Cote House, Westbury-on-Trym, stood 1st, with large, clean, and beautifully coloured samples of King of the Pippins, Blenheim Orange, and Ribston Pippin; followed by Mr. C. Ross with Cox's Orange Pippin, Cornish Aromatic, and Blenheim Orange; and Mr. G. T. Miles, gr. to Lord Carington, with the last-named, Ribston Pippin, and King of the Pippins, of but slightly inferior quality. Coming now to the classes for six fruits of specially stipulated varieties, we find seventeen competitors with Cox's Orange Pippin, and beautiful were most of the examples staged. Mr. F. Miller, gr. to J. T. Friend, Esq., Margate, contributed the best, and was closely followed by Mr. C. Ross, and Mr. W. Gardiner, gr. to E. P. Shirley, Esq., Lower Eatington Park, Stratford-on-Avon, in the order named. Of Golden Pippins there were representatives from eighteen growers, and out of these Mr. G. Brush, gr. to Lady Hume Campbell, High Grove, Pinner; Mr. F. Rutland, gr. to the Duke of Richmond, Goodwood; and Mr. W. H. Bannister, were selected for the awards in the order named. That fine flavoured and excellent dessert Apple, Margil, does not seem to be so plentiful as the previously mentioned varieties, only eight dishes being staged. The best of them—and good they were—came from Mr. Fraser, Bromley, and Mr. G. T. Miles. Coming to Cockle Pippin we get to a popular sort, and count up seventeen as the total number of exhibitors—Mr. Rutland, Mr. R. Webb, and Mr. J. Smith, Romford, being the prize winners. The popularity of the Ribston Pippin was well exemplified by there being no less than twenty-seven dishes shown, and all of the best quality. The awards were made to Mr. W. H. Bannister, Mr. Rutland, and Mr. R. Dean, Ealing, who had grand samples. Court-pendu Plat, another very fine Apple, had only nine representative dishes, of which a very fine one from Mr. R. Webb came in 1st. Forty competitors put in an appearance in the class for any other variety, giving the judges a considerable amount of work. A large and very fine sample of Blenheim Orange, from Messrs. G. & J. Lane, gained the 1st prize; King of the Pippins, of superb quality, from Mr. C. Haycock, gr. to R. Leigh, Esq., Barham Court, Maidstone, being 2d; and Scarlet Nonpareil, from Mr. Bennett, gr. to W. Burrell, Esq., Ockenden House, Uckfield, 3d.

KITCHEN APPLES.—Here, as in the above, the quality and numbers were all that could be desired. There were ten competitors with eighteen varieties, and the gold medal was won by Mr. Rutland, who had very large, and in most cases well coloured, examples of all the leading sorts, such as Norfolk Beefing, Blenheim Orange, Hollandbury, Gloria Mundi, Flower of Kent, Beauty of Kent, Besspool, Dumelow's Seedling, Reinette du Canada, Alfriston, &c. The silver-gilt medal was taken by Mr. W. Gardiner, and a 3d prize was awarded to Mr. J. Garland, Killerton, both showing collections of no ordinary merit. For six varieties Mr. C. Ross was 1st out of twelve competitors with Kentish Fillbasket, Northern Greening, Dumelow's Seedling, Lewis' Incomparable, Blenheim Pippin, and striped Beefing. Mr. Brush came in 2d, and Mr. Parsons, gr. to R. Attenborough, Esq., Fairlawn, Acton Green, 3d. It would be superfluous to say anything of the quality where all were so good. Of single dishes of Dumelow's Seedling there were twenty-one, which did ample justice to the merits of this superb variety. The finest samples came from Mr. C. Freeman, Thame, Oxon, Mr. Brush, and Mr. W. Holder, Springfield, Maidstone. Of the large and good-keeping Alfriston, there were only seven dishes, Mr. C. Ross contributing the best; while of the handsome Emperor Alexander there were thirteen very excellent samples, the 1st prize going to Mr. Sydney Ford, Leonardslee, Horsham.

Of Mère de Ménage the class was small, and most of the samples past their best; while there were twelve dishes in the class for Reinette du Canada, including good samples especially from Mr. C. Haycock, Mr. Fraser, Bromley, and Mr. W. Gardiner. As in the dessert class for any other, variety, there was a very strong competition, and the 1st prize was won by Blenheim Orange, but in this case shown by Mr. W. H. Bannister. The same variety, from Mr. Walker, Thame, was 2d, and Beauty of Kent, from Mr. F. Miller, 3d. The six heaviest Apples of any variety came from Mr. C. Haycock—Alfriston—weighing 5 lb. 12 oz.; and Reinette du Canada, weighing 5 lb. 11 oz., shown by Mr. Bailey, gr. to Lord Lifford, Cecil House, Wimbledon.

Dessert Pears.—Of varieties which come under this heading there was an immense display, including many specimens of startling proportions. The gold and silver-gilt medals for eighteen dishes, distinct, went to Jersey—Mr. F. Langlois, St. Helier's, taking the first, and Mr. J. Pluck the latter, there being four other competitors. The first-named had the finest dish of Beurré Clairgeau that has probably ever been seen, the fruits being of immense size, and richly coloured. He had also splendid specimens of Beurré Diel, Chaumontel, Beurré Gris d'Hiver, Beurré Rance, Glou Morceau, Beurré Bachelier, Doyenné du Comice, Duchesse d'Angoulême, and Doyenné Sterckman. Van Mons Leon le Clerc, also a noble dish, was the largest in Mr. Pluck's collection, which contained other very fine samples. Of the ten collections of six varieties in each, the best came from Mr. G. Thomas, Jersey, followed by Mr. J. Pluck and Mr. G. T. Miles. The Beurré Clairgeau, Duchesse d'Angoulême, Doyenné du Comice, Beurré Diel, Chaumontel, and Glou Morceau, from the first named, were of the very best description. Mr. Thomas was also 1st out of twenty-three competitors with three varieties, showing Duchesse d'Angoulême, Chaumontel, and Beurré Clairgeau. Mr. J. Pluck and Mr. C. Tivey, gr. to P. Gossett, Esq., Bagots, St. Saviour's, took the other prizes. Considering it is late in the season now for Marie Louise, it is surprising that such fine samples as were exhibited should be forthcoming. An excellent sample from Mr. J. Clarke, gr. to the Rev. A. D. Stackpoole, Writtle, Chelmsford, came in 1st. Glou Morceau furnished eighteen dishes, the two finest coming from Jersey (Mr. Pluck and Mr. Thomas), and the next from Mr. Parsons, of Danesbury. The best examples of Duchesse d'Angoulême were furnished by Mr. W. Coles, gr. to W. R. Wigram, Esq., The Chestnuts, Twickenham, and Mr. Sage; while Jersey again, in the persons of Mr. Thomas and Mr. Pluck, and Mr. Garland, of Killerton, took all the honours for Doyenné du Comice, and splendid were the specimens they staged. Mr. Thomas was also 1st in the next class, which was for that large and delicious October Pear, Doyenné Boussoch. Of six lots of Van Mons Leon le Clerc, Mr. Oliver Goldsmith, of Polesden, Dorking, contributed the choicest; and in the any other variety class, Mr. Thomas had six Chaumontels, weighing 9 lb.

Stewing Pears.—The two varieties represented in this section—Catillac and Uvedale's St. Germain—were well represented as to numbers, and more than well as to size, if that is judged a merit. Of Catillac there were fifteen dishes, and amongst these were samples from Mr. G. Thomas, weighing 10 lb. 2 oz.; from Mr. C. Ross, 8 lb. 9 oz.; from Mr. C. Tivey, 12¼ lb.; from Mr. E. Keeler, gr. to H. Simmonds, Esq., Herne Hill, 8 lb.; and from Mr. Scott, Merriott, 7 lb. Mr. Pluck and Mr. G. T. Miles also exhibited fine samples, but the weights were not stated. In the Uvedale's St. Germain class there were dishes from Mr. Thomas weighing 14 lb. 13 oz.; from Mr. C. Tivey, 14 lb.; and Mr. Scott, Merriott, 13 lb. 5 oz. In the class for the six heaviest Pears of any variety, the Rev. T. C. Bréhaut, Richmond House, Guernsey, contributed a dish of Uvedale's St. Germain, all grown on one cordon, of the astonishing total weight of 19 lb. 13 oz.! Mr. C. Tivey had a dish weighing 16½ lb., and Mr. Scott, Merriott, one of 16 lb. A heavy dish also came from Mr. F. Langlois, but the total weight was not stated.

Miscellaneous Fruits.—Mr. Sage, Ashridge, showed one of his fine bunches of Bananas in a fine state of ripeness. From Mr. Jones, Frogmore, came excellent specimens of the Trophy Tomato, Dutch Medlars, and Guavas; from Mr. Ross also came a large dish of Trophy Tomatos, Citrons and Quinces; and Mr. Earley, Valentines, had Oranges, Tomatos, Quinces, and fruits of Passiflora cœrulea.

Vegetables.—Thanks to Messrs. Carter & Co.'s liberal prizes for vegetables and the Society's prizes for Celery, there was quite an interesting display in this department. Messrs. Carter's 1st prize for eighteen varieties of vegetables was won by Mr. Pragnell, gr. to G. D. W. Digby, Esq., Sherborne Castle, who had splendid examples of Carrots, Turnips, Onions, Beet, Tomatos, Cabbage, Parsnips, Celery, Cauliflowers, Cardoons, Leeks, Spinach, Brussels Sprouts, Cucumbers, &c. Mr. C. Osman, South Metropolitan District Schools, was 2d; and Mr. Lumsden, gr. Bloxholm Hall, Sleaford, 3d. The last named was 1st for the prizes offered by the same firm for ten dishes of Potatos to include certain specified sorts; Mr. F. Miller being 2d, and Mr. C. Osman 3d. The 1st prize for three sticks of White Celery went to the last named gentleman, who had the Sandringham White. In the red Celery class, Manchester Red and Leicester Red, shown by Mr. Woodman and by Mr. Lidgard, were the best. Messrs. Carter & Co. exhibited over sixty sorts of Potatos, and from the Society's gardens, Chiswick, came a collection of over one hundred varieties. Mr. Barron also brought up from Chiswick a collection of Celery under forty-six different names, and under which names they had been sent for trial. From frequent comparisons when growing, Mr. Barron has been enabled to bring the synonyms together, and we give below his classification:—*Ivery's Nonsuch*: syns., Lancashire Witch Red, Williams' Matchless Red, Osborn's Selected Red, London Market Red, Violet de Tours, Bradford's Pink. *Manchester Red*: syns., True Manchester Giant Red, Hooley's Conqueror Prize, Wright's Grove Red, Laing's Mammoth Red, Cole's Defiance Red. *Kimberley's Red*: syn. Improved Solid Red. *Carter's Incomparable Crimson, Leicester Red*: syns., Ramsey's Solid Red, Turnmoss Red, Major Clarke's Solid Red. *Webster's Pink*: syn. Webster's No. 4 Red. *Sandringham White*: syn. Dean's Compact White. *Plein Blanc Frise, Boston Market White, à Couper, Wright's White Grove, Veitch's Solid White*: syn. Danesbury Dwarf White. *Haywood's White Queen*, Webster's White, Stuart & Mein's White, and Goodall's Flat Stalked are the same. *Veitch's Silver White*: syn. The Prizetaker White. *Plein Blanc Court Hatif, Great Eastern White, Turc Grand. Seymour's White*: syns., Goodwin's White, Northumberland Champion White, Sandringham Dwarf White, and Turner's Incomparable White, neither of them true, but as sent to Chiswick are the same. *Plein Blanc*: syn. Dixon's Mammoth White. The italicised names represent the distinct or typical varieties.

Fruit Committee.—A. Smee, Esq., F.R.S., in the chair. Mr. Pearson, of Chilwell, sent good examples of the Chilwell Alicante, a seedling black Grape of some promise; his new Golden Queen Grape, which was certificated last year; and Mrs. Pearson, a seedling white Grape of the Frontignan type, with fair sized compact bunch, roundish oval berries, of a fine golden colour and rich flavour. It appears to be a good keeper, and the Committee considered it worthy of a First-class Certificate, which was awarded. Cultural Commendations were awarded to Messrs. Veitch & Sons for a collection of twenty-two sorts of Celery; to Messrs. James Carter & Co., for large and very complete collections of Cabbages and Beets; to Dr. Olof Enerth, Gothenburg, Sweden, for a collection of Swedish Apples and Pears; to Mr. Haycock, Barham Court, for a very fine dish of the Calville Blanche Apple; and to Mr. Robert Fenn, the Rectory, Woodstock, for a collection of twenty-five sorts of "Fenn's Condemned Seedlings," sent to show examples of types of Potatos which he considers are either too large, uneven, or too coarse for general cultivation or for introduction to first-class dining-tables. Messrs. Cutbush & Son, Highgate, exhibited some nice specimens of a new Onion, named Oscar, of the Danvers' Yellow or Reading type, which was requested to be shown again. Mr. Earley, Valentines, sent fruit-bearing branches of a seedling Plum (Earley's November), raised between the White Bullace and Guthrie's Late Green, and remarkable for its lateness and fertility, the fruit being small and of good quality at this late season for culinary purposes.

Floral Committee.—J. Fraser, Esq., in the chair. Mr. B. S. Williams received a First-class Certificate for Anthericum Williamsii, a handsomely-variegated Liliaceous plant, with beautifully recurved broad grass-like foliage, and coming from the Cape. Mr. Williams also showed Anthurium Patinii, a species with small white spathes; the delicately cut Adiantum gracillimum, and new species of Mauritia and Niphobolus. Mr. W. Smith, gr. to C. Lane, Esq., Badgemore, Henley-on-Thames, contributed a remarkably fine specimen Vanda cœrulea, with five beautiful spikes of lovely celestial-blue flowers. A Cultural Commendation was awarded. Mr. Bull showed his pure white variety of Odontoglossum Roezlii; and from Messrs. Veitch & Sons came small flowering specimens of Odontoglossum Rossii major, Masdevallia amabilis, Barkeria Lindleyana var. Centeræ, and a new broad, emerald-green-leaved Dracæna from Natal. From Messrs. E. G. Henderson came a small group of plants, including several specimens of an elegant grass, Gymnothrix latifolia, which will be of considerable value to table decorators. Messrs. Veitch & Sons exhibited several new Japanese Chrysanthemums, including Duchess of Edinburgh, with white recurved ray florets and rosy-lilac disc—a very interesting plant, being a true Anemone-flowered Japanese variety, and the first of the break we have seen; Cossack, maroon and yellow; and Gold Thread, in which the florets are of slight proportions, and of a golden bronze colour. First-class Certificates were awarded to each.

Obituary.

Died, at Powis Castle, Welshpool, on the 24th ult., in the 78th year of his age, Mr. George Brown, for forty-five years the talented gardener to the late and present Earl of Powis. Mr. Brown was a man full of love for his profession, and in every sense of the word a gardener. He was born at Dalhousie, North Britain, on July 8, 1797. Shortly after his birth, his father removed to Arisaig, on the coast of Inverness-shire, having been appointed forester to Clanronald, on his extensive estates in the Hebrides. Here he spent most of his younger days, and to the last he loved to dwell on the recollections of the time passed amidst the wild and romantic hills and lochs of the Western Highlands. He began his professional career at Dalmeny Park, Edinburgh, from whence he obtained a situation as journeyman in the gardens at Dalhousie Castle; from which place, with a view of gaining a knowledge of the seed trade, he entered the seed warehouse of the Messrs. Dicksons, of Edinburgh. After being with this firm for a short time he formed a determination to visit England, and in the year 1821, in company with his brother Hay, he walked every step of the road from Edinburgh to Chester. He never tired of telling the story of this walk, of which he was very proud, and from which he seems to have derived a vast amount of enjoyment. Arrived in England, his first place (obtained through the Messrs. Dickson, of Chester) was at Brynkinalt, Chirk, the seat of Lord Dungannon; afterwards as gardener at Erbistoke Hall, Ruabon; and thence to the Hon. and Rev. James Douglas, at Broughton, Northamptonshire. Here he remained for four years, having charge, during the long absence of Mr. and Mrs. Douglas, of the whole establishment.

He now desired to obtain a more extensive place, and therefore accepted an appointment to superintend the formation of the great rockery at Sion House, and on the abandonment of that work he entered the nursery of Messrs. Whitley & Milne, Fulham (now Messrs. Osborn & Sons), where he remained for some months, when, on the recommendation of Mr. Milne and Lord Douglas, he was engaged by the late Earl Powis (at that time Lord Clive), as his head gardener at Powis Castle, entering on his duties there in May, 1829. The writer had the privilege to serve him as foreman for a considerable time, and can speak from experience of the great energy, devotedness, skill, and conscientiousness wherewith he served his employer. The one distinguishing trait in Mr. Brown's character was his utter disregard of self—selfishness was not in his vocabulary; if duty called he obeyed, at whatever cost or sacrifice to himself. Though he was one of the best gardeners of the day, his naturally retiring, unassuming disposition prevented him from being known to fame; but his memory is enshrined in the hearts of many he has benefited, and amongst them are not a few gardeners.

He leaves a widow and two sons, the elder of whom is a surgeon in extensive practice at Tredegar, South Wales, while the younger has for a considerable time assisted his father at Powis Castle. He was carried to his grave at Christchurch, Welshpool, on the 29th ult., by his old workmen, some of whom had been employed by his predecessor at Powis Castle, Lymore Park and Llymystyn Hall, of which places also he had charge. *W.*

The Villa Garden.

Window Gardening.—Attention has already been called to the value and usefulness of various hardy evergreen and variegated plants, such as Aucubas, Laurustinus, Hollies, Euonymus, various dwarf Coniferous plants, &c., for filling boxes on the outside of windows during the winter months. They are recommended because, by combining plants having green and variegated leaves, a nice effect can be produced, while the severest weather will do them but little appreciable injury; and the heavy autumnal and winter rains cleanse them from deposits of dust and soot, and keep them bright and effective.

The foregoing plants can also be grown in pots, but there is this disadvantage about it, that, possessing as they do bushy heads, owing to a dense close growth, they are apt to be blown over by the wind; and in severe weather the roots have but little shelter from the frosts. Instead of using a box, a kind of trough may be formed by placing two pieces of board about 10 inches in depth along the front and back of the sill, which should be painted a dark green on the exterior. The plants could be stood in this trough, as in a window-box, and the space between the pots may

be filled up with cocoa-nut fibre tightly pressed between them, the surface of the pots being covered to the depth of an inch or so. This method possesses these advantages:—The plants cannot be blown over, as they will assuredly be if standing singly on a window sill: the pots will be preserved from the effects of frost; and in times of dry weather, by reason of the cocoa-nut fibre being kept moist, but little evaporation will take place. A fringe of some drooping plant, like the variegated Periwinkle, may be used in this arrangement also, in order to cover the front of the extemporised trough.

Such charming, yet homely spring flowers as the varieties of the Double Daisy, are both effective and striking in a window-box. If some one would make a departure from the ordinary routine of evergreen shrubs, and carpet a window box with red and white Daisies, after planting such bulbs as have been previously recommended, they would produce a mild floral sensation. The red and white variegated-leaved Daisies might also be employed, and most effectively too. If planted out in October and November Daisies root freely, and make a dense carpet-like growth, and, when thoroughly established, they flower with great profusion. They require to be freely watered in dry weather, and the decaying flowers should be picked off as they fade. Polyanthuses of the fancy or mottled strain, double and single Primroses, Hepaticas, and other common hardy flowers, may also be utilised, but they lack the duration of flower possessed by the Daisy. It may be objected that Daisies arranged in a window box would present a flat and monotonous appearance, but this would disappear as soon as they began to flower, while the bulbs, both during the period of growth as also that of flowering, would relieve any uniformity of surface.

Hyacinths in glasses form always a pleasant aspect of gardening within the house, and one which can be worked out with little trouble, small expense, and with the most cheering results. Abundant proofs have been given that Hyacinths can be finely and most successfully grown in water in an ordinary sitting-room, and the practice is now so extensively followed as to furnish the best proof of its pleasure-yielding quality. There is really no necessity for being in a hurry to put the bulbs in water. Nature has a certain amount of preparatory work to do before the Hyacinths will send forth their roots. There is formed round the base of the bulb a circlet of incipient roots, and when these are properly developed they soon commence to grow on coming into contact with the water. Almost any single Hyacinth will grow in water, provided it is not put into it too soon. Put into the glasses a few pieces of charcoal, fill the glasses with fresh rain-water, so that it will just submerge the base of the bulb, and then stand them aside—in a dark closet, if handy—to make their roots. Put in a few now, and a few more a month hence, so as to form a succession. The names can be affixed to the bottoms of the glasses by means of a small gummed slip of paper. The margin of a sheet of postage-stamps will do as well as anything else.

FLOWER GARDEN.—Well established plants of double Primroses, such as the lilac and white varieties, are just now becoming a very pleasing feature in the flower borders. From the ripened crowns of the past summer's growth they are now abundantly flowering, and, if the weather continues to be at all favourable, they will be very pretty for some time to come. To do these charming Primroses full justice they should be allowed to establish themselves, and remain undisturbed for three or four years. The early flowering Sulphur variety is also beginning to bloom, and this is becoming much more common than of late years. There are several other varieties, such as the yellow, rose, purple blush, and the rich-coloured crimson, all of which are very charming objects in spring as well as in autumn, for during the end of March and in April they flower again from the spring growth. They are planted in many a garden only to become utterly lost in a year or two, the reason for which is not far to seek. They are frequently planted in some bed that is required for the summer display, and at the end of May they are lifted and planted away in some spot, too frequently regardless of its suitability, where they are neglected and die. The same remark holds good of the Hepatica, than which there is scarcely a more charming, old-fashioned garden flower. What wonderful clumps of the double-red Hepatica, and the double lilac Primrose one meets with in Kentish gardens, where they have been allowed to remain unmolested for years, and flourish because let alone. In all Villa Gardens that can afford the space there should be the mixed border with its select company of occupants, so chosen as that they should yield some flowers almost all the year round. If many villa gardeners, who give up every space in their gardens to ordinary summer bedding plants, could only be brought into contact with a clump of that beautiful violet-blue autumn-flowering Crocus speciosus, as we saw it a few days ago blooming profusely in an autumn border, they would desire to possess it, and care for it as they would for a valued and welcome guest.

There is no desire on the part of the writer to decry summer bedding-out, but knowing, as he does, how many beautiful common plants there are (many of them, unfortunately, fast becoming uncommon, because so much neglected) that are charming in themselves, and on the whole easily cultivated, provided a little needful attention be bestowed on them—flowers that, if properly selected, would give some floral gems through almost every week of the changing year, and make the outdoor garden a perennial source of pleasant interest—knowing this, he feels he cannot too earnestly commend them to the notice of villa gardeners.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 11, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall
	In.	In.	°	°	°	°	°	°			In.
Nov. 5	29.94	+0.15	58.5	42.2	16.3	51.1	+ 5.4	49.9	97	S.E.: S.W.	0.00
6	30.09	+0.29	62.6	49.9	12.7	55.3	+ 9.8	51.3	86	WSW	0.00
7	30.27	+0.47	53.0	35.0	18.0	44.0	− 1.3	39.1	83	N.W.: S.W.	0.00
8	30.32	+0.52	55.4	30.3	25.1	41.6	− 3.4	40.0	94	S.	0.00
9	30.16	+0.36	58.5	47.0	11.5	51.7	+ 7.0	48.8	90	S.W.	0.00
10	29.95	+0.15	53.1	37.0	16.1	44.5	+ 0.1	40.2	85	W.: N.	0.00
11	29.88	+0.08	41.5	32.1	9.4	36.3	− 7.8	29.8	78	N.W.	0.00

Nov. 5.—Fog and dew in the morning hours; fine and generally cloudless till evening; overcast at night.
— 6.—Fine; partially cloudy.
— 7.—A fine day; light clouds generally prevailed till evening; cloudless at night. Occasionally foggy.
— 8.—Dense fog and hoar-frost in morning; fine during the day; cloudy at night. Lowest reading of thermometer on grass, 24½°.
— 9.—Overcast and foggy till noon; fine, with small amounts of light cloud afterwards.
— 10.—Generally overcast till evening; very gloomy between 10.45 A.M. and 11.15 A.M.; cloudless at night.
— 11.—Fog and hoar-frost in morning; partially cloudy till night; then cloudless. Lowest reading of thermometer on grass, 24°.

—— In the neighbourhood of London the reading of the barometer at the level of the sea decreased from 30.26 inches at the beginning of the week to 30.08 inches by the afternoon of the 2d, increased to 30.21 inches by the morning of the 4th, decreased to 30.10 inches by 3 P.M. on the 5th, and increased to 30.51 inches by the end of the week. The mean reading for the week was 30.21 inches, being 0.10 inch higher than that of the preceding week; the mean daily values were all above their averages, and that for the 7th was nearly half an inch in excess.

The highest temperatures of the air by day ranged from 50° on the 1st to 62½° on the 6th, the mean for the week being 56½°. The mean of the seven low night temperatures of the air was 43°, the extreme values being 35° on the 7th and 50° on the 6th. The mean daily range of temperature was 13½°.

The mean daily temperatures of the air, with departures from their respective averages, were as follows:—1st, 46°.8, + 0°.4; 2d, 49°.4 + 3°.1; 3d, 49°.4, + 3°.3; 4th, 50°.7, + 4°.8; 5th, 51°.1, + 5°.4; 6th, 55°.3, + 9°.8; 7th, 44°, − 1°.3; the values on the last two days show a great change in the temperatures of the 6th and 7th, the difference between the two readings being more than 11°.

The mean of the several highest daily readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, was 86°, the values on the 3d and 6th being as high as 102° and 98° respectively, and that on the 1st only 58°. During the early morning hours of the 4th and 7th, a thermometer on grass with its bulb fully exposed to the sky read 31° and 28° respectively, and the mean reading for the week was 36°.

The direction of the wind was variable, and its strength gentle throughout.

On the 1st and 2d the sky was covered entirely, but on the 3d it was generally cloudless. At other times variable amounts of cloud were present.

Fog was prevalent on the mornings of the 3d, 4th, 5th and 6th.

No rain fell during the week.

In England the extreme high day temperatures ranged from 68° at Sunderland to 56° at Newcastle-on-Tyne, the general average aver the whole country being 59½°. The extreme low night temperatures ranged between 43° at Bradford and 35° at Blackheath, the general average being 38½°. The mean range of temperature in the week from all stations was 21½°. The mean high day temperatures varied from 62½° at Sunderland to 53½° at Hull, with an average value of 55°. The mean low night temperatures ranged from 46½° at Bradford to 43° at Blackheath and Eccles, with a general average of 44½°. The mean daily range of temperature was 10¾°, the greatest being at Sunderland, 16¾°, and the least at Bradford, 7½°. The mean temperature for the week was 49°, the highest being at Sunderland, 53½°, and the lowest at Wolverhampton, Leicester, and Hull, 48° respectively. Rain was measured at most stations, the amounts varying from six-tenths of an inch at Newcastle-on-Tyne to seven-hundredths of an inch at Portsmouth; at Blackheath and Norwich no rain was measured, the average fall over the country was two-tenths of an inch.

The weather during the week has been fine, but generally cloudy, very dense fog being prevalent on the mornings of the 3d, 4th, and 5th.

In Scotland the highest temperatures ranged from 58° at Aberdeen, to 54° at Greenock and Paisley; the lowest temperatures varied from 34½° at Greenock to 27½° at Aberdeen, their average values being respectively 56° and 30½°. The mean temperature for the week was 45¾°, the highest being at Leith, 46¾°, and the lowest at Paisley, 45°. The fall of rain in the week varied from 1 inch and six-tenths at Greenock to four-tenths at Dundee and Leith, the average fall over the country being seven-tenths of an inch.

At Dublin the highest temperature was 60½°, the lowest 31½°, the mean 48°, and the fall of rain half an inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

HARD-WOODED GREENHOUSE PLANTS. — This is the month more than any other during the year when mildew makes its appearance, and spreads upon hard-wooded subjects; it should be diligently sought after by going over the plants every ten days or so—even where the stock is large the eye can pass over them in a few minutes, and the time could not be better employed. Whenever it is found to exist there should be no delay—it is much easier to exterminate when first it makes its appearance than when further spread. Dry sulphur dusted on the affected plants, reaching every part, is the safest remedy for such as have their flower-buds prominent, allowing it to remain on for a week or so, then syringe off, laying the plants on their sides, so that it does not by any means get into the soil. Any plant upon which the flowers are very small or not yet formed may be washed with water, in which powdered sulphur, at the rate of 2 or 3 ounces to the gallon, has been stirred up occasionally for several days, and then allowed to settle, pouring the water carefully off, and using it in a perfectly clear state.

SOFT-WOODED GREENHOUSE PLANTS.—Keep show *Pelargoniums* as near the glass as possible, and as dry at the roots as can be done with safety, so as to prevent their getting over-luxuriant. Tie them nicely out as the shoots lengthen. *Carnations* for producing successional flowers through the winter must now be well attended to, giving them plenty of light, and not allowing them ever to become over dry at the root. Give the necessary attention to *Mignonette* in its several stages. To do it well in the winter season there are few plants that require a better light situation, otherwise it becomes weak and puny. Keep the plants intended for the earliest flowering regularly tied up, with neat sticks placed to the principal shoots. The way pot Mignonette is frequently tied with a row of sticks round the inside of the pot, and a strand of bast run round them in different heights, is most objectionable in appearance, and make the plants look like miniature brooms stuck in the pots. Keep the earliest if possible in a house where they will receive 45° in the night; give the succession and late flowering plants plenty of air. A few of the pink and scarlet *Pelargoniums* that have been grown and especially prepared for winter flowering, if now placed where they will

receive a few degrees of extra heat, will throw up their flowers apace; those to succeed them must be kept near the light, and just receive enough water to keep them slowly growing. If there is any scarcity of these prepared plants, and any exist that have been grown in pots for vase decoration or similar purposes, these, if placed in a little warmth, will throw up a quantity of flowers, but for the production of winter flowers of these useful subjects there is nothing like especially prepared plants of such varieties as make the smallest leaves, short-jointed and free-flowering. *Cyclamens* that are now throwing up their flowers should be kept near the light in a temperature of 50°; this equally applies to successional plants of this indispensable winter and spring flowerer, as also this year's seedlings, which should all be kept where they will receive a little warmth during the winter, and the nearer the glass the better. In damp localities, where the pits or houses in which they have to be grown are dark and unsuitable for their cultivation, *Primulas* should have a shelf or two devoted to them in a house, and as near the roof as possible (providing they do not absolutely touch the glass), where the night temperature is kept as near 50° as may be, and where they will receive air during the day, and, still better, a little at night. In such a situation they will grow on and flower profusely through the winter without any disposition to damp, such as is usual in cold houses. The plant is a determined bloomer, and will throw up its flowers whilst there is life in it, but in the winter season, when it is the most useful, the temperature of an ordinary greenhouse in this country is a little lower than will keep it from damping. This necessitates its being kept drier at the roots than is favourable to its well-being. Grown in such a temperature and situation as above described, it will not become drawn, and water, especially of a manurial nature, can be given it in plenty without causing the plant to damp off at the collar. For producing flowers for cutting the semi-double sorts are far the best, standing when cut much longer than the single varieties, with the advantage of being better growers than the perfectly double forms. *Fuchsia* cuttings struck in August, from which by far the best and most satisfactory plants for next summer can be grown, should now, if not already done, be potted into 6 or 7-inch pots, and placed in a house just free from touching the glass, in a night temperature of 50°. Keep them tied up, and the leading shoots stopped, according to the natural habit of the variety, for growing bushy or otherwise. Keep a look-out on plants so treated for red-spider, for, if any has been lurking upon them through the autumn it will in such a temperature live and injure their leaves. Old *Fuchsias* that have done flowering, and which can be brought into bloom early to precede the above plants, should be now partially dried off, but, if required early, they should not be kept dust-dry. They should be placed anywhere under glass where they will receive a little light, but not where they will get drip from other plants, which they will do if put under stages or similar places: in such situations the pots should be laid down on their sides. The conservatory will now be gay with *Chrysanthemums*: the objection to using much water here frequently causes them to be stinted, injuring their flowers individually and shortening their season of blooming; they should here receive a little heat so as to raise the temperature a few degrees above the external air, with slight ventilation on, night and day; this is the best preventive to mildew: should this appear, at once apply flowers of sulphur. In most places *Chrysanthemums* are a fortnight earlier this season than usual, consequently they will be over so much sooner, and other things will be required without delay to take their place. The earliest flowered *Primulas* should occupy the lightest situation in the conservatory. *Salvia gesneræflora* and *S. splendens* will here do good service, but do not, even if an abundance of such subjects are at hand, be tempted to overcrowd; such arrangements may be more telling to the eye for the time being, but they are short-lived, for plants so treated are soon over as compared with those as are allowed enough breathing space, to say nothing of the injury done to the more permanent subjects in the house. With such plants as the above, *Epiphyllums*, *Solanum capsicastrum*, and *S. pseudo-capsicum*, a very gay appearance will be made. Where a conservatory exists without being furnished with the brilliant-flowered *Tacsonia Van Volxemii* it should be procured; it is one of the most telling and continuous blooming plants in existence, and is a fit companion to the two varieties of *Lapageria*, *rosea* and *alba*. A house in which these are flowering in such a condition as to exhibit their true character has in it three of the best plants in cultivation, and which should be used to replace the too often coarse, worthless subjects employed on the roofs of conservatories, which do little to improve their appearance and a good deal to injure the other occupants of the house. Rampant, free-growing roof climbers should now have the knife applied to them freely, so as to give as much light as possible to the plants underneath. *T. Baines, Southgate, N.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED FLOWER GARDEN.—Personally we have a horror of naked or empty beds, and rather than that they should remain empty we would fill them with branches and cuttings of evergreens—a plan not to be despised, especially if well done. Speaking of winter planting, now is the time to compare notes as to the relative merits of the various types or styles of bedding out; indeed, we have been doing this, and have come to the conclusion that that style which gives a minimum of labour and a maximum of pleasure must of all others be the one to adopt; and as in what is generally termed carpet and succulent bedding so many hardy plants can be used—plants that are effective all the year round—and such charming designs worked out which no thunderstorm, wind, or frost can harm, without hesitation we recommend this style, though by no means to the exclusion of all others. Have masses of colour by all means, but let these high colours and tender kinds of plants be a secondary consideration. If it is doubted that hardy plants can be made to do duty in geometrical designs of flower-gardens, and in geometrical patterns, we could say that one of the most telling beds we have seen this summer was entirely composed of hardy plants—viz., *Sempervivum calcareum*, *Golden Thyme*, *Ajuga reptans rubra*, *Achillea umbellata*, and *Sedum spectabile*—all quiet, effective colours, and much more enjoyable than the continually repeated red, yellow, and blue to be seen in most gardens. The rage for high colours is, we trust, over; let us strive to encourage a more refined taste, and "carpet, succulent, and mixed bedding" is certainly a step in that direction. Flowers of any kind at this season are most valuable, and should be looked up. Two of the best on the rockwork here now in flower are *Sedum Sieboldii* and *Lithospermum fruticosum*. The latter is in flower certainly nine months out of the twelve, and should be grown in every garden. The present is a good time to go over nearly all kinds of herbaceous plants requiring dividing or rearranging. *Chrysanthemums* just coming into bloom require protection in the event of a sharp frost. Gauze, tiffany, or scrim canvas will keep them from all danger. *Roses* may now be planted. Some of them have been flowering most profusely this autumn. *Gloire de Dijon*, *Maréchal Niel*, and *Souvenir de la Malmaison* are a perfect mass of buds. These three kinds should be planted largely wherever the *Rose* is valued. *Dahlias*, *Gladiolus*, and *Cannas* should now be lifted, and the two former put into an airy room to dry. The latter may be wintered in any place free from frost—a dark shed or cellar suits them well, if a little soil be placed round their roots. Wherever *Lobelias* or *Purple Verbenas* fail to do well, try *Viola Blue Bell* as a substitute. It will be a matter of impossibility to be neat and tidy for the next few weeks, what with falling leaves, dead sticks, worms, and fungus. Still, no quarter should be given to such enemies of order, but the broom and rake kept going when convenient; and if next day it seems as bad as ever, our consolation ought to be that at all events it is fresh dirt. *W. Wildsmith.*

ORNAMENTAL TREES AND SHRUBS.—If the directions given in last month's Calendar have been carried out there will now be little to do in this department except the general keeping and the prevention of injury to weak-stemmed and standard ornamental trees and shrubs by timely staking or otherwise supporting them, and the protection of such as are too tender to be safely exposed to hard frost or equally destructive winds. *W. Sutherland.*

FRUIT HOUSES.

FIGS.—Now is the time to prune Fig trees—an operation which requires considerable experience and judgment. The methods adopted by certain growers are somewhat different by reason of the force of local circumstances and other considerations, which, in all cases like this, must, to a certain degree, govern the mode of cultivation, and likewise that of pruning—as, for instance, in the case of trees which are cultivated in pots, or those which have the roots restricted to small borders which do not grow vigorously. Such trees will now scarcely require any pruning, providing they had during the season of growth proper attention in regard to stopping and thinning out the shoots. Trees which are not so restricted at the roots, and which are permitted a good run of trellis, and where the object is to secure a series of young growths over the whole surface of the trellis from which the crop of Figs is to be chiefly obtained (as it is here) require a hard pruning at the topmost part of the tree annually. Those shoots which have attained the limit of the trellis should be shortened back to where the succeeding shoots start, in order that it may occupy its place in the ensuing season. Remove entirely all elongated spurs, and reserve where desirable a few of those which are short-jointed and fruitful. After the pruning is done the trees should be loosed from the trellis, and advantage should be taken of the opportunity which is now afforded of exterminating these abominable pests which exist, and which oftentimes in more advanced stages of cultivation are the cause of much concern and trouble. All exterior surfaces in the house should either be washed or painted, and, if necessary, the trees should be washed also with a brush; in this case be careful not to injure the embryo fruit. When these matters are completed, train and tie up the trees, not too lightly; slightly prick over the surface of the border, and remove the loose material, then apply a surface dressing of partly decomposed manure, about 4 inches thick, which should be well watered until the house is closed for forcing. It should be fully ventilated at all times, excepting when frost prevails. *G. T. Miles, Wycombe Abbey.*

PEACHES AND NECTARINES.—All the trees in the earliest house having been properly dressed with the mixture formerly recommended should now be tied on to the trellises, so that forcing may be commenced about the middle of the month. The house may now be kept close, but plenty of air should be given in mild weather, and very little fire-heat will be required at the commencement, for the slower the trees are excited the stronger will be the blossoms at the setting of the fruit. The outside borders must now be well protected with litter or dry fern, and if some wooden shutters or tarpauling is put on the top, it will prevent the materials from being blown about. All the trees in the succession houses will now be devoid of their leaves, and they may be now pruned and dressed, according to their time of being forced. If any of the houses require painting, now is a good time to have it done before the winter sets in, and all the woodwork inside should be washed and likewise painted if required. If any of the Peach scale is on the wood of the trees they may be syringed with water as hot as it can be used, and afterwards painted with the mixture, when both insects and mildew will be kept in check when forcing commences in spring and in the growing time in summer. *William Tillery.*

THE ORCHARD HOUSE.—Finish as soon as possible, if this is not already done, the top-dressing of all fruit trees in pots, as has been formerly directed; and *Fig trees* in pots which may have been placed for a time in some other structure than the orchard-house, in order to finish the ripening process of the second crop of fruit, may now, or as soon as this has been accomplished, be surface-dressed and returned to it. In all cases where the operation of surface-dressing has been some time performed, and where the soil may have become somewhat dry, a good watering may again be given, after which the pots should be well covered up with dry litter, and they will probably require no more water until next spring, when the pots must be uncovered and placed in their summer position, and the trees pruned and dressed. Where planted-out trees have, or are about to have, their roots slightly pruned, or brought nearer to the surface of the soil, they should also have at the same time a portion of light turfy loam placed in contact with the roots, to encourage as much as possible the emission of fibres. The soil of the borders wherein such trees may be growing should be again rendered tolerably firm, by being gently trod down, and if dry one more good watering should be given, and soon after this the surface should be mulched with partially rotted manure, or some other non-conducting material. If the brown aphis, or red-spider are discernible upon the young shoots of the *Peach*, or other trees, it may be advisable to get rid of the same by syringing the trees with quassia-water, made by boiling the chips in water, after the rate of about an ounce of chips to a quart of rain-water, for about ten or more minutes, and adding to the same, while cooling, an ounce of soft soap. And about two or three hours after the trees have been well syringed with this solution, they should be again well washed with pure rain-water. *Strawberry plants* in pots may now be placed on the curbs and other parts of the house which may be set at liberty by the circumstance of the potted trees being placed for a time somewhat close together. And unless the weather should set in severe, the ventilators of the house may still be kept open by night and by day. *P. Grieve, Culford, Bury St. Edmunds.*

FORESTRY.

Wherever the foliage of deciduous trees is fairly off, thinning and foreshortening of branches in mixed plantations may forthwith be commenced. Keep a sharp look-out after those trees that are most promising in growth and likely to attain most value when grown into timber, and give them every encouragement in the way of space. If the tree is swayed, or inclined to grow one-sided, it is often an advantage to allow the tree next to it on the leaning side to grow hard upon it, so as to force the one that is to remain into an upright position. Planting may now be commenced on a small scale by those who have made an early preparation and are convenient to a nursery. It is important that the plants should be replanted as soon as possible, and therefore only a small number should be out of the ground at a time. There is a practice common amongst planters when receiving large consignments of young forest trees from the

nurseries, to have a small trench taken out in some convenient place, and to have them laid in by the heels in bundles, as made up in lifting, of 250 and 500 each. If all could be got planted in a few days after, the plan of merely keeping the roots from the air would suit well enough; but it frequently happens that adverse weather intervenes, which puts a stop to planting for a number of weeks together. In such cases the roots of those plants in the centre of the bundles which are not touching the earth become dried up and perish after planting. This is especially the case in Scotch Fir and others of the class whose evergreen foliage occasions a constant demand upon the roots for nourishment. The trouble and extra expense are so small that it should always be made a standing rule to have every bundle untied, the plants laid out so thinly in the small trenches that each plant shall have its roots in connection with the soil. The same rule applies to nurserymen when lifting for supply orders. The plants, when counted and tied up into bundles, are laid in, awaiting orders. This injurious method should be altogether abandoned, and the plants, after counting, should be laid out thinly in the trenches, with a small space between each lot, and the bundles made up only when the order is consigned. *J. Webster.*

Answers to Correspondents.

VIBURNUM MACROCEPHALUM. — I have grafted Viburnum macrocephalum with success on the Laurustinus (Viburnum Tinus), and on Viburnum Opulus. *J. G.*—Permit me to inform your correspondent, G. Wood, who inquires on what stock Viburnum macrocephalum is grafted, that Viburnum Lantana is usually, if not always, used for this purpose. *W. E. G.* — Viburnum macrocephalum is grafted on Viburnum Lantana in December or January, and also in August. *Joseph Napoléon Baumann, fils, Ghent, Belgium.*

BAKING PEARS: *Inquisitive.* Any Pear which has not yet become ripe or mellow will bake or stew; some are better suited for this purpose than others, and some Pears are suited for no other purpose, and are consequently called baking Pears. A good baking Pear should be large; some of the best are Uvedale's St. Germain, Catillac, Gilogil, Verulam, &c.; but Marie Louise is also an excellent sort.

DEODAR: *Elmside.* With only hand-power there would be some risk in removing your tree, but we think it might be done safely by a man well versed in planting operations.

EXCHANGE.—Will any one kindly give me the true forms of English Primula known under the name of Oxlip; also Nerine undulata and humilis, known to be true? Shall be glad to supply desiderata in exchange. *R. T. Clarke, Welton Place, near Daventry.*

FUCHSIA: *J. Kingsbury.* Your double white is a very fine one, so far as we can judge without seeing the habit of the plant. The sepals are about an inch long and three-quarters of an inch wide, quite reflexed, and the large white red-pencilled corolla is very large and spreading.

FUNGUS: *M. Pool.* A large specimen of Agaricus muscarius, partly eaten by a mouse.

MARÉCHAL NIEL ROSE: *C. P.* If you want this Rose to flower well it must not be pruned any more than may be necessary to keep it within bounds, and that had better be deferred till spring.

NAMES OF FRUITS: *J. Kent. Pears:* Glou Morçeau; 7, and 10, Dumelow's Seedling; 8, probably old Nonpareil.—*Grant & Co., Portadown.* Your Apples are all strangers to us, but we may assume that the local names given are correct

NAMES OF PLANTS: *W. W. S.* The Spindle tree, Euonymus europæus.—*W. K.* Platyloma falcatum. —*W. D. F.* Agathæa cœlestis.—*C. B. W., Dublin.* The Bladder Cherry (Physalis Alkekengi).—*C. Clarke.* Tacsonia Van Volxemii, so far as we can tell without the flowers.—*W. D. F.* The Maple specimen was insufficient for correct determination, but it is certainly not A. rubrum.—*W. B.* Cuscuta reflexa, a species of Dodder. — *Mrs. R.* Scrophularia nodosa, or S. aquatica—we cannot tell which without the leaves.—*Surgical* should cut more freely; his scraps are wretched and not to be determined.

PARASITE ON PALMS: *J. Leeson.* The parasite on a Palm, Graphiola Phœnicis, usually considered allied to Æcidium, but more probably to Tricholoma paradoxum. *M. J. B.*

PRIMULA: *E. P. D.* A very fine flower, but we think there are as good already in cultivation.

RASPBERRY: *J. C.* Fairly good, considering the time of year; but, like most other things out of their proper season, not particularly desirable.

UNFRUITFUL NECTARINE: *O. P.* A frequent cause of stone fruits casting their blossom is dryness at the roots. We cannot, of course, say what the cause of yours may be, but would recommend you to take up the tree carefully and replant it.

WIREWORMS: *F. S.* Give the ground a liberal dressing of gas-lime (the refuse from gasworks); have it well forked in, and let the land lie fallow until spring.

COMMUNICATIONS RECEIVED. — East Somerset. — G. S. — P. H. G.—N. G.—Head Gardener, Cothelstone.—Clover.—W. L., Halifax.—R. R.—D. T. F.—J. G. B.—G. W. Y.—F. Gloede.—E. S. D.—A. K. (thanks).—H. G. S.—J. H.—E. T. D.—A. O. W.—Old School (yes; but the private note did not accompany it).—W. C. J.—H. H.—J. R. J.—J. S. T. —F.—A Subscriber.—H. G. Reichenbach fils.—D. Brothers.

Markets.

COVENT GARDEN, November 12.

We have very little change to notice, the supply and demand varying very much according to last week's report. Amongst the last arrivals from St. Michael's we noticed some fine specimens of Cayenne Pines, the weights varying from 4 to 7 lb., in very good condition. No English Melons; those offered chiefly from Denia and Gibraltar. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Nuts, Cob, p. lb.	1 0– 1 6
Filberts, per lb.	1 0– 1 6	Oranges, p. 100	10 0–15 0
Grapes, English, p. lb.	2 0– 6 0	Pears, p. doz.	2 0– 3 6
— Muscats, do.	3 0– 6 0	Pine-apples, p lb.	3 0– 6 0
Lemons, per 100	10 0–15 0	Plums, ½-sieve	2 0– 3 6
Medlars, per doz.	0 6– 1 0	Walnuts, p. bush.	16 0– ..
Melons, each	1 0– 3 0		

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Beans, Scarlet, bush.	3 0– 5 0	Mint (green), p. bun.	0 6– ..
Beet, per doz.	1 0– 2 0	Mushrooms, per pott.	1 0– 2 6
Broccoli, p. bundle	0 9– 1 6	Onions, young, bun.	0 4– 0 6
Brus. Sprts., p. bush.	5 0– ..	Parsley, per bunch	0 4– 0 6
Cabbages, per doz.	1 0– 2 0	Parsnips, p. doz.	0 9– 1 0
Carrots, new, p. bun.	0 4– 0 6	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	— black, Turnip, do.	– 0 6
Celery, per bundle	1 6– 2 0	Seakale, per bundle	1 6– 2 6
Cucumbers, each	2 0– 2 6	Shallots, per lb.	0 3– ..
Endive, per doz.	1 0– 2 0	Salsify, per bundle	1 6– ..
Herbs, per bunch	0 2– 0 4	Spinach, per bush.	2 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Tomatos, per doz.	1 0– 3 0
Leeks, per bunch	0 2– 0 4	Turnips, per bundle	0 3– 0 4

New Potatos: — Round, 60*s.* to 90*s.* per ton; Kidneys, 90*s.* to 120*s.* per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Camellias, 12 blooms	3 0– 9 0	Pelargoniums, per 12 sprays	1 0– 1 6
Carnations, 12 blooms	1 0– 2 0	Pelargoniums, Zonal, per 12 sprays	0 6– 0 9
Corn-flower, doz. bun.	3 0– 6 0	Roses, indoor, p. doz.	2 0– 6 0
Eucharis, per doz.	6 0– 9 0	— Outdoor, do.	0 6– 1 6
Eschscholtzia, 12 bun.	2 0– 6 0	Spiræa, per 12 sprays	1 0– 2 6
Gardenias, p. doz.	3 0– 9 0	Stephanotis, 12 sprays	5 0– 9 0
Gladiolus, doz. sprays	1 0– 2 0	Tuberoses, p. doz.	1 0– 2 0
Heliotropes, per doz. sprays	– 0 6	Violets, p. doz. bun.	0 9– 1 6
Mignonette, 12 bun.	2 0– 6 0		

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Begonias, do.	6 0–12 0	Heaths, in var., do.	12 0–30 0
Bouvardias do.	9 0–18 0	Liliums, in var., each	1 0– 3 6
Coleus, p. doz.	3 0– 9 0	Mignonette, per doz.	4 0– 6 0
Chrysanthemums, p. dozen	4 0– 9 0	Myrtles do.	3 0– 9 0
Cyperus, per dozen	6 0–12 0	Pelargoniums, dble., per doz.	6 0–12 0
Dracæna terminalis	12 0–30 0	— Scarlet, per doz.	3 0– 9 0
— viridis, per doz.	12 0–24 0	Primula sinensis	4 0– 8 0
Ficus elastica	1 6– 7 6	Solanums, per doz.	6 0–18 0
Fuchsia, per dozen	4 0–12 0		

SEEDS.

LONDON: *Nov.* 13.—Fine samples of Red Clover seed have, since our last, realised 1*s.* to 2*s.* per cwt. more money; but the business doing is not large. Only choice parcels met with attention. Cable advices from New York quote Red Clover seed of fair average quality at 45*s.* per cwt., cost, freight, and insurance. This figure, however, does not seem to tempt buyers. In White Clover, Alsike and Trefoil seeds there are very few transactions passing. The demand for winter Tares is not yet over. Feeding Linseed and Buckwheat are in improved request. Canary seed shows a further advance. Hemp seed is unchanged. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday English Wheat was firmer, and prices had a hardening tendency. In foreign the tendency of prices was in favour of buyers. In Barley malting produce was steady in value and inquiry. Grinding remained unaltered. Malt was disposed of on former terms. In Oats prices ruled against buyers. Maize was steady, Beans and Peas at former rates, and flour dull.—The Wheat trade (English and foreign) continued dull on Wednesday, and quotations remained nominally unaltered. Flour was unchanged in value. Grinding Barley met a fair demand, the market still hardening. Malting descriptions remained firm. Beans tended upwards in value. For Peas the inquiry was good. Oats showed increased firmness.

CATTLE.

The trade on Monday was without feature of importance. As regards beasts the trade was not active, but a fair amount of firmness was shown. For sheep the demand was firmer, at hardening prices. Calves were dull and drooping in value. Quotations:—Beasts, 4*s.* to 6*s.* 4*d.*; sheep, 4*s.* to 6*s.*; calves, 4*s.* 4*d.* to 5*s.* 4*d.*—On Thursday choice beasts were scarce, and readily obtained Monday's figures. For sheep the demand was good, and prices rather higher. Choice calves were scarce.

HAY.

Whitechapel quotations: — Clover, 117*s.* to 123*s.*; inferior, 70*s.* to 90*s.* Hay, 108*s.* to 112*s.*; inferior, 60*s.* to 70*s.*; and straw, 33*s.* to 40*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 114*s.* to 126*s.*; inferior, 84*s.* to 105*s.*; superior Clover, 118*s.* to 130*s.*; inferior, 100*s.* to 108*s.*; and straw, 38*s.* to 42*s.*

POTATOS.

At Borough and Spitalfields markets the trade has been steady at full rates. Regents, 70*s.* to 100*s.*; Rocks, 60*s.* to 70*s.*; Victorias, 90*s.* to 110*s.*; Flukes, 100*s.* to 120*s.* per ton.

CHEAP FRUIT TREES, &c.—Fine strong Pyramid Apples, 9*s.* per dozen, £3 per 100; fine strong Pyramid Pears, Plums, and Cherries, 10*s.* per dozen, £4 per 100; strong Black Currants, 10*s.* per 100, £4 per 1000; Red do., 8*s.* per 100, £3 per 1000; Standard and Dwarf ROSES, fine EVERGREENS, FLOWERING SHRUBS, &c., at very moderate prices.
CATALOGUES on application.
R. THORNHILL, Bowdon Nurseries, Bowdon, Cheshire.

JAMES ANDERSON, NURSERYMAN and HORTICULTURAL VALUATOR, Meadowbank, Uddingston, Glasgow, begs to announce to the public generally that he is now offering SELECTIONS of ORCHIDS, either in small or in large lots, suitable either for cool, intermediate, or warm temperatures; and that he is prepared to deal liberally with those who may entrust him with their orders.
Mr. ANDERSON'S stock of AMARYLLIS is the rarest and finest selected in the Kingdom, and he is prepared to offer them singly, in dozens, or hundreds, to suit purchasers. His stock, too, of the beautiful family of NERINE is large, and comprises some seedlings not yet in commerce.
Mr. ANDERSON is also offering SPECIMEN CAMELLIAS and AZALEAS in splendid health and full of buds, as well as a general lot of beautiful-leaved PLANTS, suitable either for indoor decoration or exhibition purposes.
Mr. ANDERSON'S stock of HARDY SHRUBS and TREES, both Deciduous and Evergreen, is a particularly choice one.
Special quotations to buyers on application.
Meadowbank Nurseries, November 11.

EVERGREEN SHRUBS for WINTER BEDDING.

	Per doz.—s. d.		Per doz.—s. d.
Aucuba japonica, 12 to 15 inches	8 0	Laurel, rotundifolia, 12 to 15 inches	6 0
Biota elegantissima, 9 to 10 inches	12 0	Mahonia Aquifolia, 12 to 15 inches	2 0
Double Gorse, 12 to 15 in.	6 0	Menziesia, dwarf purple	6 0
Erica carnea, dwarf	6 0	,, ,, white	6 0
,, multiflora rubra	6 0	Pernettya angustifolia, dwarf	8 0
,, vagans rubra	6 0	Tree Ivy, 12 to 15 inches	10 0
Golden Yews, 12 to 15 in.	12 0	,, ,, Rœgneriana, 12 to 15 inches	12 0
,, Vinca, dwarf	3 0	,, ,, yellow berried, 9 to 12 inches	12 0
Hartogia capensis, 12 to 15 inches	8 0	,, ,, silver striped, new, 9 to 10 in.	12 0
Japan Privet, 12 to 15 in.	6 0	,, tricolor, 9 to 10 in.	12 0
,, Yews, 12 to 15 in.	9 0	Yucca filamentosa, 12 to 15 inches	12 0
Laurel, willow-leaved, 12 to 15 inches	6 0	,, gloriosa pendula, 12 to 15 inches	12 0
,, Portugal, 12 to 15 inches	4 0		
Laurel, Caucasian, 12 to 15 inches	4 0		

RICHARD SMITH, Nurseryman, Worcester.

ROSES.

Twelve Acres of Standard and Dwarf Roses, all clean, strong, healthy, fully ripened and well rooted.
Eighty thousand choicest Tea-scented and Noisette Roses, in pots for Conservatories, walls, and sheltered situations out-of-doors.
Extra strong Hybrid Perpetual Roses of best sorts, in pots, for forcing.
Climbing Roses in great variety, for quickly covering Rockwork, Pillars, Trellises, &c.
Descriptive Price LIST on application.
R. S. will be happy to give a special quotation for large quantities.
RICHARD SMITH, Nurseryman, Worcester.

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.
JACKMAN'S LIST of FRUIT TREES.
JACKMAN'S LIST of ROSES.
JACKMAN'S LIST of AMERICAN PLANTS.
JACKMAN'S LIST of CONIFERS.
JACKMAN'S LIST of HARDY SHRUBS.
JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.
JACKMAN'S LIST of CLEMATIS (Special Catalogue).
JACKMAN'S LIST of TRANSPLANTED FOREST TREES.
JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality:—
MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 ft.
CHESTNUTS, Common Horse, and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.
Woking Nursery, Surrey, S.W.

Twelve Azaleas, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon, can supply twelve splendid named AZALEAS, full of buds, bushy plants, in 5-inch pots, 18 inches high, for One Guinea, including package and delivery to London, for cash with order.

Also a few very fine plants, in 6-inch and 8-inch pots, 18 inches across, at 42*s.* and 60*s.* per dozen; fit to grow on at once for exhibition.

Four Thousand Double-flowered Chinese Primrose.

E. G. HENDERSON AND SON can now offer of the above, strong healthy New Plants, of 1874 growth, including Atro-rosea, Blushing Beauty, Exquisite, Empress, Emperior, Lilac Queen, King of Purples, Magenta Queen, Magnifica, Mrs. Eyre Crabbe, Pearl Blossom, Princess of Wales, rubra grandiflora, &c. Twelve varieties, from 30*s.* to 42*s.* and 60*s.*

PRIMULA JAPONICA, mixed varieties, 9*d.* each, 6*s.* per dozen; in six colours, raised from selected home-grown plants 1*s.* 6*d.* each.

AUBRIETIA HENDERSONI, the finest variety in growth and colour, strong plants, 2*s.* each, 18*s.* per dozen.

DAISY, Flower of Spring, beautiful and effective, pure white, 1*s.* each, 9*s.* per dozen.

PINK, Rosy Morn, 1*s.* 6*d.* each.

VIOLETS, White Czar and Victoria regina, 1*s.* 6*d.* each.

CYCLAMEN PERSICUM (from 3000 plants), mixed colours, 9*s.*, 12*s.*, and 18*s.* per dozen; collection to name 21*s.* and 30*s.* per dozen.

The Trade supplied on usual terms for all the above.
For full descriptions see CATALOGUE 155.
Wellington Nursery, St. John's Wood, London, N.W.

Lilies.

MR. WILLIAM BULL, being the largest Importer of LILIES direct from their native habitats, can offer them on special terms by the 100 or 1000 for planting in large groups.

LILIUM AURATUM, small sound English-grown bulbs, 18*s.* and 24*s.* per dozen; fine bulbs, on arrival of the annual importations from Japan, 30*s.* and 42*s.* per dozen.
,, AURATUM RUBRO-VITTATUM, the most handsome of the "auratum" group, 15*s.*, 21*s.*, and 31*s.* 6*d.* each.
,, BLOOMERIANUM OSCELLATUM (Kellogg), new; first time imported from Santa Rosa Island. Mr. W. B. has imported all and the only bulbs of this Lily that could be found in the Island. 42*s.* and 63*s.* each.
,, BROWNII, 10*s.* 6*d.* each.
,, CALIFORNICUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
,, CALLOSUM, very rare, 7*s.* 6*d.* each.
,, DALMATICUM, exceedingly handsome, 10*s.* 6*d.* each.
,, HUMBOLDTII, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
,, ,, PUNCTATUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
,, KAMTSCHATCENSE, the Black Lily, 3*s.* 6*d.* each.
,, MONADELPHUM, one of the most handsome of Lilies, 3*s.* 6*d.* each.
,, PARDALINUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
,, PULCHELLUM, 5*s.* and 7*s.* 6*d.* each.
,, ROSEUM, 2*s.* 6*d.* and 3*s.* 6*d.* each.
,, SPECIOSUM ATRO-SANGUINEUM, the most handsome of the whole section; 7*s.* 6*d.* each.
,, SPECIOSUM KRŒTZERI, flowers of snowy whiteness and symmetrical form, 5*s.* and 7*s.* 6*d.* each.
,, TENUIFOLIUM, 3*s.* 6*d.* each.
,, THUNBERGIANUM SPLENDENS, one of the best of the Thunbergianum group, 3*s.* 6*d.* and 5*s.* each.
,, TIGRINUM FLORE-PLENO, the most handsome of the double-flowering Lilies, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
,, TIGRINUM SPLENDENS, 3*s.* 6*d.* and 5*s.* each.
,, WASHINGTONIANUM, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each.
,, WASHINGTONIANUM PURPUREUM.—This Lily is well figured in *Florist* for November; no more of it can be found in its native habitat. 7*s.* 6*d.* and 10*s.* 6*d.* each.

The above are a few choice Lilies, of which Mr. W. B. holds a large stock.

Good and varied SELECTIONS of LILIES made at 12*s.*, 18*s.*, 30*s.*, and 42*s.* per dozen.

Where the selection is left to Mr. W. B. the Catalogue prices are not strictly adhered to, the purchaser being given a considerable advantage.

Mr. WILLIAM BULL's Annual Importations from California of CALOCHORTUS of sorts, CYCLOBOTHRAS, BLOOMERIA, and BRODIÆAS, have now been received.

Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

VINES

Grown from the celebrated Lambton Castle Eyes.

S. BIDE can now supply good, short-jointed, clean-grown VINES in POTS of all the leading kinds, from the above celebrated and well-known Stock (a list of which may be had on application), at the following moderate prices, viz.:—

Single Plants, 5s. each; 6 for 21s.; 12 for 36s.

Mr. Hunter has grown this year Bunches of the Black Hamburgh weighing 21 lb. 12 oz., being the heaviest on record.

S. BIDE, ALMA NURSERY, FARNHAM, SURREY.

TO THE TRADE.

KING OF THE BROCCOLIS.

Electrotypes of this block, 3s. 6d. each.

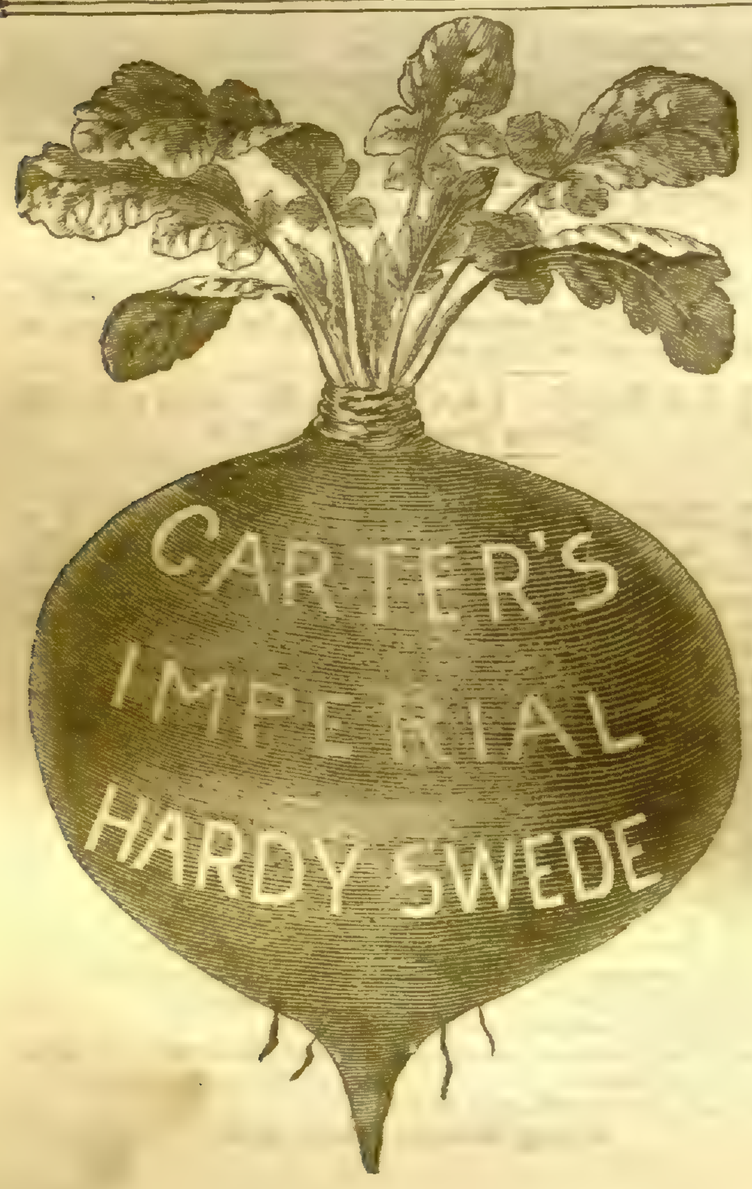
Price to the Trade on application.

1s. 6d. per Packet.

This magnificent variety comes in for cutting from the beginning of May to the first week in June, and is undoubtedly the finest late Broccoli in cultivation. It is of a fine dwarf habit, and being well protected is exceedingly hardy. Its heads are remarkably fine, close, and white, and of enormous size, and cannot fail to prove a great acquisition to the kitchen garden.

Messrs. HURST & SON are pleased to announce to the Trade that the entire disposal by wholesale of this fine Broccoli has been placed in their hands by Messrs. Daniels, Brothers, Norwich, but regret that, in consequence of their limited supply, they are only able to offer for the coming season, in sealed packets, retail, 1*s.* 6*d.* each. Early orders solicited. A List of those firms from whom "King of the Broccolis" can be obtained will be published shortly.

HURST & SON,
SEED MERCHANTS, 6, LEADENHALL STREET, LONDON, E.C.



THE ROYAL

METROPOLITAN ROOT SHOW,

Carters

WILL BE HELD AT THE

AGRICULTURAL HALL,

NOVEMBER 20, 1874,

When Prizes of great value, ranging from One to Ten Guineas, and including a number of Valuable Cups, will be awarded.

All Entries Free. Admission to the Hall by Ticket only, to be had from J. C. & Co.

Entrance to the Show at the Liverpool Road Doors.

For Tickets and Full Particulars apply to

CARTER'S, The Royal Seedsmen, HIGH HOLBORN, LONDON, W.C.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 47.—Vol. II. { New Series. } SATURDAY, NOVEMBER 21, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Anemone Honorine Jobert	657
Bambusa gracilis	657
Barnes, Mr. James (with portrait)	655
Books, notices of	651
Bound for Belgium	643
Brownea coccinea	654
Buddlea madagascariensis	654
Carrots	650
Cauliflower, Veitch's Self-protecting	657
Coffee disease in Ceylon	657
Cotton in Egypt	654
Cuscuta reflexa, hardiness of	657
Culinary notes	644
Cupressus Lawsoniana	653
Cyathea medullaris	654
Dendrobium asphale	644
Dombeya Burgessiæ	653
Drimiopsis Kirkii	644
Eastwell Park (with cuts)	648
Epping Forest	653
Eupatorium ageratoides	654
Farm, the	650
Garden operations	661
Gloxinia, the genus	654
Grapes, Lambton Castle	653
Hibiscus rosa-sinensis	656
Horticulture, the heart of	656
Jersey fruit at South Kensington, the	656
Jerusalem Artichoke	654
Judges, chairs for the	657
Kew, the old walls at	647
Kitchen gardening in New England	648
Landscape gardening	653
Libyan desert, exploration of the	646
Moles as vegetarians	657
Oak at Addlestone	654
Pears, large	656
Pears, Uvedale St. Germain	646
Plants, new garden	644
Plum, Earley's November	656
Polar expedition, the	653
Sedum pulchellum	657
Silphium, the	657
Societies :—	
Edinburgh Botanical	657
Linnean	660
Scottish Arboricultural	658
South Essex Chrysanthemum	660
Woolwich Chrysanthemum	660
Tillandsia musaica	657
Utricularia Endresii	657
Uvedale St. Germain Pears	646
Vellosia cœrulescens	657
Villa garden, the	651
Vine, an ill-treated	651
Weather, the	660
Wellingtonia gigantea	657

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is **$6.30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth,* 16*s.*
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.—FLORAL and HORTICULTURAL MEETING, at the Town Hall, King Street, Manchester, on TUESDAY, the 24th inst. Packages of Plants, Fruits, or Flowers, may be addressed to the undersigned.
BRUCE FINDLAY.
Botanic Gardens, Manchester.

ROYAL POMONA PALACE and GARDENS, Manchester. — SPECIAL NOTICE to EXHIBITORS.—GRAND EXHIBITION of HARDY and EXOTIC FRUITS, PLANTS, FLOWERS, &c., DECEMBER 1, 2, and 3. FIVE HUNDRED POUNDS in Prizes, which will be paid on the last day of the Show. ENTRIES CLOSE on NOVEMBER 27. Prize Lists and all information may be had on application to the Proprietor,
Mr. JAMES REILLY.

PRESTON FLORAL SOCIETY.—Open to Amateurs.
COMPETITION for LADIES' PLATE, in AUGUST, 1876: 1st Prize, £25, and Gold Medal, value £12 12*s.*; 2d, £15 and Silver Medal; 3d, £10 and Bronze Medal; 4th, £5.
Last day for entry, November 30, 1874. The 12 Stove and Greenhouse Plants to be grown on from 6-inch pots, similar to the "Davis Competition" of the Royal Horticultural Society.
Conditions and full particulars from
Mr. WM. TROUGHTON, Hon. Sec.
4, Church Street (near the Town Hall), Preston.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—ADVERTISEMENTS are being received for INSERTION in the forthcoming PRIZE SCHEDULE of the GREAT INTERNATIONAL FRUIT SHOW, to be held in Edinburgh, in SEPTEMBER, 1875. LIST will be closed on the 25th inst. Terms on application to
WM. YOUNG,
39, South Bridge, Edinburgh. Assistant Secretary.

CAMELLIAS.—English-grown; nice healthy Plants, well set with buds, 10*s.* 6*d.*, 15*s.*, and 21*s.* each.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Cyclamen persicum.

H. B. MAY can supply fine strong plants in 48's, with good foliage, and full of buds, at 6*s.* and 10*s.* per dozen. Package free, for cash.
Dyson's Lane Nursery, Edmonton, N.

LEE'S "VICTORIA REGINA" VIOLET.—Small Plants, 12 for 6*s.*, post free; 40*s.* per 100. Strong Plants, 12 for 10*s.*, post free; 70*s.* per 100. Extra strong, 12*s.* per dozen.
WM. CL[illegible]ON, Oldfield Nursery, Altrincham.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

Pelargoniums.

WILLIAM BRYANT begs to offer strong plants of Show, Spotted, and Fancy varieties of the above, in single pots, at 3*s.* 6*d.* per dozen, 25*s.* per 100, £10 per 1000. The Nursery, Rugby.

To Gentlemen, Nurserymen, and Others.

AUCUBA JAPONICA.—The Executors of the late John West, Nurseryman, &c., of Green Lanes, Stoke Newington, beg to OFFER for IMMEDIATE SALE a quantity of large AUCUBAS in fine condition. Particulars may be had on aplication at the Nursery, Green Lanes, N.

WHOLESALE CATALOGUE of TREES, SHRUBS, CLIMBERS, &c., free on application.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

WILLIAM WISEMAN AND SON have to offer a lot of THORNS, 12 to 24 inches; MAPLE and PLANE TREE, 1-yr. seedlings. Samples and prices on application.
Grove Terrace and Friars Haugh Nurseries, Elgin, N.B.

BEECH, 3 feet, very fine and well rooted, 7*s.* 6*d.* per 1000.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

A Bargain.

HORSE CHESTNUT TREES, 5 to 6 feet, 4*s.* per 100; 7 to 8 feet, 10*s.* per 100, or 3*s.* per dozen. OAKS, 4 to 5 feet, 2*s.* 6*d.* per 100, for cash.
WILKIN, Tiptree, Kelvedon.

Twelve Graceful Palms, 21s.

HEALTHY young plants, to grow on for table decoration, and will be ready in about six months, or fit for immediate use, including choice and many very rare kinds; 63*s.*, 84*s.*, and 106*s.*
J. H. LEY, Royal Nursery, Croydon.

SPECIAL LIST of PLANT COLLECTIONS, for Winter Decoration of Apartments or Conservatory, free from
J. H. LEY, Royal Nursery, Croydon.

Vines.

B. S. WILLIAMS has a large and fine stock of FRUITING and PLANTING CANES, of all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, N.

GRAPE VINES.—A fine stock of all the leading sorts; strong, well-ripened short-jointed Canes. Extra fruiting size, in 11-inch pots; smaller plants, in 6-inch and 9-inch pots. Prices from 3*s.* 6*d.* to 10*s.* 6*d.* each. Free from any kind of disease.
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s.* to 60*s.* per dozen. Extra strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s.* each.
RICHARD SMITH, St. John's Nurseries, Worcester.

GRAPE VINES.—Strong and extra strong, for immediate Fruiting and for Planting—the leading varieties. CATALOGUE and prices upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

SEAKALE, ASPARAGUS, and RHUBARB.—Extra strong, for immediate Forcing and Planting. Prices upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

WANTED, transplanted LARCH, 3 feet; SPANISH CHESTNUT, 2½ to 3 feet; ASH, 3 to 4 feet; SCOTCH FIR, 2 to 2½ feet. Samples and prices per thousand to
CRANSTON AND MAYOS, King's Acre, Hereford.

WANTED, strong ALDER, 4 to 6 feet; SPANISH CHESTNUT; ASH, 4 to 5 feet, must be good stout plants; Standard PEARS and PLUMS, good. Price per thousand, for cash, to
W. KNIGHT, Floral Nurseries, Hailsham.

WANTED, KESWICK CODLIN APPLE TREES, from 1-yr. to 3-yr. old. Description and price to
J. G. MITCHINSON, Seed Stores, Penzance.
Several thousand Crown Bob and Early Yellow GOOSEBERRIES for SALE, 3-yr. old, good stuff.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

New Climbing Rose,

JULES MARGOTTIN, 3*s.* each, 30*s.* per dozen. The old favourite Rose in all respects, except in being a free climber.
RICHARD SMITH, Nurseryman, Worcester.

Early Planting.

DAVISON AND WHITTEM'S CATALOGUE of all the Best and Newest ROSES is now ready. Also a GENERAL CATALOGUE of CONIFERS, FOREST, FRUIT, and other TREES. Post free on application. White Cross, Hereford.

WHOLESALE CATALOGUE of ROSES, FRUIT TREES, &c., free on application.
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey.

To the Trade.

OUR CATALOGUE of CONIFER, TREE, and SHRUB SEEDS is now in the Press, and will be forwarded on application.
F. SANDER AND CO., St. Alban's.

Roses! Roses!! Roses!!!

FORTY CHOICE PERPETUAL ROSES, strong plants, best varieties, sent to any address on receipt of Post-office Order for 21*s.*, package included, by
JAMES WALTERS, Mount Radford Nursery, Exeter, Devon.

ROSES.—Fine strong Dwarfs on Manetti, 30*s.* per 100, £12 10*s.* per 1000; Standards, 80*s.* per 100; Half-standards, 60*s.* per 100.
MAURICE YOUNG, Milford Nurseries, Godalming.

QUICKS.—Good strong Quicks, 6*s.* to 8*s.* per 1000, or £25 per 100,000; extra do., 10*s.* 6*d.* to 15*s.* per 1000, or £45 to £55 per 100,000.
MAURICE YOUNG, Milford Nurseries, Godalming.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s.* carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

TULIPS.—On Sale, a choice lot of mixed SHOW TULIPS, selected from the best kinds. For further particulars apply at
No. 5, Orchard Hey, Walton Park, near Liverpool.

STUART AND CO., 5, Tavistock Row, Covent Garden, W.C.—Our TRADE LIST of FLOWER SEEDS, containing many Choice Novelties, is now in the Press, and will be forwarded shortly, or sent on application.

WM. POTTEN can still supply FRUIT TREES and PLANTS as advertised in *Gardeners' Chronicle*, November 7.
The Nursery, Sissinghurst, Staplehurst, Kent.

Mulberries! Mulberries!

PONSFORD AND SON can supply them, in fine condition, by the dozen or 100.
Loughborough Park Nurseries, Brixton, Surrey, S.E.

Nurseries, Dundee, Scotland.

PRICES of SEEDLING and TRANSPLANTED FOREST and ORNAMENTAL TREES, SHRUBS, &c., may be had on application.
W. P. LAIRD AND SINCLAIR.

Johnstone's St. Martin's Rhubarb.

EARLIEST and BEST in CULTIVATION for open ground; it has a splendid colour, and excellent for forcing. Strong roots, 1*s.* each. Trade price on application.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

LEAMINGTON BROCCOLI.—A quantity of PERKINS' LEAMINGTON BROCCOLI, Seed saved from selected heads. Price per ¼ lb., ½ lb., or more, on application, to
T. WALMESLY, Bore Street, Lichfield.

Hyacinths, Tulips, Crocus, &c.

The best material in which to grow the above is COCOA-NUT FIBRE REFUSE.—Price 1*s.* per bushel, or 6*d.* per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE — 3000 bushels, carefully prepared. Recommended and used by all Gardeners for Winter Gardening especially. Twenty and fifty bushels at 4*d.* per bushel. Sample free.
H. WRIGHT, Fibre Merchant, 4, Peterborough Terrace, King's Road, Fulham, S.W.

COCOA-NUT FIBRE REFUSE, invaluable for Forcing, Plunging, and Resisting Frost and Cold. Price 9*d.* per bushel; 20 bushels, 5*d.*; 100, 4½*d.* per bushel.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

TO THE TRADE.—PEAS: Laxton's Superlative, William the First, Omega, Popular, Fillbasket, Griffin's and Suttons' Emerald Gem. CABBAGE: Cocoa-nut. CAULIFLOWER: Veitchs' Autumn Giant. LETTUCE: Sugarloaf Cos. ONIONS: New Queen, Newnham Park.

JAMES CARTER AND CO. have surplus quantities of the above to offer at reasonable prices, all true to name, and nett seed of the current season's growth.

238, High Holborn, London, W.C.

The Planting Season.

R. AND J. TUCKER, of the Nurseries, Farringdon, Berks, beg to offer the following TREES and SHRUBS, in large quantities, very cheap, all of which are in the best possible health and condition for planting:—Common Laurels, very bushy, 2 to 3 and 3 to 4 feet; Austrian Pine, 2 to 3 and 3 to 4 feet, fine plants; Spruce Fir, 2 to 3 feet; Tree Box, 2 to 3 feet; Chinese and Siberian Arbor-vitæ, English Oaks and Black Italian Poplars of all sizes.

Prices on application. Samples if required.

ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, begs to offer Hardy Ghent AZALEAS, very fine named sorts, covered with buds, at 16*s.* per dozen.

Hybrid RHODODENDRONS, very fine named varieties, with from four to ten buds, at 20*s.* per dozen.

PALMS, FERNS of all sizes, INDIARUBBER PLANTS, DRACÆNAS, LATANIA BORBONICA, ARAUCARIA EXCELSA, TAHITI ORANGES, LILIUM LANCIFOLIUM RUBRUM, YUCCAS, &c.

Prices and dimensions will be sent on application.

To the Trade and Others.

SPECIAL OFFER.—Black Naples CURRANTS, 75*s.* per 1000; Victoria Red Currants, 80*s.* per 1000; Norway Spruce FIR, 5 feet, handsome plants, 50*s.* per 100; SYCAMORE, 10 to 12 feet, 40*s.* per 100; English OAK, 10 feet, 70*s.* per 100; Norway MAPLE, 10 feet, 40*s.* per 100; Black Italian POPLAR, 6 feet, 7*s.* per 100; ditto, 15 feet, 9*s.* per dozen: all well-rooted stuff.

Also, WANTED, a few thousand CRAB and PEAR STOCKS. Apply to

W. ABRAHAM AND SON, Goldworth Nurseries, Woking, Surrey.

Thimbleby Nurseries, near Horncastle.

W. CROWDER has the following to offer, in quantities, at low prices:—

APPLES, Standards, 4 to 5 feet stems.
ABIES DOUGLASII, 2 to 3 and 3 to 4 feet.
BEECH, 3 to 4 feet.
LAURUSTINUS, 1½ to 2 feet, full of bloom and bushy.
PRIVET, evergreen, 2 to 3 and 3 to 4 feet.
,, ovalifolium, 3 to 4 feet.
OAK, 2 to 3, 3 to 4, and 4 to 5 feet.
FIR, Spruce, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
,, Scotch, 1 to 1½, 1½ to 2, and 2 to 3 feet, twice transplanted.
SYCAMORE, 2 to 3, 3 to 4, 4 to 5, 5 to 6, and 6 to 8 feet.

Prices on application.

DWARF and STANDARD ROSES, strong Plants and cheap, from Paris.—Maréchal Niel, dwarf, from the ground, £2 10*s.* per 100; Paul Néron, Charles Lefebvre, Madame Lacharme, Virginale, Gloire de Dijon, Madame Vidot, Duchesse d'Orleans, and all the best sorts £2 per 100. Maréchal Niel, Madame Falcot, and all the best Tea Roses, standards, £5 per 100. Perpetuals, all the best sorts, the choice of the customers, £5 per 100; our own best selection, £4.

Apply to LEVÉQUE ET FIL, Nurserymen, &c., Ivry-sur-Seine, near Paris.

THORN QUICKS (2-yr.) by the million—6 to 12 inches, stout, £10 10*s.* per 100,000. Also a large stock of the following trees:—

LARCH FIR, 3-yr. transplanted, splendid stuff, 1½ to 2½ ft.
,, 2-yr. transplanted, splendid stuff, 1 to 1½ foot.
SCOTCH, 3-yr. transplanted, splendid stuff, true native var., 1 to 1½ foot.
SPRUCE, 3 yr. transplanted, splendid stuff, 1½ to 2 feet.
OAK, 3-yr. transplanted, splendid stuff, 2 to 3 feet.
PRIVET, POPLAR, BEECH, ELM, ASH, BIRCH, Common RHODODENDRONS, &c.
HAWS by the bushel, hundredweight, or ton.

Samples and Prices of the above on application. All are fine, healthy, and well-rooted.

GEO. R. DAVIDSON, Nurseryman, Newry, Ireland.

JAMES ANDERSON, NURSERYMAN and HORTICULTURAL VALUATOR, Meadowbank, Uddingston, Glasgow, begs to announce to the public generally that he is now offering SELECTIONS of ORCHIDS, either in small or in large lots, suitable either for cool, intermediate, or warm temperatures; and that he is prepared to deal liberally with those who may entrust him with their orders.

Mr. ANDERSON'S stock of AMARYLLIS is the rarest and finest selected in the Kingdom, and he is prepared to offer them singly, in dozens, or hundreds, to suit purchasers. His stock, too, of the beautiful family of NERINE is large, and comprises some seedlings not yet in commerce.

Mr. ANDERSON is also offering SPECIMEN CAMELLIAS and AZALEAS in splendid health and full of buds, as well as a general lot of beautiful-leaved PLANTS, suitable either for indoor decoration or exhibition purposes.

Mr. ANDERSON'S stock of HARDY SHRUBS and TREES, both Deciduous and Evergreen, is a particularly choice one.

Special quotations to buyers on application.

Meadowbank Nurseries, November 11.

CHOICE RHODODENDRONS.

ALARM, white centre, edged with bright carmine.
BRAYANUM, vivid scarlet, very fine.
CONCESSUM, fine clear rosy pink.
ELFRIDA, deep rose, much spotted.
EVERESTIANUM, rosy lilac, with dark spots.
HENDERSONII, purplish crimson, very free bloomer.
JOSEPH WHITWORTH, very dark rich lake, spotted, fine blooms.
LADY ELEANOR CATHCART, fine clear rose, beautifully spotted.
MICHAEL WATERER, splendid crimson, large truss.
MINNIE, blush white, large chocolate spots.
MRS. JOHN CLUTTON, beautiful clear white, fine truss.
NERO, fine dark rosy purple, large blooms.

The above very beautiful and distinct varieties are offered by W. H. ROGERS, Red Lodge Nursery, Southampton, at 2*s.* 6*d.* each.

An immense number of other named varieties, as per Catalogue, at 1*s.* 6*d.* each, selected; or £6 per 100.

TREE FERNS.

THE LARGEST STOCK IN EUROPE,

and at Half the Prices usually charged.

Mr. WILLIAM BULL'S ESTABLISHMENT for NEW and RARE PLANTS,

King's Road, Chelsea, London, S.W.

EVERGREEN SHRUBS for WINTER BEDDING.

	Per doz.—*s.*	*d.*
Aucuba japonica, 12 to 15 inches	8	0
Biota elegantissima, 9 to 10 inches	12	0
Double Gorse, 12 to 15 in.	6	0
Erica carnea, dwarf ..	6	0
,, multiflora rubra ..	6	0
,, vagans rubra ..	6	0
Golden Yews, 12 to 15 in.	12	0
,, Vinca, dwarf ..	3	0
Hartogia capensis, 12 to 15 inches	8	0
Japan Privet, 12 to 15 in.	6	0
,, Yews, 12 to 15 in.	9	0
Laurel, willow-leaved, 12 to 15 inches	6	0
,, Portugal, 12 to 15 inches	4	0
Laurel, Caucasian, 12 to 15 inches	4	0
Laurel, rotundifolia, 12 to 15 inches	6	0
Mahonia Aquifolia, 12 to 15 inches	2	0
Menziesia, dwarf purple	6	0
,, ,, white	6	0
Pernettya angustifolia, dwarf	8	0
Tree Ivy, 12 to 15 inches	10	0
,, ,, Rœgneriana, 12 to 15 inches	12	0
,, ,, yellow berried, 9 to 12 inches	12	0
,, ,, silver striped, new, 9 to 10 in.	12	0
,, tricolor, 9 to 10 in.	12	0
Yucca filamentosa, 12 to 15 inches ..	12	0
,, gloriosa pendula, 12 to 15 inches	12	0

RICHARD SMITH, Nurseryman, Worcester.

ROSES.

Twelve Acres of Standard and Dwarf Roses, all clean, strong, healthy, fully ripened and well rooted.

Eighty thousand choicest Tea-scented and Noisette Roses, in pots for Conservatories, walls, and sheltered situations out-of-doors.

Extra strong Hybrid Perpetual Roses of best sorts, in pots, for forcing.

Climbing Roses in great variety, for quickly covering Rockwork, Pillars, Trellises, &c.

Descriptive Price LIST on application.

R. S. will be happy to give a special quotation for large quantities.

RICHARD SMITH, Nurseryman, Worcester.

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.

JACKMAN'S LIST of FRUIT TREES.

JACKMAN'S LIST of ROSES.

JACKMAN'S LIST of AMERICAN PLANTS.

JACKMAN'S LIST of CONIFERS.

JACKMAN'S LIST of HARDY SHRUBS.

JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.

JACKMAN'S LIST of CLEMATIS (Special Catalogue).

JACKMAN'S LIST of TRANSPLANTED FOREST TREES.

JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.

GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality:—

MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 ft.
CHESTNUTS, Common Horse, and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.

Woking Nursery, Surrey, S.W.

Forest and Ornamental Trees, Evergreens, Plants

For GAME COVERTS, &c.

FRANCIS & ARTHUR DICKSON & SONS, the "Upton" Nurseries, Chester, respectfully invite attention to or inspection of their almost unlimited stock of

FOREST TREES, PLANTS for GAME COVERTS,
ORNAMENTAL TREES, CONIFERS,
EVERGREEN and DECIDUOUS SHRUBS,
FRUIT TREES, VINES, &c.;
ROSES, STOVE and GREENHOUSE PLANTS, &c.

The special recommendations of their Plants are extreme hardiness; and, from frequent transplantation, their plants are well furnished, and have abundance of fibrous roots, so that they remove to any part of the country with perfect safety. Inspection invited. Visitors should ask for "The Upton" Nurseries, distant about a mile from Chester Station.

Descriptive Priced CATALOGUES post free on application.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

ALEXANDER BLAKE,

LONDON AND ABERDEEN.

ARTISTIC FLORAL DECORATIONS, TREE FERNS, PALMS, ORCHIDS, MOSSES.

ROMANTIC ROCKWORK, ABERDEEN GRANITE, SPAR, TUFA, &c.

ALPINE GARDENS, ALPINE FLOWERS, CRYSTAL STREAMLETS, CASCADES, WATERFALLS.

FERNERIES, FERNS from New Zealand, East and West Indies, Tropical America, Madeira, &c., &c.

Works may be seen (by permission) in London and Suburbs. Also near Glasgow, Manchester, Windsor, Taunton, Brandon, the Isle of Wight, and in other parts of the Kingdom.

Plans and Estimates given.

9, NORFOLK TERRACE, FULHAM, LONDON, S.W.

B. S. WILLIAMS,

VICTORIA and PARADISE NURSERIES,

UPPER HOLLOWAY, LONDON,

Respectfully invites inspection of the choice and very extensive **Stock of Plants which he now has for Sale.**

They comprise all the recent Introductions of Merit now to be found in European Gardens, as well as vast quantities of handsome Specimens, both large and small, of CAMELLIAS, AZALEAS, CAPE HEATHS, for Winter and Summer flowering, NEW HOLLAND PLANTS, a large and choice assortment of STOVE PLANTS, both flowering and ornamental leaved kinds, whilst the Collections of ORCHIDS, TREE FERNS, PALMS, and Succulent Plants are unsurpassed in the Trade.

The Cool-house Specimens, both large and small, are this season in splendid condition, and will amply repay a visit from any one about to furnish New Greenhouses or Conservatories; whilst the Stock of Winter Blooming Plants are extra fine, and well set with buds.

CATALOGUES gratis, and post free, on application.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

MAURICE YOUNG'S

NEW DESCRIPTIVE CATALOGUE

Is now ready, and may be had on application.

IT COMPRISES:—

HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

PLANTING SEASON.

RHODODENDRONS

WILL BE SUPPLIED,

In Fifty of the most Popular and finest known Hardy Kinds,

Sturdy, Bushy Plants, 1½ to 2 feet high, at

£10 per 100,

Carriage Free to any Railway Station in England.

Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.

A Descriptive Catalogue free on application to

ANTHONY WATERER,

KNAP HILL NURSERY, WO[illegible]REY.

ROSES.

CHARLES TURNER'S CATALOGUE

IS NOW READY.

STANDARD ROSES.

These are grown in great numbers, they are very fine this season, with well-ripened wood, and are now ready for removal.

DWARF ROSES

Are also grown most extensively, and can be had on the Manetti and Briar Stocks, or on their Own Roots.

ROSES IN POTS

Are a speciality at the Royal Nurseries, where a fine stock can be seen of extra strong TEAS and HYBRID PERPETUALS, grown especially for early forcing.

☞ *The CATALOGUE also contains full Lists of FRUIT TREES, CONIFERÆ, EVERGREEN and DECIDUOUS SHRUBS, &c., and can be had on application.*

THE ROYAL NURSERIES, SLOUGH.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,

SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.
First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, price 7s. 6d. each.

NEW HYBRID PERPETUAL ROSE,

CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3s. 6d. each; 30s. per dozen.

CLIMBING PERPETUAL ROSE,

CLIMBING JULES MARGOTTIN (Cranston's).

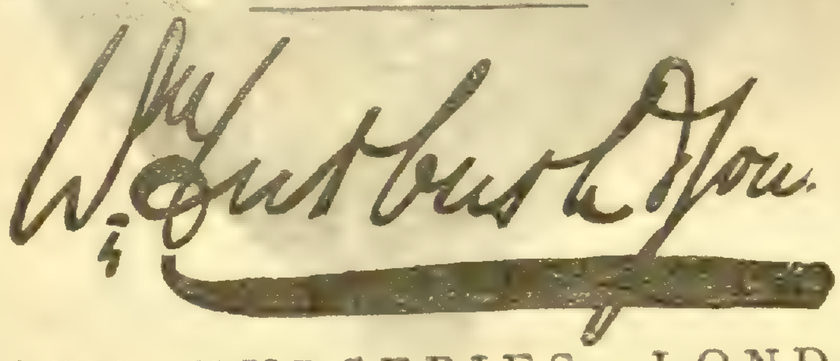
A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3s. 6d. each.

Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

CAMELLIAS, CAMELLIAS, CAMELLIAS—
AZALEAS, AZALEAS, AZALEAS,

From 1 to 10 feet, beautifully set with Bloom. Price on application.
The Finest Stock in the Country.
WINTER BLOOMING HEATHS, EPACRIS, BOUVARDIAS, &c.
A VISIT TO THE NURSERIES SOLICITED.



HIGHGATE NURSERIES, LONDON, N.

VINES

Grown from the celebrated Lambton Castle Eyes.

S. BIDE can now supply good, short-jointed, clean-grown VINES in POTS of all the leading kinds, from the above celebrated and well-known Stock (a list of which may be had on application), at the following moderate prices, viz.:—

Single Plants, 5s. each; 6 for 21s.; 12 for 36s.

Mr. Hunter has grown this year Bunches of the Black Hamburgh weighing 21 lb. 12 oz., being the heaviest on record.

S. BIDE, ALMA NURSERY, FARNHAM, SURREY.

Standard Oaks.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers several thousand well-grown transplanted Standard OAKS, from 12 to 14 feet, at 1s. 3d. each, franco Rotterdam and Harlingen.

Samples can be seen at Mr. T. S. WARE'S, Hale Farm Nurseries, Tottenham, near London.

CATALOGUE of AUTUMN PLANTS, SEEDS, and BULBS, free on application to J. H. LEY, Royal Nursery, Croydon.

N.B.—The Nursery is three minutes' walk from West Croydon Station, London, Brighton, and South Coast Railway; twenty minutes' from London.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application. Mr. WEBB, Calcot, Reading.

LAUREL S.
COMMON LAUREL, 2 to 3 feet, 16s. per 100, £7 per 1000; 3 to 4 feet, 25s. per 100, £10 per 1000.
COLCHIC LAUREL, 3 to 4 feet, 30s. per 100; 4 to 5 feet, 42s. per 100.
PORTUGAL LAUREL, 1½ to 2 feet, 34s. per 100.
Good, bushy, well-grown plants.
RICHARD SMITH, Nurseryman, Worcester.

Eltham Nursery, Kent, S.E.

One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.

THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c. Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

To the Seed Trade.

CENTAUREA RAGUSINA,
C. CANDIDISSIMA, Hort.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to offer good new Seed of this valuable bedding plant at prices considerably lower than usual. Price per 1000 or per ounce on application.

W. T.'s LIST of NOVELTIES for the present season is now ready, and may be had free, by the Trade only, on application.

NEW CATALOGUES for 1874.

A Descriptive CATALOGUE of ROSES.
A Descriptive CATALOGUE of FRUITS.
A Descriptive CATALOGUE of BULBS.
A General CATALOGUE of GENERAL NURSERY STOCK. Address
WM. WOOD AND SON, The Nurseries, Maresfield, near Uckfield, Sussex.

Bouvardias—Vreelandii, Jasminiflora, &c.

MESSRS. JOHN STANDISH AND CO.'S Stock of the above beautiful Winter-flowering Plant is exceptionally fine this season. 15s. to 18s. per dozen, fine plants.

They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24s. to 36s. per dozen.
Royal Nurseries, Ascot, Berks.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum).—SEEDS of the Blue Gum, and other Tasmanian and Australian Forest Trees and Shrubs, can be obtained of

C. F. CRESWELL, Wholesale and Retail Seed Merchant, Hobart Town, Tasmania; or at his Branch Establishments, 478, George Street, Sydney, New South Wales; and 37, Swanton Street, Melbourne, Victoria.

Price LISTS sent gratis to any part of the World on application.

LAURUSTINUS, 2 to 3 feet, 6s.; 3 to 4 feet, 9s. per dozen, fine, in bloom, planted last Spring.
LAURELS, 2 to 3 feet, 12s. 6d.; 4 to 5 feet, 25s. per 100.
LARCH, 2 to 3 feet, 30s.; 3 to 4 feet, 40s. per 1000.
PINUS INSIGNIS, 3 to 4 feet, 9s. per dozen.
" AUSTRIACA, 3 to 4 feet, 25s. per 100.
" DEODARA, 2½ to 3 feet, 18s. per dozen.
ARAUCARIA IMBRICATA, 1½ to 2 feet, 18s. per dozen.
DAVISON AND WHITTEM, Hereford.

New Rhododendrons.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to announce that they are now sending out the undermentioned Hardy RHODODENDRONS, price 21s. each—the usual Discount to the Trade:—

MRS. RUSSELL STURGIS.
MRS. JOHN KELK.
HELEN WATERER.
JOHN WALTER.
JAMES MASON.
FREDERICK WATERER.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.

Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

LAURELS—100,000, 2 feet to 10 feet, bushy and well rooted. ROSES, Standard and Dwarf, 200,000. With a General Stock of FRUIT TREES. Fine Specimen EVERGREENS, &c., all sizes.
CATALOGUE on application.
H. LANE AND SON,
The Nurseries, Great Berkhampstead, Herts.

Bloom.—Bloom.—Bloom.

RHODODENDRONS.
CATALOGUE on application.
H. LANE AND SON,
The Nurseries, Great Berkhampstead, Herts.

FOR SALE.—10,000 strong, true, 4-yr. old BLACK CURRANT TREES, 6s. per 100; 6000 strong Raby Castle RED CURRANT TREES, 5s. per 100; and 20,000 strong Fastolf RASPBERRY CANES, warranted true, 30s. per 1000. Apply to
W. SELBY, Jun., Oldbury, Ightham, Sevenoaks, Kent.

Catalogues! Catalogues!!

EWING AND CO.'S PRICED, DESCRIPTIVE, and ILLUSTRATED CATALOGUES are now ready. Rose Catalogue, and Fruit Tree and General Nursery Catalogue—both are forwarded gratis and post-free to applicants.

New Apple—Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now sending out strong maiden plants of this splendid novelty, which obtained a First-class Certificate from the Royal Horticultural Society, November 12, 1873. Circulars, with testimonials and full description, will be forwarded, gratis and post free, to applicants. Price 7s. 6d. each, or three for 20s. The usual Discount to the Trade.

J. SCOTT'S TREE and SHRUB CATALOGUE is replete with information about Trees, &c. It enumerates the names and gives descriptive notes of one of the best and well-grown Collections in the West of England. Parties intending to Plant should send for a copy, supplied gratis, as are also the SEED and BULB CATALOGUES; and SCOTT'S ORCHARDIST, at 5s. 6d., free by post.
The Nurseries, Merriott, Somerset.

J. SCOTT'S FRUIT TREES cover many Acres, and form the most complete Collection in the World, consisting of 2200 sorts of Pears, 1400 sorts of Apples, and other kinds in proportion, amounting in the whole to over 5000 sorts. CATALOGUES, gratis, sent to all applications; or SCOTT'S ORCHARDIST, post free, for 5s. 6d., the most complete work upon Fruit Trees in the English Language.
Merriott Nurseries, Somerset.

Twelve Splendid Heaths for One Guinea.

JOHN H. LEY can now supply above, in fine bushy plants, full of flower-buds, for winter (and immediate) decoration. Package gratis for cash, and delivered free to London.
N.B.—CATALOGUE free on application.
Royal Nursery, London Road, Croydon.

EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 6 to 7 feet, 60s. per 100.
SIBERIAN ARBOR-VITÆ, 5 to 6 feet, 100s. per 100.
CHINESE JUNIPER, 5 to 6 feet, 150s. per 100.
COLCHIC LAUREL, 6 to 7 feet, 100s. per 100.
ENGLISH YEW, 3 to 3½ feet, 120s. per 100.
THUJA LOBBII, 4 to 5 feet, 90s. per 100.
RICHARD SMITH, Nurseryman, Worcester.

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS and CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.
Wandsworth Common Nursery, Surrey, S.W.
The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

Bearing Mulberry Trees.

WOOD AND SONS, 172, Old Kent Road, S.E., beg to inform Gentlemen and the Trade that they have a fine lot of the above, from 4 to 5 feet through the heads to any smaller sizes. Can offer the same low, for cash. A few Shrubby Dwarfs, for potting.

Pelargoniums.

D. S. THOMSON begs to offer strong healthy plants of Show, Spotted, and Fancy PELARGONIUMS, in 60 pots, distinct varieties, at 4s per dozen.
A fine stock of WINTER BLOOMING PLANTS, comprising Ericas, Camellias, Azaleas, Citisus racemosus, Epiphyllums, Bouvardias, Poinsettias, Cinerarias, Cyclamen, single and double Primulas, Solanums (well set with berries), &c.
A large stock of CROTONS, beautifully coloured.
The Nurseries, Wimbledon, S.W.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

The Planting Season.

WOOD AND CO., in consequence of having to clear a portion of their Land this season, are prepared to offer, at very reduced prices, a part of their extensive NURSERY STOCK, consisting of some thousands of Fruit and Forest Trees, Conifers, Laurels (Portugal do., handsome specimens), Evergreen Shrubs and Roses; all which are very healthy and in fine condition for removal. Price and all particulars on application.
BARBOURNE NURSERIES, WORCESTER.

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, **Chester.**

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

THE FINEST BROCCOLI IN CULTIVATION, COOLING'S MATCHLESS.

GEORGE COOLING

Begs again to offer Seed of the above now well known Broccoli. It has taken its rank as one of the finest self-protecting varieties grown, coming into use immediately after Snow's Winter White, with immense pure white heads of a pyramid shape, very close, and of a delicious flavour. It was awarded a First-class Certificate by the Royal Horticultural Society when first exhibited, and has upon several occasions since been shown and Specially Commended, and again obtained the First Prize in a strong competition at South Kensington last sping.

Price 1s. 6d. per packet.

Price to the Trade per Hundred Packets or per Pound on application.

GEORGE COOLING, NURSERYMAN AND SEEDSMAN, BATH.

THE LAWSON NURSERIES,
EDINBURGH.

The Extensive Stock of
Seedling and Transplanted Forest Trees, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, &c.,
Is this Season in Splendid Health, and will be Sold at Moderate Prices.

Catalogues on Application, and Special Offers will be made for Large Contracts.

THE LAWSON SEED AND NURSERY COMPANY, LIMITED.
EDINBURGH AND LONDON.
LONDON ADDRESS: 106, SOUTHWARK STREET, S.E.

TO THE TRADE.

KING OF THE BROCCOLIS.

Electrotypes of this block, 3s. 6d. each.

Price to the Trade, on application.

1s. 6d. per Packet.

This magnificent variety comes in for cutting from the beginning of May to the first week in June, and is undoubtedly the finest late Broccoli in cultivation. It is of a fine dwarf habit, and being well protected is exceedingly hardy. Its heads are remarkably fine, close, and white, and of enormous size, and cannot fail to prove a great acquisition to the kitchen garden.

Messrs. HURST & SON are pleased to announce to the Trade that the entire disposal by wholesale of this fine Broccoli has been placed in their hands by Messrs. Daniels, Brothers, Norwich, but regret that, in consequence of their limited supply, they are only able to offer for the coming season, in sealed packets, retail, 1s. 6d. each. Early orders solicited. A List of those firms from whom "King of the Broccolis" can be obtained will be published shortly.

HURST & SON,
SEED MERCHANTS, 6, LEADENHALL STREET, LONDON, E.C.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong Plants of which are now ready for sending out. List of Varieties and Prices, together with Catalogue of Dutch Bulbs, on application. Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains 6 pair of choice Show Carnations, 6 pair of choice Show Picotees, 12 pair of Show Pinks, and 12 choice mixed Carnations and Picotees for borders. Carriage and package free on receipt of Post-office Order. Half the above quantities 11*s.*

Address, ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

VINES, VINES, VINES—EPIPHYLLUMS, PERESKIA STOCKS.

VINES.—Fruiting and Planting Canes, strong, well ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Buckland Sweetwater, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2*s.* 6*d.* to 5*s.* each; a few extra strong canes, 6*s.* 6*d.*

EPIPHYLLUMS.—Good Standards, with nice heads, in twelve best sorts, 9*s.* and 12*s.* per dozen.

PERESKIA STOCKS, out of pots, 15*s.* per 100.

CINERARIA HYBRIDA, fl.-pl., 6*s.* per dozen.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

CAMELLIAS—CAMELLIAS.—Fifty large specimen plants for Sale, from 3 to 9 feet high, well set with bloom-buds, including five alba pleno, and five imbricata, in pairs to match. CATALOGUE, containing names and size of plants, on application. A fine healthy stock of smaller plants, 36*s.*, 42*s.*, to 63*s.* per dozen.

AZALEAS, ERICAS, STOVE and GREENHOUSE PLANTS, PALMS, FERNS, &c. Large Specimen and Half-specimen, in choice varieties. Names and size of plants on application.

CINERARIAS.—A large stock, including Standish's fine varieties, and the best of former years, 6*s.* to 12*s.* per dozen.

ROSES—all the leading varieties.

HENRY WALTON, Edgend Nurseries, Brierfield, near Burnley, Lancashire.

FOR AVENUES and ORNAMENTAL PLANTING.

ABIES DOUGLASII, 10 to 12 feet, £3 per dozen.

CEDAR, Mount Atlas, 10 to 12 feet, £8 8*s.* per dozen.

CHINESE JUNIPER, 5 to 6 feet, 30*s.* per dozen, £10 per 100; 6 to 7 feet, 30*s.* per dozen, £12 10*s.* per 100; 7 to 8 feet, 42*s.* per dozen, £15 per 100.

PICEA NORDMANNIANA, 3 to 4 feet, 42*s.* per dozen, £12 10*s.* per 100; 4 to 5 feet, 60*s.* per dozen, £20 per 100.

PICEA PINSAPO, 6 to 7 feet, £6 6*s.* per dozen; 7 to 8 feet, £8 8*s.* per dozen.

THUJA LOBBII, 12 to 15 feet, £4 4*s.* per dozen.

WELLINGTONIA GIGANTEA, 5 to 6 feet, £5 per dozen.

All well grown and recently transplanted. For full descriptions see LIST of the EVERGREEN FIR TRIBE.

RICHARD SMITH, Nurseryman, Worcester.

PLANTING SEASON.

LARCH, SCOTCH FIR, ENGLISH OAK, and all other Forest Trees.

QUICK, and all other Hedge Plants.

COVERT PLANTS in great variety.

FRUIT TREES, including all the best and most esteemed varieties—quarter of a million trees.

ROSES, Standards, Dwarfs, the newest and best varieties—100,000 to select from.

VINES, all the leading varieties in 2000 well ripened canes for fruiting in pots and for planting out.

EVERGREENS in great variety, including large quantities of all the choicest Hollies, &c.

CONIFERS, including Picea Nordmanniana, &c.,

ORNAMENTAL TREES and Plants of all sorts.

*** The whole in very great quantity and stout vigorous condition, with fine roots, for safe removal.

Priced LIST and all particulars on application.

JAMES DICKSON & SONS, Newton Nurseries, Chester.

☞ The "Newton" Nurseries are within eight minutes' walk, by the new road, from the Chester Railway Station.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.

PLANES, OCCIDENTAL, 12 to 16 feet.

HORSE CHESTNUTS, 10 to 12 feet.

SCARLET HORSE CHESTNUTS, 10 to 12 feet.

NORWAY MAPLES, 10 to 16 feet.

All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.

POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

To Gentlemen, Planters, and Others, Purchasers of ROSES, FRUIT TREES, FOREST TREES, SHRUBS, and ORNAMENTAL TREES.

MESSRS. W. VIRGO AND SON, of the Wonersh Nurseries, near Guildford, can now supply the public with the undermentioned STOCK, in either large or small quantities, viz., 10,000 clean-grown Standard, Half Standard, and Dwarf Roses, 300,000 2-yr. and 3-yr. transplanted Quicks, 50,000 Hazel, 2 to 3 feet, transplanted; 50,000 Alder, 2 to 3 feet, transplanted; 50,000 Birch, 2 to 3 feet, transplanted; 100,000 Spanish Chestnut, 2 to 3 feet, transplanted; 100,000 Ash, 2 to 3 feet, transplanted; 50,000 Scotch Fir, 2 to 3 feet, transplanted; Elm and Beech, 3 to 4 feet, transplanted; Ornamental Trees, 6 to 10 feet; Horse Chestnut, Spanish ditto, Elm, Sycamore, Norway Maple, 1000 Paul's new Scarlet Thorns, 8 feet, straight stems; 10,000 Laurels, 2 to 6 feet; Poplars, various; Limes, Laburnums, Turkey Oak, Hornbeam, Spruce Fir, Weymouth Pine, austriaca ditto, 2 feet to 5 feet; a large stock of fine Standard Apples, Pyramids and Dwarfs; Pears and Plums, 10,000 Red, Black, and White Currants; 5000 Gooseberries, various; a large collection of Deciduous and Flowering Shrubs, Coniferæ, Green Hollies and Yews, together with a great variety of other sorts too numerous to mention.

Full particulars in CATALOGUES, to be had on application.

LANDSCAPE GARDENING.—Parks and Pleasure Grounds laid out, Croquet Lawns and Cricket Grounds made, Ferneries built. Personal superintendence given to all works. Plans designed, and Estimates for Contracts given.

G. B. SIMPSON, Landscape Gardener, Nightingale Lane, Clapham, S.E.

PLANTING and LAYING-OUT NEW GROUNDS from Plans, and the Requirements of a New Place and Alterations of others.

R. JONES, 96, Palmerston Road, Kilburn Rise, N.W.

THE LONDON MANURE COMPANY (ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—

WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

Autumn Sowing.

ODAMS' MANURES, Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 100,000 Acres of Land.

Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
IRISH BRANCH—40, Westmoreland Street, Dublin.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under 12, £2 15*s.*

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

MILDEW

May be entirely prevented as well as cured by

EWING'S INFALLIBLE COMPOSITION. Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions for use.

Protection from Frost.

TRELOAR AND SONS' COCOA-NUT PALM-LEAF GARDEN MATS will keep out many degrees of frost. Price 30*s.* per dozen.

TRELOAR AND SONS, 69, Ludgate Hill, London, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing. Second sized Archangel, 100*s.*; Petersburg, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton, and the late Professor Lindley, &c., &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.

PROTECTION FROM COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.

"FRIGI DOMO" CANVAS.

Two yards wide	1*s.* 10*d.* per yard run.
Three yards wide	3*s.* per yard.
Four yards wide	3*s.* 10*d.* per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS's Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,

THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

The Royal Pottery, Weston-super-Mare.

UNDER ROYAL PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.

JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

CANTHARIKOPHO.

COCKROACH AND BEETLE POISON.

Destroys Rats and Mice.

Sold everywhere in Tin Boxes. By post, 1*s.* 3*d.* and 1*s.* 10*d.* each.

TRADE MARK.

Entered at Stationers' Hall.

F. STEVENSON'S ABYSSINIAN MIXTURE, Warranted to Destroy Mealy Bug, and all Insects infesting Plants. Unequalled as a Winter Dressing for Vines and Fruit Trees.

Sold by all Nurserymen and Seed Merchants, in Bottles, 1*s.* 6*d.*, 3*s.*, 4*s.* 6*d.* & 5*s.* 6*d.* each.

Inventor and Sole Manufacturer,
F. STEVENSON,
STAMFORD ST., ALTRINCHAM,
CHESHIRE.
(Late of Lark Hill, Timperley.)

PRETTY WINTER and SPRING FLOWERS

OF EASY CULTURE.

Carter's

COLLECTIONS OF BULBS

Sent on receipt of Post Office Order.

No. 14—For the Open Ground, adapted for Ordinary Good Garden Soil—Price 21s., contains:—

12 Hyacinths, in three colours.
12 Narcissus, double white.
12 ,, Poeticus, or Pheasant-eye.
25 Double Daffodils.
12 Tulips, extra fine mixed, double.
12 ,, ,, ,, single.
12 ,, finest mixed, late.
12 ,, Duc Van Thol.
6 Campernel Jonquils.
6 Polyanthus Narcissus, fine mixed.
12 Star of Bethlehem.
6 Triteleia uniflora.
6 Dog's-tooth Violets.
25 Crocus, blue.
50 ,, striped.
50 ,, large yellow.
25 Crocus, white.
24 Anemones, extra fine mixed.
12 Iris, extra choice mixed English.
12 ,, extra fine mixed Spanish.
3 Lilium candidum.
3 ,, tigrinum.
24 Ranunculus, extra fine mixed.
50 Snowdrops. 24 Winter Aconites.

Packing and Carriage Free.

Other Collections, price 10*s.* 6*d.*, 42*s.*, 63*s.*, and 84*s.* 20*s.* value Carriage Free.

From F. WALTON, Esq., *St Cuthbert's.*

"The Collection of Bulbs is truly a wonderful one for the money.

CARTER'S, THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

SEVEN INTERNATIONAL MEDALS AWARDED TO

JAMES GIBBS AND COMPANY,

SOLE MANUFACTURERS OF THE

PATENT AMMONIA-FIXED GUANO,

The Cheapest and Best Manure in use. Consumers are warned that none is genuine unless the Bags bear the TRADE MARK, and are secured with a Leaden Seal.

ALSO BONE AND SPECIAL MANURES,

OF THE BEST QUALITY, AND IN THE HIGHEST CONDITION.

PARTICULARS OF

JAMES GIBBS AND COMPANY,

Works—Victoria Docks, London, E., and Cattedown, Plymouth. Offices—16, Mark Lane, London, E.C.

WAITE, BURNELL, HUGGINS & CO.'S SPECIALITIES.

LEAMINGTON BROCCOLI.

The only Broccoli awarded a First-class Certificate by the Royal Horticultural Society for four years.

We beg to announce that we have arranged with Mr. F. PERKINS for the whole supply of his LEAMINGTON BROCCOLI, saved from PICKED HEADS GROWN IN HIS OWN GROUNDS, which we offer in Sealed Packets only, bearing the Trade Mark.

Owing to the great demand and shyness in seeding our supply this season is very limited.

Sold only in Sealed Packets, 2s. 6d. each.

CANTELLO'S PRIZE ONION.

The shape of the Old Reading, but double the size, very handsome, and regular in form and colour; distinct from, and superior to all we have proved of this type. Has invariably taken a first prize wherever it has been exhibited for competition.

Packets, 1s. each.

The best form of the most useful of Onions for Spring Sowing.

WESTBURY PRIZE BEAN.

This is considered by all who have grown it to be the best type of Broad Windsor Bean. Of medium height and earliness, the heaviest cropper known, and distinct in the round shape, close eye, and great thickness of the Bean. It is a beautiful pale green when fit for use (which shade it retains in the dry seed), and is very tender eating. Forty-four pods have been grown on one stem; average height, 2½ feet to 3 feet. Should have plenty of room to bring them to perfection.

Crop nearly a failure, can only be sent out this season, in pints and half-pints, for trial.

Pints, 2s. 6d.; Half-Pints, 1s. 6d.

NEW QUEEN ONION.

Remarkable for its keeping qualities and the rapidity of its growth.

We beg to inform the Trade that we have procured, in conjunction with one other firm, the entire produce of this season's harvest.

Packets, 1s. 6d.

BURNELL'S ALEXANDRA WHITE COS LETTUCE.

This splendid White Cos still maintains its reputation as being the largest, crispest, and finest flavoured Lettuce grown. It does not run to seed before very late in the season, and, as it turns-in of itself, produces a very compact head without the trouble of tying.

1s. per Packet.

CAMPANULA MEDIUM CALYCANTHEMA and CAMPANULA MEDIUM CALYCANTHEMA ALBA.

We have again the pleasure to offer Seed of these splendid Novelties. The blossoms individually are much larger than the old Canterbury Bell, while the calyx forms an elegant cup round the base of the bell, of the same beautiful colour as the corolla.

Per Packet, 1s. 6d.

SPECIAL PRICE TO THE TRADE ON APPLICATION.

WAITE, BURNELL, HUGGINS & CO.,

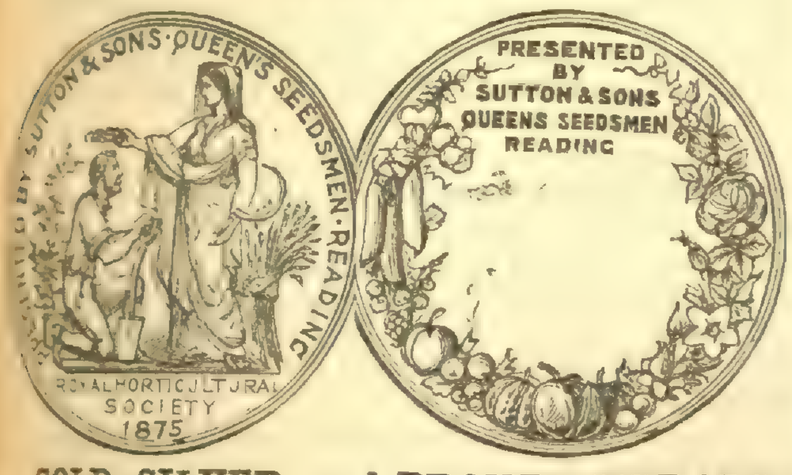
SEED MERCHANTS, 79, SOUTHWARK STREET, LONDON, S.E.

IMPORTANT ANNOUNCEMENT.

SUTTON & SONS

Will have the pleasure of offering through the medium of the Royal Horticultural Society during the ensuing season,

SIXTEEN



GOLD, SILVER, and BRONZE MEDALS,

AND VALUABLE MONEY PRIZES,

FOR THE BEST

Collections of Vegetables, Flowers,

FRUITS, AND POTATOS,

As see the following particulars :—

Date of Meeting, 1875.

June 2.—For the best six dishes of PEAS (½ peck of each to comprise a dish), to include Suttons' Emerald Gem, Suttons' Ringleader, and Suttons' New Early Dwarf Wrinkled Pea, Bijou	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
For the best four sorts of MELONS and four sorts of CUCUMBERS, one brace of each, to include Suttons' New Scarlet-flesh Hero of Bath, Read's Hybrid Scarlet-flesh, and Suttons' Royal Horticultural Prize Melons, and Suttons' Duke of Connaught and Marquis of Lorne Cucumbers ..	Gold	1st Prize, Medal and	£3	3	0
	Silver	2d Prize, Medal and	£2	2	0
	Bronze	3d Prize, Medal and	£1	1	0
July 7.—For the best six dishes of PEAS (½ peck of each to comprise a dish), to include Suttons' Duchess of Edinburgh, Suttons' Giant Emerald Marrow, Suttons' Duke of Edinburgh, and Maclean's Best of All	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
Sept. 1.—For the best collection of twenty-four ASTERS, twelve varieties, consisting of the varieties offered in Suttons' *Spring Catalogue and Amateur's Guide for* 1875	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
Nov. 10.—For the best twelve "Suttons' Improved" Reading ONIONS	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
For the best collection of POTATOS, twelve dishes, eighteen tubers to comprise a dish, distinct kinds, half Kidney and half Round, to include Suttons' Hundredfold Fluke and Suttons' Red-skin Flourball	Gold	1st Prize, Medal and	£3	3	0
	Silver	2d Prize, Medal and	£2	2	0
	Bronze	3d Prize, Medal and	£1	1	0
For the best six CAULIFLOWERS (Suttons' King) ..	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0

CONDITIONS OF COMPETITION.

These Prizes are confined to Noblemen's or Gentlemen's Gardeners and Gentlemen Amateurs, and (excepting Fruits) must be grown without forcing and in the open ground.

Full particulars of several Novelties will appear in

SUTTONS' SPRING CATALOGUE

And AMATEUR'S GUIDE for 1875,

Gratis to any Member of the Royal Horticultural Society, or intending competitors for the above prizes.

Sutton & Sons

THE QUEEN'S SEEDSMEN, READING.

SATURDAY, NOVEMBER 21, 1874.

BOUND FOR BELGIUM.

THE importance of Belgian horticulture, especially to commercial horticulturists, is too well known to need insisting upon here. Nothing can convey an idea of its reality and its extent except inspection, and that rather a minute one, which those who can will be well repaid for making.

Belgium can be reached either directly from Dover and Ostend, or through the corner of France which lies between Calais and the frontier. Indifferent sailors, and those who prefer to see as little of the briny waves, and as much of the dry land in a foreign country, as possible, will probably choose the latter route, in which case they are advised to make a halt at Lille. The journey thither from Calais is only a pleasant trip, occupying about three hours by omnibus trains; not long enough to tire the tourist, but enough to give him a taste of French country air. The railway, keeping to the lowest level, runs at first through pasture lands and extensive tracts of reclaimed marsh, once an estuary of the sea, but now of great fertility. It takes you through a land flowing with milk, though probably with not much honey. At times it skirts the Belgian frontier, as at Bailleul, and still closer at Armentières (both manufacturing towns), and then flies off at a tangent, or rather the frontier flies off from it. Advancing, you behold (at the close of October) the Hop-poles stacked in the fields, and thatched with straw, to pass the winter unrotted by weather; fields ploughed and clear of weeds, save where sprouting Beans show what the summer crop has been; other fields of young Colza plants, coming up for next year's oil; pastures still rich and verdant, with their velvet carpets marked now and then by rows of tall Elms with clean-trimmed stems; multitudinous magpies pertly flitting about in search of vermin, now that chickens, ducklings, and game are grown too big to swallow; Haricot Beans (for consumption, dry) stacked in the open field—that is, tied in bunches round upright stakes, and exposed, without any covering or protection, to sun, wind, and rain; heaps of Beetroot, pulled and carted for sugar-making—an important industry hereabouts. Lucky abourers, that the autumn is so fine, instead of freezing your fingers or soaking your backs!

In the railway carriage (third class, for economy, and because unaccompanied by ladies, to whom bad tobacco and worse lucifers might be offensive) French has hitherto been spoken, but on nearing Lille, at stations with Flemish names (such as Strazeele and Steenwerck), country people get up who either speak Flemish, or who chatter French with such a quacking Flemish intonation as to make their talk resemble the conversation of a party of call-ducks, and reminding us unmistakably that we are shortly about to glide out of one country into another. Physical geography lends no aid in marking the respective limits of France and Belgium, but race and language decidedly do.

Populations have been compared to tides. Where one mass of water comes in contact with another, the one being yellow, the other blue, although each mass retains its own proper hue, at the edges there are always little eddies and whirlpools in which the contrasting tints are intermingled. So it is hereabouts, and for a while neither language is totally eclipsed by the other. At present we are in the penumbra between French and Flemish. Along the limitrophic line, you will find many persons who are at home in both; but also many, both in street and market, who speak only one language or the other. You cross no mountain range nor silvery strait to get out of France into Flanders proper, whether western or eastern, but that you have really got there is a fact forced upon your acknowledgment by finding yourself in the presence of people to whom your speech is unintelligible and who are equally unintelligible to you.

Lille is a busy and a wealthy town, which thinks a well-kept garden an allowable indulgence. It also widens its streets as much as it can, adorns its open spaces, and sets a good example to the Draper's Company. The good thereby done is seen in the persons who frequent those pleasant breathing places, swept, trimmed and garnished at the town's expense. It is not so much the troops of merry children—the nurses with their babes basking in the sun, the little boys and girls in blouses or in costume dresses with high-heeled boots—who manifest the benevolence of the institution; it is the convalescents, leaning on a friendly arm, who imbibe increasing health from the tempered breeze, rest on the backed and easy benches, and are thankful for the privilege; it is the aged who, nearing the end of their career, crawl down from their chambers to gaze on bright flowers and soft green foliage once more before they die. No one can guess the amount of unavoidable physical suffering which is softened and soothed by such gardens as those in Lille.

To reach them start from the Grande Place, which might advantageously be bigger, but which cannot easily be enlarged. Follow the handsome new street leading out of it, the Rue Nationale, which, previous to Sedan, was the Rue Napoléon—for the French indulge in the childish folly of changing the names of streets after every revolution or change of government, as if they could thereby annihilate the history of their country during the last hundred years. Some way down this street, and to the right, you find garden the first, called the Square de Jussieu, the great botanist's fame having survived the fall of dynasties. The word square (pronounced squaw) is naturalised in France, like coal-tar, coke, waggon, and several others of English birth, without being disguised under such perverted forms as have befallen biftik, boulingrin, bouledogue, redingote, and the like orthographical sufferers. This square comprises mainly grass, benches, and trees, with a flower-bed or two, and a specimen shrub or two, which suffice to attract a considerable concourse of loungers. Passing through the square (really a parallelogram) you reach what was until recently the Jardin de la Reine Hortense. The Chinese ennoble their great men's ancestors; the French depose the ancestors of their deposed sovereigns; so the Reine Hortense is obliterated, and her garden is made a continuation of the Jussieu Square, although separated from it by a public road. But in this shifting nomenclature there are strange inconsistencies. Lille possesses a Rue Royale, which appears to have weathered political storms without ever becoming either Nationale or Impèriale; and at least one other Rue Royale in France has enjoyed the same immunity.

Queen Hortense's Garden, skirted on one side by a canal, makes an attempt at being a botanic garden, in which passing pedestrians may, if they choose, at least learn the names of the plants which they see there. In so limited a space, and in a public thoroughfare, the instruction conveyed must necessarily be limited. There is a little of several things, but not much of anything—a few hardy Ferns, and a few of their varieties, such as Scolopendrium poly-

schides pygmæum, and the like; a few economical, medicinal, and typical plants—enough to indicate to the inquisitive stroller that more information is to be acquired in more favourably situated and more richly endowed establishments.

Onward in the same direction, passing newly-built houses of considerable pretensions, you arrive at a small green resting-place, with seats, shrubs, grass, and a central fountain—a respectably handsome *jet d'eau*, when it plays. Close to this is the entrance to the real garden of Lille, once the Jardin de l'Impératrice, now the Garden of Vauban, the celebrated military engineer. Here the town does all that wealth can do in the way of high keeping and the supply of plants. At the close of last October all the summer bedding plants were gone and their places already taken by spring flowers—Myosotis in varieties, Wallflowers, Pansies, and double Daisies (the latter very largely employed) some with golden-veined leaves. In respect to taste and design, not much fault is to be found, though some will cavil at Roses being pegged down to make a ribbon border; and the presiding artist seems fonder than ever of high-raised beds, like oval plum-puddings boiled in a mould. A few single specimens yet remained outdoors; for instance, a straight and shapely Eucalyptus globulus had not yet been moved into its winter quarters. By the way, are nurserymen justified in advertising this tree as "hardy," unless they state whether they mean hardy in Great Britain or hardy in Africa? In the centre of the garden is a covered orchestra for bands to play in, with the necessary accompaniment of squadrons and regiments of hireling chairs for grand occasions—for everyday promenaders and along the walks there is a sufficient supply of permanent seats. At the further end of the garden is the inevitable artificial grotto, brook, and stepping-stones, after the pattern of the cascade in the Bois de Boulogne, and decidedly improved in naturalness by exposure to the somewhat smoky atmosphere of Lille. Close by, but hidden by a screen of shrubs, is a propagating house—the demands on which must be as much as, if not more than, it can meet—standing in what looks very like a school of the art of training fruit trees.

But Lille has also what it calls its own Bois de Boulogne, reached by crossing a canal and a road which it skirts, being a long narrow strip of ground running between them and the Citadel. Its great inequalities of surface have enabled the landscape gardener to convert it into a pleasant and picturesque promenade; but a year or two ago it attained an unenviable celebrity, as the nightly haunt of a band of ruffians and extortioners whose deeds far exceeded what the most depraved romance writer would dare to relate. The body of one of their victims, found in the canal, led to the discovery of their existence. Those who were caught were brought to trial, and, to the public astonishment, the most guilty amongst them was condemned only to hard labour for life, the others to shorter terms of imprisonment. The Bois de Boulogne, thus purged, is a delightful walk by day—for no one can tell by how many unavenged ghosts it is haunted by night. An honest-looking umbrella-like Elm, with an Ivy-covered stem up to the spread of its branches, stood forward in the sunshine and seemed to protest, "We are not all of us guilty alike. You may safely rest beneath my shade, for nobody was strangled under me."

Lille possesses more inviting evening resorts in a grand theatre, where, during the winter months, grand operas are excellently performed (the Lille Conservatoire de Musique stands very high), without neglecting the spoken drama; and also a Théâtre de Vaudeville, where Offenbach's operettes are played. The Picture Gallery, or Museum, contains some valuable sketches and studies by the old Italian masters and others.

In the Place St. Martin a baker sells delicious gingerbread, which he warrants to be made with pure honey, and whose flavour persuades you that he tells the truth. A provision shop offers nicely grown Mushrooms, in the button or unexpanded state, at 60 centimes (or 6*d.*) the pound—a reminder that, in the immediate environs of Lille, Agaricus campestris is cultivated, for exportation as well as for home consumption, in subterranean labyrinthine quarries, which are worth a visit, if prudently made and with permission granted. Their actual extent is prudently unknown; it is certainly vast, and, what is more, dangerous, as the facts, which shall hereafter be related, prove.

(To be continued.)

New Garden Plants.

DRIMIOPSIS KIRKII, *Baker.**

Dr. Kirk sent in 1871 to the Kew collection bulbs from Zanzibar of two species of this curious and little known genus. These have now flowered, and one of them turns out to be D. botryoides, Baker, of which the locality was before unknown, and the other is the new species which I now describe. From D. maculata—the plant on which Lindley founded the genus, and which still keeps its stand in cultivation, figured in the *Refugium*, tab. 191—the present plant differs by its larger flowers, arranged, not in a dense spike, but in a lax raceme, and by its leaves, not narrowed suddenly into a distinct petiole, but gradually to the base without any petiole.

Bulb globose, 1½ inch thick, with whitish truncate tunics. Leaves 6—8 cotemporary with the flowers, 9—12 inches long, ligulate acute, 1—1½ inch broad above the middle, thick and fleshy in texture, channelled down the face, especially in the lower half, pale green, without spots beneath, pale green above, with copious large irregular darker blotches, just as in D. maculata. Scape terete, 1—1½ foot long. Raceme 3 inches long, lax, with twenty perfect flowers, many of the uppermost small and abortive, as is common in Muscari, Lachenalia, &c. Pedicels spreading, 1—1½ lin. long. Perianth ¼ inch long, white, the divisions oblong, the outer spreading, the inner permanently connivent as in Albuca, but not so distinctly hooded at the apex. Filaments lanceolate, rather shorter than the inner segments. Anthers minute oblong. Style a line long. Stigma capitate. *J. G. Baker.*

DENDROBIUM ASPHALE, *n. sp.*†

A Dendrobe in the way of D. microglaphys, but with a very different lip. The stems and the leaves are both strong and shining and broad. The small racemes of Eria-like whitish flowers, however, are very modest. The plant has the peculiarity of several Stachyobia, viz., of having very developed bracts, as in some Erias. It also flowers from the leaf-bearing stems, which is rather uncommon among Dendrobia. I have carefully looked to the anthers, which prove 4-celled, not 8-celled, as in any Eria. The pollinia were not kept, and the flowers were rather decayed. Thus I am not able to speak with certainty about the colour of flowers, which may have been whitish. Fresh flowers would therefore be very welcome. My specimen came from T. Neill Fraser, Esq., Canonmill Lodge, Edinburgh. *H. G. Rchb. f.*

* Bulbo magno globoso; foliis 6—8 synanthiis lingulatis pedalibus ad basin sensim angustatis carnoso-herbaceis facie maculatis; scapo pedali-sesquipedali; racemo laxo 20-floro pedicellis patulis; perianthio albido, 3 lin. longo; segmentis exterioribus erecto-patulis, interioribus diutine conniventibus, genitalibus inclusis.

† (Stachyobium.) Caule valido bene sulcato compresso; foliis cuneato-oblongis acuminatis validis; racemis abbreviatis plurifloris; bracteis oblongis ovaria pedicellata vix æquantibus; sepalis ligulatis acutis; tepalis rhombeis; labello ab ungue hastato triangulo acuto; columna apice tridentata; basi antice excavata, calcari spurio cylindrato obtuso, ovarium pedicellatum æquante.

CULINARY NOTES.

SERIOUSLY OCCUPIED.—"Good! This is what I expected of you. Punctuality, which is true politeness, arrives in Mrs. Munster's fly. Dinner is fixed for seven precisely, and here you are at a quarter to. And the health? And the appetite?"

"Decidedly better. We have taken a nice drive along the cliff. With that and thoughts of your promised bill of fare, I may say that I am absolutely hungry. It will be so different to what we have had while staying here."

"But suppose we give you nothing of the kind? The *cara sposa*, who will make her appearance shortly, but who is now exercising the influence of the mistress' eye, says that invalids should never know beforehand what they are to have for dinner, and persuaded me to change the whole *menu*. Our yesterday's projects are null and void. The combinations then agreed to have come to nothing."

"It is almost a pity, because I had talked so much about them to Charlotte; but we shall find something else, doubtless, just as good."

"I hope so, with the advantage of being unexpected; which will not prevent Charlotte's investigating their history and preparation, if so inclined."

"Thank you much. I might tell you that I brought her to help to wait at table; but I well know that too many waiters only run in each other's way. So I will say at once that she will be glad to be allowed to stand behind my chair, in order to hear and see, and if it were possible to do something also."

"As we are dining in select committee, she can come and go and do whatever she pleases. She can catch the words of wisdom that drop from our lips, but it is rather late to see much, and still more so to do anything. Stay. No! Come to the sideboard, Charlotte. Everything is ready there for my *mayonnaise*, except the making, and you shall assist in accomplishing that."

"A *mayonnaise!* Very nice indeed. But *mayonnaise* of what?"

"That, dear madam, is my secret, and ought to remain so, until the moment of helping yourself to *mayonnaise*. Here, Charlotte, first peel me those Olives, keeping the outside all in one piece and entire."

"Please, sir, when I have thrown away the peelings, what am I to do with the insides?"

"Innocent creature! Take care of the outsides and do whatever you please with the kernels. Next cut those fillets of anchovy preserved in oil into long strips as narrow and thin as you possibly can. Next, and principally, you see this basin containing a quantity of salad oil—stir into it, with this box-wood fork held in your right hand, some Tarragon vinegar let fall drop by drop from this small bottle held in your left. Add a little pepper and salt, and stir, stir, stir away patiently, until you produce a mixture of the consistency and appearance of good boiled custard—in short, a little thicker than cream. If you liked, you might put the pepper, salt, and vinegar into the basin first, and then gradually stir in the Olive oil, drop by drop. Every cook follows her own peculiar notions, but the secret is coolness, perseverance, and time. You cannot make it delicate and good in less than a quarter of an hour. The mechanical combination should be so complete that no one would guess that oil had entered into its composition."

"I thought raw egg-yelk also was used for *mayonnaise*," timidly interposes Mrs. Munster.

"It may, but authorities differ in that respect. Lady Harriett St. Clair makes *mayonnaise* with and without egg-yelks; when with them, she curiously directs 'choose two very white yelks of eggs.' Miss Acton, Cre-Fydd, Mrs. Beeton, Baron Brisse (who sometimes calls it *sauce bayonnaise*, as if he had a cold in his head), the *Breakfast Book*, Murray's *Mrs. Rundell*, and Meg Dod (her own recipe), all put raw egg-yelk into *mayonnaise;* but copying from one another may have something to do with this. Soyer, Meg Dod (copying Soyer), Ude the Magnificent, Alexandre Dumas the Elder, and your humble servant, omit the egg-yelk. Some add a small pinch of very finely-chopped Parsley, or Tarragon, or Chervil, or Pimpernel, but we will not make use of it to-day. I see, Charlotte, that you are taking pains. Continue steadily, and your sauce will turn out a success."

"Glad to see you, Mrs. Munster," says *cara sposa*, entering the room with suppressed annoyance. "What is to be done, my dear? Everything is ready and perfect, except that the people who supply Mrs. Munster haven't sent the crust for the *vol-au-vent*."

"They are overwhelmed with orders to-day. Have the *vol-au-vent* served on a dish, without the crust, surrounded with Euclid's problems cut in toasted bread."

"Very well; and if the pie-crust comes too late, I shall just send it back again."

"Do nothing of the kind, *cara sposa*. Make use of it as we did the other day. And now that we have weathered that ugly rock, tell them to tell us *Madam eest servie*."

"A little soup, Mrs. Munster? *Pot-au-feu*, made with Henry IV.'s historical hen—a fowl not young enough to roast and loin of beef, Carrots, Celery, Leeks, the regulation bunch of sweet herbs, baked Pea-shell and burnt Onion browning. It is sure to agree with you, being bright, clear, light golden-brown, and perfectly limpid, very different to the stock soup you get at Singlesauce's."

"Indeed it is. But are you not a little extravagant to make soup with loin of beef!"

"Not, I think, as we manage it. You shall have an explanation in a verbal foot-note to the dish after next. The beef, being taken up while still underdone, can be served another time as beef *à la mode*, thus—lard or prick it all over with unsmoked bacon,

and dust it with finely minced Parsley and Chives, salt, ground Pepper, and other spices. Put into a stewpan a glass of white wine, a little broth, bacon cut into dice, Shallots minced fine, small Onions whole, and thin slices of Carrot. Upon these ingredients lay your beef, cover the stewpan close, set it over a slow fire, and let it simmer till the vegetables are tender. Then serve your beef with all its accompaniments and seasoning?"

"What becomes of the hen?"

"She will appear to-morrow, on a bed of Rice, as *Poulet au riz*, or masked by Parsley and butter, or with the honours of oyster sauce. After the soup, Mrs. Munster, you are treated to broken-down *vol-au-vent*, propped up by buttresses, or defended by bastions of toasted bread. You see how placidly my wife puts up with your respected purveyor's shortcomings. She will, perhaps, have her revenge by-and-by."

"The *vol-au-vent* crust has just arrived, sir," whispers Charlotte hurriedly into our ear.

"Too late for this train, Charlotte; must wait for the next. Orders have been given about it in the kitchen. We made the *ragout* ourselves, Mrs. Munster, and not your purveyor, otherwise you would know beforehand what taste it would have. This consists of sweetbread, cut into dice, floured, seasoned with pepper, salt, and a suspicion of Nutmeg, stewed with a little butter and broth, reinforced with Mushrooms when nearly done, and with oysters just in time to warm them through, and finally thickened with a couple of raw egg-yelks. There; it does not make so bad an appearance, hemmed in by its sharp-cut battlements. If Uncle Toby and Corporal Trim were here, to give us a lecture on the siege of Namur, they might call this a glacis and that a demi-lune. The crust being absent on other business, each person must be helped to a bit of toast, to be eaten or left. Which will you take, an equilateral, isosceles, or scalene triangle? Here is the asses' bridge, there the square of the hypothenuse."

"The two last are too hard for me. And, let me say at once, the *vol-au-vent* without *vol*, or geometry, turns out very enjoyable."

"Thank you for saying so; which is better than despairing and wringing our hands, in consequence of Singlesauce's negligence, which he perhaps couldn't help. And now, Charlotte, change of scenery, if you please. Fly away *ragout* of sweetbread and oyster; appear beefsteaks and Kidney or French Beans, so called, although I fancy they are Indian. The number of our party is not difficult to count, we being three, with Charlotte admitted by special ticket to the ladies' gallery; and here, my dear madam, you see three little steaks, one for each of us, cautiously yet expeditiously broiled over charcoal, genuine *filet de bœuf*, cut from the under or inner part of the loin whose outer portion went into the *pot-au-feu*. Taste and try, before they get chilled."

"The result, I confess, justifies the sacrifice. The French Beans, too, are excellent, delicious—the best I ever ate, not stringy nor husky, but tender and melting."

"Because they are French French Beans, and not English French Beans. They furnish the text for a longer discourse than I intend to inflict on you, but you must patiently bear a little bit of it. The French are very particular in their selection of varieties, under the names of Haricots Verts, Princesses, Flageolets, &c., which varieties are numerous, and good to the last, old as well as young. In these favourite sorts the strings of the pod and its inner lining-skin are either absent or reduced to almost nothing—nothing of the kind is perceptible in these—so that no knife is needed for trimming the pods. They are prepared by simply breaking them in two or three with the fingers, when the thread, if any, will come away of itself. Another great merit of these French varieties is, that they are perfectly suitable for the kitchen at an advanced stage of maturity, as you may perceive in these of which we are partaking. The seeds, you observe, are approaching to ripeness, and are consequently mealy and nutritious, while the pod is at the same time more fully charged with sugar and mucilage."

"But we have also a great variety of French Beans in England. I have often admired their bright colours in the seedsmen's shops—black, white, purple, buff, and speckled in all sorts of combinations."

"They would make pretty necklaces for good little girls; but you must have experienced that, however tender and well flavoured the pods are while young, they are mostly uneatable when getting old, so much so as to have made me discard all English varieties of Kidney Bean from my garden. Perhaps English growers mainly turn their attention to the production of very early kinds, or of those best adapted for forcing, and perhaps for exhibition, caring more for those articles of luxury and skill than for the supply of Kidney Beans to fill the stomachs of the million. Cooks have often much to answer for, but I think that here gardeners, or rather seedsmen, incur some responsibility. Those which you are eating so approvingly now are called *Princesses à pied, sans filandre*, dwarf Kidney Beans, without strings. There are also *Princesses à rames*, or Runner Beans, without strings, besides sundry others, as the *Haricot de Soissons*, all to be obtained of any respectable seedsmen in Paris or the North of France, and, doubtless, elsewhere."

"I will get some for a trial, if spared, next spring."

"There is a distinct race of Kidney Bean we would have made you taste, only we did not like to distract the cook with too many dishes. I guess that it is not absolutely unknown to a few English gardeners. The Mont d'Or Butter Bean, mentioned in the *Gardeners' Chronicle* of August 29 last, belongs probably to this class, 'having proved to be a free bearer, with pods of excellent quality, perfectly free from stringiness, of fine flavour, which may be used when nearly full-sized, and which may also be cooked whole or otherwise, as desired.' Those are exactly the properties of our Haricot Beurre, or Butter Kidney Bean, which we have *à rames*, as runners, and *à pied*, dwarf—the former most productive, the latter more convenient for small kitchen gardens. Both cooked and uncooked they are of the colour of good butter, and I am sure you would pronounce them a first-class vegetable."

"Are they anything like Scarlet Runners in flavour?"

"Scarlet Runners! Oh, don't mention them in the same breath, nor Painted Ladies either—

'There's small choice with rotten Apples.'—*Shakspeare.*

I hold them to be the husks on which the Prodigal Son fed, in company with swine, and which led to his return to the paternal home."

"But some people like them."

"Because, poor things, they know no better. Charlotte, when Mrs. Munster has grown her stringless Princesses and her Haricots Beurre, you will see that, after the preparation of breaking them up with the finger and thumb, they are left in cold water for half an hour; then throw them into plenty of boiling soft water with a little salt in it, and boil them galloping, and with the saucepan-lid off, until tender, which can only be known by trying them from time to time. The length of time they take to cook is so variable, that all that can be said about it is, that for young and tender Kidney Beans it will not be less than twenty minutes. If your water is hard, you must make it soft by a pinch of carbonate of soda, that is, if you are

FIG. 129.—THE ENTRANCE GATEWAY, EASTWELL PARK, KENT (SEE P. 648.)

particular about the colour of your Kidney Beans; but do not forget that too much of the alkali gives them a flavour which strongly reminds one of washing day. When cooked, pour off all the water, and stir a bit of butter amongst them before dishing. Have you been listening, Charlotte, so as to profit by the lesson?

"And now, while we are tasting the next dish, there is something for you to do. On the side-board is a salad-bowl containing the hearts of Lettuces. Take the very hearts of those hearts, and let me have them, separated leaf by leaf, on a plate."

"Coming dishes cast their scent before," observes the guest. "Unless I am mistaken, there is something savoury on the other side of the dining-room door."

"A-hem!—well, yes; we hope so. *Tête de veau* (head of calf, not calf's head), which is detestable as presented plain boiled, either by English maids-of-all-work, or by French peasant farmers' wives, at whose feasts and *ducasses* it is a dish from which there is no escape. This, my dear madam, is half a head, scalded with the skin on, then put into a stewpan, covered with cold water, simmered over the fire two hours and a half, or till the bones come away easily, then set aside on a dish till the morrow, the liquor being saved in a bowl in a cool situation. The next day put into your stewpan three pounded cloves, a bouquet of all the sweet herbs you can get, some grated Lemon peel, 2 oz. of fat bacon cut small, and the cold half calf's head. Add a pint of the broth, which should be a jelly, and a pint of good beef stock. Let simmer one hour and a half, turning every now and then, and adding more broth-jelly if getting too dry. For the finishing touch, make a *roux;* stir in half a pint of beef stock and a quarter of a pint of good brown sherry or Madeira. Add this sauce twenty minutes before dishing, in order that the flavour may penetrate. Serve garnished with forcemeat balls and slices of Lemon, as you see."

"It is excellent, and I should guess would be even better the second day than the first."

"It really is so. Now, Charlotte, for our *mayonnaise.* You see I place in the centre of this dish a layer of your Lettuce-heart leaves, on which I put this meat of cold roast chicken, covering them with a little of your long-stirred sauce; then more Lettuce, surmounted by more cold chicken, completely smothering the whole with the rest of your sauce, so that nothing beneath it is visible. Then we decorate it with the Olives stuck at equal distances round the bottom, a network of anchovy strips on the top, and a sprinkling of capers about the sides. We might decorate it still more fancifully and elaborately with picked shrimps or prawns, hard egg in quarters, Nasturtium flowers, pickled Beetroot, and a multitude of other sundries; but it will pass muster as it is. There, hand it to the ladies with this spoon and fork."

"You remind me of a scene in a French comedy, in which the master of a house, teaching his servant how to set a dinner-table *à la Russe*, actually sets the table himself. But how—— But how did you contrive to acquire your knowledge of the constitution of *mayonnaises?*"

"Easily enough, and as anybody else may. At the Paris restaurants my wife and I studied them analytically, by taking them to pieces and eating them. Never was analysis more heartily practised. But Mrs. Coquinus, in her love for inductive philosophy, not only multiplied her experiments as much as possible, but, having ascertained the elements of *mayonnaises*, she confirmed the facts by synthesis or construction, and by putting the ingredients together till she produced a *mayonnaise.* As she kindly communicated her discoveries to me, the synthetical result is the dish you behold. And here, Charlotte, for your share in the work, drink this glass of excellent Madeira, made at Cette in the south of France."

"Oh, sir! I am afraid it will——"

"Do you good, young woman. See, Mrs. Munster, the *vol-au-vent* crust is converted into a tart filled with Green Gages stewed in their own juice while we were dining, and making a nice addition to the custard, which, otherwise, would have had to play unsupported the part of sweet dish. And this closes the dinner, because dessert counts for nothing. But when shall we three meet again, on serious business? In thunder, lightning, or in rain?"

"Please, sir, say we four," Charlotte ventured to plead, inspired by the Madeira. "I would willingly go through thunder and rain—with Mrs. Munster in a fly—to learn how to make a few more nice dishes."

A correct report. (Signed) *Coquinus.*

UVEDALE ST. GERMAIN PEARS.

As I imagine many horticultural friends would like a few more remarks of my own respecting the six large Pears I showed at Kensington on the 11th, I give them here.

Naturally I am proud of these fine Pears; in the first instance because of their remarkable size, and in the second case because they were all grown on one single diagonal cordon, which system I may claim as my own here in this country, it having been advocated since I published *Cordon Training* in 1860, from results gathered years before. As to Peach trees on the diagonal cordon system there was never any doubt, but there existed, and still exists, the usual ignorance.

My friend, Mr. Radclyffe, whose experience is second to none, knows much better, and out-door training of Peach trees may well be left in his hands; and as to indoor training, my own houses have been open ever since I first in England essayed the system at all, some nineteen years ago.

Well, not to linger over matters like these, good as they are, I wish to say of these Uvedale St. Germain Pears that they really constitute something like an epoch in Pear culture, because they were all grown on one single tree, because that tree was trained in a peculiar manner; and because, moreover, that same little tree, occupying a wall space of under 40 square feet—*i.e.*, like an infant fan-trained tree of 5 feet by 8 feet—produced six Pears, which also were victorious, in the same class, in 1872. And I make bold here to assert that I should be glad to see something like these results produced by the advocates of the "blessed fan."

Again, as to size: the six Pears together weighed an ounce or so under 20 lb. when fresh-gathered from the tree; but, being very wet, some one or other induced me to dry them in (!) a warm greenhouse, by which absurd proceeding they lost 2 oz. very rapidly. It is worthy of remark that it was the largest Pear of all, which weighed all but 5 lb. when fresh-gathered, which diminished the most, so that now it weighs 2 oz. less than 5 lb. As it is nearly 20 inches round (one measurement gave 20, and another 19½ inches), I submit to the judges of English fruit whether they have ever seen such a Pear or not? I intend writing to ask some who know in France and Belgium, but I myself think the Pear unapproachable as to size.

Of course, the Pear required much care to grow to this size. One matter I may mention here, they always "slept in blankets"—*i.e.*, were kept together a little at times. They were also fed on good matter, but every skill would have been useless but for the style of training. Also I must here say there are Uvedale St. Germain and Belle Angevine, and also Belle de Jersey. You must get the true sorts. With some trees I could do nothing. And you must like your work, as I do.

Now, as to the value of this Pear for stewing or baking. It may here be said that profound ignorance prevails on much of this. A baking Pear is not a stewing Pear, nor are all these alike. Anything will do to bake—for schoolboys; but to produce a really excellent stew of Pears is another matter. Some thin-skinned Pears, with tender flesh (as Bèsi d'Hèry), produce good results, as clear, and tasty.

Pears with great natural aroma, like the Chaumontel, can hardly be spoiled. But I agree with my good friend Rivers, that Catillac is a model stewing Pear, and also keeps well. What more do we want? Uvedale St. Germain has not quite the natural aroma of Catillac, and is so far inferior, but it has every needful quality for a stewing Pear. Then, consider the grand size of a Pear, 20 inches round, ornamented with blanched almonds—it would resemble in size and colour a Christmas pudding. It will also keep till April, and during the whole winter these Pears, when ripening and coloured, are very fine ornaments to the supper table. As such our fruiterers obtain huge prices for them; while in Paris, they, with the Lady Apple, form the ornament of the windows of the chief restaurateurs.

In the face of so much to recommend them, one reads with amazement the depreciatory remarks about these grand Pears. To sum up all, I was offered the munificent sum of half-a-crown each for my prize Pears of 1872, but, in other hands, they ultimately realised nine guineas. I have heard of twenty-two guineas being asked for one dish, but this may be an exaggeration. *Thos. C. Bréhaut, Richmond House, Guernsey.*

EXPLORATION OF THE LIBYAN DESERT.

Early in the present year we announced an expedition for the exploration of this barren region, under the auspices of the Khedive of Egypt. It was headed by Mr. G. Rohlfs, the well-known traveller, with whom Dr. Ascherson was associated as botanist. The latter gentleman has just published a preliminary report on the botanical results of the expedition in the *Botanische Zeitung*, from which we extract the following particulars. We should mention that the report likewise embodies the observations made by Dr. Schweinfurth on a journey to the oasis of Khargeh, taken about the same time as Rohlf's expedition. Of all the regions of Africa visited by the intrepid traveller, Rohlfs, this is described as the most barren and desolate, though by no means absolutely destitute of vegetation. True, plants were very scanty, both in species and individuals, but encountered daily in the districts traversed, from Sioot, Farafreh, Dghakel, Khargeh, and Eshneh, with the exception of two days' march between Farafreh and Dghakel. Frequently, too, in the course of the day, sufficient fuel was collected wherewith to prepare the modest evening meal. On the other hand, contrary to Rohlf's experience of almost all other parts of the Sahara, they rarely met with sufficient growth to pasture their camels. The relations between soil and vegetation deviated widely in the different districts through which they passed. The vegetation is mostly confined to shallow depressions of the general surface of the plain, in which the very slight precipitation of moisture accumulates. In rarer instances, a loamy, upheaved crust with net-like fissures, is kneaded together in these circular or elongated hollows, and in such places the vegetation was strongest. In one spot, particularly, a little eastward of Farafreh, a considerable clump of Acacia Seyal was observed, composed of shrubby plants, about as tall as a man. A thin layer of drifted sand is usually found in these hollows, and the plants themselves, even on stony ground, favour the accumulation of the shifting sands.

It was noticed that every plant, stone, bone, or other projecting object formed the nucleus of a small sand hillock, lengthened out in the direction of the last wind. The vegetation of the adjacent rocky ground is far more sparing, though even this soil is more favourable to plant life than the greater part of the Serir district traversed, where it is composed of coarse, not shifting, sands and smaller or larger stones, forming a solid surface. The shifting sand-hills are always entirely devoid of vegetation, and therefore it is not surprising that Rolhfs met with scarcely any plants on his fortnight's journey across the sandy plains stretching from Regenfeld to Sinah.

Respecting the affinities of the plants observed in the desert proper—that is to say, at least an hour's journey from any of the oases or wells—only thirty-three species, belonging to fourteen different families, were discovered. This list is of so much interest that we reproduce it in full:—

Cruciferæ—Farsetia ægyptiaca, *Savignya parviflora, Schouwia Schimperi, and *Zilla myagroides.
Caryophylleæ—*Gymnocarpus decander [referred to Paronychieæ by Bentham and Hooker].
Geraniaceæ—Monsonia nivea.
Zygophylleæ—Zygophyllum album, Z. coccineum, Fagonia arabica, *F. parviflora and *F. sp. nova (?).
Leguminosæ—*Astragalus leucacanthus (?), *Acacia Seyal and *A. Ehrenbergiana.
Tamariscineæ—Tamarix mannifera (?).
Compositæ—Francœuria crispa and *Artemisia judaica.
Borraginaceæ—*Heliotropium undulatum and *Echium sp.
Solanaceæ—Scopolia mutica.
Chenopodiaceæ—Caroxylon fœtidum (?), Traganum nudatum, Anabasis articulata and Cornulaca monacantha.
Polygonaceæ—Calligonum comosum.
Gnetaceæ—*Ephedra altissima.
Palmeæ—Phœnix dactylifera.
Gramineæ—Aristida pungens, A. plumosa and Vilfa spicata.
Two undetermined species.

From the preceding enumeration it will be seen that only half of the families of the desert flora are represented by more than one species—namely, the Cruciferæ, Zygophylleæ, Leguminosæ, Compositæ, Borraginaceæ, Chenopodiaceæ, and Gramineæ. The twelve species preceded by an asterisk were only found in a single locality, and were usually represented by very few individuals, so that they form no important feature in the flora of the Libyan Desert. The most widely dispersed species, appearing with tiresome monotony, are Fagonia arabica and Aristida plumosa, whereas Calligonum was only observed in the tract between Sioot and Farafreh, and the elegant silvery Monsonia, which also attracted Hoskins' attention on the same route, only between Khargeh and Esneh. No more than seven species were found in any one place. Notwithstanding the very diverse affinities of the plants forming the desert flora they all exhibit a singular conformity in outward appearance and in adaptation to the conditions under which they flourish. They all show a tendency towards a development best suited to overcome the great enemy to life, aridity, in their dense hemispherical growth, in the small amount of leaf surface, or the total suppression of these organs (Anabasis, Calligonum, and Ephedra), and in the transformation of the leaves into fleshy scales, as well as in the dense clothing of hairs and resinous excretions found in some species. Nearly all are armed with prickles or thorns, even the commonly harmless grasses have here rigid sharply pointed leaves, as Aristida pungens and Vilfa spicata. In consequence of these adaptations to conditions, few of the desert plants assume the pleasing green we are accustomed to see. Shouwia Schimperi and Scopolia mutica alone rejoice in broad green leaves; and these plants differ from the majority of the others in their somewhat showy flowers, light purple and dark violet respectively. Next in order come lilac-flowered Fagonias and the yellow-headed Francœuria. The flowers of Farsetia, although not smaller than those of the allied Schouwia, are inconspicuous, from their fawn colour resembling the soil in which the plant grows. Indeed, by far the greater number have insignificant flowers, so constructed that the wind is an active agent in impregnation. Although the opportunity for studying the vital phenomena presented by the plants of the desert flora was limited to the few weeks spent in traversing the different tracts, it appears

beyond doubt that the precipitation of dew which sets in with the return of the north winds every winter, which we had ample means of verifying (even rime was observed more than once), is merely sufficient to keep life in the plants until the recurrence of one of those rare and irregular falls of rain; after which vegetation is reanimated, and attains its full development. In an ordinary way the plants look as if half-dead, but their tough organisation enables them to hold out until the refreshing rain falls. Moreover, it is highly probable that a considerably larger number of plants would be found after a fall of rain than is ordinarily met with in times of drought, as many herbaceous things must totally disappear.

A peculiar phenomenon manifested in the struggle for existence amongst desert plants, deserves particular attention. Almost all of them possess the power of growing up through the sand, which constantly threatens to bury them, and of emitting fresh roots; hence the gradual accretion of the hillocks, which may be termed the graves of their earlier epochs of existence. This phenomenon is especially remarkable in the case of the Tamarisk, hillocks clothed with which often attain a height of 10 to 15 feet. An exception, however, to this rule is offered by the groups of usually stemless Palms found in the sandy soil, their dense foliage completely barring the quicksand, which can only accumulate around and at a short distance from them, so that they appear more or less embedded.

A far more attractive scene than the sun-scorched desert, where all life appears extinguished, is offered by the oases, whose shady Palm groves and verdant fields of sprouting corn gladden the eye of the stranger to an unusual degree, on account of the power of the contrast with the march across the desert. Even the smaller oases, as Farafreh, consist of more or less numerous (in Farafreh of more than a dozen) clusters of fields and gardens, which are often separated from each other by desert tracts 3 or 4 miles broad; and thus an oasis is more aptly compared to the groups of islets in the South Sea, than described as fertile islands in a sea of sand and rock. A larger oasis, such as Dghakel, may be likened to an archipelago, as it includes several groups of clustered islets. Between Sment and Balat, two of the most considerable districts of this oasis, is a five hours' journey through desert country, and between Bulak (North Khargeh) and Beris (in the southern part of the great oasis), the journey across the intervening desert took Schweinfurth ten hours to accomplish. Kasr Dghakel, the largest group of gardens traversed, is about an hour's walk from north to south, and barely a quarter of an hour's walk from east to west. The extension of such a cultivated island depends partly upon the capacity of the feeding springs of water, and partly upon the care exercised in utilising these gifts of Nature. Thus, for instance, in Farafreh, where the supply of water is comparatively small, every means is brought into requisition to improve the facilities for cultivation, even to the construction of underground conduits, termed water galleries, whilst in some parts of Dghakel this priceless gift of Nature is allowed to flow away unused.

As this important underground supply of water in all the oases is thrown up with considerable force from the artesian wells, the higher spots have in most cases been selected for them, in order to facilitate the irrigation of the surrounding country. Where this course was impracticable the ground itself has been raised.

These springs do not, as a rule, belong to single proprietors, but to the communities; and certain defined rights exist respecting their use, a knowledge of which would be very interesting. Cornfields require more water than the gardens. Thus, for instance, in Dghakel, Wheat is watered nine times from the sowing until harvest, a period of ninety days; and Rice requires a still more abundant supply, whilst Indigo, Cotton, and especially fruit trees, whose roots penetrate to a greater depth and are moistened to a certain extent by the percolating water which escapes from the conduits, are satisfied with a much less frequent irrigation.

The various crops grown may be divided according to the seasons of the year in which they are produced—the European cereals, Wheat and Barley, in the winter months from January to March; this season corresponds very closely in temperature to our summer, whilst the tropical cereals Rice and Durra are cultivated during the summer months, from May onwards—the harvest of the latter falling in November and December. In Farafreh, where water is scarce, and also in the southern part of Khargeh (Beris), Rice is altogether wanting, and Durra cultivated on an extensive scale; whilst in North Khargeh Rice is the chief article of diet, and Durra but sparingly raised. Experience has taught the inhabitants the value of a rotation of crops, and Wheat or Barley never follows immediately after Rice, but Clover (Trifolium alexandrinum) is sown in the stubble and serves as fodder for the cattle. Again, following out the same principle, after Wheat, either Indigo or some variety of Cotton is usually planted.

(*To be continued.*)

THE OLD WALLS AT KEW.

(*Continued from p. 586.*)

I AM gratified to see that my notes are the means of inducing others to come forward and state their experience of certain plants, as the hardiness of a subject is one of the most important considerations. Your correspondent, "N.," certainly surprises me a little respecting the constitution of Ligustrum japonicum; but his statement adds to the reputation of one of my favourite shrubs. I should be glad to know, however, whether it withstood the winter of 1860-61, without injury, in the North. Respecting the "barbarous" Greek, I am not disposed to adopt "N.'s" suggestion, though by way of concession I will give the sounds as near as I can in English characters. Whilst on this subject, I venture to recommend young gardeners to learn the Greek alphabet, at least, as they will then be in a position to trace out the meaning of many of the Greek compounds employed as generic names. One of your correspondents asks whether Euonymus fruits at Kew. I have never seen it in either fruit or flower myself, but I have seen dried specimens that flowered in this country, though in all probability under glass. Respecting the derivation of the name writers do not agree. Dr. Hooker, in his *Student's Flora*, gives the derivation quoted by your correspondent.

When speaking of Solanum jasminoides I scarcely did it justice, as it is really an exceedingly ornamental hardy species for a trellis or wall. At the present time (Nov. 9), in spite of the cold nights we have had, it is still in full flower on the east side of the wall. It is fortunate both for readers and writers to have good Editors. I wrote according to the extent of my knowledge of Menispermum, as I did also of the Ligustrum, for I prefer this course to the chance of perpetuating an error of a previous writer. I may mention here that Bentham uses the term scrambling for such shrubs as Brambles, in contradistinction to twining, climbing, &c.

After this somewhat lengthy preamble I will introduce my next subject—Rubus biflorus, sometimes called pedunculosus, and more commonly in English gardens leucodermis. The latter would be a very appropriate name, but it was previously applied to a North American species, closely allied to R. occidentalis. Our plant is a native of the mountains of India, and is perfectly hardy here. It is remarkable for its stems and branches being covered with a white powder, giving them the appearance of having been whitewashed. This powder easily rubs off, though rain does not appear to affect it. In other respects it has all the characteristics of a Bramble, the flowers being white, and the fruit I have seen vermilion, but different writers describe it as orange-red, red, deep orange, and deep amber. It is very sweet, but not equal to the Blackberry in flavour, especially when the latter is ripened under a good sun. This species was introduced in about 1818 or 1820, and there is a coloured plate of it in the *Botanical Magazine*. The name biflorus is not well chosen, as the flowers are solitary, or two or three together on long, slender pedicels, from the axils of the upper leaves. It is cultivated in most nurseries. It is a noteworthy fact that Brambles are found in nearly all parts of the world. Wide as the British empire is, there are Brambles in almost all parts. Even the peculiar flora of New Zealand includes one species, an exceedingly polymorphous plant, bearing a yellow harsh-flavoured fruit. Tasmania presents us with two species, one having yellow and the other red flowers; and the latter is described as having an agreeably flavoured fruit. It seems highly probable, too, that one species is indigenous in the isolated island of St. Helena.

I have already described several different Honeysuckles, all of them twiners, and I have now to mention an erect species, Lonicera tatarica. It is quite hardy, indeed Dr. Regel recommends it as one of the best shrubs for the rigorous climate of St. Petersburg. It certainly is not so showy as many others that will succeed very well in almost all parts of this country, but it seems to be just the thing to try where scarcely anything else will grow. There are several varieties in this country, differing in the colours of the flowers and size of the leaves, but they are very little known. In Russia, where it is of so much value, it has long been cultivated, and improved seminal varieties selected and carefully propagated. A glance at the coloured portraits of these varieties given by Regel in his *Gartenflora* is sufficient to increase our respect for this neglected plant. There are white, yellow, pink, and different shades of red in the flowers, which are, moreover, of a larger size than those of the old variety against the wall. Its specific name refers to the country where it was first detected, but it is rather widely distributed in Siberia.

The brilliant Trumpet-flower, Tecoma radicans, Bignonia radicans of the older authors, is not seen so often as one could wish, probably because it is rather a slow grower when young, and does not flower profusely until it has attained a good age. But once see an old plant on a sunny bank or wall in the full glory of its orange-red flowers, and the sight will not be forgotten. I am speaking of the variety called major. It was introduced in about 1640, and is, therefore, a very old inhabitant of our gardens. It is a native of North America, and is perfectly hardy in this country, though, on account of its late period of flowering, it rarely, if ever, brings its fruit to perfection. This is rather unfortunate, as the seed-vessel affords the chief distinguishing character from Bignonia. In the latter the partition dividing the seed-vessel is parallel with the valves, whilst in our plant the partition is at right angles to the valves. The name, Tecoma, is an abbreviation of the Aztec Tecomaxochitl. It was a happy thought to give us only half the word, though, according to the explanation of its meaning, it suffers severely under the operation. "Tecomatl" signifies an earthen war vessel of peculiar shape, and "xochitl" a flower. To crown all, we are informed by the late Dr. Seemann that the name is applied by the Mexicans to a totally different thing, Solandra guttata.

The genus Berberis offers many ornamental, and some very strange-looking, evergreen shrubs. The most attractive of all is the charming B. Darwinii, from the extreme south of America; and the most peculiar, perhaps, are those forming the group to which B. nepalensis belongs—the species I have in view. This is very near B. japonica and B. Bealii, and they are probably only forms of one species. They have pinnate leaves, with sessile, overlapping, cordate or rotundate, very coriaceous leaflets, furnished with long spiny teeth, and of a yellowish-green tint at this season of the year. Severe winters injure the form called Bealii, though it is not easily killed. I have tried to discover characters whereby to distinguish these forms, but my material at present is insufficient.

I now come to a plant belonging to a peculiar family, the Asclepiadeæ, which differs from all other dicotyledonous families in the structure of the reproductive organs. The chief distinction is in the pollen, which, instead of being powdery, coheres in club-shaped masses, two in each anther. We have something similar in most of the Orchids. The seed-vessel and seeds of this family are interesting. The fruit or seed-vessel usually consists of two follicles, either erect or spreading, and the seeds are generally furnished with a tuft of silky hairs at one end. These characters are common to some of the Apocyneæ or Periwinkle family. Our plant is Arauja albens, commonly called Physianthus albens in gardens. Arauja is said to be the native name of one of the species. Physianthus is from φύσα (physa), a bladder, and ἄνθος (anthos), a flower, in reference to the form of the corolla. It is a twiner, with simple leaves and whitish fragrant flowers, of no striking beauty. Nevertheless it is a very pretty plant, and is frequently seen in gardens in the south-west of England, where it is quite hardy, and sometimes matures its peculiar fruit. It is a native of temperate South America, and Gibert, who collected it in Chili, says that the fruit is edible, and the country people make sweetmeats of it. A figure of the fruit ripened in this country was given in this journal in 1865, p. 1178, where it is described as containing a quantity of milky juice, and having a spongy layer of loose cellular tissue, an inch or more in thickness, to which the placenta is attached. But there is yet another peculiarity about this plant that I wish to mention. Most of my readers doubtless have read a good deal lately about carnivorous plants. Now, my plant is not carnivorous in any sense of the term, at least so far as I am aware, but it is a fatal snare to the gay butterflies and other insects. There is something really diabolical in the idea of a plant entrapping the poor fluttering things and holding them fast by the proboscis until they are dead, and all apparently for the fun of covering itself with borrowed plumage. Some of my friends tell me it has something to do with the fertilisation of the flowers, which is possibly true; but if so I can say little in favour of the arrangement, although it is as ingenious as the tortures of the ancient inquisitors. Mr. Belleroche, writing to the *Flore des Serres* on this subject, says, "firmly held by the proboscis, they usually die at the end of the third day of their captivity." He thinks it a capital notion, because an entomologist possessing this Arauja may put by his net and leave the catching business to the plant, simply paying it a visit in the morning to secure the nocturnal, and in the evening the diurnal Lepidoptera. Well, there is something practical in this, and I suppose it entraps butterflies in its own country for some equally useful purpose—is, in fact, a sort of lion's provider. The way in which the capture is effected is not so easily made clear to those who know nothing of the structure of this class of plants. The pollen masses mentioned above have a slender caudicle, or stalk, by which they are attached to a gland in pairs, and from the tube of the corolla being closely appressed to the reproductive organs occupying the centre of the flower, a butterfly can only reach the base of the flower, where the honey is secreted, by piercing one of these glands with its proboscis. At a certain stage these glands exude a viscous fluid when

disturbed, which quickly sets, and firmly adheres to the substance in contact with it. In this flower the tube of the corolla is constricted above the pollen masses, and thus the insect is unable to bear them away, as frequently happens in other flowers. I have met with several other notes relative to its trapping bees and other insects, but I have not had the opportunity of thoroughly examining the thing myself.

(*To be continued.*)

EASTWELL PARK.

Some two miles or so from the thriving town of Ashford is situated the beautiful domain of Eastwell, which is attracting public attention at the present time as the country residence of H.R.H. the Duke of Edinburgh. Independently of this, however, Eastwell has claims on our notice for the great beauty of its park as well as for its historical associations. It is mentioned in *Domesday*, and was given by the Norman conqueror to one of his adherents. Subsequently it passed into the possession of various families, and finally into that of the Finches, Heneages, and Winchelseas. The first Earl Winchelsea died in 1633, and his monument still remains in the pretty church. The second Earl of Winchelsea, who took a prominent part in the restoration of Charles II., died in 1689, after having married four wives and enriched the population by no less than twenty-seven children. This same Earl Winchelsea was called on to render aid to James II. in 1688, when he took refuge in the neighbouring town of Faversham, in his attempt to escape to France. Tradition, too, has it, that a natural son of Richard III., after an interview with his father prior to the battle of Bosworth in 1485, and at which his father promised to acknowledge his son in case of his victory, and counselled him to take the best care he could of himself in case of defeat, betook himself here from Leicester after that fatal fight. At Eastwell, according to the tradition, he remained *incognito*, occupied himself as a bricklayer, died at the age of eighty-one, and was buried in the church in 1550. The parish registers, we believe, confirm these statements to some extent, but for all that, historians are rather sceptical as to the truth of the story.

The park contains, we believe, nearly 2000 acres; it is well-timbered, and its undulating ground furnishes beautiful and picturesque views. The prospect from some of these eminences is extensive and diversified, ranging over the chalk downs of Kent, the fertile plain of the Weald, the rich valleys of the Stour and Medway, the more distant Thames on the one side, and the British Channel on the other. The timber comprises noble Oaks, Ashes, Limes, &c., and numbers of old stunted Thorns are dotted about. The park is entered by an imposing entrance-gateway (fig. 129, p. 645), erected a few years since, and which is a far more imposing structure than the house itself (fig. 130). The latter edifice is, for the most part, of modern date and mean appearance, but other portions, and those the most picturesque, date from the time of Elizabeth. Recently a temporary structure has been erected to serve as a Greek chapel for the use of the Duchess, and which, however serviceable, by no means adds to the beauty of the building.

The garden establishment is at present of the humblest description, and is so dilapidated as to be quite out of keeping with the surroundings. It is, indeed, surprising that the late active and intelligent gardener, Mr. Woodford, should have been able to do so well as he did under so many discouraging impediments. There are some fine Cedars on the lawn, while the flower-beds and a glazed corridor show what might have been done under more favourable auspices. The kitchen-garden is spacious and old-fashioned, completely surrounded and concealed on all sides by a very remarkable Laurel hedge of great age and immense thickness, cut into the shape of a bastion. Near it stands a very fine Portugal Laurel no less than 120 yards in circumference, and not far off is a Lime tree, one of whose branches has taken root where it touches the ground, and has sent up at that point a new and thriving trunk, while the original branch beyond the point where this new trunk is produced is much thicker than elsewhere. An exactly similar case in a Spanish Chestnut at Warwick Castle was figured and described in our volume for 1873, p. 1047, fig. 222, by the late Mr. Markham Nesfield.

The church, of which we give an illustration (fig. 131), after a sketch obligingly communicated by Miss Dombrain, of the adjacent parish of Westwell, stands in the middle of the park, at some little distance from the mansion, and on the edge of an extensive and very beautiful sheet of water. It is a little perpendicular structure of the fifteenth century, is in excellent order, and contains numerous fine monuments to various members of the Winchelsea family. The mansion was lately leased to the Duke of Abercorn, and since it has come into the occupation of the Duke of Edinburgh very extensive works have been carried on in refitting the mansion, cleansing the lake, and generally rendering it more suitable for the residence of its distinguished occupants. It is to be hoped that the garden establishment may share in the much needed process of extension and thorough renovation.

Fig. 130.—THE ENTRANCE FRONT, EASTWELL PARK, KENT.

Foreign Correspondence.

Kitchen Gardening in New England.—In the following notes I have tried to give a brief outline of how we manage our kitchen gardens, and the crops we grow in them. In doing this I am aware that I deviate considerably from the paths of perhaps many others, who probably would prefer writing more on the ornamental than the useful branches of our profession. The close relationship that exists between Old England and New England, however, in people and horticulture, I think supplies an ample apology for my so doing; indeed most gardeners here are acquainted with the mode of procedure in Old England, and I consider it only fair that the inhabitants of the mother country should be told a little of the doings of their children.

Our kitchen gardens are not surrounded by high walls, nor by rabbit-proof fences, but, as a rule, are merely enclosed by a hedge or ordinary fence, or it may be by no fence at all beyond a walk bordered with flowers. The woodchuck is our worst large enemy; it is as big as a large rabbit, and eats vegetables greedily, but its presence is soon discernible, and it may be hunted, shot, or trapped. Our kitchen gardens are laid out in English fashion where practicable—squares divided into four chief quarters by cross walks, and surrounded by a main walk, leaving a border of 6 to 12 feet between it and the extreme edge. Herbaceous and annual flowers are grown in the walk borders, and Pear trees and Vines on poles through the quarters; the trellis Vines occupying a quarter by themselves, or bordering one, as is commonly the case with espalier trees. Early and tender vegetables are invariably confined to the kitchen garden proper, but Squashes, corn, and Potatos are often grown on farm lands, or additional roughly-kept garden plots. The size of the kitchen garden is in proportion to the demands of the family, and to my knowledge does not exceed 2 acres in all in this State, but up the Hudson there are several much larger. The cottagers are great gardeners, and take a pride in

having a variety of good vegetables. Their system and that practised by gentlemen's gardeners is just the same, and the results in either case about on a par. The market gardeners of America, as well as those of England and France, I regard as the cream of the profession. In the following remarks I have noticed our most noteworthy vegetables under their respective headings, and have massed the minor sorts.

Asparagus is more used here by the common people than is the case in England, and as regards culture there is but little difference. It is seldom we find Globe or Jerusalem Artichokes or Cardoons either in private or market gardens. Beet is extensively grown, the leaves being used as Spinach from the time the first rough leaves appear till the roots are big enough to use, and the roots from the time they are like eggs till next spring. They are housed or pitted in winter. This crop is much grown by the Southrons for the northern markets. We grow a few Carrots, chiefly Horns, for early use. Last spring we had some barrels of spare roots of the previous year's crop, in excellent condition, and which were given to the farm horses, but they would not taste them, so the pigs performed the task. Corn Salad is found in most large gardens; it is sown in September, and protected with a layer of leaves and some brush during winter, for spring use. The spring sowings are a fast succession. Mustard and Cress (Pepper-grass) are grown as in British gardens, but are more apt to "run" in this country. Watercresses find their way to the cities as in England, but not in such quantity. As regards Endive, our market gardens present a vast contrast to the Fulham Fields in September, as in those here it is almost a stranger, and in private gardens it is scarcely to be found. Around New York Horse Radish claims the same precedence that it does in the Deptford and Woolwich districts, the acreage under it being considerable. It is an annual crop, being planted as an inter-crop, say in rows 2 feet apart in May, and lifted in the fall before frost takes firm hold. It is wintered in pits or cellars, and used or sold as required. The sets are pieces of the branch or smallish roots, just like those of the same or of Seakale used by the London market gardeners, who plant in the same way as we do. In private gardens is generally found a patch of Horse Radish in some corner, that remains undisturbed for two, three, or more years, and, as might be expected, the roots are tough, stringy, and but little sought for. Kohl Rabi is seldom grown as a garden crop, but many farmers have a few drills of it for stock. Most gardeners have a plot of Musselburgh Leeks for winter and spring consumption. We cannot leave them in the soil longer than December 1, with the hope of lifting them during the winter months as required, so they are lifted and huddled together in trenches and protected like Celery. We have no Earl's Court or Parson's Green Mushroom ridge fields here, all that are artificially cultivated are done so indoors; in fact, we are rather behind the times with this crop. Although it is grown indoors I have not yet seen an instance, but a gentleman at Lexington, Mass., who has some market greenhouses, found that a few beds of Mushrooms paid him better last winter than all his hundreds of Roses. He could nothing like supply the demand for Mushrooms, whereas his cut flowers would hardly sell at any price. A short row of Parsley may be seen along a walk side in many gardens, particularly where garnishing is an object, but for cooking purposes it is not universal. This is more owing to the cook than any distaste for the Parsley. Just the other day I visited the garden of one of the wealthiest gentlemen in Massachusetts, and was surprised not to find a single plant of Parsley. I asked the gardener why he did not grow it, and he told me he did grow it for some years, but it was never used, as the cooks who were at the house were successively Irish, and all the learning they had they had picked up in this country, so that being unaccustomed to this vegetable they knew almost nothing about cooking it. The leaves are cut over on some plants early in the fall so as to permit them to start a little before winter, when they are protected like Celery, or in pots or boxes under glass. Parsnips are grown in moderate quantities, the hollow-crowned mostly. The winters compel us to lift and store them, consequently they are not quite so good as they are when dug up as they are needed. Our Peas "are imported directly from the best growers of England," at least they are all English sorts; Daniel O'Rourke, Maclean's Advancer and Little Gem, Champion of England, Yorkshire Hero, and Veitch's Perfection are amongst our standard kinds. We sow as early as the soil permits, say in April, and have Peas from mid-June till the end of July, but after that time no amount of coaxing can produce satisfactory results, drought and mildew being hard upon them. Peppers are a good deal grown for pickling. They are started in heat in March or April, nursed a little, and planted out 15 by 20 inches apart about June 1. The kinds consist mostly of Bull Nose, Long Red, Squash, and Cayenne; all bear and ripen well. For the English markets Radishes are sown out-of-doors in the first week in December, and covered with litter from frost, but here our winters are much too severe for that method. The Radish, however, is one of the most important of early vegetables, and can be grown as a catch crop sown broadcast. It is extensively and almost universally cultivated, the earliest batches being from frames or the South; Long Scarlet, olive-shaped, red and white Turnip-rooted, and French Breakfast, are the sorts chiefly used for spring work, and the black and white Chinese and Spanish sorts for fall or winter use. Most large gardens have a few plants of Salsify, or "Oyster Plant," but Scorzonera is seldom used. They bear with impunity the winter's frost. I believe Seakale is grown in a few private gardens, but I have not seen it. Spinach is much sought for and is a suitable crop; in spring between Peas and Cabbages we get regular successions, but it is very liable to "run." In September the winter sowings are made, and on the approach of frost these are covered with a 4-inch layer of leaves and some brushood. I know of no case where Sweet Potatos are grown so far north as Massachusetts, but they are raised in moderate quantities in the Middle, and in large quantities in the Southern States. For private gardens white and yellow Turnips are grown but sparingly on account of fly, bug, drought, and other ascribed causes; whereas the fact of the matter is, early Turnip growing requires experience here as in England. The English market gardeners have their first crop of Turnips in Covent Garden almost before private gardeners think of sowing theirs; indeed, the market gardeners here are the only ones I know of who grow spring Turnips successfully. Most people sow a few Swedish Turnips in June or July for fall and winter use. Thyme, Marjoram, Savory, Sage, and other herbs we grow as in England, but not in such quantities, and we renew our plantations of the perennials yearly. Mint is grown in almost every garden; it stands the winter unprotected with impunity.

Cabbages.—As in England so here, this is one of our most prominent vegetables. The early sorts, such as Early York, Large York, Jersey Wakefield, Early Wyman, and Enfield Market, are sown about the middle of September in the open border and in a month afterwards are transplanted into cold frames, there to remain till towards the end of March, when they are planted out, ground permitting. Failing a fall sowing, the early Cabbages are sown in a hotbed in February, and well hardened prior to planting. Late

FIG. 131.—THE CHURCH AT EASTWELL, KENT.

Cabbages include Drumheads, Stonemason, Premium Flat Dutch, and Marblehead Mammoth, also Globe and Drumhead Savoys. The seeds are sown in the first fortnight of May, and the plants turned out in July. Those that are kept for winter use cannot be left in the ground as growing, as in that case they would not only be damaged or entirely destroyed by intense frost, but also locked in the ground. About the end of November they are pulled up and packed, heads down roots up, closely together on 4 or 6 feet wide beds, and thus left till the weather gets very threatening, when a few inches deep of soil is strewed over them, enough to prevent injury from frost, and maybe a few wooden shutters or thatched covers over all, but the covering should not be too much. They are also stowed away in cellars, where, when the quantity is limited, they perhaps do best, at least they are most come-at-able.

Celery.—This is very extensively grown in private and market gardens. Even the working-classes pay considerable attention to it for their own use. The system of culture does not differ from that practised in England. It is used as a second crop after early Peas, Spinach, Cabbages, Cauliflowers, &c., and may be observed planted in single, double, or triple rows, and in deep and shallow trenches. The same system of deep trench planting is just as persistent here in private gardens as it is in Britain, and I believe it is a great mistake. The market gardeners around London, whom I am confident produce as fine Celery as any in the country, are too alive to their own pecuniary interests to expend money for useless labour, consequently they merely mark off their rows—say 4 feet apart, and scrape out a trench with a hoe, or a slight shovelling with a spade, plant their Celery therein, and earth-up afterwards as necessary, and their results are the best of Celery, as a visit on a Saturday morning in October to Covent Garden Market can testify. The deep trenches for planting in are useless and expensive in all ordinary soils, injurious in damp land, and can only be said to be beneficial in light sandy or gravelly gardens. About the end of October or early in November we commence storing for winter by lifting the Celery plants as entire as practicable, and transplanting them closely and as deep as they were before, in lines a foot or so apart, and covering the same with a mulching of litter or leaves, or a slighter mulching and a thatched or wooden hut. This prevents the roots being "locked in" by frost. We have many bad varieties of Celery, chiefly coarse kinds, and some good sorts. The Red and White Solids are our best, but, strange to say, the White is preferred to the Red; this is *vice versâ* in England. The Boston Market is a great favourite; it is white, dwarf, solid, and crisp, but it has a persistent tendency to produce side shoots. Some growers permit these to remain. At Boston I saw in the fruiterers' and greengrocers' shops this kind with from three to seven stems on one root. Such Celery would never sell in London.

Sweet Corn.—All who have a garden grow corn, and the kinds known as "sweet" are those that are eaten in a green state. The ears are used when the seeds are full—not watery and not hard—when they are divested of their covering and boiled entire for twenty minutes. My landlady boils them in the same pot with the Potatos. Vulgarly we spread a little butter over the boiled ear, which we fix with one or both hands and devour heartily. Politely we cut down the seeds off the ear into the plate, mix some butter with them and eat with a fork. Boiled in milk they are excellent, and are then called "oyster corn." We grow Early Darling, Crosby's Early, Moore's Early Concord, and Stowell's Evergreen. This year we planted a line of the Mexican, a black-seeded sort, and not contented in being a nigger itself it contributed the mulato breed to its neighbours on either side; their seeds (fruits), instead of being white, are half white and half black. [A well-known but not the less interesting case, showing that the pollen sometimes influences the fruit as well as the seed within it. EDS.] This may not impair the quality but it spoils the look. We sow in drills 3 or 4 feet apart in the middle of May and in weekly successions for the next six weeks. The common way is to plant a few seeds in little hills, these hills in rows 3 feet apart and 3 or 4 feet asunder. Corn is a gross feeder and requires good soil.

Cucumbers.—Americans somehow or other seem prejudiced against the large European Cucumbers, and have got into a class of little kinds of their own that they will not do without. Cucumber growing is a great industry around New York and in some of the Southern States, but apart from the wholesale growers every little garden has its few Cucumber plants; White Spined, Early Frame, Long Green Turkey, Early Russian, and Gherkin, are the most popular sorts. Some raise them in frames and transplant out of-doors in the end of May, whilst most sow a few seeds in hills 4 feet apart each away. Seldom are the handlights of London gardens used to protect them. The striped bug is a fearful pest; it eats every bit of the seedling if left unsought for, but once the plants get up a little they outgrow it. To shun this pest I prefer planting from frames, as in that case the plants are so much grown that they may escape the bug.

Dandelions.—We not unseldom find these grown as kitchen-garden vegetables in England, but there their use is far from being universal. Here, however, we take in this instance after the custom of the French, and use it considerably as greens and salad. Dandelions require no care to grow them beyond planting once, and always pulling off the flowers as they appear, to prevent seeds ripening and scattering. In early summer, say May and June, the village boys very willingly rid the lawn and garden generally of this pest, for no other recompense than the plants they dig out. This digging is done with an old knife.

Egg Plants.—These are very popular, and attain a great size out-of-doors. We sow in heat early in March, and grow on into nice plants in pots; harden off in May, and plant out in rows 3 by 3 or 3 by 4 feet apart in rich but warm ground early in June. Most of the plants fruit, bearing from one to four apiece, but several may miss. Black Pekins are like large egg-shaped Vegetable Marrows, of a dark purple colour, and large round purple are scarcely so large as the Pekin, but often more than 6 inches in diameter. In cooking they are usually sliced thinly, parboiled or dipped in hot water, dried with a cloth, dusted with meal, and fried in butter like fish. *Wm. Falconer.*

Water Melon.—These are grown like the Musk Melons, but a little further apart in the rows. They come to good perfection, and only those who have tasted can tell how refreshing at mid-day is a Water Melon that was cut in the morning and kept in the shade till noon. It is grown in immense quantities in the South for the northern markets. It prefers a light soil. The principal kinds are Mountain Sprout, Ice Cream, Black Spanish, and Goodwin's Imperial. The Citron Water Melon is grown for preserves and sweetmeats.

Okra.—This vegetable is much grown in the South, and in most large gardens in the New England States. There are two varieties—the tall and the dwarf, the former being most used on account of its extra productiveness. It is often sown thinly in pots and boxes in heat in March, hardened off in due time, and transplanted outside towards the end of May. It is most generally sown thinly in drills 2 by 2 feet, or 3 by 3 feet apart, according to the kind, in the second week in May, on warm ground. The part used is the young long green seed-pods, which are cut up for soups and stews, to which they give a jelly-like consistency and an agreeable flavour. This is in my estimation a useless poor man's vegetable.

(*To be continued.*)

THE FARM.

CARROTS.—As the Mangel Wurzel crop is all stored, the farmer will next set to work at the Carrot crop. We purpose then, in this article, to offer a few notes on the following matters:—1. On the harvesting and storing of Carrots. 2. On the utilisation of Carrots.

1. In digging Carrots our first consideration should be the sort grown. Most of the red sorts grow deep in the soil and have but little above-ground, while the white sorts, for the most part, have a considerable portion of the root standing freely above the ground. The former, then, is more difficult to harvest, and as it seldom produces so heavy a crop, the white Belgian Carrot is usually preferred for farm purposes. Still some of the long red sorts are not unfrequently grown by the *petit* farmer, as he has then command of two markets, for they may be indifferently used both for the vegetable market and as horse or cattle feed.

For lifting Carrots we prefer a narrow two-pronged fork, with a strong iron flange on one side for the pressure of the foot; this can be used easily with one hand, while the other is occupied in pulling out the lifted root. When got out of the ground the tops should be carefully cut off by means of a shortened reaping-hook, in such a manner that rather than cut into the crown we would prefer leaving 2 or 3 inches of the leafstalk. In storing Carrots we are by no means particular in removing any adherent dirt, or, indeed, to have them perfectly dry; and as the roots are little affected by frost, if we have not a root-house to which to carry them at once, we prefer the shady side of a hedge-bank to which to haul them, and there clamp them as we do Mangels, with the difference that in the latter we make larger clamps in the most sheltered situation we can find, and afterwards cover them very thickly with loose straw, upon which we place a good thickness of straw thatch. Carrots, however, do not require so much protection from cold, but rather from such conditions as may tend to heating and drying, as in such case, and if harvested too early, they are apt to shrivel, and so to lose both in weight and quality.

2. It is now some years since the late Arthur Young brought the Carrot into notice as a farm crop. Since then, though, its spread has not been at all general, yet we hear of isolated examples of a field of Carrots in different parts of the country. That the crop is expensive to grow we all know, but at the same time the market price of the produce is such as to make it far from unprofitable, and more especially as it really does not take so much out of the land as some other root crops do.

This point will be shown from the following analyses of Carrots by Messrs. Way and Ogston, both of roots and leaves, which should be studied together, especially as the leaves are left behind:—

Ash Analyses of Belgian Carrots.

	Roots. Mean of five Analyses.	Leaves. Mean of three Analyses.
Potash	32.44	7.12
Soda	13.52	10.97
Lime	8.83	32.64
Magnesia	3.96	2.92
Oxide of iron	1.10	2.40
Phosphoric acid	8.55	1.67
Sulphuric acid	6.55	6.20
Carbonic acid	17.30	17.82
Chloride of sodium	6.50	13.67
Silica	1.19	4.56
	99.94	99.97

Professor Way says, "The ash of Carrot leaf is peculiar in one respect; of the alkalies, potash and soda, the latter greatly predominates. This is in reality an important, as well as a singular, circumstance. The alkali soda is much more available for agricultural purposes than potash, especially as the results we have obtained would induce a belief that a plant can obtain this alkali from common salt—the commonest of all salts: if any plant be found to content itself with this alkali, such plant will undoubtedly be more easy of artificial culture than others, which require potash and refuse to take soda instead of it; it is not said that this is the case with the Carrot, but attention is drawn to the uniformity of the result in the case of the leaves." Chemistry has made great advances since Young's time, and we now appeal to this science as setting us right as regards the Carrot.

The author just quoted gives the following:—

Analyses of Mineral Matter of one ton of Carrot roots, and of leaves, in pounds.

	Mean of five Roots.	Mean of three Leaves.
	Lb.	Lb.
Potash	6.59	6.64
Soda	2.71	9.67
Lime	1.77	30.24
Magnesia	0.80	2.58
Oxide of iron	0.22	2.30
Phosphoric acid	1.73	1.64
Sulphuric acid	1.31	5.61
Chloride of sodium	1.42	11.95
Silica	0.24	4.46
	16.79	75.15

Hence, then, in the leaves there is left behind a large quantity of the alkalies, so that almost any other crop may follow Carrots.

The question then arises, how is it that the Carrot has not advanced in reputation nearly so fast as its early advocates expected?—and to answer this we quote from Professor Playfair. He says the dried Carrot is equal to 10.66 per cent. of nitrogenous substances, 89.57 of materials free from nitrogen, and 5.77 of ashes,* and this he deduces from the following:—

Estimation of Alimentary Substances in the Carrot.

Flesh-forming ingredients (*i.e.*, nitrogen-containing)	1.43
Heat-giving ingredients (*i.e.*, free from nitrogen)	11.61
Ashes	0.81
Water	86.10
	100.00

Here, then, we see that the large quantity of water and the small quantity of flesh-forming matter in Carrots render it impossible for them to supersede the use of hay and corn in horse-feeding, or of hay for cow stock—Carrots, indeed, being no better as a self-feeding matter than Mangels or Swedes, of which so much larger a quantity can be grown at far less expense. Still, as an adjunct to horse food, especially in spring, the Carrot is particularly useful, as it has the effects of fattening, and, by its slightly laxative properties, this root acts as an alterative, and aids materially in keeping horses in condition. Mr. Hugh Raynbird says that "Nothing is found to equal Carrots in bringing horses into condition, and they are used largely by horse-dealers for that purpose."

This, indeed, is the use we make of them, giving them merely as an adjunct to other food. Cattle, though they cannot be fattened exclusively on Carrots, yet like them, and they are found to be of great service, especially in spring, as at that time the Swede

* Morton's *Cyclopædia of Agriculture.*

is getting fibrous, and Carrots will then take their place with advantage.

It follows, then, that when the ground is suitable the Carrot may be grown with profit, and more especially if, for any reason, there is a near market for the best, as the smaller roots will be equally serviceable at home.

The Villa Garden.

ROSES AND ROSE PLANTING.—A Villa Garden without Roses, only provided they can be grown in it, would seem like a precious bracelet without the jewelled setting that so enhances its value. There must be Roses if there be a suburban garden; and no greater testimony can be borne to the popular estimation in which this beautiful flower is held, than a statement of this fact. Every morning train into London from the suburbs, during the summer months, is to some extent a Rose exhibition, and by means of button-holes, specimen flowers, and bouquets of magnificent blossoms, the diurnal competition is carried on—saying nothing about the excitement of competitive prowess provoked by the local exhibition. If an introduction is needed on one of these daily journeys to an incommunicative fellow-traveller, let a grand bloom of La France, Marie Baumann, or Gloire de Dijon, be but exhibited to his gaze, and the most stolid nature will melt under the contact with that "one touch of Nature which makes the whole world kin."

Some care is requisite in making a selection of Roses for planting in a Villa Garden at this season of the year, when this work is carried out. Position and soil may in many instances fail to be all that could be desired, and considerations of this character make it necessary that a wise choice of varieties be made. Advice from a local nurseryman, or, perhaps better still, from some friend who is already a cultivator in the district, will be of value as furnishing suggestions. What is required is Roses that are of a hardy character, and of a healthy and moderately robust habit of growth; for it is clearly obvious that, let the blooms of a Rose be ever so good, if it should refuse to grow under an ordinarily proper treatment it is unworthy a place in the garden. There are some Roses, afflicted apparently with some perverse tendency to debility, that will not flourish. Given, therefore, a hardihood of constitution and fitting vigour of growth, and then to have a fine decorative garden Rose—for that is what is mainly required to ornament the pleasant plots of ground surrounding villa residences—the flower should be of large size, full, and of fine form and substance. A third requirement is freedom of bloom, the colours distinct and good, and with the grateful incense of fragrance rising up through the fine pores of the scented petals. Given all these excellent qualities in a Rose, and it stands forth confessed as eminently suitable for a Villa Garden.

The following selection of varieties possesses generally the characteristics just enumerated:—Alfred Colomb, bright fiery red; Charles Lefebvre, fine brilliant velvety crimson; Duke of Edinburgh, bright vermilion-red; Etienne Levet, brilliant carmine-rose; Ferdinand de Lesseps, purple streaked with violet; François Michelon, fine deep red, the reverse of the petal silvery rose; John Hopper, clear rose, with crimson centre; La France, silvery peach, one of the most distinct Roses in cultivation; Marie Baumann, bright carmine; Paul Néron, deep rose, very large; Sénateur Vaisse, glowing scarlet; and Victor Verdier, pale carmine, and very distinct. Add to these the fine Tea-scented Gloire de Dijon, and the charming yellow-flowered Noisette, Céline Forestier. These are all well adapted for growing as standards, for notwithstanding the hostility that has been expressed towards the standard form of the Rose at certain times, it is that which is generally best adapted for Villa Gardens.

Supposing this lot of Roses were obtained from a nursery, next comes the operation of planting. Previous to doing this, however, the roots should be examined, and all decayed portions, and those likely to throw sucker shoots, as well as those injured in lifting the plants, should be removed, and the long fibrous roots shortened back to about 12 inches. What one likes to see developed in the Rose is a number of fine fibrous roots with a few strong main roots, and when this is the case Roses are sure to do well, if the soil be at all suitable.

The soil best adapted to the Rose (though it seems to flourish in almost any soil, provided due care and attention be bestowed on it) is a stiff rich yellow loam, some 12 or 18 inches in depth. Plant at a time when the soil is moist without being sticky—neither too wet nor too dry. Some excellent suggestions as to the mode in which Roses should be planted were laid down a few years ago by Mr. John Cranston, of Hereford, for the especial benefit of those who are in the rudiments of Rose cultivation:—"Dig holes 18 inches or 2 feet wide, and nearly as deep, and fill this to 4 or 5 inches above the surface with good fresh loam three-fourths, and one-fourth of rotten manure, either horse, cow, or pig dung (the latter being the best), the whole well mixed together. Remove a spadeful from the middle of this, and in the hole thus made place the plant, taking care to spread out the roots and not to plant too deep. Tread the soil firmly round the roots, holding the plant in one hand to prevent it sinking deeper in the soil, and put a stake to all the standards above 2 feet high, to prevent injury from wind." The points of the shoots of vigorous growers should be cut back a few inches when the trees are planted, as they do not then offer so much surface to the action of the wind, which is otherwise apt to sway the pl nts about and prevent them rooting into the soil. The pruning proper should be reserved till the month of March. Some persons, guided more by considerations of mere appearance than by a solicitude for the well-being of their Roses, prune back to three or four eyes when the trees are planted in the autumn. The practice is condemned by all accomplished Rose cultivators, for various reasons, which it is not necessary to particularise.

In cases where Roses are planted on grass lawns, a clear space of from 12 to 15 inches on diameter should be left round the stems, forming in this way a miniature circular bed. The subsoils of many Villa Gardens are manufactured or artificial, rather than natural; all sorts of rubbish is employed to fill up spaces where building operations are going on, and surface water soon passes through it to some depth. When a spell of dry weather sets in Roses are apt to suffer, and the watering-pot must be called into requisition, if good flowers are to be produced. If the grass be allowed to grow right up to the stems of the trees, it is difficult to water the Roses, and the surface grass gets the main benefit of what was intended for the Roses. In dry weather too, some mulching, as of short dung, greatly assists the plants, and it is in fact absolutely necessary if blooms worthy the name be wished for: one cannot mulch in the grass, and at the same time give advantage to the Rose. In summer, if mulching be not absolutely necessary, the little circular beds at the foot of the Rose trees can be planted with dwarf-growing plants, such as Lobelias, Sedums, Sempervivums, Echeverias, and many others, and Ivy-leaved Pelargoniums are sometimes trained up them, which relieve the nakedness of the stems, and result in pleasant floral pillars of a tasteful character.

AN ILL-TREATED VINE.—It seems scarcely possible at the present day, and just in the centre of a neighbourhood devoted entirely to fruit growing and vegetable produce, that, in a garden much cared for and kept up at some expense, a Vine should be completely mismanaged literally in every respect; and as the matter involves no personal allusions, and the Vine is now in my own possession, perhaps a sketch of its condition may give some hints to those who are only accustomed to see such matters under correct regulation, and, I must also add, I should be very glad of any suggestion myself to remedy the state of affairs.

The vinery is small but in good order (now), and large enough to accommodate one Vine well; the Vine is a Black Hamburgh, planted about four years ago, very healthy and good in its first growths.

On coming into possession I found the border was in regular course of spade cultivation, varied by being trampled hard as a path. This would never do, so I had a thick layer of good stable manure thrown down to stop passage to and fro, at once, and then having a fair space enclosed with bricks as a border, had the manure lightly forked in over the surface, purposing to give it a top-dressing, laid entirely on the surface, towards February. Looking inside it appeared that the late owner had raised the floor to such a height that it was impossible to attend to the Vine except quite upon hands and knees—a most inconvenient arrangement, for, besides all manifest horticultural difficulties, how was the lady of the house to beg her visitors to gather a few bunches? The spirits of politeness would have fled before the energetic evolutions necessary, and a pair of long-handled nippers might have been literally a *sine quâ non*.

This floor, it turned out, had been intended for a Melon-bed, and, being removed, the next point was the stem, which, having been originally introduced through a tiny hole in a brick, had now so completely filled the space that nothing was visible except a general appearance of decay. However, on beating out the brick carefully, I found the stem merely flattened by pressure and enlarged above the brick ligature, but not decayed beyond the surface-bark or (now that it has been set free) injured beyond what it would recover from gradually. The next matter was the state of the branches, which seemed really to be a specimen of every kind of training gone to neglect. As a beginning I cut out as far as possible all ill-grown wood, and then, with some little trimming, secured two really sound young rods about half the length needed. The main stem, however, is a complete puzzle, laterals having been allowed to grow from it with bunches of side shoots (three or perhaps more at a joint), and the stems forking at pleasure.

Here, where the case admitted, I have trimmed back so as to form neat spurs with two eyes, and on the laterals have endeavoured to reduce these bunches of shoots to one, cut back also, and at the forks to cut away the least desirable, and also, by tying more than is usual, to bring the shoots into place, but the result is not as trim an appearance as could be desired. The Vine being well flavoured and in bearing, it is an object to restore rather than replace it, and I have hope of a healthy growth next year, which may serve as a foundation to replace what must be looked to for the crop at present; but if any brother correspondent is disposed to give a word of advice it would be thankfully accepted by *An Amateur*.

Notices of Books.

Piper's Poultry Yard Account Book (Groombridge & Sons) supplies a want much felt by poultry keepers, and especially by amateurs. It is simply an account-book, small quarto in size, neatly ruled throughout with blue lines, and the subjects to be noted placed in parallel columns with red dividing lines and headings. One page at the beginning of the book is devoted to an "Inventory and Valuation," to be taken at the beginning and end of the year, with broad columns for the two sets of entries of stock on hand, food, and other matters, and narrower ones corresponding in which to note opposite the general entries the numbers, price per head, and gross amount. Another page at the end is similarly arranged for "Summary of the Year and Balance-sheet," with a few lines for memoranda, and two pages more are devoted to "Hatching Memoranda," the columns here being arranged for specification or description of the hen, date of setting, number of eggs, when due, number hatched, number reared, and a column for remarks. The rest of the book consists of twenty-six pairs of pages, one of each pair taking the debtor, the other the creditor side of the account. These give on one side the date and daily number of eggs, and the items of receipts, with the details of quantity and of price received, all distributed in separate columns, under the headings of eggs, fowls, and chickens sold, and also feathers and manure. On the creditor side, correspondingly arranged, are columns for entries of eggs and fowls used in the household, fowls and eggs purchased, and food, and also another column for rent, labour, requisites, and sundries under one heading. The account-book is so clearly arranged that with the help of the "Directions" and example of method of filling up given on the inside of the cover, it might be kept by any dairy-maid of ordinary capacity, and is a useful book, likely to be of much service, and well worth the shilling marked as its price. For large establishments probably a double number of pages would be requisite (a need, however, which possibly the author contemplated being met by procuring two copies), the twenty-six pairs of pages with two dozen lines a-piece, give necessarily only twelve of these short lines for "items" to each week—that is, only two to each day, not making allowance for Sunday, which in this matter must have equal consideration with the others. These two lines would scarcely suffice for the general entries of fowls, eggs, and food purchased, with rent, labour, requisites, and sundries; and a double number of pages would let each subject, or group of subjects, have its line as well as column for the six working days, whilst the occasional spare ones might accommodate anything more that was needed. Another column also, or a special page for deaths from disease or casualties, would be of great service. These form a much larger item than is at all agreeable in most amateur poultry keepers' experience; and if under the head of remarks such entries appeared in this department as, "Duck smothered in a tar-pot;" "Dorking cock (25*s.*) drowned in the pond; driven in by Mr. A.'s dog," —the record of the mischances weighed by directing heads, instead of being slurred over by their careless causers, might lead to good results. The book, however, just as it stands, is well arranged and well worth having.

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. JAMES FRASER, HORTICULTURAL and AGRICULTURAL VALUER and AUCTIONEER, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

SIMPSON'S RED SPIDER and THRIPS, &c., ANTIDOTE.—*Bonâ fide*. See former advertisements. Prepared by JOHN KILNER, Wortley, Sheffield.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

WANTED,

ON LEASE OR OTHERWISE, WITHIN A FEW MILES OF LONDON,

A PIECE of LAND and a Good RANGE or RANGES of GLASSHOUSES,

Suitable for Fruit Growing.

Apply, stating Full Particulars, to

A. D., 16, Queen Adelaide Road, Penge, S.E.

FOR SALE, a long-established Provincial NURSERY and SEED BUSINESS. The Nursery is well stocked, is within a short distance of two Railway Stations, and is well adapted for a branch business or as a feeder to a large London or Provincial Establishment.
Address B., 142, Adrian Terrace, West Brompton, S.W.

TO BE DISPOSED OF, the WHOLE or PART of an OLD-ESTABLISHED NURSERY BUSINESS, in good working order, within easy distance of London by rail. For further particulars apply to
HORTICULTURIST, *Gardeners' Chronicle* Office, W.C.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards, Freehold, from 10*s*. to 25*s*. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to
ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

TO BE LET, or SOLD (on the South Coast), a piece of LAND, 100 by 175 feet, covered with Glass, fitted with Hot-water apparatus throughout; at the present time well stocked with Grapes, Pines, &c. Capitally adapted for a Nurseryman.
T. P., *Gardeners' Chronicle* Office, W.C.

SALES BY AUCTION.

Spring Flowering Bulbs for Present Planting, just received direct from well-known Farms in Holland, consisting of HYACINTHS, TULIPS, CROCUSES, NARCISSUS, GLADIOLI, LILIUM, &c., in lots to suit large and small growers.

MR. J. C. STEVENS begs to announce that he will SELL the above by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., every MONDAY, WEDNESDAY, and SATURDAY during November, at half-past 12 o'Clock precisely each day.
Catalogues forwarded on receipt of a stamped envelope.

Lilies from Various Parts, Dutch Bulbs, and SPECIMEN GREENHOUSE PLANTS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, November 26, at half-past 12 o'Clock precisely, a consignment of NEW and RARE LILIES, from Mr. Ortgies, of Zurich; a Collection of ENGLISH GROWN LILIES and other BULBS, comprising some of the finest Lilies in cultivation; many of the Bulbs are of gigantic size. Also some new and rare HARDY PLANTS, several now offered for the first time; some fine Specimen GREENHOUSE PLANTS, three Cases of ANÆCTOCHILI, and a consignment of BULBS from Holland.
On view the morning of Sale, and Catalogues had.

Feltham, Middlesex.

ABSOLUTE SALE of STOVE and GREENHOUSE PLANTS, NURSERY STOCK, &c.

MESSRS. PROTHEROE AND MORRIS have received instructions from the Mortgagee to SELL by AUCTION, without reserve, on the premises, the Ashford Nursery, Feltham, Middlesex, twenty minutes' walk from the Sunbury Station, on FRIDAY, November 27, at 11 for 12 o'Clock precisely, the whole of the STOVE and GREENHOUSE PLANTS, consisting of 500 fine Gardenia intermedia, in No. 24 pots; 600 Azalea indica, two very large specimen A. indica alba, 450 Pelargonium Gauntlet, in No. 24 pots; also many thousands of Pelargoniums, Geraniums, Crassulas, Fuchsias, Solanums, Vallotas, Epiphyllums, Adiantums, &c.; 500 Bouvardias, also the remaining Trees and Shrubs, and about 300 Standard Roses, a quantity of Garden Pots, a covered Spring Van, &c.

On view any day prior to the Sale. Catalogues may be had on the Premises; of F. E. HAND, Esq., Solicitor, 5, New Inn, Strand; and of the Auctioneers, Estate Agents, &c., 98, Gracechurch Street, London, E.C.

N.B. The BENEFICIAL INTEREST in the LEASE of the NURSERY, comprising 6½ acres of Land, and the whole of the extensive GLASS ERECTIONS, &c., will be shortly offered by Auction, if not previously disposed of privately. Two-thirds of purchase-money can remain on mortgage, and immediate possession can be given.

Feltham, Middlesex.

GREAT CLEARANCE SALE of 8 ACRES of beautifully grown NURSERY STOCK, consisting principally of large and well-furnished Plants, admirably adapted for effective planting, and in splendid condition for removal.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. J. & C. Lee to SELL by AUCTION, without reserve (the land being required for other purposes), at their branch Nursery at Feltham, Middlesex, ten minutes' walk from the Feltham Station, South-Western Railway, on MONDAY, November 30, and three following days, at 11 for 12 o'Clock precisely each day, the whole of the beautifully grown NURSERY STOCK, including 15,000 very handsome green Hollies, 2 to 8 feet; 2000 variegated Hollies, 500 Golden Queen Hollies, 10,000 bushy Aucubas, 1 to 3 feet; 3000 well furnished Box, 2 to 6 feet; 6000 bushy Rhododendrons, 1 to 4 feet; 1000 Picea Nordmanniana; fine Cupressus Lawsoniana, Thujopsis borealis, Thujas and Junipers of sorts, and a large assortment of other choice Evergreens and Conifers; also a great variety of Ornamental Trees, comprising 2000 Limes, 8 to 10 feet; 500 scarlet Horse Chestnuts, 200 Robinia inermis, 500 Standard Acer Negundo variegata, 1000 Oriental Planes, 100 Standard Kilmarnock Willows, a quantity of Paul's double scarlet Thorns, Poplars, 2000 Standard, Trained, and Pyramid Fruit Trees, including 500 Standard Cherries; 500 fine Standard Roses, &c.

Gentlemen residing at a distance can have their lots taken up and forwarded at the usual charges.

May be viewed three days prior to the Sale. Catalogues may be had on the Premises, of Mr. DICKSON; of Messrs. J. & C. LEE, Royal Vineyard Nursery, Hammersmith; and of the Auctioneers, 98, Gracechurch Street, E.C.

Wandsworth Road, S.W.

CLEARANCE SALE of WELL-GROWN NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Thomas Surman, who is retiring from business, to SELL by AUCTION, without reserve, on the Premises, adjoining the Lavender Hill Nursery, Wandsworth Road, Surrey, on WEDNESDAY, December 2, at 11 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, consisting of a capital assortment of thriving Evergreens and Conifers, ranging all sizes, and lotted to suit the Trade and private buyers; also a large quantity of Ornamental Trees, Fruit Trees, Hardy Climbing Plants in pots, together with thousands of Aucuba, Box, &c., in cutting beds.

On view two days prior to Sale. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, 98, Gracechurch Street, City, E.C.

N.B.—The COTTAGE, SEED SHOP, and NURSERY, to be disposed of. For particulars apply to the Auctioneers.

SURPLUS STOCK of DUTCH BULBS.—The undersigned have a Surplus Stock of HYACINTHS, TULIPS, CROCUS, NARCISS, &c., which they can offer on moderate terms.
WHEELER, 7, Borough Market, London, S.E.

APPLE, PEAR, and WALNUT TREES for Sale, transplanted, very strong, choice sorts, suited for planting in Gardens and Orchards, but especially in Orchards. Apply to Mr. TASWELL, Leamonsley, Lichfield.

PRIMULAS (Red), capital strain, just flowering, in 5-inch pots. Price 4*s*. p. dozen, 30*s*. p. 100. J. MACE AND CO., Malvern Street, Sparkbrook, Birmingham.

40,000 Carnations and Picotees (named, Show).

TWENTY-FOUR CHOICE SORTS, including THREE YELLOW PICOTEES, carriage paid, 10*s*.; half, 5*s*. 6*d*. cash. Trade, in quantities, 30 per cent. dis. J. J. HASLAM, Bradshaw Gardens, Chadderton, Manchester.

YEWS.—From 2000 to 3000 prime plants for Sale, from 3 to 4½ feet, 80*s*. per 100. They are well-rooted and good grown plants, such as you cannot find better, for quality, &c., for Hedges or Ornamental Trees.
JOSEPH SPOONER, Goldworth, Woking, Surrey.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three, and four years old.
Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

Roses—Roses—Roses.

CHARLES VERDIER, FILS, NURSERYMAN, 28, Rue Baudricourt (late 12, Rue Duméril), Paris, begs to inform his numerous Clients that his stock of ROSES (Standards, Half-standards, Dwarfs, &c., on own roots), for this Season, is very large and in the finest possible condition.

STANDARD TRAINED PEACHES, NECTARINES, and APRICOTS, fine Trees of the hardiest and best sorts, with all other forms of Fruit Trees in great variety. Descriptive Price Lists gratis.
RICHARD SMITH, Nurseryman, Worcester.

FRUIT TREES.—One hundred thousand strong Standard and Pyramid Cherries, Apples, Pears, and Plums, from 75*s*. per 100. Gooseberries, 3-yr., from 10*s*. per 100; Currants, 3-yr., from 6*s*. per 100. CATALOGUES on application to
T. EVES, Gravesend Nurseries.—Established 1810.

Gooseberries and Currants.

W. TRUSLER can supply a few thousand GOOSEBERRIES and CURRANTS of the following kinds—Gooseberries: Lancaster Lad, Crown Bob, Dobson's Seedling, and Rifleman; Currants: Black Naples and Raby Castle (red)—all good strong plants.
Market Gardener, Feltham, near Hounslow.

Seed Potatos.

H. AND F. SHARPE'S Wholesale Special Priced LIST of SEED POTATOS is now ready, and will be forwarded, post free, on application. It includes all the best English and American sorts in cultivation, and the prices will be found very moderate.
Seed Growing Establishment, Wisbech.

Gladioli.

CHARLES VERDIER, FILS, NURSERYMAN, 28, Rue Baudricourt (late 12, Rue Duméril), Paris, has just published his CATALOGUE of GLADIOLI, containing all the Novelties of the Season. It will be sent post free on application to
Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to
CARTERS', The Royal Seedsmen, High Holborn, London.

HANDSOME SYMMETRICAL STANDARD BAYS.—Two or three pairs of exceptionally handsome plants, to be Sold for a quarter of their value, for the want of room.
B., *Gardeners' Chronicle* Office, W.C.

To the Trade.

JOSEPH SADA, NURSERYMAN and SEEDSMAN, Milan, Italy, has great pleasure in announcing that he has just published his new CATALOGUE of all sorts of TREE and SHRUB SEEDS for the Seasons 1874-75, at reduced prices. Post free upon application.

To the Trade.

CAULIFLOWER, Veitch's Autumn Giant, true, direct from the raiser. CUCUMBER, Telegraph: we hold perhaps the largest stock of the true Rollisson's Telegraph in the country. Special low quotations on application to
F. SANDER AND CO., Seed Growers, St. Albans.

Standard Roses.

F. C. WOOLVEN, Langhedge Nurseries, Edmonton, N., has splendid sorts of the above, good stems and large heads, to offer at 9*s*. per dozen.

For the convenience of persons in town, F. C. W. has a quantity sent to No. 155, Flower Market, Covent Garden, on Tuesday, Thursday, and Saturday mornings. The market closes at 9 A.M.

New Roses of 1874.

E. COOLING offers nice healthy plants of the above, budded low on Manetti, from open ground, at 2*s*. each, 21*s*. per dozen, package free. Also splendid plants of older sorts, Standards, 18*s*., Dwarfs, 10*s*. to 12*s*. per dozen.
New CATALOGUE free.
Mile Ash Nurseries, Derby.

Twelve Camellias, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon, can now supply beautiful young bushy plants, 12 to 18 inches high, full of buds, and choicest distinct sorts, at 21*s*., 30*s*., and 42*s*. per dozen. Package and delivery to any Railway in London, for cash with order included.

N.B.—A few fine half-specimens, in 8-inch pots, finest sorts, and full of buds, 84*s*. per dozen, 10*s*. 6*d*. each.

To Nurserymen and the Trade.

SEAKALE ROOTS for Forcing (very fine), 9*s*. per 100, 80*s*. per 1000. ASPARAGUS ROOTS, 2-yr. old, 3*s*. per 100, 25*s*. per 1000; 5-yr. old, for forcing, 6*s*. per 100. Terms, cash on delivery.
SAMUEL ALLAWAY, Earl's Court Farm, Old Brompton, London, S.W.

Rhododendrons.

HENRY FARNSWORTH, Matlock Bank, Derbyshire, has to offer a fine stock of the following sizes, and at a very reasonable rate:—
3-yr. Seedling (fine).
3-yr. Seedling and 2-yr. transplanted.
3-yr. Seedling and 3-yr. transplanted.
4 to 8 inches, very bushy.
For prices and samples apply as above.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6*s*., 9*s*., and 12*s*. per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40*s*. cash. Baskets and Packing included.
Crown Nursery, Reading.

N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1*s*. per packet, post-free.

CHRISTIE'S SELF-PROTECTING LATE WHITE BROCCOLI.—Pronounced by all who have seen it to be the finest Self-Protecting Late Broccoli in cultivation. For testimonials see *Gardeners' Chronicle*, p. 606.
Price, per sealed packet, 1*s*. 6*d*.
EDMUND PHILIP DIXON, The Yorkshire Seed Establishment, Hull.

Home Grown Agricultural and Garden Seeds.

H. AND F. SHARPE are now prepared to make special offers to the Trade of their home-grown choice selected stocks of AGRICULTURAL and GARDEN SEEDS of this season's growth. They have been harvested in very fine condition, and are quoted low in price.
Seed Growing Establishment, Wisbech.

Richmond Nurseries, Richmond, Surrey.

(ESTABLISHED 1802.)

To the TRADE and large CONTRACTORS.

G. AND W. STEELL have to offer this season, extra to their usual large stock of ROSE, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN SHRUBS, &c., a large quantity of fine, clean-grown and straight in the stock Standard GOLDEN QUEEN and other varieties of variegated HOLLIES, from 2 to 5 feet in the stem; Pyramid Green and Variegated do., from 2 to 7 feet; also an immense quantity of Hybrid and Ponticum RHODODENDRONS, uncommonly well set with bloom-buds, which they are prepared to supply at extremely low figures. Where large quantities are required special prices will be given.

Violet.

LEE'S VICTORIA REGINA.—It gives me great pleasure to offer again the above magnificent and exquisitely sweet-scented Violet, which last season gave such remarkable satisfaction, at greatly reduced prices. For LIST of the Trade see the *Gardeners' Year Book* and the *Garden Oracle* for 1875. Extra strong plants, 12*s*. per dozen, 6*s*. 6*d*. per half dozen; smaller, 6*s*. to 9*s*. per dozen, 3*s*. 6*d*. to 5*s*. per half dozen.

Several persons having written for seed of the Victoria Regina, and although a very shy seeder, G. LEE has succeeded in harvesting a small quantity, which he offers in sealed packets at 2*s*. 6*d*. each, post-free.

N.B.—It should be sown in pans not later than the end of December, and kept in a cold pit or frame till well up.
GEORGE LEE, Market Gardener, Clevedon, Somerset.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. *for* 12 *months, including postage to*—

AUSTRALIA	CANADA	JAMAICA	WEST INDIES
BELGIUM	FRANCE	NEW ZEALAND	UNITED STATES

£1 10s. 4d. *for* 12 *months, including postage to*—

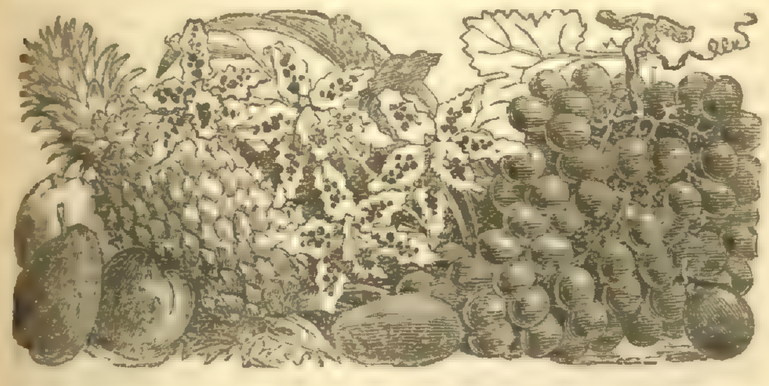
AUSTRIA	HOLLAND	PORTUGAL	SPAIN
CHINA	INDIA	PRUSSIA	SWITZERLAND

£1 14s. 8d. *for* 12 *months, including postage to*—

RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.



THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 21, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 23	Clearance Sale of Nursery Stock at Feltham. Sale of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Nov. 24	Manchester Botanical and Horticultural Society's Meeting.
WEDNESDAY,	Nov. 25	Fruit Show of the Peterborough Horticultural Society. Sale of a Consignment of Greenhouse Plants from Ghent, and of Roses, Shrubs, and Dutch Bulbs, at Steven's Rooms.
THURSDAY,	Nov. 26	Royal Horticultural Society of Ireland's Winter Exhibition. Sale of New and Rare Lilies and Specimen Greenhouse Plants, at Stevens' Rooms.
SATURDAY,	Nov. 28	Sale of Roses, Fruit Trees, Shrubs, and Dutch Bulbs, at Stevens' Rooms.

OF late years our LANDSCAPES have run a great risk of being dotted or blotted off the face of the country. They have been "pinetumised" or "arboretumised" into so many trial grounds for trees. There can be no possible objection to such—the more of them the better, for the deepening and extending of our dendrological knowledge, which is by no means so profound as it ought to be. The mistake is in substituting gardenesque trials or proving grounds for trees, in which each has so many feet square of atmospheric area and so many cubic feet of earth moulding into a spherical hillock, for landscape. Such have filled our pleasure grounds and overflowed our parks in all directions, and in not a few of the noblest demesnes, up and down the country, they are offered and accepted as landscapes. Landscapes! As well term the sentinels at the Horse Guards the British army or the British nation. They are samples of landscape-material, that is all. They are no more landscapes than cakes of colour are pictures. The painter might, in fact, with just as much reason, make a patch of blue on his canvas, and call it the sky—of green, and call it earth or ocean—as for the planter to dot the earth at regular intervals with trees or shrubs, and call his work landscape art. The very first principle of painting and of landscape is the management of light and shade. No man ever yet made a landscape by studding the earth full as it could hold of trees, nor by planting trees with mathematical precision as to distance, nor by crowding around lake or river, so that the water was hidden by their dense shadows. The shade of masses, the light of open spaces, these are the foundations of landscape art.

And the cry for open spaces comes as loudly from many of our gardens as from our great cities. In the latter population is so dense that room is needed to breathe in; in the former sweet open air is almost as much needed for the due performance of the vital functions of vegetable life, and yet more, that its beauties may be seen. In many British gardens landscapes need cutting out rather than planting in; not more shade and mass, but less, is what is wanted, and more light to illustrate and make visible the beauty already there. And force may be witnessed, circulated, by cutting out as well as planting in. The weight and density of the shade can only be seen in a good bright light. Open spaces are the observatories as well as the lights of landscapes. There are many beautiful landscapes that one positively cannot see for the trees and the shrubs. The house is so crammed with furniture that there is no room for enjoyment. How often in such overcrowded scenes one slips backwards and forwards in vain for a point of observation. Even to enjoy trees in a pinetum or arboretum open spaces should be left, from which one's eye may take in their magnitude and admire their stately grandeur. We know several such in which the trees obstruct the proper view of them; you cannot see their goodly proportions, try as you may; and the case is often much worse in pleasure grounds and so-called landscape gardens furnished in the mixed style. There is not only a crowd, but the endless monotony and repetition produces, the first distraction, the latter weariness and listlessness. The only repose and sense of relief comes from closing one's eyes upon the whole.

Most of these evils might be modified or remedied by what may be termed the cumulative style of furnishing landscape. It does not mean over-dense planting. It has too much of that already after a fashion, but it should be cumulative in two senses at least—dense, as contrasted with open spaces near to it; and distinct, as formed of plants of one character. Instead of everything everywhere, one thing only should be had in one spot, and that in sufficient volume, if it may be so expressed, as to form a distinct impression. Our present modes of furnishing landscapes are almost as reasonable as if the artist should mingle and mix all his colours as thoroughly as possible, and paint all his canvas of one medley of colour, or, more correctly, as if each colour were interdotted at regular and irregular intervals. In combination-planting we should follow the lead of the highest artists: those who give you earth, sky, ocean, mountains, trees, grass—all of the right colour, and all in quantity sufficient to make the distinct impression intended. The same again with form. There is probably a higher satisfaction in the contemplation of form than in that of mere colour. Whoever tires of gazing with rapture on the speaking marble? But supposing that were jostled by the grotesque and the absurd: our sensibilities would be jarred, and our satisfaction gone. But in our landscapes all forms of vegetation are often jumbled together; and the result is, we get no distinct impression of form at all, or a confused one that only gives pain. By grouping masses of the different formed trees together, the result would be that each feature of our landscape might become a fresh illustration of form, and the source of a new pleasure.

—— THOSE who know anything of the establishment of the FLORAL AND FRUIT COMMITTEES of the Royal Horticultural Society know that originally they were constituted like most other similar bodies, a certain proportion of the members being removable annually. Somehow or other, during the lax *régime* of the past few years, this healthy custom was either allowed to lapse altogether or was acted on spasmodically; and during the same period a considerable number of members of the ornamental class were added by succeeding Councils, until both bodies have become unwieldy. We hear that it is the intention of the present Council, in no hostile spirit to the committees, but in the hope of reinvigorating them, to have recourse again to the old custom by which a certain number—about a fourth or fifth part, we believe, of the original number—of members will be removed on one of three grounds: seniority of membership, non-attendance or slack attendance, or ballot, such removed members being again eligible for election after one year's absence from the Board. In filling up the vacancies we would suggest that the class of ornamental members might very advantageously be replaced by some of the leading country horticulturists, whether amateurs, gardeners, or nurserymen, for though country members could not be expected to attend with the punctuality of town members, still their services might be very properly made use of on such occasions as they might find it convenient to visit the metropolis at the date of any of the shows or meetings. It would be a graceful recognition and compliment, if it proved to be nothing more.

—— We give the prominence which it deserves to the accompanying letter respecting the famous LAMBTON CASTLE GRAPES, and which needs no further comment than this—that, so far as we know, no one ever supposed the bunch in question to have been artificially "amalgamated." The question is, and was, whether it might not be possible, by the art (using the word in its legitimate and honourable acceptation) of the gardener, to produce such bunches:—

"As considerable uncertainty seems still to exist regarding the large bunches of Grapes that were exhibited at the Belfast show on August 20 last, I think it due to Mr. HUNTER to communicate the following circumstances. The bunches in question were presented by the Earl of DURHAM to His Grace the Duke of ABERCORN, and brought here immediately after the show. His Grace being desirous to show them to the company at dinner, I had arches of round iron fixed to the ends of oblong silver baskets, and covered with Vine leaves and spray. The bunches were suspended from these, high enough to clear the surface of the basket. In doing this, I had ample opportunity of examining the bunch that has been the subject of discussion, and had there been any attempt at amalgamation, I should certainly have seen it. From the eye from which the bunch started to the point where ramification commenced, there was about 4 inches of true stem, perfectly round, with no sign of flattening throughout the remainder of the bunch. The immense size of the bunch gave the berries a small appearance, but on comparing them individually with others of moderate dimensions, there was little difference; and though they were not well coloured, many of the berries had the hammered surface. The eating qualities of the Grapes were very good, the pulp being remarkably firm and sweet. There need be no doubt whatever entertained regarding the bunch in question being one genuine bunch. *G. Smith, Vice-regal Gardens, Dublin, November* 16.

—— DOMBEYA BURGESSIÆ is flowering in the Palm-house at Kew, and being little known is worth pointing out as a very handsome stove shrub. The leaves are cordate, three to five lobed, with long petioles, and are covered with soft hair, feeling as velvet. The flowers are borne in axillary corymbose cymes, are pure white, with crimson at the base of the petals, slightly running up the veins. It is a native of South Africa, and was figured in the *Botanical Magazine* for 1865. The genus is restricted to Africa and some of the islands, being numerous in Madagascar and the Mauritius. The bark is fibrous in several species, affording material for ropes and cordage. St. Helena Ebony (Dombeya Melanoxylon) is native only of that island, and is now nearly extinct, from the too common colonial error of unrestricted cutting for firewood or other purposes, from which several plants have suffered. The Silver tree (Leucadendron argenteum), for instance, native near Cape Town, has been nearly exterminated from that cause. The Redwood of St. Helena (D. Erythroxylon) is believed to be a young state of D. Melanoxylon, and is said not now to be found in the island, which we suppose a mistake, seeds having been received. It has doubtless been reduced to a few trees.

—— By the decision of the Master of the Rolls in the great EPPING FOREST suit, the enclosures made since 1851, to the extent of 3200 acres, are declared to be illegal.

—— It is announced that Her Majesty's Government have determined to send forth a NEW POLAR EXPEDITION. We agree with Sir HENRY RAWLINSON that "this announcement will be received with equal gratification by geographers and men of science, by the naval service, and by the nation at large."

—— On the grass plat in front of the residence of Mr. JOHN KEMPSON, Glastonbury House, Ealing, there is a remarkably handsome and symmetrical specimen of CUPRESSUS LAWSONIANA, measuring 20 feet 9 inches in height. This example represents to some extent the rapid growth made by some coniferous plants when situation and soil appear favourable. It was planted by Mr. KEMPSON in March, 1864, being then 3 feet 10 inches in height.

It is a tree eminently suitable for small front gardens, forecourts, &c., where the space is limited, as the dimensions of a fine plant like that at Ealing are not unsuited to a small space; and in this respect it is to be preferred to Cedrus Deodara and others commonly planted. The specimen at Glastonbury House is growing in rather a good loam, resting on a bed of clayey gravel, and large trees grow near it, especially on the west and south sides.

—— We understand that our correspondent, Mr. THOMAS SIMPSON, who for the last eight years has been gardener to H. C. WELLS, Esq., Broomfield Lodge, Chelmsford, retires from the management of that establishment at the beginning of next year, and will commence business as a garden architect and market gardener, at St. John's Nursery, Chelmsford—a new place, which Mr. SIMPSON is about to make. Mr. SIMPSON is one of the early pupils of Mr. BENNETT of Hatfield, and has many times shown his proficiency as a skilful cultivator of fruits and flowers at the Chelmsford and Essex Horticultural Society's shows.

—— EUPATORIUM AGERATOIDES is now charmingly in flower in one of the plant-houses at the Royal Horticultural Gardens at Chiswick, and blooming profusely in numerous compound corymbs of pure white flowers. Without being at all a showy plant, it is extremely useful at this season of the year in the way of greenhouse decoration, being of very easy culture in pots. Small plants in 48-pots bloom abundantly, and being of a somewhat erect growth can be worked in nicely with other plants.

—— Mr. SMITH, late of Exton Park, is, we understand, leaving Patshull, the seat of the Earl of DARTMOUTH, where he has but lately taken charge of the establishment, and will be open to an engagement at the beginning of February.

—— The Rubiaceous genus GLONERIA of ANDRÉ (*Illustration Horticole*, xviii., p. 76, t. 60) will probably have to be merged in Psychotria, with which it agrees, so far as our investigations go, much better than with the Rondeletiæ. ANDRÉ describes it as having numerous ovules on a fleshy placenta, but we have been able to find only one in each cell, though possibly we may have been mistaken, as it is difficult in some cases to distinguish them in the flowering stage. On referring to the herbarium at Kew we found a sketch by Dr. HOOKER confirming our examination.

—— In consequence of the removal of the INDIA OFFICE MUSEUM to the galleries of the late International Exhibition at South Kensington, the Museum is now closed. The exact period when the new Museum will be opened is somewhat uncertain, but it is not likely that the arrangements will be complete until next Midsummer. The change thus about to be effected is also associated with an important reorganisation of the official staff. The department is now being divided into two well-marked divisions—one consisting of the trade department proper, and the other of the Museum. Dr. FORBES WATSON continues as reporter on the products of India, and is also appointed Director of the Museum. Dr. GEORGE BIRDWOOD is appointed assistant reporter to Dr. F. WATSON at the India Office, and curator of the India Museum at South Kensington. In the department of the Museum headed by Dr. FORBES WATSON, as director, with Dr. GEORGE BIRDWOOD as Curator, there are Mr. MOORE, who has the conduct of the zoological section, and Mr. M. C. COOKE, who is at the head of the botanical, while Lieutenant ROYLE has charge of the mineralogical and geological section. There is no doubt that these new arrangements will greatly improve the efficiency of the several departments. In regard to the Museum, it is probable that it will be ultimately located in a large and handsome building to be erected either adjacent to the India Office in Westminster or on the Victoria Embankment. But in the meantime the transfer to the Exhibition Buildings will be a step greatly for the better. Increased space will thus be allowed for the various treasures which constitute the collection, many of which have been hitherto either absolutely or virtually hidden away.

—— BROWNEA COCCINEA, a magnificent plant, is flowering in the house No. 1 at Kew. It was the first species introduced, and is also one of the finest. The flowers are scarlet, produced in dense drooping fascicles, from the old as well as the young wood. It was figured in the *Botanical Magazine* for 1843, where the flowers are said quickly to drop; but this plant from succession remains in bloom a considerable time. Only specimens of size and age flower well; it is, however, worth cultivating wherever space will allow. It is a native of Jamaica and Venezuela.

—— Some illustration of the "good old times" may be gleaned from the following extracts from the *Kentish Post, or Canterbury News-Letter* of March 23, 1768:—"The Hon. Miss YOUNG, on her return home, was stopped in her carriage by a single highwayman in Queen Square (!), who obliged the footmen to put out the *flambeaux*, and afterwards robbed her of her purse, in which were seven guineas, but refused taking her watch." "Saturday night, about 9 o'clock, as the daughter of the Bishop of LONDON, in company with another young lady, were returning home in his Lordship's carriage, they were attacked by a highwayman in Upper Grosvenor Street (!!), who presented a pistol to the coachman, but he paying no regard to him, the highwayman fired at him, but luckily did not hurt him, and the villain afterwards rode off."

—— Close by what is known as Princess Mary's Village, at Addlestone, there is a remarkable Oak, which though now shut out for a considerable distance by charming villa and country residences, is said to have once marked the boundary of Windsor Forest. It would be difficult to say how many hundred years this tree flourished, but it has long since passed the stage of being a "hale green tree," for signs of decay present themselves in almost every part of it. The trunk is of a gigantic bulk to about 7 feet from the ground, measuring, in all probability, 25 feet in circumference. At that height immense branches spread out around, like several large trees laid horizontally, with their roots towards a common centre, and stretching for a considerable distance. The terminal growth is fast decaying, though an umbrageous growth still springs from several parts of the branches. This remarkable example of a past arboreal grandeur stands just within the grounds of Mr. HUDSON, and some of the branches hang over the public road. Its proportions, majestic in decay, are unhappily crowded and obscured by several young trees, of perhaps a quarter of a century's growth, which have been allowed to grow up straight among the branches on the south side, doing them irremediable injury. It would be an act of mercy to clear it all away, and leave the fine old tree open to view, and thus afford it every possible chance of prolonging its existence. One mighty branch is supported by a pillar, and round this a wonderful growth of Ivy has taken place, which has sent its creeping branches up into the tree, winding itself about its spreading limbs. Many generations of men must have come and gone since the Addlestone Oak first reared its head on the spot it occupies.

—— BUDDLEA MADAGASCARIENSIS is flowering in the Palm-house at Kew, trained against the side of the house—a position to which it is adapted from its slender growth. The leaves are ovate-lanceolate, glabrous above, and underneath are covered with a white tomentum, conspicuous in its general appearance. The flowers are produced in long terminal drooping panicles, with few flowered cymose branches. They are dark orange, and curiously have almost the exact smell of tobacco. Though few species are cultivated, about eighty are known, distributed over India, South Africa, and America; others might be introduced with advantage. B. Neemda is said to be one of the finest plants of India. The genus was formerly placed in Scrophulariaceæ, but is now referred to the Loganiaceæ.

—— The production of COTTON IN EGYPT during the past year reached a very high standard, as many as 2,161,648 cwt. or 398,258 bales were exported, being the produce of the season 1871-72. It is estimated that the crop for 1873-74 will equal it in bulk, but that it is inferior in quality owing to deficiency in staple and strength, which is accounted for from the fact that the Nile did not rise to its usual height, so that the land in its immediate neighbourhood is not properly irrigated; and besides this many growers continue to sow Cotton seed on their land for several successive years, though it is a generally accepted rule that once in three years is quite often enough. A large area of land on the sugar estates of the Khedive in Upper Egypt has also, this year, been put under Cotton culture, and the quality thus produced has been highly commended. A quantity of the seed of the best Sea Island sort which could be obtained from Charleston was imported by his Highness in February, 1873, and sown on the best land in the Delta, the crops being so great a success that the most competent judges in England have pronounced the Cotton to be most excellent. "There can, therefore, be no doubt that with careful cultivation, strict selection of seed on the system adopted in South Carolina, Egypt can compete on equal terms with the American producers of the very finest Cottons hitherto known." The produce market at Alexandria, where the Cotton is brought for sale, is a commodious and fine building, having cost £25,000, and yielding an annual rental from offices of £5000. The following description of the arrangement for Cotton sales in this building is given by Mr. Consul STANLEY:—"On an upper floor extending over the front portion of the building the Khedive appropriated for the use of Mr. HASELDEN, his classifier of Cottons, commodious premises for sample-rooms, and show-rooms for the samples to be offered by public auction. Here twice a week the merchants have access to a sample from every bale of the Cottons about to be sold, so that nothing can be fairer than the manner in which the sales are effected. The samples are all in admirable order, numbered and registered, so that the custodian can produce in a moment the sample and particulars of any lot sold during the last four years."

—— CYATHEA MEDULLARIS, one of the most noble of Tree Ferns, is represented in the temperate-house at Kew by one of the finest specimens anywhere to be seen. It is about 24 feet high. The rachis of the fronds are violet-black, affording a distinct and handsome character. The withered fronds hang close to the stem, thus in a natural way protecting and preserving it from undue dryness. It is one of the few Ferns of economic use to man. The pulpy central portion of the stem is of starchy mucilaginous nature, much resembling sago, and it is eaten as a common article of food by the natives of New Zealand and the Pacific Islands.

—— The question, Which was the native country of the JERUSALEM ARTICHOKE? is exciting attention in some of the American papers. LINNÆUS fell into the error of assigning the plant to Brazil, a very unlikely country. Dr. ASA GRAY, in the *Nation*, thus sums up the present state of the case:—

"1. There is no historical evidence that it was ever brought from Brazil. 2. It is not known to occur there. VON MARTIUS never met with it, nor did HUMBOLDT find it in cultivation in any part of South America. 3. It is much too hardy a plant to be a native of Brazil, and its whole behaviour indicates a temperate climate. 4. It has no brethren in Brazil, but nearly all its near kin are natives of Mexico and the United States, chiefly of the latter. Finally, our surmise that this 'Artichoke' reached Europe by way of Louisiana, directly or indirectly, was founded upon our knowledge that a species of Sunflower very much like the Helianthus tuberosus abounds in the valley of the Mississippi, and bears tubers sufficiently resembling 'Artichokes' to suggest that they may be their wild original; and a cultivation of them for about fifteen years well-nigh confirms this opinion. To this view, however, an apparently fatal objection may be made—namely, that 'Jerusalem Artichokes' were known in Europe before LA SALLE's discovery of the mouth of the Mississippi. Yet they might have reached France by way of Canada, or, more likely, Spain by way of Florida. In that case they must have been employed as an article of food by our Indians of the Mississippi Valley; and one object of this note is to enquire whether there is any record of their having such an article."

—— At a recent meeting of the Philadelphia Academy of Natural Sciences, Mr. THOMAS MEEHAN introduced a subject which he said had never before, to his knowledge, been brought directly under the attention of a scientific body—the popular belief that WHEAT WILL TURN TO CHESS (Bromus). The scientific world might well be pardoned for deriding such an idea, for if so distinct a genus as Triticum can be found to produce a Bromus, our notion of the "leaping" power of Nature must be enlarged in considering theories of evolution. For his own part he had seen many popular impressions, derided by men of science, prove true. When a boy his agricultural friends insisted that the same toad which would deposit its eggs in water when convenient, would bring forth its young alive when deprived of the water privilege. He had proved the fact by keeping toads in breeding condition in confinement, and counting the toadlets when certainly not more than a few days old. The idea was once derided by intelligent men, but he believed most zoologists now admit that the common toad is oviparous or viviparous according to circumstances. In like manner in his youth he saw five young snakes, one after another, enter the mouth of the parent when alarmed. This was a universal belief of country people; yet only last year, on overwhelming evidence before the American Association, was it admitted as scientific truth. Again, during the past year we had seen how a popular belief in regard to an apparent elongation of tree trunks had proved to be true, though the popular reasoning was wrong. We now know that trees may sometimes be lifted from year to year by the gradual thickening of roots growing over a rock basis, so that a side branch which in a young tree is opposite to a mark may in time be as much as a foot above it, as popular observation contends it sometimes will. With these things in mind he had held himself open to give even some trouble to get reputed facts with reference to this question of Chess. He now exhibited one of several specimens collected by Mr. LEVETTE of the Indiana Geological Survey, and proceeded to point out that there could be no mistake about the branch from the Wheat ear being Bromus secalinus, the common Chess, so far as the palea and glumes were concerned. In the flowers he had dissected he found no perfect grain to compare with Wheat. In instances previously recorded there seems never to have been any dispute about the appearance from the Wheat head being the real Bromus. But it had been contended that in these cases an examination had shown an accidental union of two culms, one from each plant, and which, in some way, had formed an apparent union one with another. The most careful examination of this specimen, both by himself and friends, aided by powerful pocketglasses, had failed

to detect any such accidental union. There was indeed every presumption against the probability of any such accident in the present specimen. In the Wheat ear the small clusters of flowers inclosing the ultimate grain, came out at each bend of the zig-zag rachis. The spike of Chess came out at one of these bends, taking, in fact, the place of one of these small clusters. It was not an accidental union of two distinct parts, but a substitution of one part for another. Again the Bromus secalinus rarely gets as tall as Wheat, especially so tall as this strong looking Wheat head had evidently grown. There was, he said, another remarkable fact connected with the popular reports. Many other grasses grow with Wheat as well as Bromus secalinus, the common Chess or Cheat. It was apparently as easy for any of these to become accidentally conjoined with Wheat as this; but no case is brought forward. It is always the Bromus. Not to trust, however, to the appearances of this specimen, he suggested that it would be best to refer it to the microscopical section of the Academy for an instrumental examination, which was done. *New York Tribune.*

BRITISH GARDENERS.—VI.

James Barnes.

The subject of our present memoir, familiarly known amongst horticulturists as Barnes of Bicton, was born at Farnham, in Surrey, in the year 1806. His father was at that time gardener at Willey House, but he left Willey soon afterwards, and entered the service of the Rev. Mr. Onslow, Ripley, Surrey, and remained at Ripley till 1810. At this date the elder Barnes was engaged as manager to Mr. Lassam, who had established an extensive nursery at Witley, in Surrey, but the memorable severe winter which set in on Christmas eve, 1813, led to his removal from thence in this way:—The frost succeeded a mild wet autumn, and was ushered in by a terrible fog, which lasted from the 19th to the 24th of December, and was so thick and dense that many persons were lost by falling over chalk and stone quarries, or by walking into water. The intense frost lasted about fourteen weeks, and no other fuel was obtainable for the greenhouse furnaces but peat, which was got at with much difficulty, owing to the bad roads being blocked with snow (for it snowed some twenty-six days in the month of February, 1814), and, what was worse, the supply was soon exhausted. During all this time, owing to the badly constructed flues and stokeholes, it was a terrible job to keep the fires going; and when the fuel was used up, nothing remained but to cover up the houses with straw, Fern, and snow. The plants were thus kept so long in this state that, what with freezing, dampness, and darkness, scarcely one was left alive in May. The severe losses, both indoors and out—for the frost was not out of the ground till late in May, and snow lay on north aspects and in dells the whole summer, so that there was no chance of planting that season after Christmas—compelled Mr. Lassam to retrench, and among other things Barnes' services were dispensed with.

Mr. Barnes' father now entered, in 1814, the service of Henry Gill, Esq., of Eashing House, Godalming, Surrey, as gardener. The boy, James, who had previously from about five years of age been chiefly employed in weeding walks and nursery seed-beds, and in bird scaring, was now fully employed in Mr. Gill's garden. Mr. Gill was at this time over 80 years of age and infirm, and his only daughter and heiress was married to Mr. Frankland, who resided with his father-in-law; but shortly after Mr. Gill died. Previous to this, however, plans had been prepared for Mr. Frankland with a view to the general renovation of the place; and the work, which had been commenced, was now carried on vigorously, the mansion being enlarged, and entirely new gardens, with pleasure-grounds, shrubberies, and plantations formed, and also a new park from the adjacent farm lands—the gardening portion of the work being executed under the superintendence of Barnes senior.

Mr. James Barnes, the immediate subject of our memoir, and whose portrait we subjoin, was from the first fully employed in and amongst these extensive works until 1818, when, wishing to go to London, to see the gardening wonders he had heard of as being carried out there, he walked off early one cold frosty morning in February, passing through several snow-storms in the course of his march, and arriving soon after noon in Chelsea, in time to seek for work, was engaged for the next day by Mr. Moore, of the King's Road, then a florist in an extensive way of business, and cultivator of a host of herbaceous plants, and, at one of his grounds, of vegetables, salads, and fruits, including Pine-apples, Grapes, Melons, and Cucumbers for Covent Garden Market. Mr. Moore's home florist's grounds adjoined those of Mr. Davey, a noted Geranium, Tulip, Carnation, and Pink grower. On these grounds Downing's floor-cloth factory, which has since been twice burnt down, was erected. Mr. Davey's grounds lay between those of Mr. James Colville and Mr. Moore; indeed, at that time the whole of the land right and left from Sloane Square to Fulham was occupied by florists, nurserymen, and market gardeners. Barnes lived with Mr. Moore until the death of the latter, and managed the business one year after for the widow. He then engaged himself to Mr. Stone, of Peckham, an extensive Pine-apple, Grape, and Mushroom cultivator, and who also grew salads very extensively, and forced Asparagus, Seakale, and new Potatos. Mr. Stone had a fine walled-in garden, well stocked with fruit trees; also a nice extent of fine holding loam, for growing fruits, vegetables, and summer salads.

After a few years' practice with Mr. Stone, James Barnes undertook the superintendence of the forcing department for an extensive market gardener at Bermondsey, then called the Jamaica Level. After two seasons he made a new engagement with another market gardener at Greenwich to superintend the whole business, consisting of about 40 acres of garden ground, some 2000 lights of framing, 5000 hand-glasses for Lettuces, Cucumbers, Cauliflowers, with Asparagus forcing, Seakale, Mushroom, and small salad culture, and extensive crops of all outdoor vegetables in season, the land being variable, from stiff clay on the marsh side, to hot, light, gravelly soil, high and dry, on the other. His employer was an irritable, intemperate man, so after staying through two forcing seasons, Barnes left, and went to superintend the extensive work of forming the New Spa grounds at Norwood, Surrey. That finished, he was engaged by Mr. Hall Dare, Cranford House,

Great Ilford, Essex, to succeed Mr. George Mills, who was then leaving for Gunnersbury. About four years later, on the death of Mr. Hall Dare, Barnes was engaged by the late Sir Herbert Jenner, Chislehurst, Kent, with whom he lived for four or five years. From thence he was engaged by the late Lord Rolle, of Bicton, in 1839, to succeed Mr. Robert Glendinning, and after the decease of Lord Rolle he continued to serve Lady Rolle until May, 1869, having thus had charge of this noble establishment for nearly thirty years. The treatment he received from Lady Rolle in the midst of severe affliction, brought on by over-exertion and unremitting labour, and which treatment led him to resign his appointment, is matter of legal history. But for this, he tells us, he should never have thought of leaving his favourite pursuits, which were so amply provided at Bicton.

We learn from Mr. Barnes, that throughout his long, practical, and somewhat varied career, he was never out of employment, but had always a situation ready for him to enter on the same day on which he left his former one; and, further, during the whole time he was blessed with vigorous health and strength, until he broke down only a short time before resigning his charge at Bicton, through excessive work, amounting to from 18 to 20 hours daily, sudden exposure to many varying temperatures, and constant changes from agricultural duties to every branch of horticultural practice, including floriculture, arboriculture, &c.

As reminiscences of his horticultural career, Mr. Barnes states that "from 1818 to 1828, Cucumbers were extensively grown by the market-gardeners about London, both under frame-lights and under hand-lights. As fast as the Cauliflowers and Lettuces, which had been sheltered during winter in the frames, could be planted out in the spring, so that the frames could be spared, hotbeds were prepared, and Cucumber plants were ready to turn out under the lights.

"The same with all other lights, as they could be spared from forcing Asparagus, Seakale, early Potatos, Mint, Tarragon, Sweet Basil, Sweet Marjoram, or, in fact, as any lights became vacant, not a day was lost—hot well-worked London dung and plants and soil being ready; so that by May-day I have had under my charge from 1000 to 1600 frame-lights covering frame Cucumbers, and 6000—yes, 6000—hand and bell-glasses, all covering Cucumber plants on the ridging-out system. The Cucumbers grew luxuriantly, and bore abundance of fine healthy fruit almost on any kind of rich soil or situation in those days, and was very little subject to disease or vermin. Under the above system we began to cut about the middle of April in the frames, and about the beginning of June from the hand-glass ridges, some seasons ten days earlier. Thus, with the assistance of eight or ten men and women to collect and convey to the packing-shed, I have had above 8 tons of Cucumbers cut in one day. In those days the Gherkin Cucumber was extensively grown in the Fulham and Battersea fields, being sown down and hoed out on well prepared soil. From 1824 to 1828 I was very successful in growing early frame Cucumbers, cutting good fruit by the end or middle of January, and with these I took many 1st prizes at the Chelsea, Battersea, Tottenham, Windsor, and other Cucumber clubs or shows, as they were then called, and which held meetings from about February 25 until March 8 or 10 each spring. There was in those days no other means but the use of fermenting materials by which to produce early Cucumbers, and with the appliances then available there must be neither neglect nor lack of practical knowledge if the grower wished to succeed.

"I was very successful in crossing and producing improved varieties of Cucumbers. One, the handsomest and best quality Cucumber I ever saw, took, I believe, almost or quite every 1st class prize offered at all the shows at that time held about London. It was named at the Horticultural Society's Garden at Turnham Green, the Man of Kent, and was awarded a medal. I also raised at Bicton some good varieties of Strawberries, amongst them a beautiful white variety, named by Dr. Lindley at the Horticultural Society's meeting the Bicton Pine; it is still largely in cultivation as a favourite, fine-flavoured fruit. The stock of plants of this Strawberry Lady Rolle sold to Messrs. Knight & Perry, then at the Royal Exotic Nurseries, King's Road, Chelsea, and took out the value in various plants for her establishment.

"I also raised at Bicton that very extraordinary plant which Dr. Lindley named Colletia bictonensis, a shrub which is at once a great curiosity and one of considerable value, as during the whole of the winter it is covered with its pretty white flowers, which in shape and size resemble those of the Lily of the Valley, and are just as sweet, so that when the sun shines out they perfume the atmosphere for a considerable distance. The whole stock of this plant Lady Rolle disposed of, in consideration of £100 worth of plants in variety, to the late Messrs. Veitch & Son, of the Exeter Nurseries. Such was the encouragement I received from my employer for my perseverance and attention in raising new and improved fruits and plants.

"I planted the noble avenue of Araucaria imbricata in Bicton Park. The first plant of Araucaria that produced female cones at Bicton grew in the flower garden, and was induced to do so on account of my root-pruning it, to prepare it for removal the next year into the arboretum—that is about thirty or thirty-two years ago. The sickly stunted plant it was to replace in the arboretum was removed with a large ball of earth to a well prepared situation in the new American garden, where it recovered and grew away most healthily and luxuriantly, and the second year proved to be a male plant and produced a quantity of male catkins. Some of them I lost no time in taking to the female cones, to fertilise them—a process which succeeded admirably. I also fertilised another batch of cones then on another fine plant at the head of the lake, and both succeeded well. Some of these cones, which were exhibited at the Regent's Park, weighed from 7 lb. to 8 lb. each. At the same time and place I exhibited a collection of about 100 species and varieties of Conifers which were coning in the Bicton arboretum. Araucaria seed was first saved by me at Bicton, and was sown, and plants raised from it; and there are now growing, or were, when I left, plants from the first batch of seed large enough to bear cones and catkins, and thus to produce grandchildren, as many of the splendid Coniferæ that I first raised and planted out have done. Thousands of these are to be found in the various plantations and around the parks, and hundreds of acres of the waste common and moorland could have been covered with them had there been any encouragement afforded to do so. It is easy to calculate the great value to which such now useless land would have

reached in time. There are now to be seen about Bicton some of my first raised seedlings, quite timber-like trees, of Abies Douglasii and taxifolia, a noble and distinct variety, one of the very best, from 50 to 80 feet or more in height; also Picea cephalonica, large numbers of most splendid trees of my first seedlings; Picea nobilis, a grand lot, of various sizes and ages; Picea Nordmanniana, a splendid lot of fine healthy trees from my first batch of seed, and thousands in succession. I raised many of the better species of Pinus, and Abies, Picea, Thuja, Cupressus, and various other rare and useful trees and shrubs; and I left the nursery well stocked with plants of all sizes, besides the seed-beds crowded with healthy seedlings.

"In my time I have been a most successful cultivator of a great variety of plants, trees, vegetables and fruits: also a successful exhibitor at the shows of the Horticultural Society at Chiswick, at the Royal Botanic Society, the Egyptian Hall, Cremorne Gardens, Vauxhall Gardens, the Bromley and West Kent Society, and many others, with collections of stove and greenhouse plants, New Holland plants, Ericas, Geraniums or Pelargoniums, and of various new and well-cultivated plants—likewise of Peaches and Nectarines, Figs, Grapes, Melons and Pine-apples. I have grown the Providence to the weight of 14½ lb.; the Queen, but once, to 8¼ lb., but hundreds of Queens from 5 to 7 lb. each; the Enville to above 11 lb., the various kinds of Sugarloaf from 6 to 9 lb., the Smooth Cayenne from 8 to 11 lb., the Prickly Cayenne (a bad keeper) to 9 lb., the Montserratt from 7 to 9 lb., the Old Globe to 10½ lb., the Russian Globe to above 10 lb., and the Antigua, Jamaica, and several other varieties equally well swelled. I have also succeeded in raising some seedling Pines, crossed between the Enville and Black Jamaica, some of them not showing much improvement; but one, that turned more after the Jamaica, though longer or higher in pips, was a splendid winter-swelling and fine-flavoured variety."

Mr. Barnes claims to have established the first, or about the first, cottagers' and cottage garden exhibition in the county of Kent, nearly forty years ago. He procured some good garden seeds, which were given to the cottagers, with information how to sow them, and how to grow fruits, flowers, and vegetables. "It was truly astonishing," he remarks, "how attentive and industrious the cottagers became, and what splendid things they produced. Everything about the locality became improved, and the local nobility and gentry soon saw the improvement, and subscribed to support the society, while the exhibition day became quite an enjoyable holiday, as well as affording a profitable sight. On first entering Bicton I stated these facts to Lord and Lady Rolle, and offered to give assistance in every possible way to start such a society for the improvement of the poor, wretchedly-managed households and gardens of the surrounding dilapidated, neglected-looking villages; but to my great astonishment I received a flat denial, with the intimation that these folks knew too much already.

"I was the eldest of five brothers, all of whom followed the horticultural profession, being first trained as boys under my father in succession; and then, being the eldest, and living in the vicinity of London, I took them all in rotation, and gave them a start in the world. All have filled good situations, but have been now for some years dead. I think I have entered and started in the world more young men as good practical gardeners than any other gardener in the United Kingdom. Mr. J. Taplin, who followed Sir J. Paxton at Chatsworth, began with me; also Mr. R. Westcott at the Duke of Cleveland's, Raby Castle; Mr. J. Snow, at Lord Morley's, Saltram; Mr. W. Bennett, at Mr. Bass's, Rangemore; but I need not enumerate the many scores I have started—all that are living are, I hope, doing well." Mr. J. Barnes was, we believe, one of the first to discover the Potato disease, and his pen has been a singularly fertile one. He has written a treatise on the growth and cultivation of the Pine-apple four times for various gardening works within these forty years, besides many calendars of general horticultural work, hundreds of natural history articles for various publications, and many papers on improved agriculture. He now lives in retirement at Exmouth.

Home Correspondence.

The Heart of Horticulture.—I beg to offer you my best thanks for your efforts to foster the spirit of the corps among gardeners, by giving from time to time the heads of the men of note among us, who have made their mark on our line; for, besides fostering brotherly love among the elders, young men will be encouraged to emulate their deeds. Hitherto you have only given the heads of living men, but I would suggest that you might hitch in now and then a likeness of some of the leading men who have gone to their rest. It would be invidious to name individuals, but this may be left to your discretion, for in your hands their characters will always be in safe keeping. In the fine old halls of ancient families we see oil paintings of the ancestors of the present owners, and these pictures are reverenced and looked up to with a kind of household worship—a very pardonable kind of pride; but what I want to name here is the motto attached to most old pictures relating to—

"The deed that gilds their humble name."

Now, in horticulture, as it has risen from the ashes of quackery during the present century, there have been pioneers threading their way through thickets of ignorance, and great generals leading heavy columns after them; and, although great blunders have been made, and many pitfalls stumbled into, vast progress has been attained. The works planned and executed by the late Dr. Lindley and J. C. Loudon threw a flood of light upon the root and branch of gardening and botany, and the great gatherings at Chiswick silently taught all of us to repent of our deeds, and begin a new life, after the models that our betters put on the tables. I would divide the honours equally, and show no more favour to the successful cultivator of the epiphytal Orchid than to him who had in his homely but useful career improved a vegetable, and spent his energies upon a Kidney Potato; but there are some, like Mr. Rivers, of Sawbridgeworth, who have excelled in many branches, and whose living likeness would be grateful to both the fruit grower and the florist, like the general whose crest adorns, or rather did once adorn, the market-place in my native village; for it seems he could turn his hand to warfare at sea as well as on land, and had for his motto—*Per mare et terras.* It would be a great encouragement to many to know that their deeds would endure after them, and that one or more generations of living men and women should rise up to bless them. I bless the manes of that good man who endowed the school where I was educated, and as there were usually some sixty or eighty pupils, their name is legion that have had good cause to bless the name of Squire Duguid, of Old Meldrum. In Scott's *Marmion* we find this idea ably worked out in his description of Flodden plain. A prosy writer might have told us of a drinking fountain there for man and beast, but the poet seized the pious custom of honouring the dead without fear of scandal by adding the ancient custom of thanking the donor, and blessing him for what in his day he had done; and to make the most of it the poet lays the obligation on a lady, who asks your prayers:—

"Drink weary pilgrim, drink and pray
For the kind soul of Sybil Gray,
Who built this cross and well."

When people are once fairly started on the way to improve themselves they very soon set about improving their neighbours. Thus we read that when the Syrians raised the siege of Samaria, and fled for their lives in the night, the starving lepers, finding the camp deserted, feasted themselves first, but soon ran to tell their besieged brethren what a windfall awaited them. We follow one another by a kind of instinct, for we have not time enough to prove everything for ourselves. An elegant writer has said that if a track be made in the snow, we keep to it, however crooked it may be, rather than make loop lines for ourselves; and those are therefore to be thanked that have left us a straight path, and beaten it down before us. Monuments are plentiful enough to commemorate the bravery of the soldier and sailor who have done deeds of daring in defence of their country, and if we are to believe the inscriptions on tombstones, angelic wives abound and praiseworthy consorts are plentiful, but we have the authority of Kingsley in saying that among the assembly of "all saints" are to be found the aristocracy of the great and good. Now this is just what we want, viz., the likenesses and lives of the aristocracy of horticulture. When Cowper, the poet, looked upon the picture of his mother, he exclaimed, "Blessed be the art that can immortalise." The patrons of horticulture are, generally speaking, the large landed proprietors and the merchant princes, but I have in my mind's eye a real John Lackland, who did single-handed what is usually done by societies, for he held horticultural exhibitions at his own cost, and rewarded merit with salvers of solid silver as large as small tea-trays; I mean the late George Glenny, who in my time was not only a holder of exhibitions, but an extensive grower of plants: for I recollect his trial ground for seedling Dahlias extended over half an acre at least, and his Tulip beds under an awning in a private garden at Isleworth was the best display of that flower that I have ever seen. The reader will see that I am speaking of "the bubble reputation" before that bubble burst, never more to be inflated. Horticulture owes much to George Glenny, and his bust deserves a niche among better men; for notwithstanding his having been at one time tossed upon Fortune's horns, and at another time trampled under her feet, he still held fast by horticulture, and died in harness. I beg you will at an early date give us a likeness of the late Dr. Lindley, whom I was proud to call my friend, the king of English gardeners and botanists, for all the sheaves bowed loyally to his sheaf, and of whom it may be truly said that "he left the world of gardeners and botanists in tears, he ruled so well." [We published a portrait of the late Dr. Lindley in 1866.] My namesake, too, of tree plaister notoriety, might get a niche for the honour of the craft, for besides writing a book—*Forsyth on Fruit Trees*—he got a Government grant for his skill in doctoring them, the first and last grant of the kind that ever fell to the lot of an English gardener. It is only when we turn over the pages of the Old Masters in gardening and botany that we see the merits of modern treatises on the same subjects, where practical men have honestly worked out the problems for themselves, and not copied from authors of doubtful merit. And as many garden plants have gone over to agriculture, the field has benefited by what it has borrowed from the garden; so that when farmers of the front rank are praised for their prize bullocks, it may be to a field of Drumhead Cabbage by way of stock, other items finding flavour, that they owe their merits. *Alex. Forsyth.*

Hibiscus rosa-sinensis.—I should be glad to be informed by any of your readers if they have known Hibiscus rosa-sinensis to fruit in this country. I should be greatly obliged if any one could furnish me with specimens of the capsules. They appear to be almost unknown; at any rate, Dr. Masters, in monographing the Indian Malvaceæ, was obliged to describe them at second-hand. *W. T. Thiselton Dyer, Kew.*

Large Pears.—Will some of your fruit correspondents kindly give their opinions as to the relative flavour of Pears grown on walls or as standards? My experience is but slight, but I found some years ago that Marie Louise Pears, grown on a wall, were nearly double the size of those grown on standards in the same garden, but not nearly so good in flavour; and some fine Duchesse d'Angoulême Pears, all over 1 lb., grown on a south wall, lately sent to me, were not so good in flavour as the same sort from a standard tree. *W. S. G.*

Earley's November Plum.—In your report of the Fruit Committee of the Royal Horticultural Society, November 11, reference is made to this Plum, and it is there stated to be a cross between Guthrie's Late Green and White Bullace. If this statement is correct then Mr. Earley has succeeded in raising a Plum which I believe to be identical with a large Bullace grown at Ilford for many years before Mr. Earley was born. The old gardener at Loxford had great faith in it, and when I entered the gardens here it contained scores of trees. I was struck with its large size, but as Messrs. Rivers of Sawbridgeworth mentioned a similar variety in their list at that time I thought no more of it. Many of the old trees were cut up for firewood, but we have a dozen or more healthy trees in full bearing now, and knowing it well, I recognised the branch and fruit at once in the committee-room at South Kensington. I would be very interesting if Mr. Earley would give a full history of his tree; and next year I shall be pleased to exhibit specimens from the trees at Loxford on the same date as Mr. Earley, all our fruit having been used this year. *J. Douglas, Loxford Hall Gardens, Ilford.*

The "Jersey" Fruit at South Kensington.—The dissatisfaction expressed by our home fruit growers on November 11 at having to compete with the Jersey growers was both loud and deep, and many of our best gardeners expressed their determination not to attempt competition with them on even terms again. Unfortunately the Society has already issued its schedule of prizes for next year, including the November fruit show, and to alter the conditions now to meet the wishes of our home growers would be difficult, if not impossible. The results of the awards show that it is in the classes for Pears alone that competition with the Jersey growers becomes unfair, as it is too evident that, as regards the growth and maturity of this fruit, they are in the matter of climate immensely favoured. Better examples of home-grown Pears have seldom been staged than were seen on the 11th, but they had but a poor chance against the Jersey-grown fruit. Amongst Apples, our home samples were, on the whole, much better than the Jersey fruit. It was only in the large collection of dessert kinds that the Jersey men were formidable. For Apples and Pears there was a total of ninety-two prizes taken: of these thirty were taken by five Jersey men and sixty-two by thirty-three home growers, giving barely an average of two prizes to each of the latter. For Pears alone thirty-seven prizes were taken, and of these twenty-four went to Jersey: and when it is remembered that the competition was generally large it will be understood that our home growers did not grumble without reason. There is one phase of the case that certainly needs special attention. In the pages of a contemporary I observe a descriptive paragraph of the wonderfully fine samples of Pears then to be seen at the shops of Mr. G. Thomas, Burrard Street, St. Helier's, and of Mr. J. Pluck, corner of New Street. Now, as it is evident that these gentle-

men are fruiterers, and, consequently have an immense advantage over private growers, who only stage what they have themselves produced, there is a rule in the schedule which stipulates "that the exhibits must be the *bonâ fide* property of the exhibitor or his master," but that is no obstacle to the staging of subjects acquired by purchase or otherwise, consequently these fruiterers were quite within the law in staging their shop commodities. Mr. Pluck alone carried off thirteen prizes, and Mr. G. Thomas eleven prizes, thus having the lion's share of the spoils. It occurs to me that the Council would meet all the requirements of the home growers if they would exclude all but the actual growers from the competition, unless they provided special classes for fruit traders. *A.*

Sedum pulchellum (p. 552).—There appears to be an error as regards the period of its introduction to English gardens. Paxton mentions it as having been introduced from North America in 1824. I have known and cultivated it several years: it proves quite hardy in my rockwork. It is known in some parts of the country as the "Bird's-claw" Sedum, from the shape of its racemes of flowers, bearing a fanciful resemblance to the large foot or claw of a bird. There is a small, neat variety of S. acre sent out from some nurseries as S. pulchellum. *J. A. P.* [What we have seen under this name is S. sexangulare. Eds.]

Bambusa gracilis.—This, the most elegant of all the Bamboos, is not so well known as its merits deserve, for if planted in suitable situations it has a most pleasing and striking effect. When planted near the margin of water, or on elevated spots where it can droop over, it shows off its beautiful feathery foliage and drooping reed-like stems to great advantage. All the other Bamboos with which I am acquainted are stiff and tame in comparison, and for grace and beauty it is quite unapproachable by any evergreen shrub. This is, I believe, the variety that furnishes anglers with fishing-rods, and it is quite likely that it might be grown in suitable situations in this country for this and other purposes to great profit. The hard ripened canes form capital flower-stakes, and are more lasting for this purpose than anything I have ever used. So hard and horny do they become that it takes a well tempered blade to cut them. The plant succeeds well in deep loose sandy soil, containing plenty of moisture. In severe winters it is necessary to afford it some protection round the collar, as the newly-formed succulent canes just emerging at that time are apt to become injured. Cuttings, if put in early in the autumn, root freely, but they should be placed in moist, shaded, sheltered situations, where they soon make strong plants. *J. Sheppard.*

Moles as Vegetarians.—I think if Sir W. C. Trevelyan could see the position of the kitchen garden here he would take another view of his theory that water-rats eat the Beet (p. 559). The water-rats would have to travel half a mile and pass through a Mangel field before getting to the Beet. The runs were traced, and nothing but mole runs could be found; therefore I think my foreman, Arthur Madgett, was quite justified in attributing it to the moles. *G. Holliday, The Gardens, Castle Hill, Blechingley.*

Coffee Disease in Ceylon.—Permit me to correct a rather important mistake in the extract which you printed last week from Dr. Thwaites' letter in the report of the Scientific Committee. The reports of the estate superintendents are said "to demonstrate the fecundity of the worst phase of the disease." It should have been "periodicity." This, of course, is a point of some consequence to have ascertained; knowing the precise time of the enemy's attack, there is some chance of its being disarmed. — *W. T. Thiselton Dyer, Kew.*

Tillandsia musaica.—The *Gardeners' Chronicle* of October 17 says: "as flowers have not yet been observed by botanists." I am anxious to give you some remarks about this splendid plant, because Mr. Linden has probably forgotten to name me as its discoverer, as he has done in the case of so many splendid novelties, which have adorned his stoves, and his *Illustration Horticole*, and his button-holes. He even by mistake attributes to others the discovery of plants which I was the first to gather, and I hope nobody expects me to bear this any longer without protest. I discovered Tillandsia musaica during December, 1867, and sent it Mr. Linden in 1868. I paid it another visit in 1873, and saw it bearing many fruits. The plant grows at 3000 feet elevation in a certain very dense wood next to Teorama, at a small distance from Ocaña, in the Magdalena territory. It is no epiphyte, since it very often grows on the soil and only sometimes ascends trees. Very often I found a profusion of young seedlings. The capsules were not ripe in December, nor in January. The inflorescences stand on stalks of 1½ to 2 feet in length. The broad bracts of the younger inflorescences were very showy. I believe the bracts were scarlet, the flowers white, waxy. There are two other species, which I observed, very near this. The one was found in fertile woods of the Murri stream, a tributary of the Atrato, at a long distance from the locality of the first. This may now be well developed in the nursery of Messrs. Veitch. The other one is a *non plus ultra* of the highest effect. It would be a grand thing for winning first prizes at exhibitions, and gaining the honours for the sacrificed health of the collector. It has never been introduced alive to Europe. It grows at 5000 feet, and beats the two named plants in its strong texture, beautiful colour, and high growth. *Gustavus Wallis, Botanical Traveller.*

Utricularia Endresii. — *Gardeners' Chronicle*, November 7, 1874, p. 582, line 10: "Beware, then, ye sheep!" This is a most unfortunate mistake, since I wrote, "Beware them of cheese" [*anglicé*, let them beware of cheese], the illustrious authorities for the voracity of those plants having stated that cheese does them no good. We may hope to obtain full details about that interesting matter from Mr. Darwin himself, who is so accurate an observer, that the suggestion he may only have tried sharp cheese, and not such mild stuff as good Gruyère or Milano, would appear a very ridiculous impression. We may expect the most astonishing discoveries. *H. G. Rchb. f.* [We must apologise for the mistake, but submit that it was excusable from the imperfect handwriting, Germanic idiom, the general meaning of the context, and the specific allusion to mutton-chops! Eds.]

The Silphium.—In the *Gardeners' Chronicle* of November 14 there is an interesting article upon this plant, but the writer does not notice that the late Admiral Smyth, who was employed in the Mediterranean, believed that he had discovered the plant, wrote a small pamphlet on the subject, and took the Silphium as his heraldic device. Some time ago I made inquiries of the surviving members of his family, but was unable to get any precise information; but the plant was believed to be Thapsia Silphium, which Don has described in his *Botany*. Surely it ought not to be so very difficult of identification, as we know that its habitat was in the neighbourhood of Cyrene. Now it is improbable that a plant formerly thought to have so many virtues should be quite neglected by the present inhabitants of the country; if so, any traveller in Cyrene might obtain specimens of such wild umbelliferous plants as are supposed to be useful in medicine. They are not likely to be very numerous, probably only one or two. The subject is well worth investigating. *G. S.*

Hardiness of Cuscuta reflexa.—To show that the Cuscuta reflexa, a species of Dodder, will bear a low temperature, it has withstood 5° of frost two successive nights with us, namely, on the 11th and 12th of the present month. It is growing on a Rhododendron that was removed from the conservatory in the early spring, on which the plant had fastened itself during the time it was in the house, from an Ivy that it was growing on. It will thrive on almost any plant—Pelargoniums, Fuchsias, and the like. It is a climbing, leafless plant, with flowers similar to those of the Lily of the Valley, but much smaller and very fragrant. *S. G. Rowberry, Newton Hall Gardens, Northumberland.*

Veitch's Self-protecting Cauliflower.—We herewith send for your inspection a head of our Self-protecting Cauliflower, which we have received from one of our growers in Yorkshire, to whom we sent it for trial. We believe it will prove a really valuable variety for use in November and the beginning of December, as, being so thoroughly protected by the foliage, it will probably resist several degrees of frost. We give you below dates of sowing this variety, Autumn Giant and Walcheren, with the result:—The "Protecting," sown April 8; Veitch's Autumn Giant, April 18; Walcheren, April 29. The result is, that the two latter are off, while the Protecting is only just coming in. *James Veitch & Sons.* [The "flower" in the specimen received only measured 13 inches in circumference, was very close and white, and had foliage sufficient to protect half-a-dozen of the same size, so that its frost-resisting quality ought to be great. The only doubt is whether it is not too long on the ground. Eds.]

Chairs for the Judges.—Having lately partaken of the prandial hospitality of several of the City Companies, whose taste for good wine is better than their taste for good cooking, and whose taste in decorations generally is not my taste, I have had very forcibly placed before me the fact of the incompetency (to use a mild expression) of the persons employed to decorate the tables. If their "efforts of genius" may be taken as a sample of professional table decoration, no wonder that a fiat has gone forth which disallows any but flat decorations. I can now fully understand why it is that, when I volunteer to arrange a dinner-table, I am so often asked to abstain from using any tall vases. The idea which people naturally entertain of a tall vase is that of a block of flowers which intercepts your view of two or three people on the opposite side of the table. But a properly-arranged tall vase does not intercept the view at all; and upon this difference depends the determination of whether a vase of flowers or a plant is fit or unfit for a dinner-table. At the same time it is undeniable that, on entering a dining-room in which the table is covered with well-arranged tall vases it is difficult even for a practised eye to avoid feeling that he will, when he takes his chair, be prevented from seeing any one on the other side. Once seated, however, the illusion vanishes. Having had several years' experience of these facts, I strongly recommended to those who are framing schedules of prizes to be offered for dinner-table decorations of all kinds, to make it compulsory that the judges should arrive at their awards as the French sportsman prefers to shoot his partridges—sitting. *W. T. P.*

Wellingtonia gigantea.—I have measured a tree here to-day which is 30 feet high, and 50 feet in circumference of the lower branches. The bole is 7 feet in circumference at the lowest part. It is a fine pyramidal-shaped tree, with the exception of a little deficiency at about 3 feet from the top, owing to a branch taken off to-day that was forming another leader. *R. Ogley, Clayworth Hall, Bawtry, Notts.*

Anemone Honorine Jobert.—This plant is not a garden hybrid between A. vitifolia and A. japonica. The variety originated at Verdun-sur-Meuse about sixteen years ago, in the garden of Mr. Jobert, banker. From there the plant came into our hands in 1860, through my grand-uncle, Mr. Gustav Memminger, of Verdun, a great amateur of plants, after whom the Æsculus Memmingeri is named. Mr. Jobert, his friend, obtained the Anemone Honorine Jobert from a large tuft of the old A. japonica, with red flowers, from which plant a root branch flowered with pure white flowers. Mr. Jobert successively cut down all the red flowering branches, and so raised the white variety. Our nursery was the first to introduce the plant to commerce, under the original name given by Mr. Jobert, A. japonica Honorine Jobert. I have often seen at Mr. Jobert's the original plant from which the white variety was fixed, and therefore I guarantee the exactness of my assertion. *Otto Froebel, The Nurseries, Neumunster, Zurich.*

Vellosia cœrulescens.—I have just ascertained from Kew that the plant sent to me from Ghent as Vellosia cœrulescens (and about which I sent you a short notice which appeared in the last issue of your paper) is not a Vellosia at all, but Barbacenia purpurea, belonging to a family closely resembling and nearly allied to the Vellosia and indigenous to the same countries. The Barbacenia purpurea is well figured in Paxton's *Magazine of Botany*, vol. xii., p. 27, and also in the *Botanical Magazine*, vol. liv., tab. 2777. *W. E. G.*

How to Prevent Rabbits from Injuring Newly Planted Forest Trees. — Being a great friend to animals, rabbits among the number, I wish to make known a method we have tried here with great success. When the trees are being planted, if there is grass, turn the sod upside down; then take short branches—Willows are the best, for they can be pointed more easily—and stick them all round the tree; they will last a considerable time, and the rabbits cannot make their way through them to the bole of the tree. Some put a pipe-draining tile over the tree instead, but the branches protect it higher up. In very severe weather a few branches cut from Ash trees serve to keep rabbits from injuring Hollies, &c.; they prefer barking the branches. *E. O. Maynard, Layton Hall, Darlington.*

Reports of Societies.

Edinburgh Botanical: *Nov.* 12.—The first meeting of the thirty-ninth session of this Society was held on Thursday, the 12th inst., when Sir Robert Christison, Bart., President, occupied the chair. After the minutes of the previous meeting had been read, the President made a brief statement as to the membership of the Society. He stated that at this time last year they had Her Majesty the Queen as patron; two honorary Royal Fellows; six honorary Fellows who were British subjects, and twenty-four foreign; 118 resident Fellows; 356 non-resident Fellows, with twelve lady Associates; 100 corresponding members, and twenty-eight Associates—making altogether 647. Since that time the Society had lost thirteen by death and one by resignation. But, on the other hand, they had an accession of twenty-three new members, of whom by far the greater number, he was glad to say, had been resident Fellows. There was one foreign honorary Fellow, twenty resident Fellows, one non-resident, and one Associate—thus increasing the total number from 647 to 656.

The President's Introductory Address.—Sir Robert Christison then proceeded to deliver the Presidential address. He began by observing that he had found it impossible to undertake the discussion of any general topic of botanical interest; but, fortunately, a subject of great local interest to the Society, and to the

advancement of botanical study in this city and country, had somewhat suddenly turned up, on which it might be of some little use that he might at present express views in which he had not the least doubt that the members of the Botanical Society would generally concur with him. That was the necessity which had arisen for the farther extension of the Royal Botanic Garden. It would probably astonish even some of themselves, and perhaps at first repel those official persons who considered it their primary duty to defend the public purse against all comers, especially those who attacked it in the name of science, to be told that the first garden applied to the purposes of botanical science in Edinburgh was a garden of 40 feet square; that it had been increased at different periods to 27 acres; but that, nevertheless, it had not yet attained the dimensions which science and practice alike demanded. There existed documents which clearly showed that they owed the first rudiments of a Botanical Garden to the public spirit and influence of two of the most remarkable men in the profession of physic in this country during the last half of the seventeenth century—Sir Andrew Balfour and Sir Robert Sibbald. Sir Robert Christison gave a brief *resumé* of the progress made by the Society since its institution in 1676, and towards the close of his address remarked that the new Royal Botanic Garden had been the pet of every one who had had connection with it—of its Professors, of its Superintendents, of the University, of the Town Council, of the Botanical Society, of many distinguished citizens besides, and of the Crown authorities, both here and in London. In consequence, it had only to prove its wants, and its necessities were forthwith supplied. Thus its extent had been twice materially aided, until it was now twice its dimensions in 1821. A magnificent Palm-house had been erected [see *Gardeners' Chronicle*, 1874, vol. i., p. 663], and a large temperate-house; a museum had been built, and a new class-room, with proper rooms for practical study; and a fine building had been appropriated to the purposes of a herbarium, which, under the auspices of the University, had now attained great magnitude. In every department the garden was in a flourishing condition, even the aged trees themselves seemed to rejoice in the surrounding prosperity, and renewed their vigour. Still, however, there was a want, and that was an arboretum—in plainer language, they had no forest. There was no fit space for the culture of their ordinary forest trees—for studying the conditions for success in the cultivation of them, the causes of failure, their diseases, and the prevention of these as well as their cure. Consequently there was no opportunity for the study of forestry, and in the present position of the country this appeared to be a serious defect. Their Professor turned out no small number of scientific botanists, their Superintendent sent off annually many first-rate gardeners to all quarters, but there was no acknowledged place in this country where foresters and superintendents of forests could be thoroughly trained; and yet, where could that important branch of botanical instruction be so easily taught practically as here?—where all the elementary or fundamental training was close at hand, and where they had one thoroughly competent to instruct, and requiring nothing else than a sufficient field for instruction. He had of late been more than once applied to by young men destined for the charge under Government of the forests in India and the Colonies, to recommend them instructors and places for instruction in the management of forests in Scotland; and the request had generally been accompanied with the information that the Government authorities required them to spend a considerable part of their period of study, before appointment, in the forests of France and Germany. In this country the foresters were either unable or unwilling to instruct, or found it necessary that their students should have previously had elementary education in the matter. In drawing his address to a close, Sir Robert Christison earnestly hoped that Government would be induced to grant the request which was now before them—viz., that about 20 acres should be taken into the gardens for the purpose of establishing an arboretum. He thought this might now perhaps be accomplished the more readily that the expense of its maintenance would be comparatively trifling.

Professor Balfour proposed a vote of thanks to Sir Robert Christison for his interesting address, and mentioned that he was now in correspondence with officials of the Government regarding the proposed addition to the Botanic Gardens.

Mr. France, Penicuik, as a forester, was delighted that Sir Robert Christison had taken up this subject; and gave it as his opinion that no better place could be found for an arboretum than the Botanic Gardens, Edinburgh; and stated that he was sure the foresters of Scotland would do all in their power to aid the Society in the accomplishment of the object they had in view.

Sir Robert Christison remarked that the Society should also endeavour to bring landed proprietors to their aid in this matter.

The following communications were read:—

I. *Notes of an Excursion made by the Scottish Botanical Alpine Club to the Aberdeenshire and Forfarshire Mountains in August*, 1874. By Professor Balfour.

The Scottish Botanical Alpine Club having in former years visited on several occasions the Breadalbane Mountains and the Grampians in the vicinity of Clova, resolved this year to make an excursion to Braemar, a district in which many rare alpine plants occur, and some portions of which have not been sufficiently examined.

Tuesday, August 4.—The party left for the Spittal of Glenshee. From the Spittal they proceeded to Castleton, Braemar, which was reached about 5 P.M., not, however, without some adventurous escapes. As full intimation had been given to Mr. M'Nab at the Fife Arms Hotel of the number of the party and the date of arrival, it was expected that complete accommodation would have been provided. Unfortunately, however, on their arrival they found that the inn was full, and that all the accommodation to be had was two attic rooms with two beds in each. In consequence of this, eight of the party were compelled to take up their quarters in a small cottage, sleeping two in a bed, one occupying the top of the staircase, one a sofa, one a bed in the kitchen, and one a small couch. In place of the ordinary tea-dinner, the party had to conform to the new arrangements at Braemar, and sit down to a *table-d'hôte* in their ordinary botanical garb amidst an assemblage of visitors in full dinner-dress, with all the appendages of waiters, lacqueys, &c. The old botanical *prestige* of Braemar is now gone, and the custom of putting up plants in drying-paper in the evening is at an end. In fact, botanists are voted a bore, and fashionable excursionists who pay well, eat, drink, and dress well are now in vogue. During our visit the plants had to be arranged under very difficult circumstances, indeed when the weather was dry it was done in the open air. There is no sympathy with what the Prince Consort's keeper called "herb gatherers"—an epithet applied by him many years ago to a botanist who attempted to ascend Lochnagar.

Wednesday, August 5.—After breakfast the party started for the keeper's house at the foot of Loch Callater, whence they ascended Lochnagar. The weather at first was promising, but ere long it became very wet, misty, stormy and cold. When they reached the cairn the party were drenched and benumbed. In spite of this some of the party descended one of the steep corries, and succeeded in gathering Saxifraga rivularis, and other good alpine plants, such as Sibbaldia procumbens, Gnaphalium supinum, Poa alpina, Cochlearia officinalis (alpine variety), Cerastium alpinum, Thalictrum alpinum. They found it impossible to get down to the little loch at the foot of the cliffs, as a mass of steep rocks completely prevented their doing so. In consequence of the thick mist they had descended the wrong corry, and were therefore compelled to return by a very steep and difficult ascent to the summit, and had thence an uncomfortable descent amidst mist and rain.

Thursday, August 6.—This morning at eight the party started for Canlochan. They proceeded about 7 or 8 miles on the Glenshee road, where they left the conveyances, and ascended the hills above Canlochan Glen, gathering on the way most of the common alpine plants, such as Alchemilla alpina, Saxifraga stellaris, Saxifraga hypnoides, Epilobium alpinum, alsinifolium, &c. They also gathered in considerable quantity Phleum alpinum, Alopecurus alpinus, and Polypodium alpestre. Near the summit of the ridge they gathered Carex rariflora, Carex aquatilis, and Splachnum vasculosum. Descending into Canlochan the party examined the rocks at the upper part of the glen, which are traversed by quartz veins. Among the rarer plants gathered among the rocks may be mentioned Gentiana nivalis (very large), Erigeron alpinus, Poa alpina, Carex capillaris, Dryas octopetala, Carex atrata, Saussurea alpina, Veronica saxatilis, Saxifraga nivalis, Potentilla Salisburgensis, Hieracium anglicum, H. gracilentum, H. chrysanthum, Pyrola secunda, Antennaria hyperborea, Epilobium anagallidifolium. At 2500 feet were gathered Prunella vulgaris, Arabis hirsuta, Lysimachia nemorum, Bunium flexuosum, and Chrysosplenium alternifolium.

In the descent into the glen the party passed through an immense profusion of Allosorus crispus. The party afterwards proceeded to the southern side of the glen and gathered abundance of Mulgedium alpinum, in the old station first discovered by Dr. Greville, Mr. Brand, and myself, in 1837. Ascending the deep ravine which leads up to Glas Maol, we gathered fine specimens of Saxifraga nivalis, Veronica alpina, Epilobium alsinifolium, Cochlearia officinalis (alpine form), and Veronica humifusa.

From the summit of Glas Maol we had a most extensive view to the sea on the east side. Thence we descended to the Glenshee road, where we met our conveyances at 6 P.M., and returned to Braemar about 7.30 P.M.

Friday, August 7.—This morning the party again started at eight, being divided into two companies; one proceeded by a two-horse drag to the foot of Loch Callater, and thence walked to the rocks at the upper part of the glen, examining especially those around Loch Chander (Kander). Among the plants gathered by the party the following may be enumerated:—Carex rupestris, fruiting freely near the Breakneck Waterfall; Salix lanata, Lapponum, phylicifolia, Myrsinites, reticulata, herbacea, and arbutifolia; Carex vaginata, stictocarpa, vitilis, atrata, capillaris and rigida; Hieracium chrysanthum, pallidum, microcephalum, and eximium; Grimmia atrata, and many other alpine plants. The party did not find Carex Vahlii, which was first discovered on the rocks at Loch Chander by Dr. Greville and myself, but Mr. Sadler was fortunate in finding Carex frigida, a new British plant, and a Willow new to science, which has since been called Salix Sadlerii by Dr. Boswell Syme. In Loch Callater Subularia aquatica and Lobelia Dortmanna were collected. At the Breakneck Waterfall a fine eagle was seen.

The other division of the party walked to the mountains on the opposite side of the Dee from Castleton, and we were accompanied in our walk by the old keeper, Angus Mackintosh, who met me first at Braemar in 1830. It should be stated that the old guide, John Downie, is still at his post at Braemar, but not able for hill-climbing. He took a great interest in our adventures.

We proceeded to the mountain called Little Craig-in-dal, where we gathered abundance of Astragalus alpinus in the station first discovered by me in 1847. In many parts of the hills this plant forms the turf, and it is said to be eaten by the deer. A considerable number of the plants were in flower. Among other plants gathered I may mention Betula nana, Cornus suecica, and of alpine Hieracia, Hieracium eximium, pallidum var., H. melanocephalum.

Dr. Craig and Mr. Gibson visited the summit of Ben Abou, but did not get any additional plants of interest. They met with a small one-flowered form of Gentiana campestris. They were unable to go to the spot where Saxifraga cæspitosa was gathered many years ago by Dr. Martin Barry.

The day was sunny, with occasional showers, and the views of Lochnagar, Cairn Toul, and Ben Macdhui and other high mountains were very fine.

The two divisions of the party met again at the hotel at 7 P.M.

Saturday, August 8.—The party left after breakfast, and proceeded in two drags and a dog-cart to the Spittal of Glenshee, where they changed horses and conveyances and proceeded to Blairgowrie amidst heavy showers. They reached the railway station in time for the train at 2.50 P.M., and arrived in Edinburgh at 6.30, to witness the end of a terrific thunderstorm.

The number of miles travelled by the party was about 350, and the total necessary expenses about £5 each.

II. *Notice of a New Alpine Willow, Salix Sadlerii (Syme), and of Carex frigida (All.) as a British plant.* By Mr. John Sadler.

Mr. Sadler had discovered these interesting alpine plants near Loch Chander (L. Ceann-mor) in Aberdeenshire, while on an excursion with the Scottish Botanical Alpine Club, of which he is secretary, in August last. Dr. Boswell Syme, who examined the plants, has named the Willow in honour of the discoverer. The Carex frigida has hitherto only been found on the Alps of Central Europe. Specimens and drawings of the species were exhibited.

Scottish Arboricultural: *Nov.* 4.—The twenty-first session of this Society was opened on Wednesday, November 4, in the lecture-hall at the Royal Botanic Garden, Edinburgh, Dr. Cleghorn, of Stravithy, M.D., F.R.S.E., President, in the chair. In delivering his retiring address Dr. Cleghorn alluded to the satisfactory progress of the Society during the past year, both as regards the roll of members and the character of the competitive essays. He briefly sketched the rise of arboriculture in Britain since the sixteenth century. The home-grown timber being comparatively small in quantity, our supplies on the east coast were, he said, drawn from Norway, Sweden, and Russia, while the wants of the western markets were obtained from the great continent of America. These importations had now reached colossal proportions. The forests of these countries had hitherto been considered inexhaustible, but the strain was now severely felt, large tracts had been bereft of this source of wealth, and legislative measures had been adopted in both hemispheres to regulate the felling and prevent wasteful destruction of timber. Dr. Cleghorn gave details of the lumber trade in Canada and the United States, adverted to the forestal condition of France and Germany, and gave illustrations of the progress of forest management in India, as evidenced by the recent publication of Manuals for North and South India, and other valuable additions to forest litera-

ture. He gave an interesting account of the management of the Indian forests, and of the valuable products derived from the various trees cultivated therein, though many large tracts of forest were simply grown for the sake of the fuel. He pointed out that the nursery culture of the Deodar in the Himalayas was identical with that pursued in Scotland with the Larch. He earnestly called upon young assistant foresters to make good use of the opportunity which the session of the Society afforded them for examining the museum and garden, which were arranged with a skill and judgment which told of the eminent men of science who had been charged with their formation and maintenance. He trusted that their faculties of observation would, by such inspection, receive a healthy stimulus, and that they would go home with enlarged views of their position. Perhaps some influence might lead them, or some previously dormant power be stirred up in their mind, which, after diligent study and patient perseverance, might raise them to the rank of a Loudon, a M'Nab, or a M'Corquodale. He understood that there was a proposal for the enlargement of the beautiful Botanic Garden, with a view to the formation of an extended arboretum, which would add to the usefulness of the garden for educational purposes, and also contribute to the amenity of the city. In conclusion, the Doctor thanked the Society for electing him to the honourable position which he had occupied for two years. He was led to understand that it was the unanimous feeling of the Society that Professor Balfour should be President-elect. He believed that the Professor's name, being in this way associated with the Society, would be an honour done to the Society, and at the same time a just tribute would be paid to Professor Balfour's life-long interest in the success of arboriculture.

On the motion of Mr. Maxwell, of Munches, seconded by Mr. Lorraine, of the Riding Mill, Northumberland, a cordial vote of thanks was accorded to Dr. Cleghorn for his valuable and interesting address.

New Members.—Upwards of sixty new members were proposed and elected.

Treasurer's Report.—Bailie Methven, Treasurer, gave in his annual report, which showed that the income of the Society for the past year had been £196 2*s.* 7½*d.*, and the discharge £191 3*s.*, including £76 6*s.* paid for printing the *Transactions*, and £29 paid into the sinking fund, which now amounted to £180. The report was approved of.

Influence of Trees on Rainfall and Climate.—The Chairman submitted the report of the committee on the influence of trees on the rainfall and the climate of a country. Observations had been made throughout the year at Carnwath, and some very important general results had already been arrived at. The committee regretted that the grant of £20 from the British Association towards the investigation had not been renewed by the Association. The committee, however, considering the importance of the inquiry, suggested that steps should be taken for continuing the observations during at least four months of the year.

Mr. Buchan, secretary of the Scottish Meteorological Society, gave a very interesting report of experiments on the rainfall and temperature at Carnwath. Mr. Maclean of Carnwath had entered very warmly into the inquiry, and placed three stations at the disposal of the Society. Dr. Cleghorn and himself had visited the three places, and had fixed on one presenting conditions of a very favourable character. The forest selected contained about 62 acres, and a little outside to the north-west was a green knoll quite clear of trees. In the interior of the wood, and 320 yards distant, was another knoll of precisely similar character. Immediately on the top of the western slope of this knoll was a bare patch about 50 feet in diameter, and this was surrounded on all sides with trees of various sorts, varying from 40 to 50 feet in height. The growth of the greensward and of the plants around showed that the situation was well fitted for the inquiry. The next thing to be done was to procure two complete sets of meteorological instruments, with proper protection, exactly similar to each other. The instruments were placed—one set on each knoll—at exactly the same height above the ground. The observer, Mr. Currie, than whom he could not name a better for intelligence, care, and accuracy, began his observations on September 16 last year, and these were continued till the end of last month. The instruments showed the temperature of the air and the temperature of evaporation at the moment of observation, and the precise points to be elucidated were the temperature and the condition of the atmosphere as regards moisture outside the wood as compared with the interior of the wood. In the interior of the wood the highest temperature reached was 79°.4, which occurred on July 18 this year, and the lowest was 19° on February 19, also this year. Outside the wood the extremes occurred on the same days, and were 78°.1 and 19°.8, thus giving a range of temperature over the whole year of 60°.4 inside the wood, and 58°.3 outside the wood. The mean of all the maximum day temperatures inside the wood was 52°.2, and the mean of the minimum temperatures was 38°.8, while the averages outside the wood were 51°.7, and 38°.7 respectively. The means of the night temperature inside the wood were all but identical in both places during the whole period of observation—for, excepting in the month of June, the difference never amounted to more than a fifth of a degree. On the other hand, the averages of the day for the maximum temperature showed an excess of half a degree in favour of the station inside the wood. Looking to the separate months, several very interesting points came out. Beginning with September, 1873, the temperature inside the wood was six-tenths of a degree lower than the outside. In October it was half a degree less; in November, inside and outside were exactly equal. In December the temperature inside of the wood was a third of a degree higher than the outside; in January a tenth more, in February a tenth less, in March a tenth more, in April one degree and a tenth warmer in the inside than in the outside, in May one degree and eight-tenths warmer, in June one degree nine-tenths, in July one degree one-tenth, in August eight-tenths, in the first half of September six-tenths, and in the last half of September two-tenths. The remarkable result disclosed during the annual rise of temperature in the spring and summer months was, that in the inside of the wood the temperature was two degrees higher than on the outside, while during the annual fall of temperature in autumn the temperature of the day inside of the wood was in the mean half a degree lower than on the outside. Now, if this question had been looked at solely with respect to the conservative influence of trees in preventing sudden rises and falls of temperature, a different result might have been looked for. In other words, with the general annual rise in the temperature of the air, the temperature inside the wood might have been expected to have lagged behind, while the fall in the autumn might have been expected to have fallen less quickly. The experiments had proved the reverse to what, as an experienced meteorologist, he would have been led to expect. This he explained by the fact that during the spring and summer months the annual increase of temperature took place owing to the gain by solar radiation being highly in excess of the heat lost by terrestrial radiation, and it was during this period that the day temperature of confined spaces in woods to which the sun's rays had access, and where the circulation of the air was impeded, must exceed the temperature outside the wood, where the circulation of the air was free all round. It was to be noted also that the difference was greatest in June. He went on to say that the temperatures observed in the morning and evening in all points closely resembled those of the maximum and minimum temperatures. With reference to the moisture, the following were the results:—The average dew point inside the wood at 9 in the morning was 42°.5, while in the outside it was 42°, and at 9 P.M. they were 42°.2 and 40°; thus showing at both hours a greater amount of vapour of the air inside than outside the wood. In particular months the excess was much greater than at other times. Thus, in August, the dew point inside the wood was on the average 1°.8 higher than outside. The meaning of that was, that supposing a current of air set in which was gradually lowering in temperature, clouds would begin to be formed over the wood when its temperature was nearly 2° higher than the outside. This was a remarkable result, and explained many of the phenomena with which foresters were acquainted, such as the formation of clouds above woods when the open ground showed a clear sky overhead. The general results of the observations went to prove that, during the spring and early summer months, the air inside the wood was warmer and moister than that outside, while during the fall of the year it was colder and damper. In conclusion, Mr. Buchan pointed out the importance of these observations in their relation to the rainfall and other climatic conditions, and expressed the hope that they would be continued and extended so as to include the temperature of the air in convenient situations in woods, underground temperatures at various depths, evaporisation at several points, and the temperatures of the trees themselves, which could be ascertained by means of thermometers fixed in the trees in the manner adopted for several years past in the forests of Bavaria.

Mr. Robert Hutchison of Carlowrie said he had always been of opinion that meteorological observations were closely connected with the observations and work of foresters, and he dared say he was the first to suggest that such steps should be adopted as had been carried out. He was very glad indeed to have the opportunity of acknowledging the great indebtedness under which the Society laboured to Mr. Buchan for his very interesting report. It would be impossible to describe the great amount of labour which Mr. Buchan had had in working out his calculations. He thought they should request the Secretary to place on the minutes their thanks to Mr. Maclean for his great services in connection with this important investigation. That brought him to the point that it was very unfortunate that the British Association had not renewed their grant of £20 to the Society to carry out their investigations. He believed that such a valuable report as they had heard would induce the Association to grant a renewal of their contribution. He moved that the committee should be re-appointed, that they should use every endeavour to secure a renewal of the grant from the British Association, and that the Society should place at the disposal of the committee a sum of £5, to enable them to carry on the observations at Carnwath.

Professor Balfour seconded the motion, which was agreed to.

The Proposed Extension of the Botanic Garden.—Professor Balfour stated that for the sake of arboriculture, he was very anxious that the Royal Botanic Garden should be extended. On the other side of the gardens there were 20 acres of the Inverleith estate, belonging to the trustees of Fettes College, who were perfectly willing to part with it at a fair valuation. The Government had at present before them a plan for this extension. The land was well fitted for trees, and he proposed to make of it an arboretum, which would be of great benefit not only to students but to the public as a recreation ground. At present no fewer than 7000 herbaceous plants were sometimes issued in a day as specimens for tuition and demonstration in the botanic gardens. The students last session numbered 354, the largest class of the kind in the United Kingdom; but these might be augmented by forestry students, who would come to learn the habits and physiology of trees, were a proper arboretum established. Again, if this extension of the grounds were secured, greater room might be found for their museum. He hoped that the Society would support him in his application to the Treasury and First Commissioner of Works for this extension of the garden.

On the motion of Mr. Hutchison, it was remitted to the office-bearers and the Council of the Society to prepare a memorial to be forwarded to the First Commissioner of Works, urging the extension of the gardens and the formation of an arboretum.

Competitive Essays.—Mr. Gilchrist, Cluny, read the report of the judges on competitive essays on subjects announced by the Society. The prizes awarded were as follows:—Pruning of Timber Trees, considered physiologically—silver medal, J. B. Smythe, forester, Melville, Ladybank, Fife, and D. Tait, forester, Owston Park, neur Doncaster: bronze medal, Andrew Slater, forester, Loftus, Saltburn-by-the-Sea, Yorkshire; Literature of Scottish Arboriculture—five guinea prize, R. Hutchison, of Carlowrie; Present State and Future Prospects of Arboriculture in Hampshire—silver medal, A. Peebles, Highclere Castle; Conservation of Old and Remarkable Trees in Britain—gold medal, Robert Hutchison, of Carlowrie; Draining by Open and Covered Drains—gold medal, Lewis Bayne, Kinmel Park, North Wales; Employment of Locomotive Engines in Forestry—silver medal, D. F. Mackenzie, forester, Meldrum; Distances at which Forest Trees should be Planted Apart—silver medal, Lewis Bayne; Should Oak Plantations be Grown from Acorns or from Transplanted Trees?—silver medal, A. Peebles.

Election of Office-Bearers.—Professor Balfour was then elected President for the ensuing year, and the following gentlemen were elected Vice-Presidents:—Mr. W. W. Maxwell, of Munches; Mr. John Grant Thomson, Grantown; Dr. Cleghorn, of Stravithy; Mr. Robert Hutchison, of Carlowrie; and the Right Hon. W. P. Adam, M.P., of Blair-Adam. Mr. John Sadler, Secretary, and Mr. George Crichton, Treasurer.

The Dinner.—In the afternoon the members of the Society sat down to dinner in the Albert Hotel. Professor Balfour, the newly-elected President, occupied the chair. Bailie Methven and Mr. M'Corquodale, of Scone, officiated as croupiers; and among the gentlemen at the head of the table were Dr. Cleghorn, Mr. Sadler, Mr. Hutchison (of Carlowrie), Mr. M'Nab, Mr. Gorrie, Mr. Lorraine, Mr. Mitchell, Mr. Ollier, &c. The usual loyal and patriotic toasts having been proposed and responded to, Mr. Lorraine gave "The Lord Provost, Magistrates, and Town Council of Edinburgh," which was acknowledged by Bailie Methven. The Bailie said that what with the new garden at the Dean Park, which he had good reason to believe was to be made very soon, and the proposed extension of the Botanic Gardens, Edinburgh would be the best supplied city in the kingdom with public recreation grounds. The Chairman proposed "The Scottish Arboricultural Society," which he said embraced not only Scotland, but England and Ireland. For many years a great destruction of trees had taken place, and he believed that the action of the Society would do much good for the country in conserving, not only individual trees, but large woods. The Society had done a great deal in associating together men of various countries who were prosecuting arboriculture scientifically and practically, and he had no doubt that their action would do good to themselves and to the country. Mr. M'Corquodale, Scone, replied. He was gratified to

see such a large meeting that day, and with the reports that had been read. Forests were getting scarce, not only in Europe but in America, and he himself had been consulted as to the replanting of vast tracts of land in the United States and Canada. He thought they ought to plant extensively in Scotland, not on arable land but on hill land, which was of little use except for that purpose, for if they were compelled to fall back at present on home-grown wood there would not in fifteen years be a tree fit for a railway sleeper left in the country. Among other toasts were "The retiring President," Dr. Cleghorn, by Mr. Mitchell; "The Judges," by Mr. Dunn; "The Secretary," by Mr. M'Corquodale; and "The Chairman," by Mr. R. Hutchison.

Miscellaneous.—The subjects of discussion at the next session of the Society were fixed to be "The failure of the Larch," and "The insects and parasitic plants injurious to forest trees." Mr. M'Corquodale showed specimens of wood to illustrate the good effects of hand over natural pruning. In connection with the meeting there was a very interesting exhibition of specimens of all the different woods grown in Great Britain, a collection of models and preserved specimens of fungi presented by Professor Balfour, collections of Pine Cones, microscopic preparations showing the structure of the wood of various trees, and a collection of specimens of old and remarkable trees in Great Britain, presented by Mr. Robt. Hutchison, of Carlowrie. *Scotsman.*

Linnean: *Nov.* 5.—Dr. Allmann, F.R.S., President, in the chair.

Mr. J. E. Howard read a short paper on the floating islands of Derwentwater, composed in some measure of vast quantities of Lobelia Dortmanna matting together and entangling the soil. The cause of the detachment of these masses is not yet clearly ascertained.

Revision of Asparagaceæ, by Mr. J. G. Baker.—The author commenced by discussing the limits of the natural order Liliaceæ. He proposed to regard it as consisting of three great series, in addition to several abnormal tribes, all of which have some claim to be regarded as distinct orders. The three series are:—Liliaceæ proper, characterised by capsular fruit with loculicidal dehiscence, united styles and introrse anthers (1200—1300 species); Colchicaceæ, marked by capsular fruit with septicidal dehiscence, free styles and extrorse anthers (130 species); and Asparagaceæ, marked by baccate fruit (260 species). The aberrant tribes are Liriopeæ (Ophiopogoneæ), Gilliesieæ, Conantheræ, Stemoneæ (Roxburghiaceæ of Lindley), and Scoliopeæ. All these have anatropous ovules, and Mr. Baker advocated the separation of Smilax from Asparagaceæ, with which it has been commonly joined by recent writers, and the retention of it as the type of a separate order marked by orthotropous ovules and by its habit of growth, woody, often prickly stems, minute polygamous umbellate flowers, stipular tendrils, and decidedly stalked, exogen-like leaves, with venules reticulated between the palmate main nerves. The tribes and genera of Asparagaceæ, which are as follows, to a considerable extent represent the non-bulbous tribes of the two capsular series previously discussed:—

1. *Dracænæ.*—Shrubs with proper leaves, hermaphrodite flowers, and introrse anthers. Genera: Dracæna, Tætsia (=Cordyline, but used on ground of priority), and Cohnia. Represents Yuccoideæ in Euliliaceæ.

2. *Sansevieræ.*—Under-shrubs with coriaceo-carnose leaves, hermaphrodite flowers, and introrse anthers. Genera: Sanseviera, Lomatophyllum. Represents closely Aloineæ in Euliliaceæ.

3. *Convallarieæ.*—Herbs with proper leaves, gamophyllous hermaphrodite flowers, and introrse anthers. Genera: Reineckia, Convallaria, Polygonatum, Hylonome. Represents Hemerocallideæ in Euliliaceæ.

4. *Tovarieæ.*—Herbs with proper leaves, polyphyllous hermaphrodite flowers, and introrse anthers, dehiscing longitudinally. Genera: Theropogon, Speirantha (new genus, founded on Albuca Gardeni, Hook.), Maianthemum, Tovaria (an earlier name for Smilacina), Drymophila, Geitonoplesium and Eustephus.

5. *Dianelleæ.*—Herbs with proper leaves, hermaphrodite flowers, and anthers dehiscing by terminal pores. Genera: Dianella, Luzuriaga.

6. *Aspidistreæ.*—Acaulescent herbs, with fleshy, often eight-lobed perianths, hermaphrodite flowers, introrse anthers, with longitudinal dehiscence, and large peltate, complicated stigmas. Genera: Aspidistra, Plectogyne, Tupistra, Campylandra (new genus from East Himalayas), Gonioscypha (new genus from Bhotan), Rohdea.

7. *Streptopeæ.*—Herbs with proper leaves, hermaphrodite flowers, and extrorse anthers, with longitudinal dehiscence. Genera: Medeola, Clintonia, Prosartes, Disporum, Streptopus, Callixene, Kruhsea. Represents Colchicaceæ in the capsular series.

8. *Asparageæ.*—Herbs or shrubs with leaves degraded into spurred bract-like membranes, and their place filled by an abundant development of branches in their axils. Flowers often polygamous, with introrse anthers dehiscing longitudinally. Genera: Asparagus (including Asparagopsis and Myrsiphyllum), Ruscus, Semele, and Danaë. The most specialised type of the baccate series, not represented by any tribe in the two capsular sets.

The most noticeable points of structure in the series are that, in the first place, such a thing as a bulbous rootstock or a narrow fleshy lorate leaf of the Hyacinth type does not occur in Asparagaceæ at all. As regards distribution it is noticeable that, whilst the bulbous tribes of Liliaceæ possess a distinctly marked geographical individuality, this does not hold good of the non-bulbous half of the natural order, as the 360 species are scattered all over the world and not concentrated in any particular geographical area. The most curious structural peculiarity in the group is the degradation of the leaf organ which marks the tribe Asparageæ. The leaves have an alternate arrangement, and are invariably developed in the form of a minute membranous scale. This has a spur at the base, which in many of the shrubby species of Asparagus is developed out into a woody spine, as firm in texture as the indurated branchlet of the Sloe or Hawthorn. The function of the leaf is filled by branches which are developed singly or in fascicles in the axils of these bract-like proper leaves. Sometimes these branches are needle-like (cladodia) without any flattening, as in the common garden Asparagus, and sometimes, as in Myrsiphyllum and Ruscus, they assume all the appearance of proper leaves (phyllocladia). The flowers in the hundred species of the genus Asparagus are remarkably uniform, and it is principally upon characters furnished by the shape and arrangement of these barren branches that the species are marked. The stigma of the Aspidistreæ is a very curious and complicated organ. It is a plate with eight troughs radiating from a raised central umbilicus, separated from one another by raised walls, and it closes in the tube of the perianth, in which the anthers are placed, so thoroughly that it is difficult to tell how fertilisation is effected; but upon turning it upside down four minute holes may be seen, through which it would be possible for a very small insect to creep.

The paper was illustrated by plates of the three new genera, and by one showing the structure of the stigma of these Aspidistreæ. A large number of new species, especially in the genus Asparagus, were described.

The Plumstead, Woolwich, Charlton and West Kent Chrysanthemum Association: *Nov.* 12, 13, *and* 14.—The annual exhibition was held at the Town Hall, Woolwich, and considering the great difficulties under which the culture of this favourite autumn flower is carried on amidst the smoky atmosphere of the Arsenal works, was of a highly creditable description. Had some of the larger plants figured in the larger classes at the show lately held at the Royal Horticultural Society, they would have easily wrested the prizes from the three successful winners—the large specimens at this place being 6 feet 9 inches in diameter, and unusually well foliaged and bloomed, whilst the standards were superior to any I had previously seen. Two noteworthy objects at this show consisted of a single specimen plant, shown by Mr. D. Spary, 6, Walmer Road, upon which had been grafted four distinct varieties, consisting of Peach Christine (very fine blooms), Madame Roussedon, Miss Julia, and La Vogue, and which had a singularly neat effect; and two specimen pyramidal plants (single stem) of large-flowered varieties, shown by Mr. Lacy—Prince of Wales so trained being excellent both as regards the health and freedom of growth of the plants and the well developed blooms it carried in ample profusion. *E.*

South Essex Chrysanthemum Society: *Nov.* 14 *and* 16.—The sixteenth annual exhibition of this Society was held in the Town Hall, Stratford, on the above dates. Although the exhibition was a most creditable one to the district, it must be mentioned that in consequence of the greater portion of the blooms being past their best, the display of cut flowers was the smallest the Society has had for some years. The leading prizes for large flowering varieties went to Mr. Donald, gr. to F. G. Barclay, Esq., Leyton; Mr. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, Ilford; and Mr. Simmons, gr. to Mr. Alderman Finnis, Wanstead, the two latter being equal 2d in the class for six distinct varieties in 11½-inch pots. The Pompon varieties were well represented, Mr. Douglas securing the principal prizes, followed by Mr. Simmons. Standard Pompons came from Mr. Rainbow, jun., Down Nursery, Clapton; and the best single specimen was the fine plant of Mr. Rundle shown by Mr. Douglas at South Kensington on the previous Wednesday. The best twelve named blooms were contributed by E. Sanderson, Esq., Vicarage Terrace, Stratford; and the best twenty-four from Mr. Douglas. Other stands of excellent flowers came from Mr. Rainbow, jun.; Mr. H. Holmes, jun., Frampton Park Nursery, Hackney, &c. Two dozen fine blooms of Japanese varieties were staged by Mr. Douglas, who also had a nice collection of fruit, and assisted materially in the purely decorative department with many specimen plants not provided for in the schedule. Groups of decorative plants for the centre table were also contributed by Mr. Hill, Alfred Street, Bow Road; Mr. Deacon, Rose Cottage, British Street, Bow; and Mr. C. Parker, Clay Hall Works, Old Ford.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 18, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32 Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall
Nov. 12	In. 29.80	In. +0.01	41.8°	29.8°	12.0°	35.5°	− 8.3°	30.8°	83	NNE: NNW	In. 0.00
13	29.67	−0.11	45.0	34.3	10.7	39.4	− 4.1	35.8	87	N.W.: N.N.E.	0.04
14	29.98	+0.21	44.0	33.7	10.3	38.6	− 4.6	35.4	88	NNE: N.W.	0.00
15	29.70	−0.06	48.9	35.1	13.8	43.8	+ 0.9	43.1	97	WSW: W.	0.15
16	29.49	−0.26	54.6	42.0	12.6	46.6	+ 4.0	40.7	80	N.W.: W.	0.05
17	29.66	−0.07	54.8	44.2	10.6	46.9	+ 4.6	39.1	74	N.W.	0.07
18	29.66	−0.06	54.8	43.7	11.1	50.9	+ 8.9	48.7	92	W.	0.12

Nov. 12.—A very fine day. Very little cloud, except at night, when the sky was occasionally overcast.
— 13.—Overcast throughout the morning, and rain fell between 7 A.M. and 10 A.M.; fine afterwards, but partially cloudy.
— 14.—Hoar-frost in morning; generally cloudy and foggy in evening; cloudless at night.
— 15.—Overcast, foggy at times. Rain fell between 7.30 A.M. and 9 A.M., and again between 1 P.M. and 5 P.M.
— 16.—Fine, but partially cloudy till afternoon; overcast, with occasional rain afterwards.
— 17.—Rain fell in early morning; generally fine during the day; cloudy at night.
— 18.—Generally overcast, and rain fell frequently.

—— In London and its suburbs the reading of the barometer at the level of the sea, at the beginning of the week, was 30.51 inches. It decreased to 30.13 inches by noon on the 10th; increased to 30.19 inches by the evening of the same day; decreased to 29.04 inches by 9 P.M. on the 11th; increased to 30.02 inches by the evening of the following day; decreased to 29.81 inches by noon on the 13th; increased to 30.17 inches by the afternoon of the 14th, and was 30.16 inches at the end of the week. The mean reading for the week was 30.15 inches, being 0.06 inch lower than that of the preceding week. The mean daily readings were all above their averages, except that on the 13th; the values on the 8th and 9th were, respectively, 0.52 inch and 0.36 inch in excess.

The highest temperatures of the air by day ranged from 41½° on the 11th to 58½° on the 9th, the mean for the week being 48½°. The mean of the seven low night temperatures was 34¾°, the extreme values being 29¾° on the 12th and 47° on the 9th. The mean daily range of temperature was 13¾°, the greatest being 25°, on the 8th, and the least 10¼°, on the 14th.

The mean daily temperatures of the air were very variable, the values with departures from their respective averages being as follows:—8th, 41°.6, −3°.4; 9th, 51°.7, +7°; 10th, 44°.5, +0°.1; 11th, 36°.1, −8°; 12th, 35°.5, −8°.3; 13th, 39°.4 −4°.1; 14th, 38°.6, −4°.6. The mean temperature of the air for the week was 41°.1, being 3° lower than the average of the corresponding week as deduced from fifty years' observations.

The maximum readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, varied from 92° on the 8th to 55° on the 11th, the mean for the week being 67½°. The lowest readings at night of a thermometer on grass with its bulb fully exposed to the sky were 24½° on the 8th, 24° on the 11th and 12th, and 26½° on the 14th, and the mean of the several lowest readings of this instrument was 28¾°.

The direction of the wind was variable, and its strength gentle; the horizontal movement on the 8th was only 91 miles.

On the 12th the sky was generally free from cloud, but on the other days variable amounts of cloud were present.

Hoar frost was observed on the mornings of the 8th, 11th, and 14th, and fog was prevalent on the 8th, 9th, and 14th.

Rain fell on only one day, viz., the 13th, and the amount collected was four-hundredths of an inch.

In England the extreme high day temperatures ranged from 66° at Sunderland to 56° at Newcastle-on-Tyne, the general average all over the country being 58¼. The extreme low night temperatures varied from 32° at Leeds to 25¾° at Eccles, with a

general average of 29°. The mean range of temperature in the week from all stations was 29¼°. The mean high temperatures observed by day ranged between 54½° at Sunderland, and 45¾° at Newcastle-on-Tyne, with an average value of 48¼°. The mean low temperatures observed by night varied from 39° at Liverpool to 32¾° at Manchester and Newcastle-on-Tyne, the general average was 35°. The mean daily range of temperature in the week was 13½°, the greatest range being at Sunderland, 18¾°, and the least at Liverpool, 10½°. The mean temperature for the week was 41°, the highest being at Sunderland, 44½°, and the lowest at Newcastle-on-Tyne, 38¼°. Rain was measured at Norwich to the amount of six-tenths of an inch, being the largest amount recorded during the week; at Nottingham three-hundredths of an inch only was recorded, but at Leeds no rain fell. The average fall over the country was two-tenths of an inch.

The weather during the week was somewhat cold and showery.

Snow fell on the 12th inst. at Hull and Sunderland, to the depth of 4 inches at the latter place.

In Scotland the highest temperatures ranged from 61¼° at Leith to 55° at Greenock, the general average being 58°. The lowest temperatures varied from 31° at Leith to 27° at Paisley, with a general average of 28¾°. The mean range of temperature in the week was 29¼°. The mean temperature for the week was 43°, the highest being at Paisley, 44¼°, and the lowest at Greenock, 42°. The fall of rain in the week varied from eight-tenths of an inch at Greenock to one-tenth at Dundee and Leith, the average fall over the country being four-tenths of an inch.

At Dublin the highest temperature was 64°, the lowest temperature was 25¼°, the mean was 43½°, and the rainfall 0.11 inch.

JAMES GLAISHER.

Obituary.

WE greatly regret to have to record the sudden death, on the 13th inst., of Mrs. HOOKER, the wife of the Director of the Royal Gardens at Kew, and the President of the Royal Society. Mrs. Hooker was a daughter of the late Professor Henslow, and to a large extent inherited his intelligence and tastes. This circumstance rendered her a valuable helpmate to Dr. Hooker in his scientific work, especially in the early part of his career, in the distribution and arrangement of the enormous series of specimens collected in India by Drs. Hooker and Thomson, and in the preparation of the MSS. for Dr. Hooker's Himalayan Journals. Her many accomplishments and her correct literary style were always at the service of her husband and of many of his scientific friends, amongst all of whom her loss will be deeply lamented. Among the latest of Mrs. Hooker's works was her excellent translation of the great work of Le Maout and Decaisne on *Systematic Botany*, which was edited by Dr. Hooker. Mrs. Hooker was for many years an occasional correspondent to our columns, contributing reviews of books, notes of the travels of her husband and of other explorers, &c. The sympathy of all botanists and horticulturists will be with Dr. Hooker in this sad and unlooked for calamity.

— Those who took part in the Bath show of the Royal Horticultural Society, and specially those who were privileged to witness the very beautiful and complete garden-establishment at Vellore, near Bath, will regret to hear of the decease, within the last few days, of the genial and active PREBENDARY KEMBLE.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—Where a miscellaneous collection of stove plants, comprising hard and soft wooded subjects, is grown; where, as often is the case, such plants have to be accommodated in one house; and where some are in flower and others are being brought on for successional blooming through the winter, along with such as are at rest, it becomes a very difficult matter to manage the whole. It is in this respect that the gentleman's gardener or amateur is so unfavourably placed as compared with the regular grower for market, who confines himself to the cultivation of comparatively few varieties of plants, and these in most cases with a number of houses different in temperature aud humidity of the atmosphere. In these latter there is little difficulty in doing things in a way the most satisfactory, as well as more economical in the matter of fuel; but where all have to be done together, although naturally it entails a compromise in both heat and moisture in the atmosphere, yet a good deal may be accomplished by placing all that are at rest and being induced to such a state, at the coolest end of the house — with such as require more heat at the end next the boiler, using so far as possible the moisture at this end, and not here admitting any air, giving it only at the coolest end. This will make a considerable difference, yet even then the temperature required for the growing plants will be in excess of what such as are at rest require. To prevent, so far as possible, these from growing, they must be kept as dry at the roots as can be done without injury. Plants that are partially deciduous, such as the twining varieties of *Clerodendron*, *Aristolochias*, *Bougainvilleas*, and *Allamandas*, may be allowed to go for weeks without water. *Stephanotis* may also be kept dormant by this dry treatment, as it will not suffer even if the leaves go a little flaccid; but it must not be allowed to shrivel much, or they will fall off, to the serious injury of the plants. The same holds good with *Clerodendron splendens*, *Combretum purpureum*, *Hoyas*, and *Medinillas*. On the other hand, such plants as *Ipomœa Horsfalliæ*, *Aphelandras*, *Ixoras*, *Eranthemums*, *Impatiens Jerdoniæ*, *Francisceas*, *Luculias*, *Thyrsacanthus rutilans*, and *Tabernæmontanas*, that are either evergreen, and could not bear keeping so dry at the roots, or that flower in the winter time, must have a sufficient supply of water. There is no season of the year more suited for the introduction of fresh tan than the present; if got in at once, and in sufficient depth—say, something like 3 feet 6 inches—it will by the end of the year contain a heat of 95°, and keep near up to that for many weeks during the coldest season, in which condition it must of necessity greatly assist fire-heat during the cold nights, thereby effecting a considerable saving in fuel, as well as producing a much sweeter atmosphere than were it absent. Advantage should be taken of the removal of the old fermenting materials to give the pits a good lime-washing; this will not only improve the appearance of the house but destroy the larvæ of objectionable company. It should always be made from newly slaked lime that has been allowed to boil; this renders it much less likely to rub off when touched. If any deficiency in the amount of piping exists, although late for such work, it should be remedied before hard weather comes. A deficiency in piping is the most unsatisfactory and penny-wise arrangement that can exist, causing continually a consumption of fuel greater than would otherwise be required. *Gardenias* wanted to flower later on should now receive attention, giving them a brisk heat of 70°, the plants meantime being placed as near the glass as possible. With sufficient stock these fine fragrant flowers can be had all the year round, but it is in the winter season they are the most prized; the variety known as *G. intermedia* is the most useful for all purposes, but, where variety is required in size, *G. Fortunei* will be found to answer the purpose; it is much the largest, but does not produce its blooms in such numbers. The almost continual flowering *Bouvardias* will now and through the winter be most useful, but to grow them well in the winter season they require a brisk heat, and, in common with other flowers required for cut purposes, to be kept as near the glass as possible without absolutely touching it. When an elegant drooping flower is required for the decoration of large vases, few things are more appropriate than the old *Solomon's Seal* (*Polygonatum*); it forces well taken up and potted, giving it, if possible, a start at the roots in advance of the top. If blue flowers are required, a few pots of *Scillas*, especially *S. sibirica*, will occupy little room, and come in useful; they no not require much heat to bring them into flower.

Ferns.—The Fern-house should now be kept at a temperature sufficiently low to induce rest, yet not so as to cause the occupants to get the unhealthy appearance they have when kept too cold. Use no more water at the roots than requisite to keep the plants from suffering. This is especially advisable with such as are required for cut purposes. One of the best of the *Adiantums* is the strong-growing *A. formosum*, which, next to the indispensable *A. cuneatum*, looks the best, and will stand much longer than that variety. It should, as most other Ferns required for cutting, be grown in comparatively small pots, near the light, with not too much heat, in loam, which will produce stronger fronds than such as are grown in peat. In all cases they should have sufficient air, and be stood near the glass to make them robust, with as little excitement to growth in the short days as possible. In a moist fernery it generally happens that those varieties that are most in demand, as small decorative plants, and as furnishing fronds for cutting, such as the commoner sorts of *Adiantum* and *Pteris*, make their appearance in considerable quantities, without the necessity for sowing the spores; these, when large enough, should be taken up and placed separately in thumb pots, in soil one-fourth of which should consist of fine crushed cinders or small crocks, to keep it from getting sour, until the plants are large enough for their roots to take possession of it; if not sufficiently open it gets sour before this occurs. The more scarce varieties of Ferns require the spores sowing to ensure their vegetating; if left to themselves they rarely grow. The best material to sow them on is four parts fine peat, and two parts open sandstone broken the size of horse beans, with a sprinkling of sand. Sow in pans well drained, pressing the soil firmly down and giving it a thorough watering to settle it before the spores are sown, otherwise they are liable to get washed down too deep. The pans should then be stood in feeders, so that the water they require can be given them in the feeders, in which case there will be no danger of the spores being washed away by surface watering. Always keep the soil quite moist or they will not germinate freely. The spores of Ferns should always be secured as soon as there is an indication of their being liberated from the capsules. It often happens that nothing but the husks are gathered, the seeds having all previously fallen out. *T. Baines, Southgate, N.*

FRUIT HOUSES.

PINES.—Amongst the various structures which are employed in Pine-apple cultivation none are more useful, economical, or suitable to general requirements than properly heated and ventilated pits or small houses, as with less cost in labour, &c., they will afford the most suitable atmospheric conditions. The closeness of these structures will, however, at this season necessitate strict attention to be given to the ventilation, or the plants will soon become drawn and weakly—a condition which is irreparable, and will upset calculations which are based on the best methods of treatment. Fifty-eight degrees at night will be a suitable temperature for all young stock which is to be kept gradually moving through the winter, and 65° in the daytime by fire-heat. This degree should be maintained even at the cost of a little fuel. At 65° give a crack of air at the top of the house or pit, and unless the heat in the house falls below that point, it should be kept on throughout the day. Whenever by external influence the temperature in the house attains 75° a free circulation of air through the pit should be allowed. Keep the plants well up to the glass, and do not crowd them thickly together. Maintain a steady heat at the roots at about 80°; avoid having too much moisture about the house, and water the plants whenever they become dry with weak manure-water. In case of a short supply of suckers for starting next March, it would be advisable to keep for that purpose those which are ready now, and also recently potted ones, if required: 5-inch pots are suitable ones. These will do best near the glass in a moist pit, with a bed having a slight bottom-heat and a temperature of about 55° at night, and should be kept moderately dry at the roots. A pit of this kind is most useful at this season for preserving the suckers on the stools of the plants after the fruit is cut. Onwards until March I prefer this method to potting them, and for this purpose cut off the leaves and place them together in such a place. Former directions concerning other departments should be still continued. *G. T. Miles, Wycombe Abbey.*

HARDY FRUIT GARDEN.

Wherever the condition of fruit trees appears to render an examination of their roots advisable, this should be attended to immediately while the weather is favourable, and before the soil has altogether lost the heat imparted to it by the last summer's sun. By careful root-pruning, or even the raising of the roots, over-luxuriant and consequently unprofitable trees may not unfrequently be rendered fruitful, while sickly specimens can as frequently be restored to a healthy condition by having their roots brought nearer to the surface of the soil, and encouraged by a portion of suitable compost or soil, such as turfy loam slightly enriched by a portion of well-rotted hotbed manure or leaf-mould, in which the recently disturbed roots should be enveloped: with a view to encourage the emission of fibres, and if the natural soil happens to be of a heavy or tenacious character, a portion of road-scrapings, sand, or other gritty material may also be added with advantage. Finish also as soon as possible the planting of young fruit trees of all kinds. Hardy fruits of nearly all sorts can generally be produced with more or less success on nearly all kinds of soils, but as a rule the better the soil the more productive will be nearly all sorts of fruit trees, and the better will also be the quality of the fruit produced. But, however good a soil may be, it is, nevertheless, generally necessary that it should undergo some preparation before the trees are planted. In many instances draining is absolutely necessary where the soil is heavy and inclined to be retentive of water, and in such cases a portion of light soil, wood-ashes, road-scrapings, or sand, may be introduced with great benefit to it; and the trees, whether standards or intended to be trained to walls or espaliers, may with advantage be planted upon small hillocks, slightly elevated above the level of the surrounding soil. Where, on the other hand, the soil is of a light and porous nature, upon a gravelly or limestone subsoil, then a diametrically opposite practice should be pursued, and well pulverised clay or strong loam should be incorporated with the original soil. In selecting fruit trees, and more particularly as regards the Apple and the Pear,

it is of the greatest importance to plant sorts which are known to succeed well in the locality, as there are many varieties of the Apple which are excellent in all respects in the northern and midland counties, but which do not by any means succeed so well in the south and eastern portions of England, while some of the very best Scotch Pears are found to be worthless when grown in the eastern counties. The pruning of *Apple*, *Pear* and *Cherry* trees should now be proceeded with whenever the weather is favourable, so as to avoid throwing too much of this description of work upon the spring, which is generally an exceedingly busy time in all respects, and it is quite necessary, on account of the late spring frosts, to defer the pruning and training of such trees as the *Apricot* and the *Peach* until a somewhat late period. Such trees, however, should be all partially unnailed at the present time, so that the greater portion of the branches, although secured to the wall, may not be in actual contact with it, and an early development of flower-buds (which is of course undesirable) will thereby be avoided. It is also in most localities (on account of late spring frosts) found necessary to delay the pruning of bush fruit, more particularly the *Gooseberry*, until the spring is considerably advanced. A severe winter not unfrequently proves injurious, if not fatal, to *Fig trees* in the open air if left unprotected. Where such trees are trained to walls they may either be unfastened from the same, the branches tied up closely in bundles, which should be encased in clean straw, kept together by mats; or the trees may be allowed to remain on the walls, the surface of which should be lightly thatched over with dry Fern fronds, straw, mats, or any similar material; and in either case the border containing the roots of such trees should be well mulched with partially rotted manure. Mulch also between the rows of *Strawberry plants*. Tender sorts, such as the *British Queen*, &c., require some slight protection during severe winters, and this can be effected with a portion of littery manure, the remains of which should be slightly forked into the soil between the rows in spring. Strawberry plants in pots are sometimes wintered by being placed upon their sides, and stacked up against a wall, or placed in some similar position for the winter or until they are required for forcing. If such pots, however, are properly drained, and placed upon a porous border under a wall or elsewhere, and plunged to the rim in cinder ashes, with the surface of the pots slightly covered with light littery manure, without, however, entirely covering the foliage of the plants, they will generally be found to winter better than when the pots are placed upon their sides. *P. Grieve, Culford, Bury St. Edmunds.*

Answers to Correspondents.

BIRD'S-NEST FERN: *Nomenclator.* Thamnopteris nidus, *alias* Neottopteris nidus, *alias* Asplenium nidus; Lobel's Catchfly is Silene Armeria.

CALCEOLARIAS: *Constant Reader.* Possibly the roots are affected, through the plants having had too much water. If so, try on a plant or two the plan of shaking them out of the soil, washing the roots, dusting them with dry sand, and repotting in rather sandy compost. Possibly the leaves have been, or now are, affected by aphis, which is very destructive; or possibly, in the larger, airy greenhouse, they may have stood in a cold draught.

CAPE GOOSEBERRY; *S. G.* 1, Physalis edulis; 2, Sow the seeds in the middle of February in heat, and pot on as required, keeping them at first in an intermediate house, and subsequently in a cool orchard-house.

DECOMPOSITION OF VEGETABLE MATTER: *M. S.* Throw it into a heap, and mix or dust with quicklime.

DESSERT APPLES: *Clover, Co. Cavan.* We would recommend the following:—Kerry Pippin, Cox's Orange Pippin, Adams' Pearmain, Blenheim Orange, Cockle Pippin, Braddick's Nonpareil, King of the Pippins, Scarlet Nonpariel, Rosemary Russet, and Old Golden Pippin.

GRAPES DECAYING. *R. R.* Your Grapes are moulding off in the ordinary manner. There is nothing peculiar about it. The cause is damp. A drier and more bracing atmosphere would have obviated the evil to a great extent, and perhaps, also, if your Grapes had been better ripened, they would have kept better.

HOP CULTURE: *M. S.* The best publications on Hop culture are those of Mr. Charles Whitehead, of Maidstone, and the late Mr. J. M. Paine, of Farnham,—the one in the English Royal Agricultural Society's *Journal*, and the other in Blackie's *Cyclopedia of Agriculture.*

LIME TREES: *S. T.* The soil is clearly poisoned by gas sufficiently to prevent the trees from growing.

MR. FENN'S POTATOS.—In our report of the last meeting of the Fruit Committee, at p. 626, it was stated by oversight that Mr. Fenn received a Cultural Commendation for "twenty-five sorts of Fenn's condemned seedlings," &c. It should have read "for twenty-five new sorts of Potatos, including several of Mr. Fenn's condemned seedlings."

MUSHROOM-BED: *Subscriber, Worcester.* Sprinkle the surface of the bed lightly over with warm water, containing 1 lb. of salt to the gallon, and immediately cover with soil, beating it well down—which together will destroy the insects mentioned.

NAMES OF FRUITS: *James Wood.* Knight's Monarch. —*W. L., Halifax.* 1, Beurré Hardy; 6, Urbaniste; 5, unknown; others quite decayed.—*J. Ticehurst. Pear:* Old Colmar. *Apples:* 1, not known; 2, Cox's Orange Pippin, but rather acid; 3, Dutch Mignonne; 4, Adams' Pearmain; 5, Augustus Pearmain.—*Clover.* Your Pear was completely smashed when received.

NAMES OF PLANTS: *H. G. S.* We cannot name plants from such scraps as you send.—*P. Z.* Probably Helleborus fœtidus, as far as we can tell from such a scrap.—*A. D.* 1, Gnidia simplex; 2, Polystichum ordinatum; 3, Nephrolepis tuberosa; 4, Pteris tremula. —*J. A. Shaw.* Eupatorium glandulosum.—*G. L. C.* Six specimens is the limit; you send twenty! 1, Phlebodium areolatum; 2, Adiantum pentadactylon; 3, Cyrtomium caryotideum; 4, Asplenium viviparum; 5, Pteris serrulata; 6, Adiantum cuneatum.—*E. S.* 1, Lastrea villosa; 2, Pleopeltis irioides.—*W. P. D.* 1, Angiopteris evecta; 2, Gymnopteris lanceolata. —*L. C.* Lardizabala biternata (male flowers). Is this growing in the open air and quite hardy?—*F. E. C.* Kadsura japonica.

SCALE ON ORANGE TREES: *A. B.* The best plan is to sponge them from the leaves, and brush them from the bark, following this up till you have dislodged them.

SEDUM PULCHELLUM (pp. 552 and 623): For Widow's Crop, read "Widow's Cross." *H. N. Ellacombe, Bitton.*

VIOLET VICTORIA REGINA: *Parma.* Apply to Mr. Lee, of Clevedon, for the true sort.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

CATALOGUES RECEIVED.—The Lawson Seed and Nursery Company (London and Edinburgh), Nursery Trade List for 1874-5.—Anthony Waterer (Knap Hill Nursery, near Woking, Surrey), Catalogue of American Plants, Conifers, Ornamental Trees, Shrubs, &c.—Wm. Drummond & Sons (Stirling, and 58, Dawson Street, Dublin), Catalogue of Forest, Ornamental, and Fruit Trees, Roses, Shrubs, &c.—Wm. Potten (Sissinghurst, Staplehurst, Kent), List of Roses, Fruit Trees, Coniferæ, Evergreen Shrubs, &c.—Simon-Louis, Brothers (Plantières-les-Metz, Lorraine), General Catalogue and Price List; also Supplement to their Descriptive Catalogue.—Wood & Co. (Barbourne, and 65, Broad Street, Worcester), Descriptive Catalogue of General Nursery Stock for 1874-75. —Little & Ballantyne (Carlisle, and 36, Mark Lane, London), Descriptive List of Fruits.—Ormiston & Renwick (Melrose, Roxburghshire), General Catalogue of Forest and Ornamental Trees, Shrubs, Roses, Fruit Trees, &c.—J. M. Thorburn & Co. (15, John Street, New York, U.S.A.), Wholesale List of American-grown Seeds for the European Trade.—Kelway & Son (The Royal Nurseries, Langport, Somerset), Catalogue of Gladioli.—Smith & Simon (36 and 38, Howard Street, Glasgow), Catalogue of Roses and Gladioli.—Dickson & Robinson (23, Market Place, Manchester), Catalogue of Select Roses, Winter and Spring Blooming Plants, &c.—Thomas Sampson (The Preston Road Nurseries, Yeovil, Mid-Somerset), Catalogue of Gladiolus.—Miller & Sievers (27, Post Street, San Francisco, California), Trade List of Californian Tree, Shrub, and Flower Seeds; and also their Special Trade List of Californian Bulbs.—James Backhouse & Sons (York), Catalogue of Hardy Trees, Shrubs, and Conifers.—Maurice Young (Milford Nurseries, near Godalming, Surrey), Catalogue of New and Rare Plants, Coniferæ, Evergreens, Roses, Fruit and Forest Trees, &c.

COMMUNICATIONS RECEIVED.—T. Morris, Plumstead (next week).—H. P. & Son.—R. W. (Corby).—J. B. D.—S. W. S. —Don's Catalogue.—B.—E. S. W.—Well-wisher.—J. D. D. —E. S. D.—J. D.—T. S.—W. H. R.—Gustav Wallis (we shall be happy to hear from you).—A Young Gardener. —W. C. (shortly).—W. C. (thanks).—J. W. B.—W. J.—C. D. S.

Markets.

COVENT GARDEN, *November* 19.

The supply of outdoor produce is well kept up, but a rather limited amount of business is doing. A heavy trade is doing in English Apples, and report speaks of large quantities still to come. Pines good, and a free supply from St. Michael's. *Thos. Taylor, Wholesale Apple Market.*

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, green, ea.	0 3–	0 6	Lettuces, per doz. ..	1 6–	..
Beans, Scarlet, bush.	3 0–	5 0	Mint (green), p. bun.	0 6–	..
Beet, per doz. ..	1 0–	2 0	Mushrooms, per pott.	1 0–	2 6
Broccoli, p. bundle ..	0 9–	1 6	Onions, young, bun.	0 4–	0 6
Brus. Sprts., p. bush.	5 0–	..	Parsley, per bunch ..	0 4–	0 6
Cabbages, per doz. ..	1 0–	2 0	Parsnips, p. doz. ..	0 9–	1 0
Carrots, p. bundle ..	0 4–	0 6	Radishes, per bunch.	0 2–	0 4
Cauliflowers, per doz.	2 0–	6 0	— black, Turnip, do. ..	–	0 6
Celery, per bundle .	1 6–	2 0	Seakale, per bundle	1 6–	2 6
Cucumbers, each ..	2 0–	2 6	Shallots, per lb. ..	0 3–	..
Endive, per doz. ..	1 0–	2 0	Salsify, per bundle ..	1 6–	..
Herbs, per bunch ..	0 2–	0 4	Spinach, per bush. ..	2 0–	3 0
Horse Radish, p. bun.	3 0–	5 0	Tomatos, per doz. ..	1 0–	3 0
Leeks, per bunch ..	0 2–	0 4	Turnips, per bundle .	0 3–	0 4

Potatos:—Round, 60*s.* to 90*s.* per ton; Kidneys, 90*s.* to 120*s.* per ton.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0–	1 6	Melons, each ..	1 0–	3 0
Filberts, per lb. ..	1 0–	1 6	Nuts, Cob, p. lb. ..	1 0–	1 6
Grapes, English, p. lb.	2 0–	6 0	Oranges, p. 100 ..	8 0–	12 0
— Muscats, do. ..	3 0–	6 0	Pears, p. doz. ..	2 0–	3 6
Lemons, per 100 ..	10 0–	15 0	Pine-apples, p lb. ..	3 0–	6 0
Medlars, per doz. ..	0 6–	1 0	Walnuts, p. bush. ..	16 0–	..

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Camellias, 12 blooms	3 0–	9 0	Pelargoniums, 12 spr.	1 0–	1 6
Carnations, 12 blooms	1 0–	2 0	Pelargoniums, Zonal, per 12 sprays ..	0 6–	0 9
Corn-flower, doz. bun.	3 0–	6 0	Roses, indoor, p. doz.	2 0–	6 0
Eucharis, per doz. ..	6 0–	9 0	— Outdoor, do...	0 6–	1 6
Gardenias, p. doz...	3 0–	9 0	Spiræa, per 12 sprays	1 0–	2 0
Gladiolus, doz. sprays	1 0–	2 0	Stephanotis, 12 sprays	5 0–	9 0
Heliotropes, per doz. sprays	–	0 6	Tuberoses, p. doz. ..	1 0–	2 0
Mignonette, 12 bun.	2 0–	6 0	Violets, p. doz. bun.	0 9–	1 6

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, do. ..	6 0–	12 0	Heaths, in var., do.	12 0–	30 0
Bouvardias do. ..	9 0–	18 0	Liliums, in var., each	1 0–	3 6
Coleus, p. doz... ..	3 0–	9 0	Mignonette, per doz.	4 0–	6 0
Chrysanthemums, p. dozen	4 0–	9 0	Myrtles .. do.	3 0–	9 0
Cyperus, per dozen	6 0–	12 0	Pelargoniums, dble., per doz.	6 0–	12 0
Dracæna terminalis	12 0–	30 0	— Scarlet, per doz.	3 0–	9 0
— viridis, per doz.	12 0–	24 0	Primula sinensis ..	4 0–	8 0
Ficus elastica ..	1 6–	7 6	Solanums, per doz...	6 0–	18 0
Fuchsia, per dozen	4 0–	12 0			

SEEDS.

LONDON: *Nov.* 20.—Red Clover seed shows no alteration since our last; bold purple samples are in good request, but secondary and inferior qualities are quite neglected. American red also fails as yet to find buyers. White Clover and Alsike seeds are held with more firmness. Trefoils are quiet; present values show a decline of some shillings per cwt. from the top opening prices. In foreign Italian there is nothing passing. Winter Tares fully maintain previous rates. In Canary seed there has been again a considerable advance; scarcity and speculation have now forced up prices to a very high figure indeed. Hemp seed, on the other hand, keeps very cheap. In Rape and Mustard seed there is very little passing. Feeding Linseed meets with an improved inquiry. Blue boiling Peas move off slowly. In new Haricot Beans there is a fair trade doing. *John Shaw & Sons, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday an advance of from 1*s.* to 2*s.* per quarter was established in the value of Wheat, both English and foreign. In Barley, really fine qualities of both malting and distilling produce realised 1*s.* per quarter more money. Malt was without alteration in value. For Oats, the rates of Monday last were in some instances exceeded. Maize was held occasionally for enhanced figures. Beans were steady, as also were Peas. Flour was not quotably higher in price.—The market on Wednesday was dull and weak, and there was no material change in prices. For English or foreign Wheat the enhanced rates of Monday last were with difficulty maintained. Barley was very quiet, and not so strong in value. Malt was extremely slow of sale, and the small business done in Oats, Maize, Beans, Peas, and flour, was on terms rather less in favour of the sellers.

CATTLE.

On Monday choice quality beasts met with ready purchasers at fully late rates, but trade was dull for other kinds. For sheep there was a fair demand, and last Thursday's advance was fully maintained. Choice calves were scarce and dear. Quotations:—Beasts, first quality, 5*s.* 10*d.* to 6*s.* 4*d.*; second do., 4*s.* to 5*s.* 4*d.*; calves, 4*s.* 4*d.* to 6*s.*; sheep, first quality, 5*s.* 8*d.* to 6*s.* 4*d.*; second do., 5*s.* to 5*s.* 4*d.*—On Thursday the quotations for beasts were not quite so good as on Monday. In sheep trade was very dull, and prices were lower on the average. Choicest quality calves maintained their ground, but for milch cows trade was very dull.

HAY.

Supplies at Whitechapel market were rather checked by the weather, but they were fully adequate to the demand, and trade ruled quiet at the following quotations:—Clover, best, 117*s.* to 123*s.*; inferior ditto, 70*s.* to 90*s.*; hay, best, 108*s.* to 112*s.*; inferior, 60*s.* to 70*s.*; straw, 33*s.* to 40*s.* per load. Cumberland Market quotations:—Superior meadow hay, 114*s.* to 120*s.*; inferior, 86*s.* to 95*s.*; superior clover, 115*s.* to 130*s.*; inferior 100*s.* to 110*s.*; and straw, 38*s.* to 42*s.* per load.

POTATOS.

The arrivals of Potatos at Borough and Spitalfields markets are on a moderate scale. For sound qualities the trade is steady at full prices, but otherwise the demand rules quiet. Larger supplies of foreign Kidney Potatos are on offer. The quality and condition of the English supplies vary considerably. Regents are quoted at 60*s.* to 100*s.*; Rocks, 60*s.* to 70*s.*; Victorias, 90*s.* to 110*s.*; and Flukes, 100*s.* to 120*s.* per ton.—The imports of foreign Potatos into London last week amounted to 19,765 bags, principally through Antwerp.

COALS.

There was no change in prices at Monday's market, and on Wednesday business was quiet at last prices for all descriptions of coal. Quotations:—Wallsend—Hetton, 27*s.*; South Hetton, 27*s.*; East Hartlepool, 26*s.* 6*d.*; Lambton, 26*s.* 6*d.*, Original Hartlepool, 27*s.*; Caradoc, 26*s.* 9*d.*; Bebside West Hartley, 21*s.* 3*d.*; Hastings' Hartley, 21*s.* 3*d.*; West Hartley, 21*s.* 3*d.*

NEW QUEEN ONION.

MADAME PICCIRILLO,

The Raiser of the above New Variety begs to inform the Trade that she has DISPOSED OF THE ENTIRE PRODUCE of this season's harvest to the undernamed Firms :—

MESSRS. WAITE, BURNELL & CO.,

79, SOUTHWARK STREET, LONDON, S.E.;

AND

MESSRS. CARTER & CO.,

238, HIGH HOLBORN, LONDON, W.C.

VILLA VOLPICELLO, NAPLES.

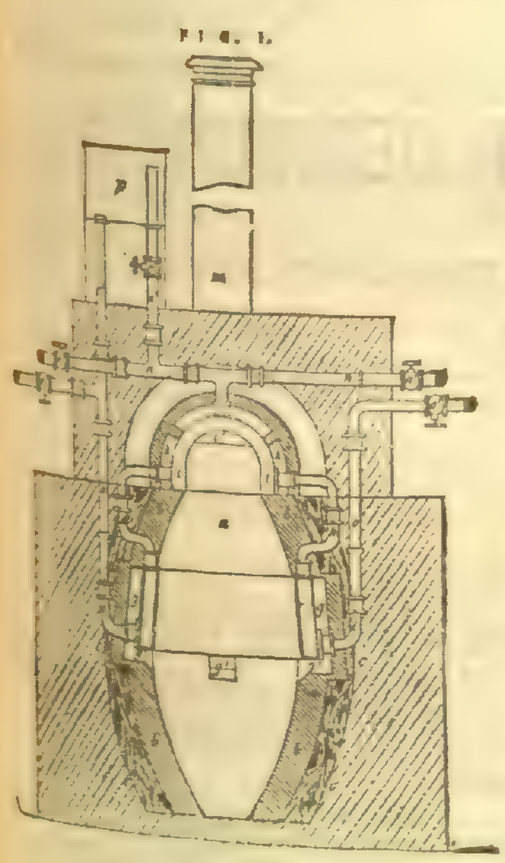
THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company, having purchased from the Dromore Patent Heating Company Mr. Cowan's valuable Patents for the United Kingdom, is now prepared to undertake the Erection of Apparatus on that System in all parts of the Country.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

THE SUCCESS OF EVERY APPARATUS ERECTED BY THE COMPANY IS GUARANTEED.



Full Particulars of this System, Testimonials, and Opinions of the Press, can be seen in the Company's Illustrated Pamphlet, which can be obtained, post free, on application.

The Company has an Efficient Staff of Engineers, and sends at any time to inspect places where the idea is entertained of Erecting the Apparatus.

The System has lately been adopted at Hazelwood, Herts, the seat of Lord Rokeby; Stackpole Court, the seat of the Earl of Cawdor; Ripley Castle, Yorkshire, the seat of Sir H. D. Inglby, Bart.; Langleybury House, Herts, the seat of Jones Lloyds, Esq.; and at many other places. Also Mr. E. Bennett, of Hatfield, says :—

"I now most cordially beg to congratulate you on the glorious success of your Heating Apparatus (now in use at Hatfield), which is working most satisfactorily, and which has exceeded my expectations. It is a decided success, and more cannot be said in its favour. Should it continue to work in the manner it now does, it will prove a great boon here, and start a new era in the heating of horticultural buildings generally. By your Compensating System we have for every barrow of coals thrown into the kiln some substantial return; by the old system the returns were ashes, and the trouble of clearing them away. I find our chalk is of an inferior quality to some I have seen in the neighbourhood, but we have plenty of heat."

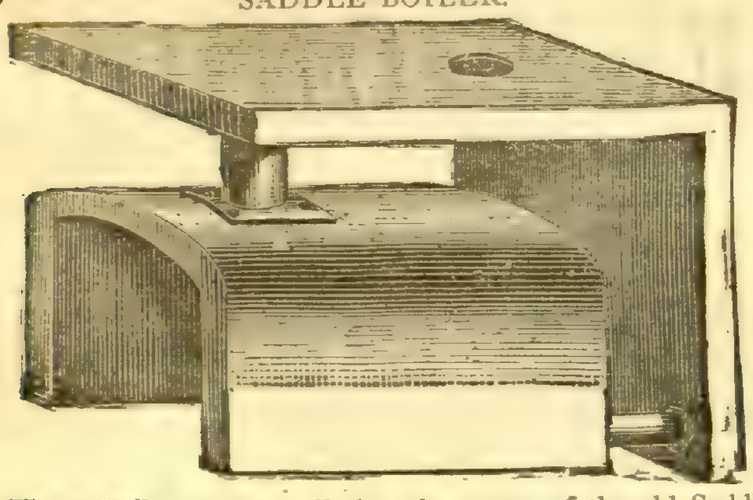
The Company also undertakes the Erection of all other kinds of Heating Apparatus, and of Horticultural Buildings.

PLANS AND ESTIMATES FURNISHED ON APPLICATION.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

Office: 4, LOTHBURY, BANK, LONDON, E.C.

JONES'S PATENT "DOUBLE L" SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

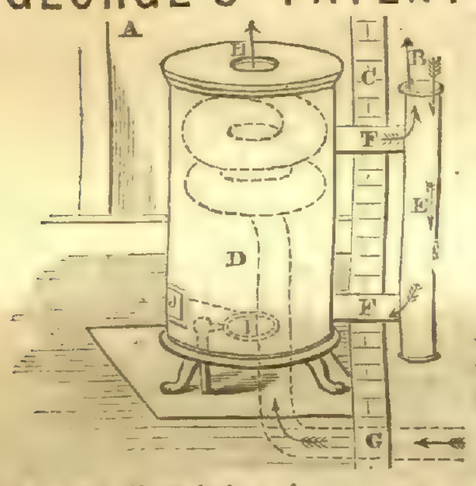
Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0
30 ,,	30 ,,	72 ,,	2,600	35	0	0
36 ,,	36 ,,	96 ,,	4,500	50	0	0
48 ,,	48 ,,	108 ,,	7,000	75	0	0
48 ,,	48 ,,	144 ,,	10,000	100	0	0

And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

GEORGE'S PATENT CALORIGEN,



FOR WARMING AND VENTILATING.

COAL CALORIGEN, £6 6s.
Height, 36 inches; diameter, 21 inches.

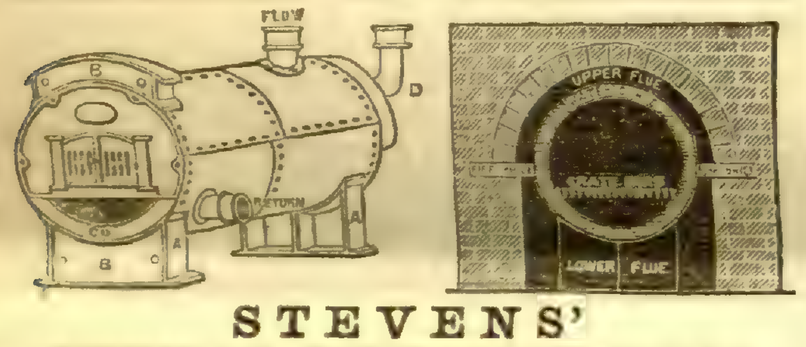
GAS CALORIGEN, £3 3s.
Height, 28 inches; diameter, 14 inches.

The only Gas Stove which retains the whole of the heat given off by the gas without vitiating the atmosphere. The "Coal Stove" consumes the smallest amount of Fuel—2d. per diem being the average cost. It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).

Illustrated Prospectuses and Testimonials on application.

J. F. FARWIG AND CO., 36, Queen Street, Cheapside, E.C.

This Stove introduces a strong current of warmed (not burnt) fresh air.

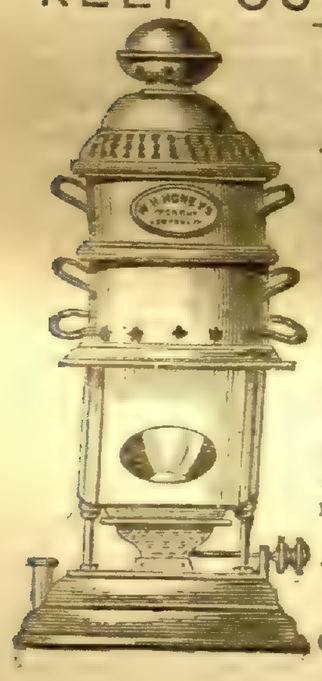


STEVENS' TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

ESTABLISHED 1856.

KEEP OUT THE FROST.



WILLIAM H. HONEY'S PORTABLE

VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

Prices, in block tin, 30s.; in copper, 50s. Copper, with glass, to give light and heat, 55s. Either will be sent on receipt of Post-office Order.

To be seen in operation at

WILLIAM H. HONEY,
263, REGENT STREET, W.
Catalogue free. No agents appointed.

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	.. ..	3s. 4½d.
3-inch Pipe, per yard	.. ..	2s. 8½d.
2-inch Pipe, per yard	.. ..	1s. 8d.

Connections at proportionate prices.

Illustrated Price List free on application to
T. G. MESSENGER, Hot-water Engineer, Loughborough.

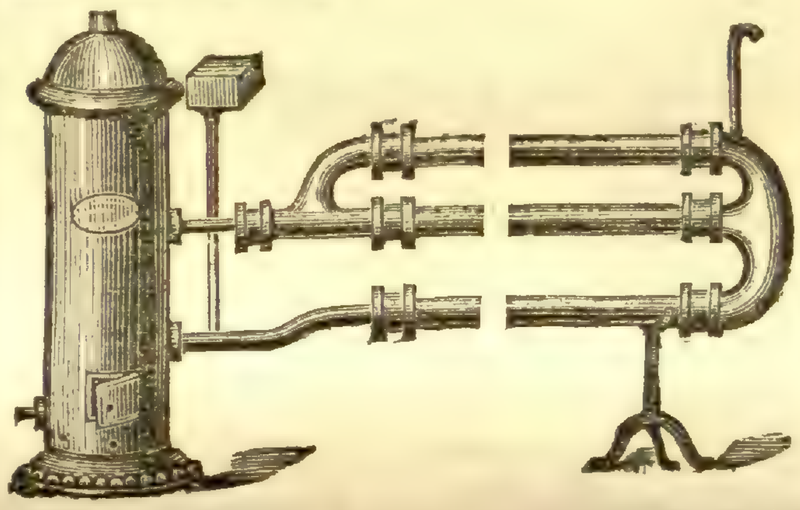
HOT-WATER APPARATUS

(Heated by Gas)
FOR SMALL CONSERVATORIES, GREENHOUSES, &c.

Price from £3 3s. To be had of

JOHN GILL AND CO., 299, Oxford Street, London, W., and of all Ironmongers.

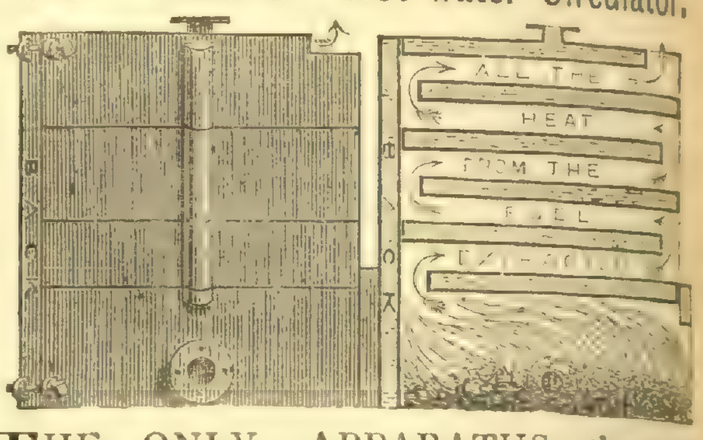
Wholesale only of JOHN WRIGHT AND CO., Essex Works, Broad Street, Birmingham.



FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

The "Victoria" Hot-water Circulator.



THE ONLY APPARATUS thoroughly adapted for its purpose. No other possesses half its merits and advantages. Warranted for ten years. Also guaranteed to far surpass and give much more satisfaction than the common Boilers. A break-down never yet known. See Illustrated Prospectus and Testimonials from most eminent men, sent post free.

Patronised by H.R.H. the Prince of Wales.

The Gardens, Sandringham, October 28, 1874.

DEAR SIR,—I am in receipt of your Warranty, and am now able to tell you, after my having tried all kinds and all sizes of Boilers for the last twenty-five years, your Hot-water Circulator beats them all—not by a head, but it is a simple walk over—for economy and power. I think I may say, we shall never need any further research for a thorough good Boiler.

I am, dear Sir, yours truly,
Messrs. Cannell & Co. CHAS. PENNY.

P.S.—You are at liberty to make what use you like of this.

HOT-WATER CIRCULATOR COMPANY,
48 and 49, King Street, Woolwich, S.E.

THE THAMES BANK IRON COMPANY

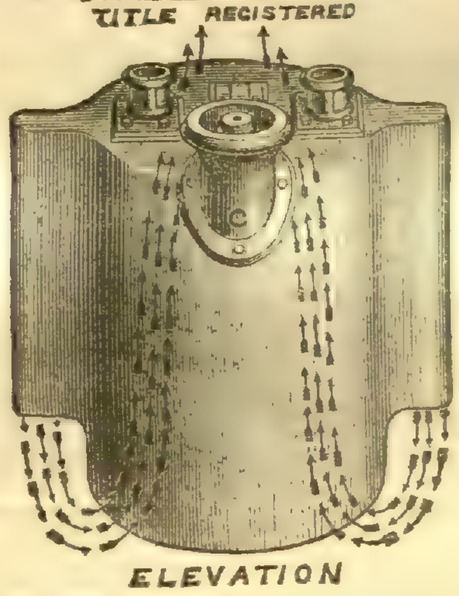
(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

SURREY SIDE, BLACKFRIARS BRIDGE,

Have the largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.

"ATLAS BOILER"
TITLE REGISTERED



ELEVATION

HOT-WATER BOILERS,

PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

NEW PATENT "CLIMAX" BOILER (1874).
See p. 666, *Gardeners' Chronicle.*

"GOLD MEDAL" BOILER (Birmingham, 1872).

PATENT "EXCELSIOR" BOILER (1871).

"WITLEY COURT" BOILER (Silver Medal, 1872).

"TRENTHAM IMPROVED" BOILER, with Waterway End and Smoke Consumer.

"TUBULAR," and every other Boiler of known merit or excellence.

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

HEATING APPARATUS OF THE BEST DESCRIPTION.

THE CONVOLUTED BOILER. THE IMPROVED TRENTHAM CORNISH BOILER.

THE GOLD MEDAL BOILER.

THE FLUED SADDLE WITH TERMINAL END. THE CHECK-ENDED SADDLE.

THE OLD SADDLE.

THE INDEPENDENT BOILER without Brickwork, and other Boilers.

None recommended but what are known to be Good.

Hot-Water Pipes, Valves of the best make, Connections, &c., always kept in Stock.

Horticultural Structures, Mansions, Churches, Public Buildings, &c., Heated by Hot Water on the most scientific principles. Inefficient Apparatus remodelled, and experienced Workmen sent to any part of the Country.

GENTLEMEN WAITED ON.

PRICES AND ESTIMATES ON APPLICATION.

HENRY ORMSON,
Horticultural Builder and Hot-Water Apparatus Engineer,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

J. G. SMEATON & CO.,
Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.
HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

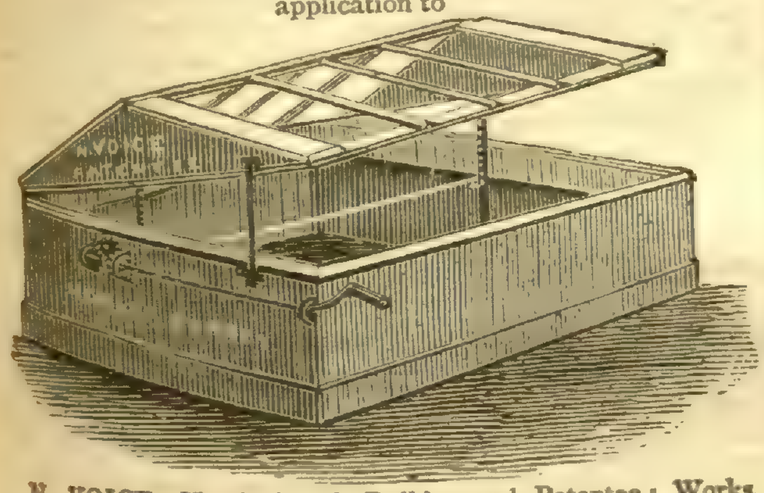
AGRICULTURAL LOCOMOTIVES,
STEAM PLOUGHING MACHINERY,
ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES, STEAM ROAD ROLLERS.
For Prices, Description, and Reports of Working, apply to the Manufacturers,
AVELING & PORTER,
ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.
AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.
HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.
Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.
N.B.—AGENTS WANTED.

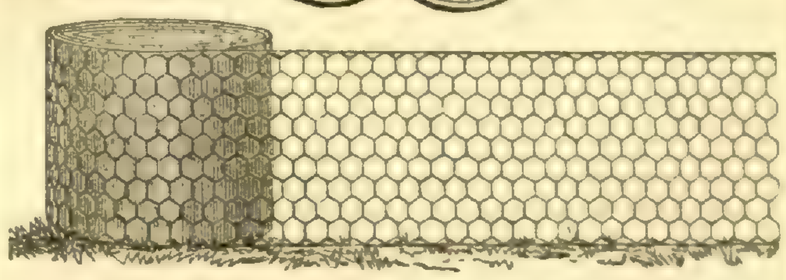
J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.
PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.
References to the Nobility, Gentry, and Trade in most of the Counties in England.

Messrs. J. B. Brown & Co.'s VIENNA PRIZE WIRE NETTING.
THE MEDAL FOR MERIT
At the Vienna Universal Exhibition, 1873,

Was awarded to Messrs. J. B. Brown & Co., for "excellence and perfection in material and

workmanship, large extent of production, and cheapness of produce."



Prices per Lineal Yard, 24 inches high:—

Size of Mesh.	Mostly used for	Gauge.	Or Light Quality.	Gauge.	Or Medium Quality.	Gauge.	Or Strong Quality.
2 in.	Dogs or Poultry .	19	3¾d.	18	4½d.	17	5¾d.
1⅜ in.	Small Rabbits, &c.	19	4¼d.	18	5¼d.	17	6¼d.
1½ in.	Smallest Rabbits	19	5¼d.	18	6¼d.	17	8d.

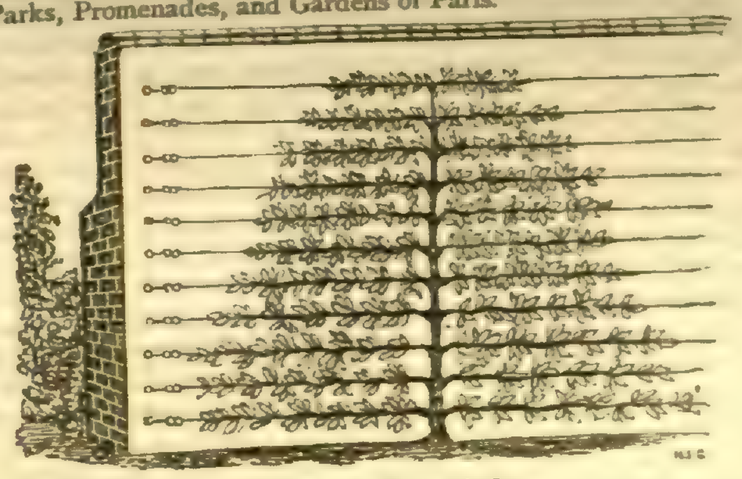
*** Circulars with prices and further particulars of Wire Netting, also of Iron Fencing, Espalier and other materials for Wiring Garden Walls for Fruit Trees on the French System, on application.

Messrs. J. B. BROWN & CO.,
Offices—90, CANNON STREET, LONDON.

Garden Wall Wiring.

R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.
For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.
For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.
For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.
The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.
Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

THOMAS'S
GALVANIZED
WROUGHT-IRON FITTINGS
FOR WIRING WALLS, FOR THE PURPOSE OF TRAINING FRUIT TREES
On the French system, and as recommended by Mr. W. Robinson, F.L.S., editor of *The Garden*, and author of "The Parks, Promenades, and Gardens of Paris."

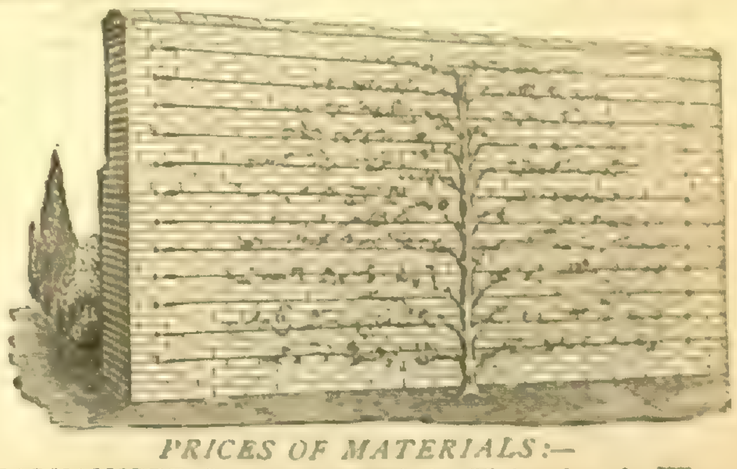


Prices of Materials. Per doz.—*s. d.*

GALVANISED RAIDISSEURS 4 0
GALVANISED TERMINATING HOLDFASTS .. 2 0
(Two required for each line of wire.)
GALVANISED WALL EYES 0 6
GALVANISED WIRE, 2*s.*, 2*s.* 6*d.*, and 3*s.* per 100 yards.

Illustrated Lists, with full particulars of the above, and Fittings for Espalier Trainers, on very economical principles, free on application.
Five per cent. discount allowed for prompt cash on orders amounting to 20*s.* and upwards. Special quotations for larger quantities.
J. J. THOMAS & CO.,
PADDINGTON WIREWORKS, 285 and 362, EDGWARE ROAD, LONDON, W.
Illustrated and Priced Catalogues of every description of Horticultural Wirework on application.

GALVANISED WROUGHT IRON
FITTINGS for WIRING WALLS,
For the Purpose of Training Fruit Trees
ON THE FRENCH SYSTEM,
and as recommended by Mr. W. ROBINSON, F.L.S., in his new work, "The Parks, Promenades, and Gardens of Paris."
By this system nails and shreds are entirely dispensed with, the walls are not injured, and no harbour is afforded to small insects. The Tying of the Fruit Trees is effected in one-fifth of the time required by the old system. The arrangement is so simple, that it can easily be applied to any Walls by inexperienced hands.



PRICES OF MATERIALS:—
GALVANISED RAIDISSEURS for Tightening the Wires. One of these required for each Line of Wire.

No. 900. 4*s.* per doz.

GALVANISED WALL EYES, 6*d.* per dozen.
GALVANISED TERMINATING HOLDFASTS, 2*s.* per doz.
GALVANISED WIRE, 2*s.* 6*d.* and 3*s.* per 100 yards.
ILLUSTRATED LISTS, with full particulars of the above, and of FITTINGS for ESPALIER TRAINERS, on very economical principles, free on application to
BARNARD, BISHOP & BARNARDS,
NORFOLK IRONWORKS, NORWICH.

THE FRENCH SYSTEM
OF WIRING GARDEN WALLS, &c., FOR
TRAINING FRUIT TREES.

Prices on application to
J. B. BROWN AND CO., 90, Cannon Street, E.C.

SPECIAL NOTICE.

F. K. BELL'S
IMPERISHABLE METAL LABELS
FOR
HORTICULTURE, WINE BINS, ARBORICULTURE AND MACHINERY.
THE ORIGINAL MANUFACTORY
of these Labels (which have given such general satisfaction throughout the United Kingdom) has been removed ENTIRELY from Stratford-on-Avon to
EASTBOURNE, SUSSEX,
Where all Orders should be addressed, and shall receive prompt attention. Catalogues and samples on application.
F. K. BELL,
LABEL FACTORY, EASTBOURNE.

The Improved Imperishable Labels!!!
IMPORTANT NOTICE.

J. SMITH begs to state that the Manufacture of the above LABELS will be carried on by him at the Label Factory, Stratford-on-Avon.
J. S. further wishes to state that he has just effected a great improvement in the Standards of the Large Labels, and in the Lettering of all the different sizes, having had new and more suitable Type cut specially for the purpose. The Labels are made of a white metal with RAISED BLACK-FACED LETTERS.
All future orders will be executed with the new type.
Samples and Price List free.
Address—J. SMITH, Label Factory, Stratford-on-Avon.

Labels—Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3*s.* 6*d.* per 1000, or 30*s.* per 10,000; if eyeleted, 4*s.* per 1000. Vellum Cartridge, 4 inches long, 3*s.* per 1000 for 10,000. Sample Labels sent on receipt of Postage Stamp. Orders delivered free in London.

JOHN FISHER AND CO., Label Works, Boston.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of

CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

Oil Paint no Longer Necessary.

HILL AND SMITH'S PATENT BLACK VARNISH for Preserving Ironwork, Wood, or Stone. This Varnish is an excellent substitute for oil paint on all out-door work, and is fully two-thirds cheaper. It may be applied by an ordinary labourer, requires no mixing or thinning, and is used cold. It is used in the grounds at Windsor Castle, Kew Gardens, and at the seats of many hundreds of the Nobility and Gentry, from whom the most flattering testimonials have been received, which HILL & SMITH will forward on application.

Sold in casks of about 30 gallons each, at 1*s.* 6*d.* per gallon, at the Manufactory, or 1*s.* 8*d.* per gallon paid to any Station in the Kingdom.

UNSOLICITED TESTIMONIAL.

"Glangwilly, Llanpumpsant, Carmarthen, Nov. 27, 1873.

"Mr. Lloyd Lloyd encloses cheque for £3 5*s.*, amount due to Messrs. HILL & SMITH, and he considers the Black Varnish one of the most useful things he ever possessed."

Apply to HILL AND SMITH, Brierley Hill Ironworks, near Dudley; and 97, Cannon Street, E.C., from whom only it can be obtained.

CAUTION.—It having lately come to the knowledge of HILL & SMITH that spurious imitations of this Varnish are being offered by unprincipled dealers at a slight reduction in price, they would specially draw attention to the fact that every cask of their Varnish is legibly marked with their name and address, without which none is genuine.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars, and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

List of some of the Horticultural and Botanical Works on Sale at the

GARDEN LIBRARY,

37, Southampton Street, Covent Garden, London, W.C.

Hogg's Treatise on Florist's Flowers, 6*s.* 6*d.*; Hooker's Handbook of the New Zealand Flora, £1 5*s.*; Hooker's Niger Flora, 8*s.* 6*d.*; Hooker's (Sir Wm.) British Flora, 8*s.*; Hooker's British Ferns, coloured figures and description, £1 15*s.*; Hooker's (Sir W. J.) Garden Ferns, £1 15*s.*; Hortus Anglicus, 2 vols. (Rivington, 1822), 8*s.*; Icones Plantarum Medicinalium, coloured plates, 3 vols., 12*s.*; Jacques, Hérincq, and Duchartre's Manuel des Plantes, 4 vols., neatly bound in half-calf, £1 1*s.*; Jacquin's Selectarum stirpium Americanarum historia, 183 plates, £1 5*s.*; Jones and Kingston's Flora Devoniensis, 7*s.* 6*d.*; Journal of the Horticultural Society (1846 to 1852), 12*s.*; Journal of Horticulture, complete from commencement in 1848 till end of 1872, £9; Kemp's How to Lay out a Garden, last edition, 18*s.*; Kunth's Enumeratio Plantarum, 5 vols., half-calf, £3 5*s.*; Koch's Dendrologie, £2 2*s.*; Lees on the Cultivation of Tea in India, 10*s.*; Leighton's Flora of Shropshire, 12*s.*; Leroy's Dictionnaire de Pomologie, vol. i., half-calf, 13*s.* 6*d.*; L'Heritier's Stirpes Novæ, plates, 25*s.*; L'Heritier's Geraniologia et Cornus, plates, £1 10*s.*; Lightfoot's Flora Scotica, plates, 2 vols., 10*s.*; Lindley's Vegetable Kingdom, 20*s.*; Lindley's Orchard and Kitchen Garden, 7*s.* 6*d.*; Lindley's Theory of Horticulture, 10*s.* 6*d.*; Loudon's Arboretum Britannicum, £5 5*s.*; Loudon's Encyclopædia of Gardening, 7*s.* 6*d.*; Loudon's Encyclopædia of Plants, 35*s.*; Loudon's Encyclopædia of Trees and Shrubs, 25*s.*; Loudon's Gardeners' Magazine, 17 vols., 31*s.* 6*d.*; Loudon's Self Instructions for Young Gardeners, 8*s.*; Loudon's Hortus Britannicus, 8*s.*; Major on Landscape Gardening, 12*s.*; Martyn's Edition of Miller's Gardeners' Dictionary, 4 vols. (the best edition), £2.; Maund's The Botanist, coloured plates, 5 vols., £5; Michaux and Nuttall's North American Sylva, 5 vols., morocco, £13; Morris on Landscape Gardening, 10*s.* 6*d.*; Morris' Flora conspicua, sixty coloured plates, 12*s.*; Papworth's Ornamental Gardening, twenty-eight coloured plates, 15*s.*; Price on the Picturesque, 3 vols., 10*s.*; Roques' Phytographie Medicale, 180 coloured plates, £1 2*s.*; Sinclair's Hortus gramineus Woburnensis, 20*s.*; Sowerby's English Botany, Syme's edition, 11 vols., £22 8*s.*; Strutt's Sylva Britannica, 25*s.*; Suter's Flora Helvetica, 2 vols., 12*s.*; Tchiatcheff's Asie Mineure, 3 vols., fine plates, £2 2*s.*; Thompson's Gardeners' Assistant, 31*s.* 6*d.*; Thornton's Temple of Flora, fine coloured plates, £2; Wade's Plantæ Rariores in Hibernia, 10*s.*; Walker's Flora of Oxfordshire, 7*s.* 6*d.*; Weddell's Chloris Andina, 2 vols., beautiful plates, £2 2*s.*; Whateley's Observations on Modern Gardening, 7*s.* 6*d.*; Withering's British Plants, 4 vols., 8*s.*; Wooster's Alpine Plants, 1st and 2d series, each 25*s.*

Aiton's Hortus Kewensis, 5 vols., half calf, 12*s.*; Allioni's Rare Plants of Piedmont, plates, 10*s.* 6*d.*; Andrew's Figures and Descriptions of Heaths, 2 vols., £1 4*s.*; Annales de Flore et de Pomone, 17 vols., £1; Annals of Horticulture (Cox), 5 vols., cloth, 15*s.*; Bacon's Sylva Sylvarum, or a Natural History in Ten Centuries, 10*s.* 6*d.*; Balfour's Manual of Botany, 3d edition, 8*s.* 6*d.*; Bath Society Papers, 12 vols., 15*s.*; Bauhini's Theatri Botanici, 7*s.* 6*d.*; Bentham's Flora Hongkongensis, 10*s.*; Bentham's Illustrated British Flora, 2 vols., £1 10*s.*; Bentham's Handbook of the British Flora, 10*s.*; Bentley's Manual of Botany, 8*s.*; Berkeley's Outlines of British Fungology, 18*s.*; Berkeley's Cryptogamic Botany, 12*s.*; Bohn's British Florist, 6 vols., cloth, eighty-one coloured plates, £1; Boissier's Flora Orientalis, vol. i., £1 1*s.*; Bonnet's Recherches sur l'Usage des Feuilles dans les Plantes, 8*s.*; Bradley's Succulent Plants, coloured plates, 8*s.*; Brenchley's Cruise of the Curaçoa, £1 5*s.*; Brisseau-Mirbel's Elémens de Physiologie Végétale et de Botanique, numerous plates, 12*s.*; Browne's Natural History of Jamaica, fine plates, 10*s.*; Burnett's Magazine of Gardening and Botany, coloured plates, 3 vols. in 1, 10*s.* 6*d.*; Burnett's Outlines of Botany, 14*s.*; Church's Floral Calendar, coloured plates, 8*s.*; Curtis' Botanical Magazine, 55 vols. in 34, £18; Curtis' Flora Londinensis, 6 vols., unbound, £2 10*s.*; Curtis' Lectures on Botany, 3 vols., 12*s.*; Curtis' Farm Insects, £1; Cronise's Natural Wealth of California, 15*s.*; Darwin's Phytologia, or the Philosophy of Agriculture and Gardening, 12*s.*; Darwin's Botanic Garden, fine plates, 14*s.*; De Candolle's Histoire des Plantes Grasses, 2 vols., coloured plates, £3 10*s.*; Dennis' The Landscape Gardener, 6*s.*; Dodonæus' Herbarum Historia, plates, calf, Antwerp, rare, 1568, 10*s.*; Don's General System of Gardening and Botany, 4 vols., 18*s.*; Downing's Landscape Gardening, 10*s.* 6*d.*; Duchartre's Elémens de Botanique, 506 illustrations, 10*s.*; Evelyn's Sylva, 2 vols., calf, Hunter's edition, £1 1*s.*; Evelyn's Acetaria, a Discourse on Sallets, 1699, 8*s.*; Evelyn's Sylva, a Discourse on Forest Trees, 1664, 6*s.* 6*d.*; Evelyn's French Gardener, and, in same vol., The English Vineyard, by John Rose, 12*s.*; Explorations and Surveys for a Railroad from the Mississippi River to the Pacific Ocean, 13 vols., one of the most magnificent books ever published, containing many beautiful coloured plates and engravings, and richly stored with information in various branches of Natural History, £12; Felton on the Portraits of English Authors on Gardening, and, in same vol., Johnson's Chronological, Biographical, Literary and Critical History of English Gardening, 12*s.*; Flora of Middlesex (Trimen and Dyer), 10*s.*; Forbes' Hortus Woburnensis, 12*s.*; Fuchs' Historia Stirpium, woodcuts, Lyons, 1511, 18*s.*; Gardeners' Chronicle, complete from commencement (1841) to end of 1873, 32 vols., £12; Gilbert's Histoire des Plantes de l'Europe, 3 vols., 8*s.*; Gilpin's Works, plates, 8 vols., bright calf, gilt, £2 12*s.*; Gilpin's (W.) Landscape Gardening, 8*s.*; Gray's Natural Arrangement of British Plants, 2 vols., 7*s.* 6*d.*; Green's Universal Herbal, 2 vols., calf, numerous plates, £1; Grigor's Arboriculture, 10*s.* 6*d.*; Harrison's Floricultural Cabinet, 12 vols. in 6, £1 10*s.*; Haworth's Observations on the Genus Mesembryanthemum, 8*s.*; Hayne's Termini Botanici iconibus illustrati oder Botanische Kuntsprache, 2 vols., fifty coloured plates, £1; Hemsley's Handbook of Hardy Trees, Shrubs, and Herbaceous Plants, 21*s.*; Herbert's Treatise on Bulbous Plants, 25*s.*; Herman's Paradisus Batavus, 7*s.* 6*d.*; Hibberd's Ivy, 10*s.* 6*d.*; Hibberd's Rustic Adornments for Homes of Taste, 14*s.*; Hill on the Construction of Timber, 8*s.*

☞ *All Standard Horticultural and Botanical Works may be obtained at the "Garden" Library.*

Belgian.

BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAÎCHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid 10*s.* per annum.

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

New Works by the Rev. J. G. Wood, M.A.

Author of "Homes without Hands," &c.

OUT of DOORS; a Selection of Original Articles on Practical Natural History, uniform with "Strange Dwellings" by the same Author; with Six Illustrations from Original Designs engraved on Wood by G. PEARSON. Crown 8vo. Price 7*s.* 6*d.* cloth.

INSECTS ABROAD; a Popular Account of Foreign Insects, their Structure, Habits, and Transformations. With 600 Figures by E. A. SMITH and J. B. ZWECKER, engraved on Wood by G. PEARSON. Forming a Sequel or Companion Volume to "Insects at Home" by the same Author. 8vo. Price 21*s.* cloth.

London: LONGMANS AND CO.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents,
59, Fleet Street, E.C.

THE AGRICULTURAL GAZETTE,
SATURDAY, NOVEMBER 21, 1874,
Contains—

ORIGINAL ARTICLES on Fatting Tegs—The Ligurian Bee—The Management of Plants during Winter — Agricultural Machinery (Illustrated)—The Working of the Irish Land Act—Welsh Farming—The Grain Trade—"A Tenant-Right Bill"—Close of the Racing Season—Land Tenancy—The Maulden Farm—Common Law for Farmers—Shorthorns at Taverham Hall, Norfolk—"Onion Couch" Grass (Illustrated)—American Shorthorn Sales—Address "To My Labourers"—The Hop Plantations—"Ten Years' of Gentleman Farming," &c.

HOME AND FOREIGN CORRESPONDENCE on The Labourer's Movement—The late Mr. Piper and Thin Sowing—Turnpike Roads—Steam Cultivation—Mangel Wurzel Remedy for Wireworm — Liebig and Agriculture — The School Board *v.* the Agricultural Labourer—Farm Capital—Rural Notes from Greater Britain—Autumn in Canada, &c.

FARM NOTES AND MEMORANDA from a large number of Counties in Great Britain and Ireland.

REPORTS OF SOCIETIES, FARMERS' CLUBS, &c.

ALSO—

The Veterinarian—The Poultry Yard—The Garden of the Farm—The Beekeeper—Forestry—The Weather—Reports of Markets—Notices of Books, &c.

Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

Works on Botany, by Dr. Lindley.

THE VEGETABLE KINGDOM; or, THE STRUCTURE, CLASSIFICATION, AND USES OF PLANTS Illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25*s.*, with upwards of 500 Illustrations.

EXTRACT FROM THE AUTHOR'S PREFACE.

"The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be taught by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, can obtain the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects."

By the same Author.

INTRODUCTION to BOTANY. Fourth Edition, greatly enlarged; with six Plates, and numerous Wood Engravings. Two Volumes, 8vo, 24*s.*

*** It has been the Author's wish to bring every subject that he has introduced down, as nearly as possible, to the state in which it is found at the present day. In doing so, he has added so very considerable a quantity of new matter, especially in what relates to Vegetable Anatomy and Physiology, that the present Edition may be considered, in those respects, a new work.

DESCRIPTIVE BOTANY; or, THE ART OF DESCRIBING PLANTS CORRECTLY, in Scientific Language, for Self Instruction and the Use of Schools. Price 1*s.*

MEDICAL and ŒCONOMICAL BOTANY; or, AN ACCOUNT OF THE PRINCIPAL PLANTS EMPLOYED IN MEDICINE OR DOMESTIC ŒCONOMY. In One Volume, 8vo, with numerous Woodcuts, price 5*s.*

SCHOOL BOTANY; or, THE RUDIMENTS OF BOTANICAL SCIENCE. In One Volume, 8vo, half bound, with 400 Illustrations, price 5*s.* 6*d.*

THE ELEMENTS of BOTANY, STRUCTURAL AND PHYSIOLOGICAL. With a Glossary of Technical Terms and numerous Illustrations. 9*s.* cloth.

This completes the series of Elementary Botanical Works by Professor LINDLEY, of which *School Botany* and *The Vegetable Kingdom* form the other parts.

The first two Parts of *The Elements of Botany*, comprising Structural and Physiological Botany, and a Glossary of Technical Terms, are published in one 8vo volume, price 9*s.*

These three Parts form a complete Manual of Botany for Medical and other Students who have made themselves acquainted with the Author's *School Botany*.

N.B. The Glossary may be had separately, price 5*s.*

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

WANTED, a PLANT COLLECTOR.—Mr. WILLIAM BULL is desirous of engaging a single Man to proceed to South America in the above capacity.—Personal application only at Mr. William Bull's Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

WANTED, as HEAD GARDENER, an active, intelligent, steady Man, thoroughly acquainted with the Cultivation of Vines, Pines, Orchids, &c.—Apply, stating age, and enclosing testimonials, to R. WHITTAKER PROCTER, Esq., Solicitor, 6, Westminster Chambers, Victoria Street, London, S.W.

WANTED, a HEAD GARDENER—one who has been thoroughly educated to the profession, and who can give references as to his abilities. There are four houses, Lawn, Flower Garden, Kitchen Garden, and Meadow, to take the entire charge of. One Under Gardener and a Boy are kept, and additional assistance is had, when necessary, to keep the place in perfect order. There is a small cottage adjoining the premises suitable for a Man and his Wife.—Apply by letter only, stating age, wages expected, and previous experience, to J. K., Messrs. Kingsbury & Co., 11, Clement's Lane, London, E.C.

WANTED, a SECOND GARDENER, married, no family—Wife to take charge of a Lodge Gate. Good character indispensable.—Address full particulars to Mr. MOORE, Head Gardener, Akeley Wood, Buckingham.

WANTED, a thoroughly trustworthy and WORKING FOREMAN, accustomed to Growing Fruit, Flowers, and Cucumbers for Market, with a good knowledge of Stove and Greenhouse Plants; also a young MAN who can Bud and Graft Fruit Trees and Propagate Bedding Plants, attend Market if required, &c. None need apply whose characters will not bear the strictest investigation.—Apply, stating age, wages, references, &c., to T. S. SANSDOWN, North Wilts Nursery, Swindon, Wilts.

Bulbs and Herbaceous Plants.

WANTED, an active young Man, to take Charge of a large Collection of the above.—Apply, noting where previously employed, age, and wages desired, to JAMES DICKSON AND SONS, Newton Nurseries, Chester.

Indoor Foreman.

WANTED, a thoroughly energetic and experienced PLANTSMAN, to take full Charge of the Glass Department of a large Provincial Nursery. A single Man, or married without family, preferred.—Apply, stating age, wages required, and where previously employed, to X., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

WANTED, a JOURNEYMAN for the Fruit-houses—an active, industrious young Man (about 23), used to Vines, Pines, Peaches, &c. State what experience, and wages expected, with copies of testimonials, to A. E., Post Office, Haslemere, Surrey.

WANTED, a SECOND SHOPMAN. Wages, £80 per annum.—Apply by letter, stating particulars as to age and experience, to B., Barr & Sugden, 12, King Street, Covent Garden, W.C.

WANTED, a JUNIOR SHOPMAN.—Apply, by letter, stating age, experience, references, and salary required, to Messrs. WAITE, BURNELL, HUGGINS, AND CO., Seed Merchants, 79, Southwark Street, London, S.E.

WANTED, in a Wholesale London Seed Establishment, a JUNIOR CLERK for the Invoice Department; one with a knowledge of the Trade preferred.—Apply, stating all particulars, to CLERK, Alfred Legerton, Seed Merchant, 5, Aldgate, London, E.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD).—Single; thoroughly experienced. Capital Grape Grower. First-class testimonials.—Mr. SKIRVING, Nursery, Liverpool.

GARDENER (HEAD).—Age 39, married; has a thorough knowledge of the routine of Gardening. Eight and a half years' character.—P. B., Knockholt, near Sevenoaks, Kent.

GARDENER (HEAD).—Has a thorough knowledge of Fruit, Flower, and Kitchen Gardening, also Woods. Fourteen years in present situation.—WILLIAM ADCOCK, Bereleigh House, Petersfield, Hants.

GARDENER (HEAD).—Age 34, married; has a thorough practical knowledge of Gardening in all its branches. Good reference, and two years' good character from present employer.—JOHN WILSON, Fenstanton, near St. Ives, Hunts.

GARDENER (HEAD).—Age 29, married, no family; thoroughly understands Forcing Pines, Vines, Peaches, Melons, and Stove and Greenhouse Plants; also Kitchen and Flower Garden. Sixteen years' experience. Good character from last employer.—C. B., Seaford, Sussex.

GARDENER (HEAD).—Age 32, married, no family; thoroughly experienced in the profession, learned under the best Gardeners of the day. Good character.—Address, with full particulars, GARDENER, Denham Rectory, Uxbridge, Bucks.

GARDENER (HEAD).—W. WREN, seven years Head Gardener to E. White, Esq., Southgate, is at liberty (through unfortunate difficulties) to engage with any Gentleman requiring a sound, practical, educated Man, who has crossed both the Bay of Biscay and the *Pons Asinorum*.—W. WREN, Ivy Cottage, Southgate, N.

GARDENER (HEAD).—Age 28, single; has a thorough practical knowledge of Early and Late Forcing of all choice Fruits and Vegetables, and well up in Stove and Greenhouse Plants. Disengaged in a month. Good reference as to ability, &c.—W. W., Tytup Hall, Dalton-in-Furness, Lancashire.

GARDENER (HEAD), married.—JOHN DERRICUTT, ever eight years Gardener to the late Robert Hannay, Esq., is now open to an Engagement in a first-class Establishment. Reference to late employer's brother, also to previous masters, if required.—The Gardens, Springfield, Ulverston, Lancashire.

GARDENER (HEAD).—Age 38, married, no family; just leaving one of the finest Gardening Establishments in Ireland, of unblemished character. Can be recommended by the leading Horticulturists of the United Kingdom; abilities (of the highest order) will be testified to by his present employer.—R. E., Mathews, Seed Merchant and Nurseryman, Belfast.

GARDENER (HEAD).—Age 29, single at present; thoroughly understands the Cultivation of Vines, Pines, Peaches, Figs, and all the various ways of Forcing Fruit and Vegetables. Thoroughly well up in Growing Native and Exotic Gigantic Plants, both Flowering and Foliage; and excellent in Growing Decoration Plants. Also a good Plan Drawer for new Flower Gardens.—A. B., Mile End, Copperhatch, Romsey, Hants.

GARDENER (SECOND), in a Gentleman's Garden.—Age 27. Can be highly recommended.—A. B., Post Office, Erdington, Birmingham.

GARDENER (UNDER), where three or more are kept.—Age 23. A small Premium would be given in a first-class place. Can be well recommended.—W. J., 4, Swinbrook Road, Notting Hill, W.

GARDENER (UNDER), in a Nobleman's or Gentleman's Garden.—Age 21. Five years' experience. Good reference from previous places.—Address, stating wages, &c., HORTUS, 48, Whitaker Street, Rose Hill, Derby.

ESTATE AGENT, PRACTICAL FARMER and GARDENER.—The Advertiser, who has had the Management of large Estates for many years, is desirous of obtaining a Situation in the above capacities; understands thoroughly all the practical Working of Landed Estates, &c. Good reference can be given.—W. G., Mr. R. Sidwell, Stationer, 18, Union Street, Bath.

To Nurserymen.

FOREMAN (GENERAL).—Twelve years' experience in all branches of the Nursery Business. First-class references from previous employers.—J. R., The Nurseries, Inverurie, Aberdeen.

TRAVELLER or WAREHOUSEMAN.—Age 29: fourteen years' experience in Wholesale Seed Trade. Knows West of England, South Wales, Ireland and Scotland. First-class references.—J. S. B., *Gardeners' Chronicle* Office, W.C.

CLERK or BOOK-KEEPER.—Would assist or travel. Excellent testimonials. Some experience.—B., Post Office, Blackford, N.B.

KINAHAN'S LL WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA. BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast-tables with a delicately flavoured beverage, which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us, ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame." See article in the *Civil Service Gazette*.

Made simply with boiling water or milk.

Sold in packets (in tins for abroad) labelled:—
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS, 48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, London, N.W.
Makers of Epps's Glycerine Jujubes for Throat Irritation.

Lea & Perrins' Sauce.

THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.

ASK FOR LEA AND PERRINS' SAUCE.
BEWARE OF IMITATIONS,
and see the names of LEA AND PERRINS on all Bottles and Labels.

Agents—CROSSE AND BLACKWELL, London; and sold by all Dealers in Sauces throughout the World.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

Fogs.—In Frosty and Foggy Weather

SPENCER'S PULMONIC ELIXIR will be found a great source of comfort by persons suffering from Disorders of the Chest and Lungs. For Chronic Disorders, as Periodical Coughs or Inveterate Asthma, Spencer's Elixir is equally valuable in its effects, though, of course, longer perseverance in the use of the medicine is required.

Sold by all Chemists.

Twelve Choice Selected Flowering Plants for WINTER, 21s.; including—

BOUVARDIAS, CAMELLIAS, AZALEAS, Spiræas, Daphne, Lily of the Valley, Kalmias, Heaths, Double Primula, &c., fine plants. Package free for cash with order. J. H. LEY, Royal Nursery, Croydon.

Roses—Vines.

JOHN KEYNES, Castle Street, Salisbury.

The above are of the usual first-rate quality.
CATALOGUES ready. Every attention paid to Orders.
Salisbury, October 14, 1874.

PLANTS for WINTER FORCING.—Any one desirous of Successfully Forcing Flowering Plants during the coming Winter Months, should apply at once to JOHN STANDISH AND CO. for a LIST of their PLANTS specially prepared and adapted for this purpose.
Royal Nurseries, Ascot, Berks.

Twelve Azaleas, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon, can supply twelve splendid named AZALEAS, full of buds, bushy plants, in 5-inch pots, 18 inches high, for One Guinea, including package and delivery to London, for cash with order.

Also a few very fine plants, in 6-inch and 8-inch pots, 18 inches across, at 42*s.* and 60*s.* per dozen; fit to grow on at once for exhibition.

FIBROUS PEAT.—Brown Fibrous Peat, best quality, for Orchids, Stove Plants, and Potting, £6 6*s.* per 6-ton truck load. Black Fibrous Peat, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5*s.* per 6-ton truck load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

SPHAGNUM or PEAT MOSS. — Fresh Sphagnum Moss, 10*s.* 6*d.* per sack.
WALKER AND CO., Farnborough Station, Hants.

Planting Season.

WILLIAM FLETCHER holds a large stock of the undermentioned, all well grown and recently transplanted:—

PINE, Weymouth, 6 to 10 feet.
CUPRESSUS LAWSONIANA, 4 to 10 feet.
ABIES DOUGLASII, 6 to 10 feet.
,, CANADENSIS, 4 to 8 feet.
THUJA AMERICANA, 5 to 9 feet.
THUJOPSIS BOREALIS, 6 to 10 feet.
ARBUTUS, bushy, 1 to 3 feet.
HOLLIES, variegated, of sorts, 1 to 4 feet.
LAURELS, common, 2 to 4 feet.
,, Portugal, 2 to 5 feet.
,, ,, standards.
THORNS, Paul's New Scarlet, 6 to 8 feet, and other varieties.
RHODODENDRON PONTICUM, bushy, 1 to 4 ft.
,, CATAWBIENSE, bushy, 1 to 4 feet.
,, Hybrids, of sorts, 1 to 3 feet.
ACER NEGUNDO VARIEGATA, standards and dwarfs.
CHESTNUTS, Scarlet, 7 to 12 feet.
,, White, 7 to 12 feet.

Prices on application.
Ottershaw Nursery, Chertsey.

4000 Double-flowered Chinese Primrose.

E. G. HENDERSON AND SON can now offer of the above, strong healthy New Plants, of 1874 growth, including Atro-rosea, Blushing Beauty, Exquisite, Empress, Emperior, Lilac Queen, King of Purples, Magenta Queen, Magnifica, Mrs. Eyre Crabbe, Pearl Blossom, Princess of Wales, rubra grandiflora, &c. Twelve varieties, from 30*s.* to 42*s.* and 60*s.*

PRIMULA JAPONICA, mixed varieties, 9*d.* each, 6*s.* per dozen; in six colours, raised from selected varieties, 1*s.* 6*d.* each.

AUBRIETIA HENDERSONI, the finest variety in growth and colour, strong plants, 2*s.* each, 18*s.* per dozen.

DAISY, Flower of Spring, beautiful and effective, pure white, with elegant gold-blotched leaves, 1*s.* each, 9*s.* per dozen.

VIOLETS, White Czar and Victoria regina, 1*s.* 6*d.* each.

CYCLAMEN PERSICUM (from 3000 plants), mixed colours, 9*s.*, 12*s.*, and 18*s.* per dozen; collection to name 21*s.* and 30*s.* per dozen.

IRIS KÆMPHERI, Edward George Henderson and Andrew Henderson, the most beautiful of all the Iris group.

LEUCOJUM VERNUM, the true Spring Snowflake, with fragrant, large, Snowdrop-like flowers, dwarfer in habit than other species, 1*s.* 6*d.* per dozen, 8*s.* per 100.

MYOSOTIS RUPICOLA, the most beautiful of Forget-me-Nots, 1*s.* 6*d.* each.

The Trade supplied on usual terms for all the above.
For full descriptions see CATALOGUE 155.
Wellington Nursery, St. John's Wood, London, N.W.

French Roses.—6000 Paul Neyron Roses for Sale.

L. PAILLET, NURSERYMAN, Chatenay lez Sceaux, near Paris, established 1827, begs to offer a splendid lot of the fine ROSE, PAUL NEYRON, at the following prices:—Standards, £6 per 100, £55 per 1000; Half or Dwarf Standards, £5 per 100; Dwarfs, £4 per 100, £35 per 1000.

L. PAILLET begs also to offer for the present season a very large stock of ROSES of every kind, at the following prices:—Fine Standards, £5 per 100, £45 per 1000; Half or Dwarf Standards, £4 per 100, £35 per 1000; Dwarfs, £2 per 100, £19 per 1000; own roots, 1-yr., £1 15*s.* per 100, £16 per 1000; own roots, 2-yr., fine, £2 5*s.* per 100, £20 per 1000; own roots, Souvenir de la Malmaison, strong, £1 15*s.* to £2 5*s.* per 100, £16 to £20 per 1000; Bengals, assorted, four of the best sorts, £6 per 1000. L. PAILLET will deliver any of these free to London, packing included, for cash on delivery, for an additional 10*s.* per 100 for Standards and Half or Dwarf Standards, and 6*s.* per 100 for Dwarfs and own roots.

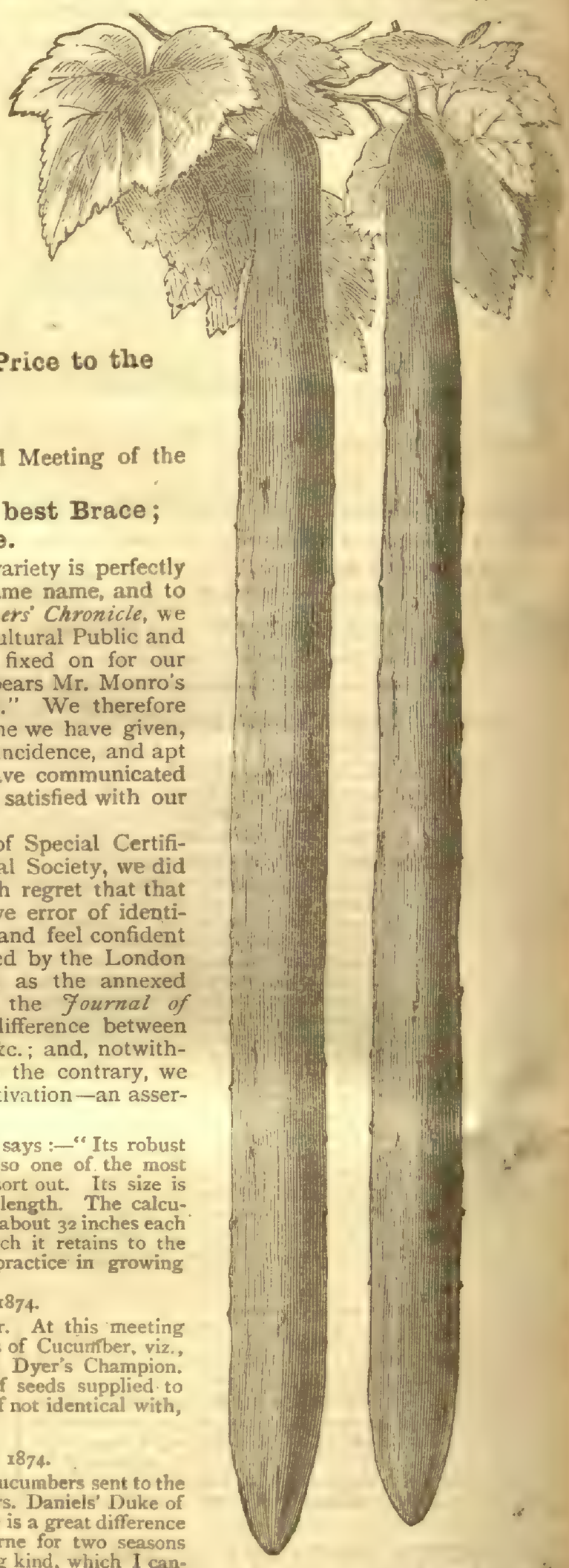
Large quantities of FRUIT TREE STOCK, such as Quince, Pears, 1 and 2-yr., Apples from seed, Doucin and Paradise Apple, Plums, Mahaleb, Cherry stocks; also large quantities of ORNAMENTAL TREES and SHRUBS. Prices and Catalogues sent on application.

ACACIAS, 1 and 2-yr., in large quantities.
POTATO, Early Rose, £6 12*s.* per 1000 lb.
WELLINGTONIA GIGANTEA PENDULA, new varieties, from 16*s.* to 28*s.* each.

Orders must be sent to
L. PAILLET, or to his Agents, Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

DANIELS' DUKE OF EDINBURGH.

"THE FINEST CUCUMBER IN CULTIVATION."



This magnificent variety, sent out by us last season, is undoubtedly the grandest ever offered to the Horticultural Public. It is a fine pearl-white-spined variety, of a beautiful rich green colour, which it retains to the last. It is a remarkably shy seeder, immensely prolific, and of a quality for table that is not to be excelled. It grows rapidly to the length of 30 to 36 inches, being at the same time tender and crisp, and of the most beautiful proportions. For exhibition this variety will be found to have no equal, and for general use cannot be surpassed.

In Sealed Packets, 2s. 6d. and 5s. each. Price to the Trade on application.

£10 IN PRIZES

Will be given by us as follows, at the Grand Provincial Meeting of the Royal Horticultural Society in 1875:—

£5 for the best Brace; £3 for the second best Brace; and £2 for the third best Brace.

N.B.—We wish it to be clearly understood that this variety is perfectly distinct from that sent out by Mr. Monro under the same name, and to which it has been suggested, by the Editors of the *Gardeners' Chronicle*, we ought to give priority, But we beg to inform the Horticultural Public and the Trade that the name, "Duke of Edinburgh," was fixed on for our Cucumber so early as August, 1873, at which time it appears Mr. Monro's variety was known under the name of "Rabley Improved." We therefore feel that we are perfectly justified in retaining the name we have given, although the two being named alike is an unfortunate coincidence, and apt to cause some slight confusion. We may add that we have communicated with Mr. Monro on this subject, and that he is perfectly satisfied with our explanation.

As we do not attach much importance to the value of Special Certificates from the Fruit Committee of the Royal Horticultural Society, we did not send up specimens for their inspection, but we much regret that that highly respectable body should have committed the grave error of identifying our Duke of Edinburgh with "Marquis of Lorne," and feel confident that, had fair specimens of the true variety been exhibited by the London firm, so gross a mistake would have been impossible, as the annexed correspondence from the *Gardeners' Chronicle* and the *Journal of Horticulture* will plainly show there exists the widest difference between the two varieties in quality, colour, prolificacy, habit, &c.; and, notwithstanding what has been written by interested persons to the contrary, we still maintain that it is by far the finest Cucumber in cultivation—an assertion that can be supported by abundant testimony.

Mr. ABBOTT, the eminent Cucumber grower, writing of this, says:—"Its robust habit and constitution surpasses all I have ever seen. It is also one of the most prolific sorts possible to grow, and cannot be exceeded by any sort out. Its size is most enormous; the longest fruit I grew was 3 feet 4 inches in length. The calculated length of 107 fruit grown by me was 284 feet (an average of about 32 inches each fruit). It is a splendid pearl-white-spine, colour best green, which it retains to the last. . . . I give this after twenty-one years' successful practice in growing Cucumbers."

From the GARDENERS' CHRONICLE *of July* 15, 1874.

"FRUIT COMMITTEE.—A. Smee, Esq., F.R.S., in the chair. At this meeting Mr. Barr, 12, King Street, Covent Garden, sent three varieties of Cucumber, viz., Daniels' Duke of Edinburgh, a fine variety of Telegraph, and Dyer's Champion. The committee decided that the former, which was the produce of seeds supplied to Messrs. Barr & Sugden by Messrs. Daniels, was too much like, if not identical with, Marquis of Lorne to be considered distinct from it.

From the JOURNAL OF HORTICULTURE, *July* 23, 1874.

"CUCUMBER, DUKE OF EDINBURGH.—As the grower of the Cucumbers sent to the Royal Horticultural Society by Messrs. Barr & Sugden as Messrs. Daniels' Duke of Edinburgh, and said to be the Marquis of Lorne, I can say there is a great difference between the two varieties. I have grown the Marquis of Lorne for two seasons before, and have it now; and I find the Duke a very free-fruiting kind, which I cannot say the other variety is, and it is much larger. The Cucumbers sent were not grown one to a plant on purpose to be exhibited, but were all cut from one plant bearing other smaller fruit. The largest of them, although only 2 feet long, weighed 3 lb. 8½ oz.—T. REDLEY, Uxbridge."

Electrotypes of Block, as above, can be supplied.

Mr. D. F. FISH *in the* GARDENERS' CHRONICLE *of July* 25, 1874, *writes*:—

"DANIELS' DUKE OF EDINBURGH CUCUMBER.—The decisions of the Fruit and Floral Committees of the Royal Horticultural Society are generally given with so much care and correctness that they are seldom called in question. Perhaps, too, the fact of these decisions being so often given in reference to novelties with which the major part of your readers have little or no acquaintance may partly account for the general acquiescence with which their estimate is received of the worth or worthlessness of particular varieties. Be that as it may, assuredly the committee have made a mistake in refusing an award to the above Cucumber on the ground of its not being sufficiently distinct from the Marquis of Lorne. I grow both side by side, and it would be almost impossible for two Cucumbers corresponding nearly in length to be more unlike each other. In colour, in texture, in height, in quality, in form, in bloom, they are almost as unlike as Telegraph is to Blue Gown. The committee must have had the wrong variety of either one or the other Cucumber before them, or they could never have made such a mistake. In colour and bloom there is the widest difference, while in quality, which might not be tested by the committee, the difference is wide as the poles asunder, the Marquis of Lorne being one of the worst, and the Duke of Edinburgh (Daniels') one of the best long Cucumbers grown. I may add that it took the prize at the Bury St. Edmund's show in competition with several model braces of the Marquis of Lorne, shown by other exhibitors and myself. So much I have felt compelled in justice to say, as a grower of both Cucumbers. I have not grown Monro's Duke of Edinburgh—a totally different Cucumber, of the Telegraph or Ipswich Gem type, and also, I believe, of excellent quality. The two of one name is unfortunate, but they are totally distinct, and both good in their class; and the two varieties of one name could not, of course, influence the Fruit Committee to declare that Daniels' Duke of Edinburgh was not sufficiently distinct from Marquis of Lorne to be certificated; on the contrary, the distinction is almost emphatic, I might add glaring. *D. T. Fish.*"

From the GARDENERS' CHRONICLE, *August* 1, 1874:—

"CUCUMBERS: DANIELS' DUKE OF EDINBURGH AND MARQUIS OF LORNE.—On reading the reports of the Fruit and Floral Committees of the Royal Horticultural Society, knowing how very careful they are in examining specimens sent to them, I was surprised to find that Daniels' Duke of Edinburgh Cucumber was thought the same as Marquis of Lorne. Such the two varieties could not have been shown true, or, as Mr. D. T. Fish remarks, there would not be any trouble in distinguishing one from the other. I should fancy that both the specimens shown were of one and the same variety. I am growing Daniels' Duke of Edinburgh, Marquis of Lorne, Wonder of the North, Blue Gown, Telegraph, &c., all in one house, and the two varieties now under discussion are as different from each other as any two sorts grown. Both are about the same length, but different in shape, colour, &c. The Duke will bring more fruit to maturity in a given space of room than the Marquis. I have some nice specimens of the Duke of Edinburgh in pits for seed, and I find as they get old they get lighter before ripening, as also does the Marquis of Lorne; even then the two varieties can easily be distinguished. The Marquis of Lorne is round at the point when the blossom dies, the Duke of Edinburgh is pointed. I shall give preference to the Duke of Edinburgh for my own use, and class it as a useful and good exhibition variety. *C. Osman, Sutton.*"

A List of those Firms from whom our "Duke of Edinburgh" Cucumber can be obtained true will be published in a future Number.

DANIELS BROTHERS, The Royal Norfolk Seed Establishment, Norwich.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, November 21, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 48.—Vol. II. { New Series. } SATURDAY, NOVEMBER 28, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Aquarium at Liverpool	686	Huntingdonshire, the season in	688
Asparagus decumbens	686	Matico	679
Autumn bulbs	676	Natural history	683
Boldoa fragrans	686	Nuytsia floribunda	686
Books, notices of (with cuts)	681	Obituary	691
Bound for Belgium	675	Open-air border plants	678
Budding-knife, a new	689	Passiflora cœrulea racemosa	686
Campbell, Dr. A.	677	Pears, large	689
Cineraria, the double	686	Pelargonium Society, the	686
Colletia cruciata	686	Pelargoniums and Geraniums	689
Corylopsis spicata	683	Plants, new garden	676
Cypripedium Arthurianum	676	Polar expedition, green food for the	689
Farm, the	691	Reptile-house at the Jardin des Plantes	683
Fruit and Floral Committees of the R.H.S.	688	Respiration and digestion in plants	678
Garden operations	692	Root shows	691
Geographical Magazine	683	Sacks, dispute as to deposit on	683
Ghent, the fruit show at	686	Sanitary state of rural districts	685
Greenhouse plant culture	679	Societies:—	
Group, an interesting	687	Liverpool Horticultural	689
Jersey fruit at South Kensington	689	Manchester Botanical and Horticultural	689
Kitchen gardening in New England	681	Tropæolum aduncum	686
Lardizabala biternata	688	Villa gardening	691
Law notes	683	Vineries, prize	688
Lindley, the late Dr. (with portrait)	676	Wall fruit trees	691
Earley's November Plum	687	Weather, the	692
Holly and its varieties, the common (with cuts)	687	Windsor Forest	688

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE, Including postage to the United States, is $6.30 gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth*, 16*s*.
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

ROYAL HORTICULTURAL SOCIETY, South Kensington, S.W.—NOTICE.—FRUIT and FLORAL COMMITTEES MEETINGS on WEDNESDAY NEXT, December 2, at 11 o'Clock. Scientific Meeting at 1 o'Clock. General Meeting at 3 o'Clock. Admission 1*s*.

ROYAL POMONA PALACE and GARDENS, Manchester.—SPECIAL NOTICE to EXHIBITORS.—GRAND EXHIBITION of HARDY and EXOTIC FRUITS, PLANTS, FLOWERS, &c., DECEMBER 1, 2, and 3. FIVE HUNDRED POUNDS in Prizes, which will be paid on the last day of the Show. ENTRIES CLOSE on NOVEMBER 27. Prize Lists and all information may be had on application to the Proprietor,
Mr. JAMES REILLY.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

To the Trade.

CARTER'S LIST of NOVELTIES, containing all the best new Vegetables and Flowers of the season, can now be had on application to
Messrs. JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

Pelargoniums.

WILLIAM BRYANT begs to offer strong plants of Show, Spotted, and Fancy varieties of the above, in single pots, at 3*s*. 6*d*. per dozen, 25*s*. per 100, £10 per 1000.
The Nursery, Rugby.

WHOLESALE CATALOGUE of TREES, SHRUBS, CLIMBERS, &c., free on application.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Nurseries, Dundee, Scotland.

PRICES of SEEDLING and TRANSPLANTED FOREST and ORNAMENTAL TREES, SHRUBS, &c., may be had on application.
W. P. LAIRD AND SINCLAIR.

Johnstone's St. Martin's Rhubarb.

EARLIEST and BEST in CULTIVATION for open ground; it has a splendid colour, and excellent for forcing. Strong roots, 1*s*. each. Trade price on application.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

CAMELLIAS.—English-grown; nice healthy Plants, well set with buds, 10*s*. 6*d*., 15*s*., and 21*s*. each.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

STUART AND CO., 5, Tavistock Row, Covent Garden, W.C.—Our TRADE LIST of FLOWER SEEDS, containing many Choice Novelties, is now in the Press, and will be forwarded shortly, or sent on application.

40,000 Carnations and Picotees (named, Show).

TWENTY-FOUR CHOICE SORTS, including THREE YELLOW PICOTEES, carriage paid, 10*s*.; half, 5*s*. 6*d*. cash. Trade, in quantities, 30 per cent. dis.
J. J. HASLAM, Bradshaw Gardens, Chadderton, Manchester.

WHOLESALE CATALOGUE of ROSES, FRUIT TREES, &c., free on application.
WILLIAM FLETCHER, Ottershaw Nursery, Chertsey.

Early Planting.

DAVISON AND WHITTEM'S CATALOGUE of all the Best and Newest ROSES is now ready. Also a GENERAL CATALOGUE of CONIFERS, FOREST, FRUIT, and other TREES. Post free on application. White Cross, Hereford.

Roses! Roses!! Roses!!!

FORTY CHOICE PERPETUAL ROSES, strong plants, best varieties, sent to any address on receipt of Post-office Order for 21*s*., package included, by
JAMES WALTERS, Mount Radford Nursery, Exeter, Devon.

New Climbing Rose,

JULES MARGOTTIN, 3*s*. each, 30*s*. per dozen. The old favourite Rose in all respects, except in being a free climber.
RICHARD SMITH, Nurseryman, Worcester.

ROSES.—Fine strong Dwarfs on Manetti, 30*s*. per 100, £12 10*s*. per 1000; Standards, 80*s*. per 100; Half-standards, 60*s*. per 100.
MAURICE YOUNG, Milford Nurseries, Godalming.

QUICKS.—Good strong Quicks, 6*s*. to 8*s*. per 1000, or £25 per 100,000; extra do., 10*s*. 6*d*. to 15*s*. per 1000, or £45 to £55 per 100,000.
MAURICE YOUNG, Milford Nurseries, Godalming.

SURPLUS STOCK of DUTCH BULBS.—The undersigned have a Surplus Stock of HYACINTHS, TULIPS, CROCUS, NARCISS, &c., which they can offer on moderate terms.
WHEELER, 7, Borough Market, London, S.E.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s*. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Hyacinths, Tulips, Crocus, &c.

The best material in which to grow the above is
COCOA-NUT FIBRE REFUSE.—Price 1*s*. per bushel, or 6*d*. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works Farm Lane, Walham Green, S.W.

To Nurserymen, Seedsmen, and Curators of BOTANICAL GARDENS.

THE CURATOR of the Botanical Garden, Howrah, Calcutta, will be glad to receive LISTS and CATALOGUES of PLANTS and SEEDS.

WANTED, strong transplanted ASH, LARCH, and Common HOLLY. Size and lowest price to
JOSEPH TREMBLE AND SONS, The Nurseries, Penrith.

WANTED, SPANISH CHESTNUTS, 3 to 4 feet; LARCH, 2 to 3 feet. Samples and price to
PARKER AND BUSH (late JOHN NELSON), St. Michael's Hill Nursery, Bristol.

WANTED, 500 SPANISH CHESTNUTS, 5 feet; also QUICK, two and three years transplanted.
W. AND J. BROWN, Stamford.

WANTED, 10,000 yards of BOX EDGING. Sample and Price to
J. NEAL, Nurseryman, Wandsworth Common, S.W.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW

FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

GRAPE VINES.—Fine, strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s*. to 60*s*. per dozen. Extra strong Fruiting Canes, 7*s*. 6*d*. to 10*s*. 6*d*. each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s*. each.
RICHARD SMITH, St. John's Nurseries, Worcester.

Vines.

B. S. WILLIAMS has a large and fine stock of FRUITING and PLANTING CANES, of all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, N.

GRAPE VINES.—Strong and extra strong, for immediate Fruiting and for Planting—the leading varieties. CATALOGUE and prices upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

SEAKALE, ASPARAGUS, and RHUBARB.—Extra strong, for immediate Forcing and Planting. Prices upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three, and four years old.
Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

Mulberries! Mulberries!

PONSFORD AND SON can supply them, in fine condition, by the dozen or 100.
Loughborough Park Nurseries, Brixton, Surrey, S.E.

WM. POTTEN can still supply FRUIT TREES and PLANTS as advertised in *Gardeners' Chronicle*, November 7.
The Nursery, Sissinghurst, Staplehurst, Kent.

SPECIAL LIST of PLANT COLLECTIONS, for Winter Decoration of Apartments or Conservatory, free from
J. H. LEY, Royal Nursery, Croydon.

Twelve Graceful Palms, 21s.

HEALTHY young plants, to grow on for table decoration, and will be ready in about six months; or fit for immediate use, including choice and many very rare kinds, 63*s*., 84*s*., and 106*s*.
J. H. LEY, Royal Nursery, Croydon.

A Bargain.

HORSE CHESTNUT TREES, 5 to 6 feet, 4*s*. per 100; 7 to 8 feet, 10*s*. per 100, or 3*s*. per dozen. OAKS, 4 to 5 feet, 2*s*. 6*d*. per 100, for cash.
WILKIN, Tiptree, Kelvedon.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

BEECH, 3 feet, very fine and well rooted, 7*s*. 6*d*. per 1000.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

To Gentlemen and Others.

FOREST TREES for SALE.—Larch, Spruce, and Scotch Firs, 1½ to 2½ feet; also strong Quickwood for fencing. Apply to
G. BEAN, Foord's Nursery, Leavening, York.

Hollies and Laurels.

HOLLIES, 1 foot, bushy, stocky, well-rooted, 20*s*. per 100.
LAURELS, Common or Colchic, 18 inches, 12*s*. 6*d*. per 100.
WALKER AND CO., Farnborough Station, Hants.

SPRUCE FIR, fine, from 4 to 9 feet; SCOTCH FIR, fine, from 6 to 9 feet: PURPLE BEECH, WEEPING ASH, and other Standard Trees; Standard and Dwarf ROSES, and a variety of other Trees suitable for Ornamental Planting, Forest Trees, &c.
W. GROVE, Tupsley and St. Owen's Nurseries, Hereford.

RED and BLACK CURRANTS, extra strong, per 100 or 1000. Price and sample on application to
JOHN TUCKER, The Nurseries, Bridgwater, Somerset.

TO BE SOLD, ten thousand of Lancashire Lad GOOSEBERRY TREES, 3-yr. old.
Mr. WILLIAM POWEL, 7, Sefton Street, Lower Common, Putney, Surrey, S.W.

APPLE, PEAR, and WALNUT TREES for Sale; transplanted, strong, choice sorts, for Orchards or Gardens. Height 5 to 11 feet, butts 2 to 8 inches round. Apply to Mr. TASWELL, Lichfield.

TROUT-EYED OVA.—A large quantity for DISPOSAL, carefully packed and sent to any part of England. For particulars and price apply to
Mr. D. SMITH, River Farm, near Dover.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

Roses—Roses—Roses.

CHARLES VERDIER, FILS, NURSERYMAN, 28, Rue Baudricourt (late 12, Rue Duméril), Paris, begs to inform his numerous Clients that his stock of ROSES (Standards, Half-standards, Dwarfs, &c., on own roots), for this Season, is very large and in the finest possible condition.

Seed Potatos.

H. AND F. SHARPE'S Wholesale Special Priced LIST of SEED POTATOS is now ready, and will be forwarded, post free, on application. It includes all the best English and American sorts in cultivation, and the prices will be found very moderate.

Seed Growing Establishment, Wisbech.

The Planting Season.

LARGE TREES.—Limes, Horse Chestnuts, Giant and English Elms, Sycamores, Norway Maples, Upright and other Poplars, Bedford and Cœrulean Willows, Weeping and Cut-leaved Beech, Turkey Alders, &c. Fine Trees for immediate effect. For particulars and prices apply to EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Home Grown Agricultural and Garden Seeds.

H. AND F. SHARPE are now prepared to make special offers to the Trade of their home-grown choice selected stocks of AGRICULTURAL and GARDEN SEEDS of this season's growth. They have been harvested in very fine condition, and are quoted low in price.

Seed Growing Establishment, Wisbech.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6*s.*, 9*s.*, and 12*s.* per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40*s.* cash. Baskets and Packing included.

Crown Nursery, Reading.

N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1*s.* per packet, post-free.

Standard Tea Roses from Paris.

LEVÉQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer for next autumn a splendid and large stock of TEA ROSES, comprising all the best sorts, Maréchal Niel, per hundred. The price will be £5 per 100. LIST of sorts on application.

Lilies.

MR. WILLIAM BULL, being the largest Importer of LILIES direct from their native habitats, can offer them on special terms by the 100 or 1000 for planting in large groups.

LILIUM AURATUM, small sound English-grown bulbs, 18*s.* and 24*s.* per dozen; fine bulbs, on arrival of the annual importations from Japan, 30*s.* and 42*s.* per dozen.
" AURATUM RUBRO-VITTATUM, the most handsome of the "auratum" group, 15*s.*, 21*s.*, and 31*s.* 6*d.* each.
" BLOOMERIANUM OSCELLATUM (Kellogg), new; first time imported from Santa Rosa Island. Mr. W. B. has imported all and the only bulbs of this Lily that could be found in the Island. 42*s.* and 63*s.* each.
" BROWNII, 10*s.* 6*d.* each.
" CALIFORNICUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
" CALLOSUM, very rare, 7*s.* 6*d.* each.
" CANADENSE RUBRUM, very rare, 5*s.* and 7*s.* 6*d.* each.
" DALMATICUM, exceedingly handsome, 10*s.* 6*d.* each.
" HUMBOLDTII, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
" " PUNCTATUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
" KAMTSCHATCENSE, the Black Lily, 3*s.* 6*d.* each.
" MONADELPHUM, one of the most handsome of Lilies, 3*s.* 6*d.* each.
" PARDALINUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
" PARVUM, 7*s.* 6*d.* each.
" PULCHELLUM, 5*s.* and 7*s.* 6*d.* each.
" ROSEUM, 2*s.* 6*d.* and 3*s.* 6*d.* each.
" SPECIOSUM ATRO-SANGUINEUM, the most handsome of the whole section; 7*s.* 6*d.* each.
" SPECIOSUM KRŒTZERI, flowers of snowy whiteness and symmetrical form, 5*s.* and 7*s.* 6*d.* each.
" TENUIFOLIUM, 3*s.* 6*d.* each.
" THUNBERGIANUM SPLENDENS, one of the best of the Thunbergianum group, 3*s.* 6*d.* and 5*s.* each.
" TIGRINUM FLORE-PLENO, the most handsome of the double-flowering Lilies, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
" TIGRINUM SPLENDENS, 3*s.* 6*d.* and 5*s.* each.
" WASHINGTONIANUM, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each.
" WASHINGTONIANUM PURPUREUM.—This Lily is well figured in *Florist* for November; no more of it can be found in its native habitat. 7*s.* 6*d.* and 10*s.* 6*d.* each.

The above are a few choice Lilies, of which Mr. B. holds a large stock.

GOOD and VARIED SELECTIONS of LILIES made, at 12s., 18s., 30s., and 42s. per dozen.

Where the selection is left to Mr. W. B. the Catalogue Prices are not strictly adhered to, the Purchaser being given a considerable advantage.

Mr. WILLIAM BULL'S Annual Importations from California of CALOCHORTUS of sorts, CYCLOBOTHRAS, BLOOMERIA, and BRODIÆAS, have now been received.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

To Gentlemen, Planters, and Others, Purchasers of ROSES, FRUIT TREES, FOREST TREES, SHRUBS, and ORNAMENTAL TREES.

MESSRS. W. VIRGO AND SON, of the Wonersh Nurseries, near Guildford, can now supply the public with the undermentioned STOCK, in either large or small quantities, viz., 10,000 clean-grown Standard, Half Standard, and Dwarf Roses, 300,000 2-yr. and 3-yr. transplanted Quicks, 50,000 Hazel, 2 to 3 feet, transplanted; 50,000 Alder, 2 to 3 feet, transplanted; 50,000 Birch, 2 to 3 feet, transplanted; 100,000 Spanish Chestnut, 2 to 3 feet, transplanted; 100,000 Ash, 2 to 3 feet, transplanted; 50,000 Scotch Fir, 2 to 3 feet, transplanted; Elm and Beech, 3 to 4 feet, transplanted; Ornamental Trees, 6 to 10 feet; Horse Chestnut, Spanish ditto, Elm, Sycamore, Norway Maple, 1000 Paul's new Scarlet Thorns, 8 feet, straight stems; 10,000 Laurels, 2 to 6 feet; Poplars, various; Limes, Laburnums, Turkey Oak, Hornbeam, Spruce Fir, Weymouth Pine, austriaca ditto, 2 feet to 5 feet; a large stock of fine Standard Apples, Pyramids and Dwarfs; Pears and Plums, 10,000 Red, Black, and White Currants; 5000 Gooseberries, various; a large collection of Deciduous and Flowering Shrubs, Coniferæ, Green Hollies and Yews, together with a great variety of other sorts too numerous to mention.

Full particulars in CATALOGUES, to be had on application.

NEW HYBRID BEGONIAS.

THE following NEW BEGONIAS belong to the handsome-flowered, bulbous-rooted section, and are most desirable acquisitions, as they succeed and bloom well in an ordinary Greenhouse. The Bulbs being similar to those of Gloxinias, and now dormant, can be sent by Post:—

ANACREON, deep crimson, a beautiful flower, very long petals, 7*s.* 6*d.*
BRILLIANT, very rich bright orange, a fine showy flower, 7*s.* 6*d.*
CARDINAL, magnificent variety, fine large flowers of a rich deep magenta-rose, 7*s.* 6*d.*
CAROLINE, deep rosy pink, with broad petals, 5*s.*
CLIMAX, deep rich rosy carmine, broad outer petals, 5*s.*
CORSAIR, rosy salmon, profuse bloomer, 5*s.*
ENSIGN, bright pink, a very elegant variety, 5*s.*
GEM, cream colour, the reverse of the petals pink, 5*s.*
GLITTER, vivid orange-scarlet, extremely showy, 7*s.* 6*d.*
HERMINE, bright orange-cinnamon, very distinct, 5*s.*
LOTHAIR, deep rose, a fine flower, with short broad petals, 7*s.* 6*d.*
LUCINDA, fine flowers with long petals, of a deep rose colour, 7*s.* 6*d.*
MAGNET, light pink, the reverse of the petals deep pink, 5*s.*
MAZEPPA, light cream colour, tinted with orange-pink, 5*s.*
PHYLLIS, delicate sulphur colour tinted with pink, 5*s.*
SERAPH, soft pink suffused with rose, 5*s.*
SURPRISE, bright pink, a very pretty colour, 5*s.*
TROJAN, light rosy pink, very distinct, 5*s.*

The entire Collection of the above Eighteen Varieties for Four Guineas.

Seed of the above New Begonias, separate kinds, 2*s.* 6*d.* per packet; mixed, 3*s.* 6*d.* per packet,

WILLIAM BULL, F.L.S.,
ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

ALEXANDER BLAKE,

LONDON AND ABERDEEN.

ARTISTIC FLORAL DECORATIONS, TREE FERNS, PALMS, ORCHIDS, MOSSES.
ROMANTIC ROCKWORK, ABERDEEN GRANITE, SPAR, TUFA, &c.
ALPINE GARDENS, ALPINE FLOWERS, CRYSTAL STREAMLETS, CASCADES, WATERFALLS.
FERNERIES, FERNS from New Zealand, East and West Indies, Tropical America, Madeira, &c., &c.

Works may be seen (by permission) in London and Suburbs. Also near Glasgow, Manchester, Windsor, Taunton, Brandon, the Isle of Wight, and in other parts of the Kingdom.

Plans and Estimates given.

9, NORFOLK TERRACE, FULHAM, LONDON, S.W.

B. S. WILLIAMS,

VICTORIA and PARADISE NURSERIES,
UPPER HOLLOWAY, LONDON,

Respectfully invites inspection of the choice and very extensive **Stock of Plants which he now has for Sale.**

They comprise all the recent Introductions of Merit now to be found in European Gardens, as well as vast quantities of handsome Specimens, both large and small, of CAMELLIAS, AZALEAS, CAPE HEATHS, for Winter and Summer flowering, NEW HOLLAND PLANTS, a large and choice assortment of STOVE PLANTS, both flowering and ornamental leaved kinds, whilst the Collections of ORCHIDS, TREE FERNS, PALMS, and Succulent Plants are unsurpassed in the Trade.

The Cool-house Specimens, both large and small, are this season in splendid condition, and will amply repay a visit from any one about to furnish New Greenhouses or Conservatories; whilst the Stock of Winter Blooming Plants are extra fine, and well set with buds.

CATALOGUES gratis, and post free, on application.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

MAURICE YOUNG'S

NEW DESCRIPTIVE CATALOGUE

Is now ready, and may be had on application.

IT COMPRISES:—

HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

TREE FERNS.

THE LARGEST STOCK IN EUROPE, and at Half the Prices usually charged.

Mr. WILLIAM BULL'S ESTABLISHMENT for NEW and RARE PLANTS, King's Road, Chelsea, London, S.W.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

GLADIOLI !—GLADIOLI !!

We have much pleasure in stating that, at the Grand Exhibition at Haarlem last year, we were successful in carrying off the Premier Prix Silver Medal, for the most complete and finest Collection of Gladioli, hybrids of gandavensis.

Our AUTUMN CATALOGUE contains all M. Souchet's (and other) new varieties, including a large stock of "Antoine Roozen," a splendid and unparalleled variety, named in compliment to ourselves. Collections for Exhibition or general purposes, all at the most reasonable prices consistent with good bulbs.

BEGONIAS (bulbous)—a large collection of the newest and best British and Continental varieties, at extremely moderate rates (see New List).

LISTS, as usual, sent to all Gardeners and Amateurs free, on application.

ANT. ROOZEN AND SON, Overveen, near Haarlem, Holland.

PLANTING SEASON.

RHODODENDRONS

WILL BE SUPPLIED,

In Fifty of the most Popular and finest known Hardy Kinds,

Sturdy, Bushy Plants, 1½ to 2 feet high, at

£10 per 100,

Carriage Free to any Railway Station in England.

Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.

A Descriptive Catalogue free on application to

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT,

QUEEN VICTORIA STREET,

CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to

THOMAS THORNTON,
Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

HEATING APPARATUS OF THE BEST DESCRIPTION.

THE CONVOLUTED BOILER. THE IMPROVED TRENTHAM CORNISH BOILER.
THE GOLD MEDAL BOILER.
THE FLUED SADDLE WITH TERMINAL END. THE CHECK-ENDED SADDLE.
THE OLD SADDLE.
THE INDEPENDENT BOILER without Brickwork, and other Boilers.

None recommended but what are known to be Good.

Hot-Water Pipes, Valves of the best make, Connections, &c., always kept in Stock.

Horticultural Structures, Mansions, Churches, Public Buildings, &c., Heated by Hot Water on the most scientific principles. Inefficient Apparatus remodelled, and experienced Workmen sent to any part of the Country.

GENTLEMEN WAITED ON.

PRICES AND ESTIMATES ON APPLICATION.

HENRY ORMSON,
Horticultural Builder and Hot-Water Apparatus Engineer,
STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

TO THE TRADE.

KING OF THE BROCCOLIS.

Electrotypes of this block, 3s. 6d. each.

Price to the Trade on application.

1s. 6d. per Packet.

This magnificent variety comes in for cutting from the beginning of May to the first week in June, and is undoubtedly the finest late Broccoli in cultivation. It is of a fine dwarf habit, and being well protected is exceedingly hardy. Its heads are remarkably fine, close, and white, and of enormous size, and cannot fail to prove a great acquisition to the kitchen garden.

Messrs. HURST & SON are pleased to announce to the Trade that the entire disposal by wholesale of this fine Broccoli has been placed in their hands by Messrs. Daniels, Brothers, Norwich, but regret that, in consequence of their limited supply, they are only able to offer for the coming season, in sealed packets, retail, *1s. 6d.* each. Early orders solicited. A List of those firms from whom "King of the Broccolis" can be obtained will be published shortly.

HURST & SON,
SEED MERCHANTS, 6, LEADENHALL STREET, LONDON, E.C.

THE LAWSON NURSERIES,

EDINBURGH.

The Extensive Stock of

Seedling and Transplanted Forest Trees,
ORNAMENTAL TREES and SHRUBS,
FRUIT TREES, &c.,

Is this Season in Splendid Health, and will be Sold at Moderate Prices.

Catalogues on Application, and Special Offers will be made for Large Contracts.

THE LAWSON SEED AND NURSERY COMPANY, LIMITED,
EDINBURGH AND LONDON.
LONDON ADDRESS: 106, SOUTHWARK STREET, S.E.

PLANTS for WINTER FORCING.—Any one desirous of Successfully Forcing Flowering Plants during the coming Winter Months, should apply at once to JOHN STANDISH AND CO. for a LIST of their PLANTS specially prepared and adapted for this purpose.
Royal Nurseries, Ascot, Berks.

Roses—Vines.

JOHN KEYNES, Castle Street, Salisbury.
The above are of the usual first-rate quality.
CATALOGUES ready. Every attention paid to Orders.
Salisbury, October 14, 1874.

Twelve Choice Selected Flowering Plants for WINTER, 21s., including—

BOUVARDIAS, CAMELLIAS, AZALEAS, Spiræas, Daphne, Lily of the Valley, Kalmias, Heaths, Double Primula, &c., fine plants. Package free for cash with order. J. H. LEY, Royal Nursery, Croydon.

NEW CATALOGUES for 1874.
A Descriptive CATALOGUE of ROSES.
A Descriptive CATALOGUE of FRUITS.
A Descriptive CATALOGUE of BULBS.
A General CATALOGUE of GENERAL NURSERY STOCK. Address
WM. WOOD AND SON, The Nurseries, Maresfield, near Uckfield, Sussex.

To the Seed Trade.
CENTAUREA RAGUSINA,
C. CANDIDISSIMA, Hort.

W. THOMPSON, SEEDSMAN, Tavern Street, Ipswich, begs to offer good new Seed of this valuable bedding plant at prices considerably lower than usual. Price per 1000 or per ounce on application.
W. T.'s LIST of NOVELTIES for the present season is now ready, and may be had free, by the Trade only, on application.

Eltham Nursery, Kent, S.E.
One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.

THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c.
Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

Twelve Azaleas, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon can supply twelve splendid named AZALEAS, full of buds, bushy plants, in 5-inch pots, 18 inches high, for One Guinea, including package and delivery to London, for cash with order.
Also a few very fine plants, in 6-inch and 8-inch pots, 18 inches across, at *42s.* and *60s.* per dozen; fit to grow on at once for exhibition.

LAUREL S.
COMMON LAUREL, 2 to 3 feet, 16*s.* per 100, £7 per 1000; 3 to 4 feet, 25*s.* per 100, £10 per 1000.
COLCHIC LAUREL, 3 to 4 feet, 30*s.* per 100; 4 to 5 feet, 42*s.* per 100.
PORTUGAL LAUREL, 1½ to 2 feet, 34*s.* per 100.
Good, bushy, well-grown plants.
RICHARD SMITH, Nurseryman, Worcester.

To the Trade and Others.

SPECIAL OFFER.—Black Naples CURRANTS, 75*s.* per 1000; Victoria Red Currants, 80*s.* per 1000; Norway Spruce FIR, 5 feet, handsome plants, 50*s.* per 100; SYCAMORE, 10 to 12 feet, 40*s.* per 100; English OAK, 10 feet, 70*s.* per 100; Norway MAPLE, 10 feet, 40*s.* per 100; Black Italian POPLAR, 6 feet, 7*s.* per 100; ditto, 15 feet, 9*s.* per dozen: all well-rooted stuff.
Also, WANTED, a few thousand CRAB and PEAR STOCKS. Apply to
W. ABRAHAM AND SON, Goldworth Nurseries, Woking, Surrey.

ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, begs to offer Hardy Ghent AZALEAS, very fine named sorts, covered with buds, at 16*s.* per dozen.
Hybrid RHODODENDRONS, very fine named varieties, with from four to ten buds, at 20*s.* per dozen.
PALMS, FERNS of all sizes, INDIARUBBER PLANTS, DRACÆNAS, LATANIA BORBONICA, ARAUCARIA EXCELSA, TAHITI ORANGES, LILIUM LANCIFOLIUM RUBRUM, YUCCAS, &c.
Prices and dimensions will be sent on application.

The Planting Season.

R. AND J. TUCKER, of the Nurseries, Farringdon, Berks, beg to offer the following TREES and SHRUBS, in large quantities, very cheap, all of which are in the best possible health and condition for planting:—Common Laurels, very bushy, 2 to 3 and 3 to 4 feet; Austrian Pine, 2 to 3 and 3 to 4 feet, fine plants; Spruce Fir, 2 to 3 feet; Tree Box, 2 to 3 feet; Chinese and Siberian Arbor-vitæ, English Oaks and Black Italian Poplars of all sizes.
Prices on application. Samples if required.

DWARF and STANDARD ROSES, strong Plants and cheap, from Paris.—Maréchal Niel, dwarf, from the ground, £2 10*s.* per 100: Paul Néron, Charles Lefebvre, Madame Lacharme, Virginale, Gloire de Dijon, Madame Vidot, Duchesse d'Orleans, and all the best sorts, £2 per 100. Maréchal Niel, Madame Falcot, and all the best Tea Roses, standards, £5 per 100. Perpetuals, all the best sorts, the choice of the customers, £5 per 100; our own best selection, £4.
Apply to LEVÉQUE ET FIL, Nurserymen, &c., Ivry-sur-Seine, near Paris.

VINES, VINES, VINES—EPIPHYLLUMS, PERESKIA STOCKS.
VINES.—Fruiting and Planting Canes, strong, well ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Buckland Sweetwater, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2*s.* 6*d.* to 5*s.* each; a few extra strong canes, 6*s.* 6*d.*
EPIPHYLLUMS.—Good Standards, with nice heads, id twelve best sorts, 9*s.* and 12*s.* per dozen.
PERESKIA STOCKS, out of pots, 15*s.* per 100.
CINERARIA HYBRIDA, fl.-pl., 6*s.* per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

CATALOGUE of AUTUMN PLANTS, SEEDS, and BULBS, free on application to J. H. LEY, Royal Nursery, Croydon.

N.B.—The Nursery is three minutes' walk from West Croydon Station, London, Brighton, and South Coast Railway; twenty minutes' from London.

New Rhododendrons.

JOHN WATERER AND SONS, Bagshot, Surrey, beg to announce that they are now sending out the undermentioned Hardy RHODODENDRONS, price 21s. each—the usual Discount to the Trade:—

MRS. RUSSELL STURGIS.
MRS. JOHN KELK.
HELEN WATERER.
JOHN WALTER.
JAMES MASON.
FREDERICK WATERER.

LAURUSTINUS, 2 to 3 feet, 6s.; 3 to 4 feet, 9s. per dozen, fine, in bloom, planted last Spring.
LAURELS, 2 to 3 feet, 12s. 6d.; 4 to 5 feet, 25s. per 100.
LARCH, 2 to 3 feet, 30s.; 3 to 4 feet, 40s. per 1000.
PINUS INSIGNIS, 3 to 4 feet, 9s. per dozen.
,, AUSTRIACA, 3 to 4 feet, 25s. per 100.
DEODARA, 2½ to 3 feet, 18s. per dozen.
ARAUCARIA IMBRICATA, 1½ to 2 feet, 18s. per dozen.
DAVISON AND WHITTEM, Hereford.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.

Their NEW CATALOGUE is now ready, and will be sent, post free, on application.

Royal Nurseries, Ascot, Berks.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum).—SEEDS of the Blue Gum, and other Tasmanian and Australian Forest Trees and Shrubs, can be obtained of

C. F. CRESWELL, Wholesale and Retail Seed Merchant, Hobart Town, Tasmania; or at his Branch Establishments, 478, George Street, Sydney, New South Wales; and 37, Swanton Street, Melbourne, Victoria.

Price LISTS sent gratis to any part of the World on application.

Bouvardias—Vreelandii, jasminiflora, &c.

MESSRS. JOHN STANDISH AND CO.'S Stock of the above beautiful Winter-flowering Plant is exceptionally fine this season. 15s. to 18s. per dozen, fine plants.

They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24s. to 36s. per dozen.

Royal Nurseries, Ascot, Berks.

ORCHARD PLANTING.—Stong Standard APPLES, strong Standard Table and Perry PEARS, Pyramid and Dwarf-trained PEARS. A choice Collection of ROSES; strong Common, Colchic, and Portugal LAURELS, LAURUSTINUS, BOX, YEW, and other Evergreens; Evergreen and Deciduous Flowering SHRUBS; Scotch and Spruce FIRS; CHESTNUT, LIMES, and other Forest Trees, up to 12 feet. Prices on application.

CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

Thimbleby Nurseries, near Horncastle.

W. CROWDER has the following to offer, in quantities, at low prices:—

APPLES, Standards, 4 to 5 feet stems.
ABIES DOUGLASII, 2 to 3 and 3 to 4 feet.
BEECH, 3 to 4 feet.
LAURUSTINUS, 1½ to 2 feet, full of bloom and bushy.
PRIVET, evergreen, 2 to 3 and 3 to 4 feet.
,, ovalifolium, 3 to 4 feet.
OAK, 2 to 3, 3 to 4, and 4 to 5 feet.
FIR, Spruce, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
,, Scotch, 1 to 1½, 1½ to 2, and 2 to 3 feet, twice transplanted.
SYCAMORE, 2 to 3, 3 to 4, 4 to 5, 5 to 6, and 6 to 8 feet.

Prices on application.

J. SCOTT'S TREE and SHRUB CATALOGUE is replete with information about Trees, &c. It enumerates the names and gives descriptive notes of one of the best and well-grown Collections in the West of England. Parties intending to Plant should send for a copy, supplied gratis, as are also the SEED and BULB CATALOGUES; and SCOTT'S ORCHARDIST, at 5s. 6d., free by post.

The Nurseries, Merriott, Somerset.

J. SCOTT'S FRUIT TREES cover many Acres, and form the most complete Collection in the World, consisting of 2200 sorts of Pears, 1400 sorts of Apples, and other kinds in proportion, amounting in the whole to over 5000 sorts. CATALOGUES, gratis, sent to all applications; or SCOTT'S ORCHARDIST, post free, for 5s. 6d., the most complete work upon Fruit Trees in the English Language.

Merriott Nurseries, Somerset.

Catalogues! Catalogues!!

EWING AND CO.'S PRICED, DESCRIPTIVE, and ILLUSTRATED CATALOGUES are now ready. Rose Catalogue, and Fruit Tree and General Nursery Catalogue—both are forwarded gratis and post-free to applicants.

New Apple—Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now sending out strong maiden plants of this splendid novelty, which obtained a First-class Certificate from the Royal Horticultural Society, November 12, 1873. Circulars, with testimonials and full description, will be forwarded, gratis and post free, to applicants. Price 7s. 6d. each, or three for 20s. The usual Discount to the Trade.

FIBROUS PEAT.—Brown Fibrous Peat, best quality, for Orchids, Stove Plants, and Potting, £6 6s. per 6-ton truck load. Black Fibrous Peat, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5s. per 6-ton truck load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.

WALKER AND CO., Farnborough Station, Hants.

SPHAGNUM or PEAT MOSS.—Fresh Sphagnum Moss, 10s. 6d. per sack.

WALKER AND CO., Farnborough Station, Hants.

PRETTY WINTER and SPRING FLOWERS

OF EASY CULTURE.

Carter's

COLLECTIONS OF BULBS

Sent on receipt of Post Office Order.

No. 14—For the Open Ground, adapted for Ordinary Good Garden Soil—Price 21s., contains:—

12 Hyacinths, in three colours.
12 Narcissus, double white.
12 ,, Poeticus, or Pheasant-eye.
25 Double Daffodils.
12 Tulips, extra fine mixed, double.
12 ,, ,, ,, single.
12 ,, finest mixed, late.
12 ,, Duc Van Thol.
6 Campernel Jonquils.
6 Polyanthus Narcissus, fine mixed.
12 Star of Bethlehem.
6 Triteleia uniflora.
6 Dog's-tooth Violets.
25 Crocus, blue.
50 ,, striped.
50 ,, large yellow.
25 Crocus, white.
24 Anemones, extra fine mixed.
12 Iris, extra choice mixed English.
12 ,, extra fine mixed Spanish.
3 Lilium candidum.
3 ,, tigrinum.
24 Ranunculus, extra fine mixed.
50 Snowdrops. 24 Winter Aconites.

Packing and Carriage Free.

Other Collections, price 10s. 6d., 42s., 63s., and 84s. 20s. value Carriage Free.

From F. WALTON, Esq., *St Cuthbert's.*

"The Collection of Bulbs is truly a wonderful one for the money.

CARTER'S, THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,

SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.

First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, price 7s. 6d. each.

NEW HYBRID PERPETUAL ROSE,

CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3s. 6d. each; 30s. per dozen.

CLIMBING PERPETUAL ROSE,

CLIMBING JULES MARGOTTIN (Cranston's).

A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3s. 6d. each.

Address: CRANSTON & MAYOS,

NURSERIES, KING'S ACRE, near HEREFORD.

ROSES.

CHARLES TURNER'S CATALOGUE

IS NOW READY.

STANDARD ROSES.

These are grown in great numbers, they are very fine this season, with well-ripened wood, and are now ready for removal.

DWARF ROSES

Are also grown most extensively, and can be had on the Manetti and Briar Stocks, or on their Own Roots.

ROSES IN POTS

Are a speciality at the Royal Nurseries, where a fine stock can be seen of extra strong TEAS and HYBRID PERPETUALS, grown especially for early forcing.

☞ *The CATALOGUE also contains full Lists of FRUIT TREES, CONIFERÆ, EVERGREEN and DECIDUOUS SHRUBS, &c., and can be had on application.*

THE ROYAL NURSERIES, SLOUGH.

NEW QUEEN ONION.

MADAME PICCIRILLO,

The Raiser of the above New Variety, begs to inform the Trade that she has DISPOSED OF THE ENTIRE PRODUCE of this season's harvest to the undernamed Firms :—

MESSRS. WAITE, BURNELL & CO.,
79, SOUTHWARK STREET, LONDON, S.E.;
AND
MESSRS. CARTER & CO.,
238, HIGH HOLBORN, LONDON, W.C.

VILLA VOLPICELLO, NAPLES.

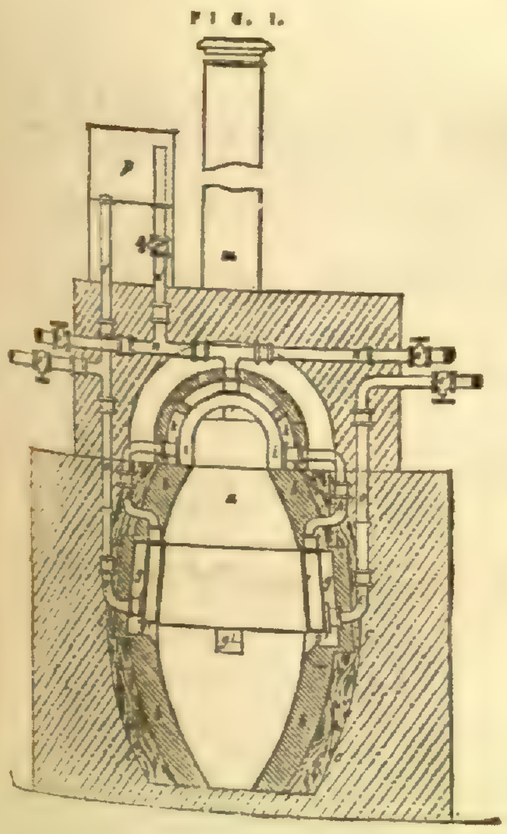
THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company, having purchased from the Dromore Patent Heating Company Mr. Cowan's valuable Patents for the United Kingdom, is now prepared to undertake the Erection of Apparatus on that System in all parts of the Country.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

THE SUCCESS OF EVERY APPARATUS ERECTED BY THE COMPANY IS GUARANTEED.



Full Particulars of this System, Testimonials, and Opinions of the Press, can be seen in the Company's Illustrated Pamphlet, which can be obtained, post free, on application.

The Company has an Efficient Staff of Engineers, and sends at any time to inspect places where the idea is entertained of Erecting the Apparatus.

The System has lately been adopted at Hazelwood, Herts, the seat of Lord Rokeby; Stackpole Court, the seat of the Earl of Cawdor; Ripley Castle, Yorkshire, the seat of Sir H. D. Inglby, Bart.; Langleybury House, Herts, the seat of Jones Lloyds, Esq.; and at many other places. Also Mr. E. Bennett, of Hatfield, says :—

"I now most cordially beg to congratulate you on the glorious success of your Heating Apparatus (now in use at Hatfield), which is working most satisfactorily, and which has exceeded my expectations. It is a decided success, and more cannot be said in its favour. Should it continue to work in the manner it now does, it will prove a great boon here, and start a new era in the heating of horticultural buildings generally. By your Compensating System we have for every barrow of coals thrown into the kiln some substantial return; by the old system the returns were ashes, and the trouble of clearing them away. I find our chalk is of an inferior quality to some I have seen in the neighbourhood, but we have plenty of heat."

The Company also undertakes the Erection of all other kinds of Heating Apparatus, and of Horticultural Buildings.

PLANS AND ESTIMATES FURNISHED ON APPLICATION.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

Office: 4, LOTHBURY, BANK, LONDON, E.C.

EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 6 to 7 feet, 60s. per 100.
SIBERIAN ARBOR-VITÆ, 5 to 6 feet, 100s. per 100.
CHINESE JUNIPER, 5 to 6 feet, 150s. per 100.
COLCHIC LAUREL, 6 to 7 feet, 100s. per 100.
ENGLISH YEW, 3 to 3½ feet, 120s. per 100.
THUJA LOBBII, 4 to 5 feet, 90s. per 100.
RICHARD SMITH, Nurseryman, Worcester.

Twelve Splendid Heaths for One Guinea.
JOHN H. LEY can now supply above, in fine bushy plants, full of flower-buds, for winter (and immediate) decoration. Package gratis for cash, and delivered free to London.
N.B.—CATALOGUE free on application.
Royal Nursery, London Road, Croydon.

FOR SALE.—10,000 strong, true, 4-yr. old BLACK CURRANT TREES, 6s. per 100; 6000 strong Raby Castle RED CURRANT TREES, 5s. per 100; and 20,000 strong Fastolf RASPBERRY CANES, warranted true, 30s. per 1000. Apply to
W. SELBY, Jun., Oldbury, Ightham, Sevenoaks, Kent.

ROBERT NEAL begs to offer to the notic of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS and CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.
Wandsworth Common Nursery, Surrey, S.W.
The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

Nursery Stock.
JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, **Chester.**

Standard Oaks, &c.
A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers several thousand well-grown transplanted Standard OAKS, from 12 to 14 feet, at 1s. 3d. each, franco Rotterdam and Harlingen.
ROSA MULTIFLORA DE LA GRIFFERAIE, stocks, 20s. per 1000.
ROSA MANETTI, stocks, 20s. per 1000.
Samples can be seen at Mr. T. S. WARE'S, Hale Farm Nurseries, Tottenham, near London.

The Planting Season.
WOOD AND CO., in consequence of having to clear a portion of their Land this season, are prepared to offer, at very reduced prices, a part of their extensive NURSERY STOCK, consisting of some thousands of Fruit and Forest Trees, Conifers, Laurels (Portugal do., handsome specimens), Evergreen Shrubs and Roses; all which are very healthy and in fine condition for removal. Price and all particulars on application.
BARBOURNE NURSERIES, WORCESTER.

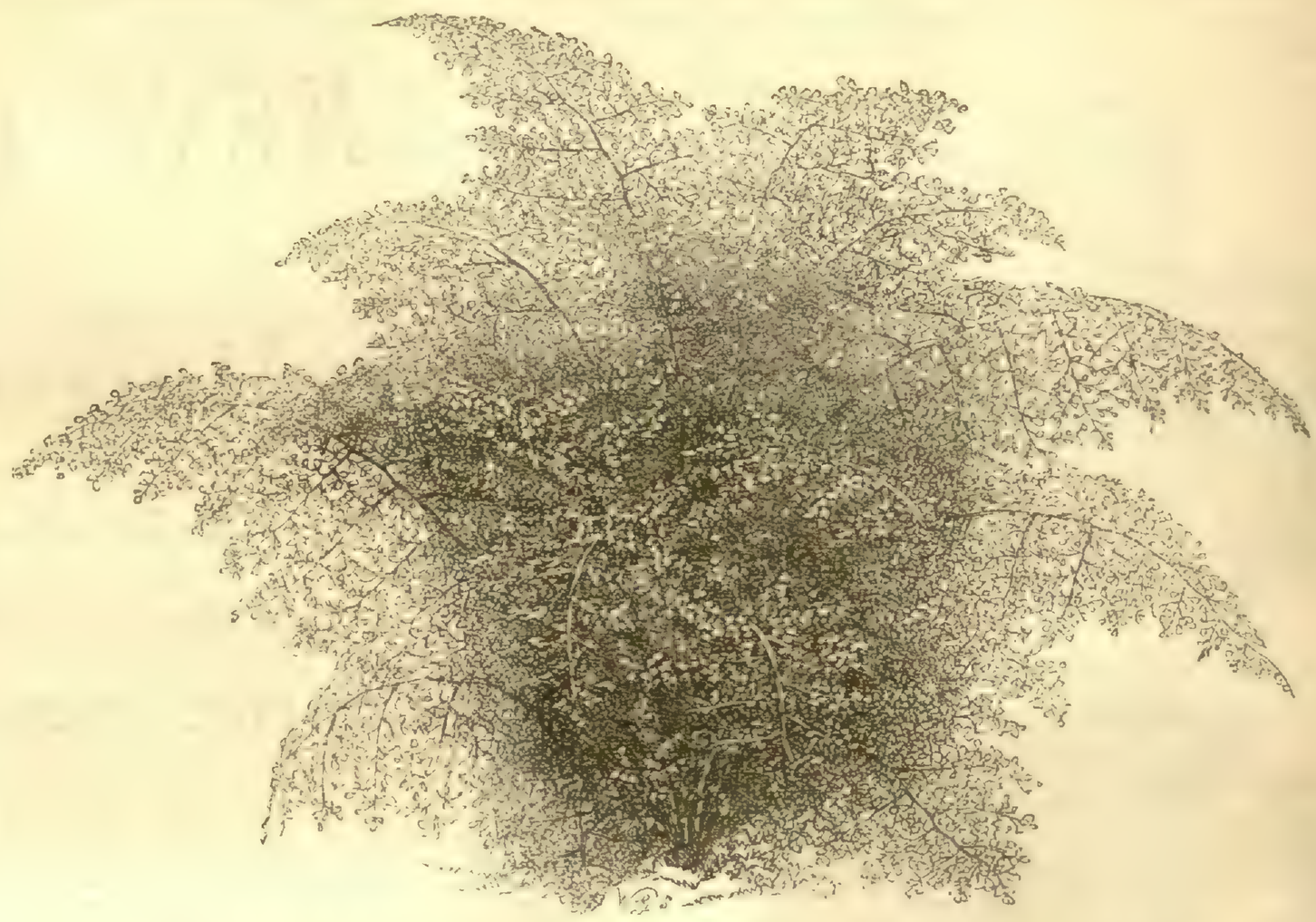
CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

Pelargoniums.
D. S. THOMSON begs to offer strong healthy plants of Show, Spotted, and Fancy PELARGONIUMS, in 60 pots, distinct varieties, at 4s. per dozen.
A fine stock of WINTER BLOOMING PLANTS, comprising Ericas, Camellias, Azaleas, Citisus racemosus, Epiphyllums, Bouvardias, Poinsettias, Cinerarias, Cyclamen, single and double Primulas, Solanums (well set with berries), &c.
A large stock of CROTONS, beautifully coloured.
The Nurseries, Wimbledon, S.W.

Hollies.
ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

ELMS, LIMES, and CHESTNUTS, well-rooted and fine straight stems.
ELM, English, 6 to 8 feet, 60s. per 100; 8 to 10 feet, 100s. per 100; 10 to 12 feet, 18s. per dozen; 12 to 14 feet, 30s. per dozen.
ELM, Chichester, 6 to 8 feet, 50s. per 100; 8 to 10 feet, 75s. per 100; 10 to 12 feet, 18s. per dozen.
CHESTNUT, Horse, 6 to 7 feet, 75s. per 100; 10 to 12 feet, 120s. per 100.
LIMES, 5 to 6 feet, 60s. per 100; 6 to 8 feet, 90s. per 100; 8 to 10 feet, 15s. per dozen; 10 to 12 feet, 24s. per doz.
JNO. JEFFERIES AND SONS, Royal Nurseries, Cirencester.

Violet.
LEE'S VICTORIA REGINA.—It gives me great pleasure to offer again the above magnificent and exquisitely sweet-scented Violet, which last season gave such remarkable satisfaction, at greatly reduced prices. For LIST of the Trade see the *Gardeners' Year Book* and the *Garden Oracle* for 1875. Extra strong plants, 12s. per dozen, 6s. 6d. per half dozen; smaller, 6s. to 9s. per dozen, 3s. 6d. to 5s. per half dozen.
Several persons having written for seed of the Victoria Regina, and although a very shy seeder, G. LEE has succeeded in harvesting a small quantity, which he offers in sealed packets at 2s. 6d. each, post-free.
N.B.—It should be sown in pans not later than the end of December, and kept in a cold pit or frame till well up.
GEORGE LEE, Market Gardener, Clevedon, Somerset.



ADIANTUM GRACILLIMUM.

B. S. WILLIAMS has much pleasure in introducing this splendid Novelty to the notice of the Horticultural Public. For decorative purposes it is of surpassing excellence, its minute pinnæ forming a beautiful contrast to the well-known A. Farleyense. It will be found a longed-for "desideratum" to the Bouquetist, on account of its extreme minuteness and durability. As far as I can judge from past experiments, it will retain its beauty when cut for a much longer period than the old A. cuneatum. For further description of this species, I think I cannot do better than insert Mr. MOORE'S description, who says:—

"The genus Adiantum has probably contributed more beautiful plants to our Fern-houses than any other belonging to the order, and the species now offered for the first time is a sufficient proof that its stores of beauty are not yet exhausted. In the well-known A. Farleyense we have a massive grandeur found in no other species, and in A. gracillimum we have the most elegant and graceful form yet introduced, so that wherever these plants are grown, these two extreme forms will assuredly become great favourites. The fronds are about a foot long, and from 8 to 9 inches across; they are very distinctly five times pinnate, the ultimate pinnules standing wide apart on their rachis, and having a distinct stalk, while they measure from about one-sixteenth to one-eighth of an inch in length, very few, indeed, being larger—these and a few of the longer ones being generally cut into about two or three shallow lobes; many of them, however, are not lobed, but have at the top a slit or sinus, at the base of which the orbicular indusium is situated, so that the sinus is completely filled out. The texture of the frond is very thin and fragile, and its colour is a very pale yellowish-tinted olive-green. The multiplicity of minute pinnules, and the almost invisible ramifications of the rachis give the plant a peculiarly charming appearance; its light and graceful fronds will render it simply invaluable to the bouquetist, while its hardiness will commend it to all Fern growers for decorative purposes."

Price 21s.

B. S. WILLIAMS,
VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

SUTTONS'
PRIZE STOCKS of FARM SEEDS

BIRMINGHAM CATTLE SHOW,

STAND 72.

Sutton & Sons

WILL EXHIBIT AN IMMENSE COLLECTION OF SPECIMENS OF THEIR

Improved Varieties of Agricultural Roots,

GROWN BY THEIR CUSTOMERS,

Under Ordinary Field Cultivation in various parts of the United Kingdom.

THE COLLECTION WILL INCLUDE SPECIMENS OF

SUTTONS' BERKSHIRE PRIZE YELLOW GLOBE MANGEL,

which this year has produced, on the Earl of Warwick's Heathcote Farm, Warwick, the extraordinary weight of 84 tons per acre, being the heaviest field-crop ever known.

SUTTONS' MAMMOTH LONG RED MANGEL,

weighing upwards of 40 lb. each, and which has been awarded, for the past six years, the First Prizes at the Birmingham Cattle Show.

SUTTONS' CHAMPION SWEDE,

the best Swede in Cultivation, which has produced 62 tons per acre (Irish) and been awarded £2800 in Prizes.

Orders will be received at the Stand, at very Moderate Prices.

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

SATURDAY, NOVEMBER 28, 1874.

BOUND FOR BELGIUM.

(*Continued from p.* 644.)

ONE of the celebrities of Lille (he is dead, and his establishment is converted into something else) was a *restaurateur*, Monsieur Puy, who entertained at the sign of the Rocher de Cancale, in the old Marché aux Poules, or Fowl Market, close to the Grand Théâtre. The cooking there was excellent, but the speciality was fillet-of-beefsteak with Mushroom sauce; but, in fact, whatever dish you ordered was inevitably accompanied by stewed Mushrooms, the cause of which phenomena was not difficult to discover.

M. Puy, a man of energy, possessed at Lezennes—a village a little to the south-east of Lille—a garden which produced, under glass, Tomatos, Melons, Cucumbers, and all sorts of forced vegetables for the supply of his restaurant. But it was useless to look for Mushrooms there, and yet they were nearer than might be imagined; for, besides his garden and his fields above-ground, M. Puy was the owner of subterranean property in the shape of the *carrières*, a small corner or ramification of which he employed in Mushroom-growing on a large scale. This reminds me that near the conclusion of my last it is stated that the extent of these quarries is "prudently," whereas I intended to say "probably," unknown. The knowledge of the adventure which befell M. Puy induced the present writer to descend and take a glance at them. To those who may be curious to do the like, he will say only one word—Beware! Do not dare to visit them after a champagne luncheon, nor in company with people who like to play the fool, and who mistake bravado for wit and spirit.

Notes of this visit, taken at the time, were published in an early volume of *Household Words;* they are abbreviated here to complete the story.

You are conducted to a village inn, to which inn belongs a cellar. In the side of the cellar is a little door, through which you descend by wooden steps to the caverns below. The depth is nothing, and varies scarcely at all; you are only 36 feet beneath the surface. You are furnished with a little hand-lamp, and a guide, of course, accompanies you. But the man who should resolve never to enter these underground quarries without a store of lucifers and wax-lights in one pocket, and of biscuits in the other, ought not to be set down as either a poltroon or a fool. The spot to which you first descend is the centre of a series of irregular ramifications, extending hither and thither beneath the earth, running off to the right and left, interlacing and starting away afresh for 4 or 5 leagues, no one knows whither, and is not a bit too anxious to ascertain. They are 3 or 4 yards wide on the average, and about as many high, cut through the soft limestone rock (which now and then falls in, in places), but are really of quite irregular dimensions, sometimes so low and so narrow as only to allow the passage of a single person. There are cross-ways, branching roads, and blind alleys leading to nothing. As far as the Mushroom culture is carried on—a very considerable extent of cavern—there are now and then (rarely) gratings to the upper air, through which the necessary manure is let down, and which also serve as ventilators, without which the workmen could not continue their labours. Beyond the Mushroom culture, not a ray of light enters. Even amongst the Mushrooms, and with a light, I should be sorry to stray and be left alone, with four-and-twenty hours given me to find my way back.

Instead of bins or shelves, the Mushrooms here are grown on ridges about a couple of feet high, and of the same breadth at foot, containing manure and covered with earth flattened close by the back of the spade. No straw is used to cover them, nor is needful in such an invariable condition of moisture, atmosphere, and darkness. They follow the windings and run along the course of the caverns, which are made to contain one, two, or three ridges, according to their breadth of floor, leaving a convenient pathway between each ridge for the labourers to walk and gather the produce. At the time of my visit the growth was slack; I had been told beforehand there were no Mushrooms: but I found ridges in all the intermediate states between the first pimply symptoms of the Mushroom-pox, to full-sized buttons as big as crown-pieces. Other ridges, again, were exhausted, and were soon to be removed, to be replaced by fresh materials for the generation of fungi.

The men who are employed constantly in Mushroom-growing in the *carrières* receive higher wages than their friends above-ground, and they well deserve every sou they earn. "But," said a day-lighter who walked by my side, "I like sunshine, monsieur; so I stick to the garden, though I don't get quite so much pay as they do." The ruddy bronzed complexion of the speaker contrasted strangely with the waxy pallid face of our guide. The men work twelve hours a day; consequently in winter they never see sunlight, except on Sundays and *fête* days, which they have to themselves. They are more subject to illness than field labourers are, not only in consequence of losing the stimulus which light affords to the constitution, but also from chills, the imperfect ventilation of the place, and the gases emitted by the fermenting dung intermingled with those from the sprouting Mushrooms.

On January 10, 1847, M. Puy entered his caverns, to plan the arrangement of his future crop. He went on and on, thinking of business, without discovering that he had lost his way. On attempting to return, he found that he was traversing paths hitherto unknown to him. Sometimes he was obliged to crawl on his hands and knees, to proceed in what he believed the right direction, but still he could not hit upon any beaten and recognisable portion of the interminable grotto. At last, his light went out, and further progress, any way, if not impossible, was perfectly useless. He sat down, determined to wait, knowing that he would be missed, and that search would be made for him. It was the wisest—in fact, the only thing, he could do.

There he remained in the dark all night, seated on the floor of the cavern, he knew not where. Next morning Madame Puy, his mother—M. Puy was unmarried—finding that he did not return home to Lille to sleep as usual, felt sure that he had wandered too far in the *carrières*. She told me that she well remembered that day, and those which followed it. She immediately called upon her friends and neighbours to assist the workpeople in making a search. They readily answered to the appeal, incurring themselves no slight danger. The man who guided me through the Mushroom-beds, in his zeal to find his missing master, lost himself for thirteen hours, although well provided with lights.

Another day elapsed, and no M. Puy. The whole population of Lille was filled with anxiety. The authorities were called upon to lend their

aid. The troops were ordered down into the caverns. Drums were beaten, and guns were fired; but it is singular that, in those intricate recesses, the most powerful sounds make but little way. *Douaniers*, or Customs' men, were sent for from the frontier, bringing with them their powerful, keen-scented, and well-trained dogs. But, instead of the dogs finding M. Puy, they themselves narrowly escaped being lost. One magnificent fellow got so completely strayed, that he must have perished had he not been at last discovered. Parties tied one end of various balls of string to frequented portions of the cavern, and then went forward in opposite directions, unrolling them as they proceeded, in the hope that the lost man might stumble upon the clue. Others penetrated as far as they dared, bearing with them bunches of straw, a single one of which they laid on the ground at short intervals, with the head or ear pointing the way to go in order to escape from this den of horrors. No fear there that the wind, or an animal, or a human passenger, should disturb so slight and frail an index! Everything, in short, was done that courage and friendship could suggest, but for three days the benevolent hunt was fruitless.

After M. Puy had disappeared for three whole days, he was found at last by a bold young man in the place where he had determined to wait till sought for. The spot is just under a mill in the neighbouring village, and is a long, long way from the point of starting. His first inquiry was, How long had he been there? for he had no means of measuring the lapse of time. He was astonished to learn that three days h ad been passed in that lone concealment without either food or drink. It was well for him, perhaps, that he was obliged to remain in that state of ignorance. As the hour of his deliverance became more and more delayed, he might otherwise have fallen into a fatal despair; as it was, in spite of every care, six months elapsed before he recovered from the consequent illness, and it was probably at least a twelvemonth before he was exactly himself agair.

From Lille to Ghent the railway trip continues level, though not always smooth, especially on the return journey, when unwary travellers are often tempted to introduce Belgian produce surreptitiously into France. With all due deference to their natural good sense, they are advised to attempt nothing of the kind. In the first place, the tobacco and cigars—the chief inducement with masculine tourists—are bad, taking rank amongst the worst manufactured, and only recommended by their cheapness to youths who think it fine to puff smoke of any kind whatever out of their mouths; secondly, the French Customs' officers are relentlessly inquisitive, and, when they find the slightest endeavour to defraud the revenue, severe. The consequences of discovery are always disagreeable, often humiliating, and highly inconvenient, involving, according to the magnitude of the offence, personal search, *procés verbal* (official report, a French mode of inflicting a fine), and even detention till the next train or the next day. The sure way to avoid all which is, for ladies, to subdue and suppress their innate feminine passion for smuggling, and, if they have made purchases of unworn ready-made finery as well as of unmade silks, embroided muslins, &c., to answer to the question "Avez-vous quelque chose à declarer?" "Yes; I have this and that to declare." They will be immediately charged with the duty due, and on payment thereof will walk off with their heads high, in possession of their treasured articles, instead of shame-faced under the confiscation of their goods and the smiles of bystanders, who, perhaps, in the course of their flittings to and fro, have experienced the same cleaned-out sensation. Gentlemen will not only urge this line of conduct on their fair companions, but will scrupulously observe it themselves. So shall they travel on, rejoicing. People inclined to smuggle think themselves cunning; but the French *douaniers* are still older foxes, and if they sometimes seem harsh when fraud is found out, it should be remembered that they are only doing their duty, and obeying the law of their land, while the parties who think themselves aggrieved are breaking it.

The station where this ordeal is passed in coming back, is Tourcoing, the third station from Lille in going to Belgium, when you bestow on it no more than a careless glance; for it is quite a common-place, harmless-looking station, showing no outward sign of the mantraps for evil-doers that lurk within. Leaving Tourcoing, you glide over the frontier unconscious of any boundary line. On the highway road, the exact spot is marked; on the rail you behold no visible limit. Moreover, in driving through Belgium you are stopped by plenty of turnpike gates (most of whose keepers, for the convenience of money-taking, speak, or pretend to speak, Flemish only), whereas in France there are none (except on a few private bridges), and you may ride from Calais to Marseilles without being once asked for toll on the road. In going from one country to the other no passport is required at present, although during the late war, and for a while afterwards, it was strictly insisted upon, with troublesome formalities if it were not forthcoming. Nevertheless, it is prudent to carry visiting cards or letters addressed to one's self to establish personal identity if called upon to prove it. An old passport even may render service in case of need, and does not take up much room in one's pocket-book.

(To be continued.)

New Garden Plants.

× CYPRIPEDIUM ARTHURIANUM, *nov. hybr.**

The general appearance is that of Cypripedium insigne, Wall., yet, if you look at it closer, you immediately see the influence of C. Fairieanum. The largest diameter of the upper sepal is nearly in the middle in C. insigne, just above the base in our plant. The nervation is much stronger than in the sepal of C. insigne, yet not so strong as in the genuine C. Fairieanum. The petals are bent downwards and are much plaited and undulated, and hairy on their superior margin, just as in C. Fairieanum, though not incurved as in that species. The lateral horns of the lip are short, as in C. Fairieanum, not long, as in C. insigne. The staminode is transverse, and though it has not such uncinate teeth, making one think of the mandibles of a Cicindela, yet they are well-developed. I am very sorry I cannot speak about the colours, since the flower came during my absence from home. I know it but as a dried herbarium specimen. It appears to be a very remarkable thing, the more so as Mr. Harry Veitch informs me it is a pigmy, and yet the flower is as large as that of C. insigne. The leaf I obtained, the largest of all, is 5 inches long by three quarters of an inch wide.

This is a new curiosity, coming from the Royal Exotic Nursery, Chelsea. I feel very pleased to dedicate it to Mr. Arthur Veitch, as a public token of the high regard of all friends and lovers of gardening. *H. G. Rchb. f.*

* Insigne × Fairieanum: parvulum, foliis ligulatis, obtuse acutis; pedunculo puberulo; bractea ancipiti latius ligulata acuta ovario pedicellato rostrato villoso bene breviori: sepalo supremo oblongo diametro transverso supra basin latissimo, parce undulato, nervis validis, extus velutino; sepalo inferiori triangulo bene angustato; tepalis deorsum versis, ligulatis, obtuse acutis, superne undulatis valde pilosulis; labelli sacco obtuso angulo brevi utrinque arrecto; staminodio transverso antice tridentato dentibus lateralibus abbreviatis.

THE LINDLEY MEDAL.

AFTER many delays and many unsuccessful attempts to secure a tolerably correct portrait of Dr. Lindley for the obverse of the Lindley Medal, we are glad to be able to state that the medal is an accomplished fact—thanks to the persevering energy of the powers that be at South Kensington. We give to-day a representation of the medal (fig. 133), which has been struck in gold, and which bears on the obverse, with the representation of Dr. Lindley's head in profile, and surrounded by a wreath of laurel, the words—

"DR. JOHN LINDLEY, F.R.S.; BORN FEBRUARY 5, 1799. DIED NOVEMBER 1, 1865."

And on the reverse the figure of Victory, holding in her hand a Laurel wreath, the figure surmounted by the words

"ROYAL HORTICULTURAL SOCIETY."

The Lindley Medal originated in a desire on the part of the late Council of the Royal Horticultural Society to provide some special mark of recognition for examples of highly meritorious cultivation, brought forward at the exhibitions and meetings of the Society, and several of these medals have from time to time been awarded to deserving objects. In the unavailing endeavour, however, to obtain a correct likeness, much time has been lost, and it is a question whether those to whom the medals have been assigned had not given up all hopes of obtaining them. Another effort, aided by the fortunate discovery of a profile drawing, has, however, resulted in the production of a medal, which goes far to realize the twofold object which it was intended to accomplish—namely, the providing the means of distinguishing and rewarding superior merit on the part of cultivators, and the perpetuation amongst gardeners of the memory of one of the best friends and teachers they ever had.

À propos of the Lindley Medal, we think it may be interesting to lay before our readers the portrait on the opposite page, from which, to a

FIG. 133.—OBVERSE AND REVERSE OF THE LINDLEY MEDAL.

large extent, the representation on the medal has been made. The portrait in question has never previously been published. It was executed from a drawing made in 1848 by Mrs. Crease, Dr. Lindley's eldest daughter, and was considered characteristic at the time. The large full-faced portrait, which we gave as the frontispiece to our volume for 1866, was taken from the artists' original sketch of the picture, now at South Kensington, and represents the Doctor as he appeared in the later years of his energetic, useful life.

AUTUMN BULBS.

NOVEMBER this year has been, on the whole, so bright and cheerful that the harsh things which we said of it at its commencement seem to have been almost uncalled for. Certainly the month has been on its best behaviour, and has shown us that even November is not always "so black as it is painted." And yet this is a case in which we are inclined to say *exceptio probat regulum*—the exception proves the rule—for our remembrance of previous Novembers is too distinctly unpleasant to admit of much modification in

our censures of the month. But when we enumerated the few floral adornments which our gardens boast during November, we omitted one which has a fair claim to be reckoned among them, as, although its gay golden blossoms often expand during October, they may be found even after the foggy month has set in, and this is Sternbergia lutea, the first of the "autumn bulbs" of which we are about to speak.

A very old-fashioned favourite is this bright Amaryllid—the "greater autumn Daffodil" of Parkinson and Gerarde, prior to whose days it had been sent to England from Constantinople, and by whom it was thought to grow "in Thracia or thereabouts." It boasts no English name, although it was formerly imported from Holland under that of "yellow Colchicum;" so we may resuscitate the title of "autumn Daffodil" for want of a better, being supported in so doing by its French equivalent, *Narcisse d'automne.* Yet its deep glossy golden cup is hardly that of a Daffodil; and that name is so associated with the breezy days of spring that it seems out of place among the falling leaves of autumn. Not so the plant, however, which well deserves to be better known than it is at present, brightening as it does many an out-of-the-way corner of the garden or shrubbery with its "faire broad leaves of a very deepe or darke greene colour," and its "faire yellow flowers;" and there is no difficulty in growing it, for, like so many bulbous plants, it only requires room to develope its offsets and form large patches.

DR. LINDLEY. (FROM A SKETCH MADE IN 1848.)

An outdoor autumn-flowering bulb is somewhat of a rarity, as we usually look for such plants in spring, and the Sternbergias and the Colchicums are almost the only ones which we are likely to meet with; but, if we go into the house, we shall be likely enough to find another claimant for our admiration in the shape of one of the loveliest of its tribe—the beautiful Guernsey Lily (Nerine sarniensis). Its English name commemorates the traditional account of its origin, first published by Dr. Morison in 1780, and from which we learn that a ship bound for England from Japan was wrecked upon the shores of Guernsey; and that the roots of this Lily, which formed part of the cargo, were buried in the sand, but grew and flourished, to the surprise and delight of the inhabitants, by whom they were soon sent to England, where they became popular, and commanded a considerable price. This is the generally received account of the Guernsey Lily, and it curiously resembles that of the circumstance to which the handsome Scarborough Lily (Vallota purpurea) owes its English name. A Dutch barque was wrecked in the neighbourhood of Scarborough—so the story goes—and some bulbs of the Vallota were washed on shore, and picked up by the inhabitants, who planted them, and afterwards sold them to others. In the case of the Guernsey Lily, however, it must be remembered that the above account of its introduction, although that usually accepted, is by no means the only one which is, or has been, current. This may be seen by a reference to a sketch of the history of the plant published by Dr. James Douglas—first in 1725, and afterwards in 1737—in which considerable doubt is thrown upon Dr. Morison's statement, and from which it would seem that its introduction to the island was of much earlier date than is generally supposed. It is said, upon apparently good authority, that the stock of plants originated from six bulbs, which were presented by a passenger from Japan to an inhabitant of the island, in return for some kindness which had been shown to him; and that these, after remaining without blossom for three or four years, were thrown into a corner of the garden, where they shortly after produced blossoms, to the no small astonishment of their possessor. That it was long the custom to send Guernsey Lilies from the island to which they owe their name is shown by a letter dated September 26, 1748, which is printed in a recent volume of *Notes and Queries*, and in which the following passage occurs:—"By the bearer, Captain Day, I sent you a dozen of Guernsey Lillys for your acceptance; these flowers are very much esteemed, and demanded by all our quality in England, and none to be had but here, and blows to this season of the year only. To see the beauty of them 'tis by looking close to them on a dry day when the sun shines upon them; they then resemble a tissue of gold."

The singularly beautiful colour of the flowers is much dwelt upon by Dr. Douglas, in his memoir already referred to. He says that when in its prime five distinct shades of red may be perceived in it—carnation, pale scarlet, fuller scarlet, "Modena," and crimson. When we look upon the flower in full sunshine, each leaf appears to be studded with thousands of little diamonds, sparkling and glittering with a most surprising and agreeable lustre; but if we view the same by candle-light, these numerous specks or spangles look more like fine gold dust.

Whether the Guernsey Lily was really introduced to our gardens from Japan may perhaps be doubted. Most of its congeners are natives of South Africa, and Nerine sarniensis is common about Table Mountain. Thunberg and Kæmpfer, however, speak of it as a native of Japan, and state that the bulb is said by the Japanese to be poisonous—which indeed is signified by one of its native names.

One more autumn flowering bulb, which we see exposed for sale in our markets side by side with the Guernsey Lily, is the beautiful Belladonna Lily (Amaryllis Belladonna). This, too, is an old favourite in our gardens, although less known and less grown than its merits deserve; and, like the Guernsey Lily, its native country has given rise to some discussion. It was introduced to this country from Portugal in 1712, and it has always been largely imported from that country, where it is very popular and extensively grown, as it is also in the neighbourhood of Florence, where it is a favourite flower. It was formerly said to come from India, a term which was used in a delightfully comprehensive sense by the older botanists; but it is a native of the Cape region, from which we derive so many of our choicest bulbs. The only drawback to the beauty of this and the preceding species is the absence of leaves at the season of flowering. *B. M.*, *Nov.* 19.

DR. ARCHIBALD CAMPBELL.

DR. CAMPBELL was one of the Campbells of Islay, and entered the service of the East India Company. He had, it is believed, been employed in the Nepaul mission with Mr. Bryan Hodgson, and was, soon after its formation, put in charge of Darjeeling and its few English invalid soldiers. Campbell was one of the many who, by administrative genius, have built up our empire in India. The names of some of those who had the good fortune to rule over its presidencies and kingdoms are popular and historical; but there are other benefactors whose services, like those of Archibald Campbell, are only known to their colleagues, though long treasured in the memories of grateful natives. No field offered less promise than Darjeeling: a few bungalows perched among the rocks, in sight of the mightiest snow-covered mountains of the world, with a poisonous jungle at foot, and a population and neighbourhood of low savages; such were the materials. Close at hand was the treacherous Rajah of Sikkim, and his hostile Dewan.

Under Campbell's care the natives became labourers, and learned new and useful arts, and others flocked in to form a population, and from them he raised a native army and police, economically paid from the scanty revenue he created. This obscure place became the summer residence of the governors of Bengal, and might have become a pleasure town like Simla.

Its governor (superintendent he was always called) was, however, indefatigable in creating permanent resources; and of course many things, many chances, favoured him. Dr. Hooker, now President of the Royal Society, having engaged in a botanical expedition, was by Dr. Campbell conducted into Sikkim; but both were imprisoned by the Dewan, glad to get hold of his great enemy. Hooker was speedily released, but Campbell was longer detained, and bore the marks of injury to his death. His followers in Darjeeling moved to his rescue, and on his release he invaded Sikkim, but unsuccessfully. The Government of India, however, sent a force to demand reparation, and such a cession of territory was obtained that Darjeeling became the capital of a district of 2,000 square miles.

At a later date Dr. Hooker took an active interest in introducing the Cinchona plant into Darjeeling, and it is now a great means of revenue. Campbell had, however, at the earliest moment when it was proposed to introduce Tea culture into India, appreciated its full importance. He fostered the experiments at Darjeeling, and in the end he created an industry which has been successful, and the products of which have made a name even in this market. The labourers have been supplied from the neglected tribes, which under the superintendent's training have become useful and loyal subjects.

Many of the results have of course occurred since Campbell's departure, but he must ever be regarded in Darjeeling as its real founder. Thus, the Terai, in whose jungle miserable savages crouched, and to pass through which was even a danger to the English traveller on his way to the healthful hills, has now been largely reclaimed, and there can be no doubt that the Terai portions of the later annexed Bhootra district will become granaries of food for thousands. Dr. Campbell, eager to promote every useful endeavour, took an active part in promoting Cotton cultivation in the Terai, from which he always had great hopes.

He was a constant advocate of hill colonisation in India; and when the Minister in 1857 stated in the House of Commons the futility of such hopes, as there was not an acre of land available for cultivation in the hill regions, his strong testimony against the assertion has been confirmed by numerous proofs. In fact, if Darjeeling were tested as an Australian colony it would well bear the examination of its short history. In regions as healthy as those at home, and producing the same fruits and grain, not only do the invalids of Calcutta find new life, but many Englishmen are now successfully engaged in the plantations of Tea and Cinchona, and in various industrial occupations. During the Mutiny the little community of Darjeeling held its own. It is now a rival to the group of English plantations which stud Assam and Cachar, and to those which are rising among the gorges of the western Himalayas.

One great object of the superintendent was to obtain access to Darjeeling. He never desisted until he had got a fair road over the 400 miles from Cal-

cutta to its hill town. From 1858 until his death he never paused in demanding railway communication, so that within a day the sick soldier or merchant of Calcutta might reach the regions of health. The famine favoured him at length, and before his death he had the satisfaction of knowing that the construction of the railway is secured.

Another main purpose of Dr. Campbell was to pass the barrier interposed first by the Rajah, to Sikkim, and beyond him by the Chinese mandarins, to the free passage of merchants and goods into Tibet, the frontier of which was for years within his view. He created what was a considerable foreign trade for Darjeeling, and he agitated until he made a real impression upon the Government of India.

On his return home, after so many years' services, he felt the devotion of an Indian servant towards the country and people among whom the best years of his life had been spent, and to whom his labours were unremittingly devoted. His efforts were prompted by no hope of honour or reward, for be it said, to the shame of our administrators, that neither then, nor at any after time, was any honorary distinction or post of emolument at home bestowed upon him. This is the common fate of many a distinguished man, and it is not to be wondered that, in the exile from England, and in the chill of official thanklessness and neglect, some there are who shrink within themselves and retire from public life. Dr. Campbell's exertions were not only disinterested, but they often entailed on him expense and absence from family associations.

It was in the discharge of public duties that he became a member of the Council of the Royal Asiatic Society, of the Ethnological Society, and of the Anthropological Institute. On the formation of the Indian Section of the Society of Arts, he became one of its first and most active members, and his readiness to render service, as well as his wide knowledge, made his assistance most valuable. It will be remembered by our members that he took a zealous part in promoting the conference on Tea Culture and in obtaining the publication of a manual. He was also a leader in the deputation to the Duke of Argyll on Trade to Central Asia and China. It is a matter of great satisfaction to consider that in India practical results have been obtained from these exertions.

He was an authority whom we shall now miss greatly on all that relates to the countries of his devotion, the people, the geography, the productions of Tibet, Nepaul, Sikkim, and Bootan, on which he published useful memoirs, and communicated the information received from others. *Society of Arts' Journal.*

OPEN-AIR BORDER PLANTS.

In making the following selection of plants which can be grown in the open air in most parts of England, arranged according to their geographical distribution, I have no doubt omitted many which would be included by some, as, owing to the immense number from which to select, and the difference of taste in such matters, it is impossible to avoid criticism. If any of your readers, however, will suggest, from a better knowledge of these plants, any alterations or additions, I should be much obliged. Thus perhaps the foundation of a list of hardy plants may be laid, which would be very valuable to modern gardeners.

I have endeavoured to keep the following points in view :—

First, to give a tolerable idea of the principal types of ornamental and interesting plants found in the different regions.

Second, to show the geographical range of the most important genera.

Third, to choose plants of neat habit, in preference to tall or straggling ones, and to omit such as might be easily mistaken for each other.

I have omitted aquatic plants, shrubs, and climbing plants not suited for ordinary borders, though they might well be brought into the same arrangement, where suitable situations exist.

If the number of plants seem very large, I can only say that it does not include half of what it might, and that though some of those I have named are either very rare or difficult to grow, there are no lack of substitutes to be found.

Plants marked * are those which are so choice that no garden should be without them, and are, with few exceptions, plants whose cultivation presents no difficulty. Those marked † are either not fully hardy or require special soil (generally peat), or some peculiar treatment, into the details of which I cannot here enter.

I.—Great Britain.

*Anemone Pulsatilla
,, nemorosa purpurea
Aquilegia vulgaris
*Pæonia corallina
Thalictrum flavum
Corydalis lutea
Helianthemum vulgare
*Dianthus cæsius
Lychnis alpina
Linum perenne
Anthyllis Vulneraria
†Dryas octopetala
Epilobium angustifolium
Rhodiola rosea
†Parnassia palustris
†Saxifraga granulata
,, hypnoides
Meum athamanticum
Eryngium maritimum
Asperula odorata
*Centranthus ruber
Antennaria dioica

Great Britain—(*continued*).

Campanula glomerata
†*Menziesia polifolia alba
†Erica ciliaris
† ,, Tetralix
†Loiseleuria procumbens
†Arctostaphylos Uva-ursi
†Pyrola rotundifolia
†Gentiana verna
Verbascum nigrum
Lysimachia nummularia
†Primula scotica
†Trientalis europæa
Polygonum Bistorta
*Daphne Mezereum
Allium ursinum
*Polygonatum multiflorum
*Convallaria majalis
Paris quadrifolia
Colchicum autumnale
Crocus biflorus
,, nudiflorus
Fritillaria Meleagris alba
*Lilium Martagon album
Gagea lutea
*Narcissus Pseudo-Narcissus
Ornithogalum pyrenaicum
Scilla verna
,, nutans alba
Tulipa sylvestris
*Iris fœtidissima variegata
Orchis militaris
* ,, maculata
Ophrys apifera
Habenaria chlorantha
†Cypripedium Calceolus
†Epipactis latifolia

II.—Central and Eastern Europe.

*Anemone sylvestris
Aconitum Napellus
*Helleborus niger
Pæonia decora
*Thalictrum fœtidum
Corydalis tuberosa albiflora
Alyssum podolicum
*Arabis lucida variegata
Dianthus superbus
Lychnis chalcedonica
*Dictamnus Fraxinella
Astragalus Onobrychis
Genista germanica
Orobus vernus
*Spiræa Aruncus
Lythrum virgatum
Sempervivum soboliferum
†Saxifraga Burseriana
Astrantia carniolica
Eryngium amethystinum
Achillea Clavennæ
Aster bessarabicus
Echinops Ritro
Campanula pulla
Erica herbacea
*Gentiana asclepiadea alba
†Vaccinum Oxycoccus
*Digitalis grandiflora
Wulfenia carinthiaca
Veronica repens
Salvia verticillata
Dracocephalum Ruyschianum
*Cyclamen europæum
*Daphne Cneorum
Crocus reticulatus
,, byzantinus
* ,, speciosus
Iris variegata
,, sambucina
* ,, dalmatica pallida
*Narcissus incomparabilis
* ,, poeticus
Allium narcissiflorum
,, Victoriale
*Erythronium dens canis
Fritillaria tenella
Galanthus plicatus
*Leucojum vernum
*Lilium croceum
,, carniolicum
* ,, Martagon Catanii
Muscari botryoides
Ornithogalum nutans
Scilla autumnalis
Streptopus amplexifolius
*Tulipa Gesneriana
†Orchis Robertiana
,, laxiflora
†Ophrys aranifera

III.—Southern Europe, including the countries surrounding the Mediterranean Sea.

*Anemone coronaria
,, palmata
*Pæonia lobata
Ranunculus asiaticus
Leontice Leontopodium
*Alyssum saxatile
*Aubrietia deltoidea
*Iberis Pruitii
*Cistus formosus
,, corboriensis
* ,, cyprius
Viola pinnata
*Dianthus corsicus(?)
*Linum campanulatum
Geranium striatum
Astragalus monspessulanus
†Saxifraga Maweana
Sempervivum
Sedum
*Scabiosa parnassiæ
Achillea ægyptica
Santolina incana
†Erica mediterranea
Campanula muralis
Verbascum phœniceum
†Paronychia argentea
Phlomis fruticosa
Salvia argentea
Acanthus latifolius
*Cyclamen hederæfolium
Chamæpuce Casabonæ
Ferula tingitana
Helianthemum rugosum
Lithospermum rosmarinifolium
Nigella Fontanesiana
Stachys corsica
Papaver Heldriechii
Crocus Sieberi
* ,, Imperati
,, Boryi
*Iris stylosa
,, olbiensis
,, florentina
*Narcissus Bulbocodium
* ,, triandrus
,, Tazetta
†Ornithogalum arabicum
*Pancratium illyricum
Sternbergia lutea
*Colchium byzantinum
Allium roseum
* ,, neapolitanum
Asphodelus ramosus
,, luteus
Fritillaria græca
*Galanthus Imperati
Hyacinthus amethystinus
*Lilium chalcedonicum
Leucojum autumnale
*Muscari Heldriechii
Scilla peruviana
* ,, bifolia major
*Tulipa oculis solis
,, præcox
†Xiphion scorpiodes
† ,, junceum
*Gladiolus byzantinus
Arum crinitum
,, Dracunculus
†Orchis longibracteata
† ,, papilionacea
†Ophrys Speculum
† ,, lutea
†Serapia cordigera

IV.—Alpine and Arctic Regions of Europe.

(These plants must be cultivated on rockwork.)

*Anemone alpina sulphurea
† ,, Halleri
*Adonis vernalis
*Aquilegia alpina
Thalictrum alpinum
Papaver alpinum
Draba aizoides
,, ciliaris
*Cheiranthus alpinus
Thlaspi rotundifolia
†Viola biflora
†Polygala Chamæbuxus
†Silene acaulis
*Dianthus alpinus
Geum montanum
Phaca alpina
Oxytropis uralensis
Sempervivum arachnoideum
†*Saxifraga Cotyledon
* ,, oppositifolia
†Linnæa borealis
Achillea tomentosa
Campanula alpina
†Andromeda tetragona
†Cassiope hypnoides
*Gentiana acaulis
,, purpurea
*Myosotis rupicola
*Linaria alpina
†Androsace eximia
†Primula viscosa
* ,, farinosa
,, Auricula
Soldanella alpina
Globularia trichosanthes
Artemisia glacialis
†Rubus arcticus
Potentilla nitida
Cardamine trifoliata
†Ranunculus glacialis
Anthericum Liliago
Polygonatum verticillatum
Smilacina bifolia
Crocus vernus
Gagea Liottardi
Lloydia serotina
Narcissus juncifolius
Veratrum album
Orchis nigra
†Cephalanthera rubra

V.—Asia Minor, Persia, and the Caucasian Provinces.

*Anemone blanda
Aconitum tauricum
*Helleborus guttatus
Thalictrum orientale
Trollius caucasicus
Epimedium pinnatum (?)
*Leontice Chrysogonum
Papaver orientale
Cistus tauricus
Cerastium Biebersteini
Dianthus caucasicus
Silene fimbriata
Althæa syriaca
Astragalus serici-albus (?)
Coronilla ibirica
Sedum spurium
*Æthionema persica
Phyteuma campanuloides
Gentiana septemfida
†Arnebia echioides

Asia Minor, Persia, and the Caucasian Provinces—(*continued*).

Onosma taurica
Omphalodes Luculiæ
Eryngium giganteum
*Primula amœna
,, luteola
Cyclamen ibericum
Statice ararati
Michauxia campanuloides
†Narthex Asafœtida
Doronicum caucasicum
Geranium ibericum
Arum spectabile
*Colchicum speciosum
Crocus solidus
,, Fleischeri
Merendera sobolifera
†Iris susiana
† ,, iberica
Iris notha
*Xiphion reticulatum
† ,, persicum
Allium paradoxum
Eremurus caucasicus
Puschkinia scilloides
*Lilium colchicum
Muscari moschatum
,, pallens
Scilla sibirica
Ornithogalum latifolium
Tulipa montana
Fritillaria aurea
,, tulipifolia
* ,, Imperialis
†Orchis longicornu
†Ophrys ferrum equinum

(*To be continued.*) —*H. J. Elwes.*

RESPIRATION AND DIGESTION IN PLANTS.

M. Corenwinder has communicated to a recent meeting of the Société des Sciences of Lille the result of an important series of observations on the respiration and assimilation of plants. M. Corenwinder starts from the position of M. Claud Bernard, that the process which has been usually termed that of respiration in plants—the decomposition of the carbonic acid of the atmosphere in the presence of chlorophyll and under the influence of sunlight—is not, in fact, a process of respiration at all, but should rather be termed one of assimilation, or digestion; the true process of respiration being one precisely analogous to that characteristic of all animals, an oxidation of the carbonaceous matters of their tissues; and moreover that this process is not carried on, as has been often stated, by night only, but that the two phenomena are exhibited at all times simultaneously.

The exhalation of carbonic acid by buds and young shoots is easily demonstrated by placing them under a bell-glass in connection with a receiver containing baryta-water, the carbonic acid having been previously removed from the air within the bell-glass; and it is equally easy to prove that the carbonic acid exhaled is derived from the absorption of the oxygen of the atmosphere. In a large number of plants this absorption of oxygen by the leaves apparently ceases by the time they are fully developed, while in others it continues for a much longer period; to the first class belongs the Beet, to the second Dicentra spectabilis.

In order to ascertain the reason why this exhalation of carbonic acid by the leaves of plants apparently ceases at a period when, in accordance with the analogy of the animal kingdom, it ought to be in its greatest vigour, M. Corenwinder made a very careful series of analyses of leaves at different periods of the year, the plants employed for this purpose being the Lilac and Maple. Although the actual constitution of the leaves of these two plants is very different, yet the general results were the same in both cases. The proportion of nitrogenous matter decreases with moderate steadiness from the time of the opening of the leaves till their fall; the proportion of carbonaceous matter increases rapidly during April and May, remaining then nearly uniform, with some variations, till October; while that of incombustible substance increases during the whole time. A dried Lilac leaf consisted, on April 15, of 27.87 per cent. nitrogenous matter, 67.71 per cent. carbonaceous matter, and 4.42 per cent. ash; on October 31, of 8.87 per cent. nitrogenous matter, 83.13 per cent. carbonaceous matter, and 8 per cent. ash. A dried Maple leaf was, in like manner, composed, on May 1, of 40.94 per cent. nitrogenous matter, 53.06 carbonaceous matter, and 6 per cent. ash; on October 14, of 14.80 nitrogenous matter, 69 per cent. carbonaceous matter, and 16.20 per cent. ash. An interesting feature in the analysis of the ash was the rapid decrease in the proportion of phosphoric acid; from 31.67 to 3.20 per cent. in the case of the Lilac; from 49.62 to 0.73 per cent. in that of the Maple. During the period of vegetation, phosphates appear to accumulate in the leaves as in a kind of reservoir, to be conveyed at its close to the seeds, where they are stored up for the nutrition of the young plant. The quantity of water in the leaves diminishes as the season advances, with some fluctuations; and a comparison of the analyses of leaves from trees grown in the neighbourhood of a town with those growing in the open country shows that in the vegetable, as in the animal kingdom an abundant supply of oxygen is favourable to vigorous vitality.

A review of the facts above stated leads M. Corenwinder to divide the season of vegetation into two periods; the first, that of the growth of the leaves, when the nitrogenous matter is in excess but rapidly diminishing, the period when the true process of respiration is most vigorous; the second, the period of maturity, when the assimilating process dependent on the reduction of carbonic acid by the chlorphyll is at its height, the proportion of carbonaceous matter then preponderating. During this period the production of carbonic acid by the oxidation of the carbonaceous matter of the tissues is apparently in abeyance;

but the author believes he has established that it never ceases during the life of the leaf, but that the quantity of carbonic acid exhaled being comparatively small, it is entirely taken up and again reduced by the chlorophyll. During the months of September and October a slight reduction took place in both cases in the amount of carbonaceous matter, and a small evolution of carbonic acid was detected, but this was believed to result, not from the true process of respiration, but from incipient decay.

The paper concludes with an account of a series of experiments on the effect of exposing plants to an atmosphere destitute of free oxygen, consisting of hydrogen and nitrogen, or nitrogen and carbonic acid. Under these circumstances a number of plants die in the course of a few days, while others live and thrive for a longer period, the latter consisting principally of marsh plants, such as Lythrum Salicaria, Epilobium hirsutum, and Polygonum amphibium. In white or variegated leaves containing but little chlorophyll, and possessing to a very small degree the power of decomposing carbonic acid, the true process of respiration, nevertheless, proceeds vigorously.

In conclusion, M. Corenwinder re-states the chief result of his observations, that a true process of respiration, analogous to that performed by animals, and consisting in an oxidation of the carbonaceous matters of the tissues, is constantly going forward in plants by day and by night, resulting in an evolution of carbonic acid whenever the quantity of this gas produced is too large to be again at once absorbed and decomposed by the chlorophyll in the process of assimilation or digestion.

GREENHOUSE PLANTS.—XVIII.

THEIR CULTURE AND MANAGEMENT.

Hoveas.—These beautiful Pea-flowered plants are natives of New Holland, are not difficult to grow, possessing a much stronger constitution than the generality of subjects from the same region that are usually cultivated as pot plants. The Hovea Celsi, which is the plant more particularly here to be treated of, is one of the most beautiful coloured flowering plants we possess; its blossoms are bright bluish purple, and produced freely from the axils of the leaves of the preceding season's wood. Its foliage and general habit are also quite distinct, rendering it a most desirable subject for growing in any collection of hard-wooded plants having pretensions to being complete. That it is now so seldom seen can only be attributed to the great number of novelties that within the last quarter of a century have been introduced to the country, for the time putting many deserving plants in the background, but which must ultimately regain their former favour through sheer merit, more especially in the case of this plant, from the fact of its adaptability not only to pot specimen culture, but also in being one of the best plants for placing at the end or on the roof of a cool conservatory. It can be increased either from seeds or cuttings; the former is much the best method, from the fact of cuttings not being so free to root as some things. It is proverbially a slow grower, and with fair treatment it will last a long time, not being subject to go off quickly from causes difficult of explanation.

In growing the plant up for a specimen of the ordinary bush-like shape, two distinct methods may be followed. I will allude first to the more general way of treating it.

In selecting plants for this method more care is necessary than with most things to secure such as have been stopped not more than 3 or 4 inches above the collar, for it is a most determined upright grower, and if it has been allowed in its first stages to run up too high before stopping, the habit is hard to correct. We will suppose young plants obtained through the autumn in 6-inch pots that have been properly stopped as described, and possessing eight or ten nice shoots. Keep them through the winter near the glass in a night temperature of 40° or 45°. Pick off any flowers they may be inclined to produce as early as they are large enough to get hold of. As soon as they show signs of growth give them a shift of an inch and a half or 2 inches: the slow habit of the plant will not admit of a large pot. It will grow in either good turfy yellow loam or peat—I prefer the latter, where it can be had good, possessing a fair share of fibre; to this add one-sixth or seventh of silver sand, according to the more or less absence of it in the soil. Drain moderately, it is not a plant that requires a great deal of water; pot firm, tie out the shoots moderately, but do not bring them too low or down to a positively horizontal position at first, or they will not be disposed to make much progress—its natural straight habit causing it to push out shoots from where it has been so bent, which will drain all the strength, starving the too low trained shoots so as to prevent their further progression. Place them in a light situation where they will have the air shut off early enough to close in some sun-heat, so as to induce early growth; pinch out the points of the shoots to cause them to break.

By the end of April, when the drying influence of the sun begins to be more felt, draw the syringe over them and damp the material on which they stand in the afternoons. When growth has fairly commenced and made some progress, if any shoots show a disposition to run away with more than their share of strength keep such regulated by tying down, or they will rob the rest. It is necessary to be more careful in this matter with this plant than with most others, for its slow disposition of growth does not admit of any considerable amount of wood being cut away. Its leaves, being naturally hard in texture, lose little by evaporation, and consequently require no shade even in hot weather; yet, nevertheless, it and others of similar nature, when growing with those which do want shade, are not injured by it unless too much is applied. Treat through the summer as to water and closing in sun-heat, with a damp night atmosphere, until the end of August, when more air may be given, and the plants prepared for winter. As will be seen, no second potting during the season is recommended for it, its slow growing nature neither requiring nor permitting of such. Winter as advised the preceding season. I should again, as early as the flowers are large enough to be got at, advise their removal. As before, when signs of growth are apparent, move into pots 2 inches larger, stopping the points of the shoots and tying them down lower, as also any that have been formed near the centre and show a disposition to monopolise more than their share of sap; treat as in the preceding summer again, hardening up the growth in autumn by more air and a drier atmosphere. Tie nicely out with a few thin sticks to the principal branches—it does not require nearly so much support in this way as most plants—and draw the weaker shoots into the places they are required. In the spring they will make nice decorative plants, and when in flower through April and May they can be removed to the conservatory or show-house, where the presence of this and similar hard-wooded subjects give a character which the employment of soft-wooded things alone does not. Let them here have a light front position, where they will not be too much crowded, and as soon as the beauty of their flowers is over, remove them back to their growing quarters; stop and pot as in the preceding seasons, giving again a 2-inch shift—more than which this plant rarely requires. The future treatment each succeeding year may be similar, as so far advised, being careful not to overpot or pot at all, unless the soil is well filled with roots.

Another method of treating this Hovea is to grow it on without stopping, letting it assume its natural form, which will be to run up a considerable height before it branches much. Its treatment in respect to potting, soil, and other matters may be similar in every way to the foregoing, with the exception of its not beng stopped or trained, only just a single stick being used to support it. It may also with advantage be kept a little warmer through the winter and spring, the object being to get as strong a plant as possible in little time, with plenty of roots, and, when it is grown into such, to head it down, when the root-power it possesses will cause it to break up a number of shoots all round the collar, that make much more progress than is possible with a young plant trained from the first. By far the best specimens of it I have seen have been so obtained; its natural disposition for growing up in a thin, straggling way is by this means best corrected.

After heading down (which should be done about the beginning of March), place the plant in an intermediate-house temperature, near the light. Do not give more water than just sufficient to keep the soil from getting over-dry until after it has broken an inch or two; draw the syringe over the plant on the afternoons of dry days. Growth from a stool of this description will be much more rapid than from a young plant. When the shoots have pushed 8 or 9 inches, which they will have done by the middle of June, train them out, the strongest to the outside, and pinch out the points, so as to induce them to branch and form a compact growth. The plant, unless it has been somewhat pot-bound, will not require a shift until the spring following, which it should receive as early in the season as it shows signs of growth; it is better to take out the flowers, and treat as before through the summer in stopping, training, air, and water. If all goes well, by the autumn it will have made growth 18 inches in length from the base, strong and bushy; harden up by the admission of more air after the middle of August, and tie with a few thin sticks. With proper attention as to water and repotting, when such is required, plants so treated will last and keep improving for years.

The natural disposition of this Hovea to run up for a considerable height with a single stem renders it it well adapted for occupying a limited space as a conservatory roof or as a pillar plant. In cases where it is so employed, it should be from the seed-pan or cutting-pot trained to a single stem, without branching until it gets high enough for the place required, when the point must be pinched out, and as the head is formed training it in the desired shape. It shows to the best advantage when allowed to grow comparatively loose; in this way it will bloom profusely and ripen quantities of seed, which will, from its scarcity, be of considerable value. Any one who has never seen the plant so grown can form no idea of its beauty and the size it will attain. So far as I have seen, Hoveas are subjects upon which mildew will not exist, neither are they much liable to the attacks of insects. Red-spider will live upon them, yet they are not often attacked by it; but here, as in most other cases, prevention is better than cure, and this can easily be secured by using the syringe well to the underside of the leaves once a week, through the hottest part of summer. Scale will live and increase fast upon them, especially the white species, consequently they should never be allowed to come in contact with any plant affected with this worst of insects. In hard-wooded plants the brown scale can be destroyed by washing in the autumn when growth is completed, and before the bloom is prominent, with "Fowler's Insecticide," 5 oz. to the gallon.

H. pungens is somewhat dissimilar to the above, very slender in appearance, but not so large a grower, and is not fit for any purpose other than as a moderate-sized bushy specimen, for which it is well adapted—its colour, also deep bluish purple, harmonising well with most other inhabitants of the hard-wooded house. *T. Baines.*

MATICO.

A very interesting, amusing, and even instructive chapter or series of chapters might certainly be written upon advertisements. Perhaps the falsity of the oft-quoted insinuation of "the immortal bard," that there is nothing in a name, is in no instance more apparent that when viewed in connection with advertising. In such a light it is not too much to say that there is everything "in a name." Who will forget the excitement, deepening at last into positive anxiety, with which an explanation of the long mysterious word "Ozokerit" was looked for?—the many and most varied speculations (all of which were wrong) as to its meaning, and the learned dissertations upon its pronunciation? "Opoponax" was bad enough, but in mystery "Ozokerit" far surpassed it.

Some of these names, although puzzling "to the general" are clear enough to the initiated. Opoponax, for instance, was comparatively intelligible to a botanist, who knew at once that under that name something at any rate connected with the umbelliferous genus so called must be intended. But the word which stands at the head of this paper, although the name of a plant, may be more difficult of explanation (plant-name though it be) even to the botanist, unless he is tolerably familiar with the vernacular designations of plants, or be, as many botanists are, of the medical persuasion, and even then he may not know how any particular species came to be so called. And yet the title is one well recognised in trade, or we should scarcely see it figuring as conspicuously as is now the case in the advertisements of Messrs. —— (we must not indicate them more definitely), where it is described as ensuring "rapid and extraordinary cure of severe, recent, and chronic cases of disease," and as being "always effective where all other medicines have failed." In this advertisement it is called "vegetable Matico"—surely an unnecessary qualification, or is there some animal Matico of which no one but Messrs. —— have heard?

As to what plant is the "real original" Matico there seems some doubt. There are at least "two Richards in the field," and each has some claim to the title. According to Hartweg, whose remarks are quoted in a recent number of the *Pharmaceutical Journal*, "Matico is the vernacular name applied by the inhabitants of Quito to Eupatorium glutinosum, or the 'chessalonga' in the Quichua language. It forms a shrub 3 to 5 feet high, which is common in the higher parts of the Quitinian Andes, where its properties were discovered some years back by a soldier called Mateo, better known under his nickname Matico (little Matthew), who, being wounded in action, applied accidentally the leaves of some shrub to his wound, which had the immediate effect of stopping the bleeding. This shrub happened to be the Chessalonga, which has since been called, in honour of the discoverer, Matico. That it is the true Matico of the inhabitants of Quito and Riobamba I have not the slightest doubt; both the leaves and specimens have been gathered by myself, and upon comparing the latter with Kunth's description I found them to agree exactly with his Eupatorium glutinosum."

This origin of the name Matico, it may be remarked *par parenthèse*, reminds us of that of the genus Quassia, which commemorates a negro slave named Quassy, who first discovered its good qualities as a febrifuge, and employed its bark and wood as a secret remedy against the malignant endemic fevers which were so frequent in Surinam. He was at last induced to part with his secret for a considerable sum, by a Swede named Rolander, by whom, in 1756, the wood was first brought to Europe. This perpetuation of the

name of the discoverer in association with the plant connected with him is common enough not only in scientific but in popular use; thus the "Tinker's weed" of North America (Triosteum perfoliatum) has reference to a Dr. Tinker, who was the first to employ it in medicine as an emetic; and Mr. Ransted, the introducer of the common yellow Toad Flax (Linaria vulgaris) to the United States, where it has become an agricultural pest, is commemorated in its popular name, "Ransted weed."

In spite of this identification of Eupatorium glutinosum as the original Matico, it is certain that the plant so called in commerce is in most cases not that species, but an Artanthe (A. elongatum), the Piper angustifolium of older writers. This was introduced to English medical practice by Dr. Jeffreys, of Liverpool, who published an account of it in the *Lancet* for 1839. It was recommended for use in cases of diarrhœa and cholera, but its real value is as a styptic, not from any astringent properties, but from its mechanical action, the structure of the leaf promoting the coagulation of the blood. It is chiefly imported from Peru, but specimens in the Exhibition of 1851 were from the province of Chiquas, in the eastern extremity of Bolivia. Another species of Artanthe (A. adunca) is sometimes substituted for A. elongata in commerce. This was the case during the American War in 1863. According to Professor Bentley, however, "it may be at once distinguished from the official Matico by being in a less compressed state, by the upper surface of its leaves not being so tessellated or rough, and by the almost entire absence of pubescence on the under surface of the leaves." The true officinal Matico, as imported, "consists of the dried leaves, stalks, and spikes (some unripe, others ripe), more or less compressed into a lump, which has a greenish colour. The leaves are from 2 to 8 inches long, veined and tessellated on the upper surface, downy beneath, with an aromatic slightly astringent warm taste, and an agreeable, aromatic odour."

Another plant, which has also obtained the name of Matico, is Waltheria glomerata, the leaves of which are used as a vulnerary in the Panama region, where the shrub is known as Pado del Soldado, or Soldier's Tree; and a story similar to that given above is connected with it. Dr. Seemann says that "the same story, with more or less variation, is told of many other vulneraries of Spanish America." Mr. [illegible] was inclined to consider that the true Matico was furnished by a species of Phlomis, but that genus is only represented in America by P. fruticosa, which has been collected in Mexico, where it was probably an introduction. *B. M.*

Fig. 135.—Javary Palms on the Banks of the Madeira River.

Foreign Correspondence.

KITCHEN GARDENING IN NEW ENGLAND (*concluded from p.* 650).—*French Beans.*—These are not commonly known by this name, nor by the classes. Whilst they are in the green-pod state they are called String Beans, but we also use the seeds after they are too old for String Beans and before they are hard ripe, when we term them Shell Beans. Some people will not eat String Beans after they get Shell Beans. As a market garden vegetable its on account of the way in which they are grown. These Beans, being very tender, are not planted till nearly a fortnight after the French Beans—not altogether on account of injury to the seedlings from frost, but mainly owing to the seeds rotting rather than germinating should the soil be cold. Opening the

FIG. 136.—CARIPUNA INDIANS WITH TAPIR, ORCHIDS, BROMELIADS, FERNS, ETC.

name Kidney Beans, but everybody knows them as Bush or Snap Beans. They are very extensively grown; the poorest cottager has his patch of Bush Beans, and Americans, as a rule, are particularly fond of them. I often wonder at this, as in Scotland the poorer classes know nothing about them further than seeing them in the laird's garden, and I may say the same of Ireland, but in England they are to some extent grown by the working importance is great, particularly with Southern growers, who ship them North in great quantities. The varieties we grew this year were Early Valentines, Early Yellow Refugee, Newington Wonder, and Mohawk.

Scarlet Runners.—These are almost forgotten, and are only to be found in a few gardens, and even then in limited quantity.

Pole Beans.—The Limas are known by this name, drills for French Bean seed in the morning of a fine day and sowing in the afternoon is a good preventive of rot from cold soil, and a method practised by the London market gardeners with profit, and I think it might be equally applicable to Pole Beans. These, however, we do not sow in drills, but in hills, *i.e.*, from six to ten seeds in a little ring, each ring about 3 feet apart each way. A single pole is inserted in the middle of each hill, so that it may be 8 feet above

the ground. The plants grow up and cling to these poles until they reach the top, when they droop down. They fruit abundantly from August till frost checks them. The labourer and the millionnaire grow them. The London Horticultural ripens earlier than the true Limas, and is used in the string and shell state, but particularly in the latter. The Lima is a great favourite, so is the small Lima or Sieva.

Martynia.—M. proboscidea is more or less cultivated in large gardens on account of its young seed-pods, which are produced in great abundance, several on a little spray-like cluster, and are used for pickling. Some seeds may be sown in heat and transplanted, but most generally the seeds are sown in a cold frame or border in the last week of April or first one of May, and transplanted when fit in rows 2 feet by 2 feet apart. M. fragrans is used in the subtropical garden at Battersea Park.

Musk Melon.—We grow these out-of-doors as we do Cucumbers, sowing the seeds in hills about 6 feet apart each way in May. As far north as Massachusetts, however, it is to our advantage to start the seedlings indoors, or in a hotbed on pieces of turf or in pots, and in suitable weather to transplant them at the above distance in light, rich, and sunny land. Squash-bug and other insects are very destructive to it. In Massachusetts it often fails to ripen well; hence, rearing the seedlings indoors and in a sunny position are of paramount importance. They are brought North in quantity from Charlestown, Savannah, and other southern districts. The principal kinds are Green Citron, Nutmeg, White Japanese, and Persian Ispahan.

Onions.—We grow large quantities of these—chiefly Danver's Yellow, Wethersfield Red, Large Yellow, Early Red, White Portugal, and Yellow Dutch. Our noticeable cultural points are to sow as early as possible, in lines a foot apart, thin timely, and keep rigidly clean. They require rich soil, and are ripe in August, when they are laid out on the ground to thoroughly ripen before storing in barn lofts, cellar shelves, or in barrels. In order to get big Onions we sow very thickly this year, thin out, and keep the bulbs, which will be small, for planting out next year, when large Onions will be the result. Potato Onions are considerably grown. The finest Onions I have seen in America were exhibited at the Massachusetts annual exhibition, September 15 to 18 of this year, by Washburn & Co., of Boston. They consisted of specimens of the large Italian Red and White Tripoli, some 7 inches through, and perfectly sound and solid; indeed, they were more like Turnips than Onions. These fine samples were grown in England, by Messrs. Carter & Co., of High Holborn, London.

Potatos.—These are known throughout the States by the name of Irish Potatos in order to distinguish them from the sweet Potatos, but in the New England States the latter are not grown, consequently our old friend gets its true name without the prefix "Irish." It is widely cultivated in gardens and farm lands. We practise the hill system of planting to a great extent, but I consider it a waste of ground. The piece of ground is marked off in rows 4 feet apart, lengthwise and crosswise, and at every crossing a hollow is scooped out with a hoe, a forkful of manure thrown therein, and one or two "sets" planted in each and covered over with some 2 or 3 inches of soil with the hoe.

The use of the hoe in planting and lifting Potatos astonished me a good deal at first, and even now I cannot help denouncing the practice as a clumsy and slow one. Some neighbours of mine who have adopted the English drill system have fully twice the quantity of Potatos from the same space as others who grow in hills, and the tubers in quality and size are equally fine. I cannot help telling you how a neighbour of mine, who is more remarkable for his geological knowledge than for adeptness in farming, managed his crop of Potatos this year. He is very dilatory in his habits, and has a large freehold farm quite run out and barren on account of negligence and starvation. About the middle of last May a next-door neighbour and I set out on an exploring stroll through the woods, and as Farmer X. knew every inch of the country for miles around, and was excellent company, we first made for his house. We found him in the field planting Potatos, so, knowing his loss would be our failure, and wishing to make the most of our time, we set-to and helped him—a good hour's work for the three of us. But to his mode of planting: well, the field was a rough one, and had been as roughly ploughed by a yoke of oxen. The manure was thrown down in forkfuls in every sixth furrow (common furrow ploughing), and at a guessed distance of a good pace from heap to heap. This being done on, say, Friday, the manure would dry unless the planting was done on the Saturday; so when we found X. he was scooping out little hollows with his hoe, putting therein the manure, planting two sets of Davis' Seedling in each hill, and covering over with some soil, putting aside the turfy clods. I saw this field six weeks later, but such a mass of weeds—Ox-eye Daisies, Sorrel, grass, &c. I seldom have seen; indeed, one could scarcely tell what crop was planted in it, if any. Our most popular kinds are Davis' Seedling, Early Rose, Early Dykeman, Buckeye, Bresee's Prolific, Peerless, Jackson, Garnet, Chili, Peach-Blow, Harrison, Ashleaf Kidney, &c. To give a general list would be difficult, as different localities have different favourites.

Rhubarb.—This vegetable is in great demand for some time after being fit for use, but we are nearly two months later with it out-of-doors than is the case about London. It is called the "Pie Plant," being much used for that purpose, also for sauce—a daily accompaniment during the season at the supper table.

Squashes.—Everybody who has a garden grows a few Squashes. The early sorts come into use in July, and the late kinds keep well till the following March, and with care till May. They are used as a vegetable at dinner and also for pies; indeed, in town and country they are considered indispensable. Pumpkin pies are well-known in Devonshire and other southern counties of England, but I am unaware of their use in the North or in Scotland; but here Squash pies are universal, from Canada to the Gulf of Mexico. As soon as the soil is warm and in good workable condition, say about mid-May, we sow the Bush or early sorts in hills about 4 feet apart in the open ground, putting half-a-dozen seeds in each hill, and afterwards thinning the plants to three. The late or running kinds we sow in hills at double the distance of the early ones.

The best early varieties are White and Yellow Bush Scolloped, Crooknecked (warty skin, but the best summer Squash grown), and Boston Marrow—an excllent sort, thicker, bigger, and a little later than the others. Chief amongst late ones are the Hubbard (best winter kind), Marble Head, Winter Crookneck, Turban, and the common Vegetable Marrow; also the Mammoth (this sort very frequently weighs over a hundredweight). It is not whilst young and tender that we use them, but from the time the flesh gets well firmed till they are dead ripe, and as long after that as they will keep. I am particularly fond of them when they are nicely cooked and mashed up with a little butter amongst them; and I presume the goodwives like them too, as they are easily and readily cooked. When the winter Squashes are ready the summer sorts lose favour.

About the end of September, or as soon as frost is feared, all the Squashes are cut and huddled in heaps on the ground or under the verandah, so that they may have a hay-cap or some other covering thrown over them at night and be uncovered in the morning, till the middle or end of October, when, being dry, they are stored in barrels or on a shelf in the cellar, from whence they are taken as required. Thus they keep well and long. Squashes just after germinating are fearfully tormented with bugs, that eat up the seed-leaves and kill the plants: hand-picking is the only true remedy. After the Squash vines are left long, I have seen dozens of plants killed; in fact, plantations almost entirely reduced, by an insect that bores right through the neck of the plants underground.

Tomatos.—Americans make a speciality of these: everybody grows them or buys them, as all eat them. From the middle of July till destroyed by frost they are in abundance, and from April till July we get them from the South and from forcing houses. At the height of the season a bushel of Tomatos may be purchased in Boston for a dollar or 75 cents. They are eaten raw, cut in cross slices and some sugar sprinkled over them—pepper and vinegar are sometimes used. Some prefer them cooked (stewed), and in this way they are best in cold weather. A person can eat as many Tomatos as Potatos without hurt. When they are plentiful, bushels of them are "put up" by ordinary families for winter use, and large quantities of ketchup are also made of them. I am so fond of this ketchup that not only do I eat it with cold meat and hot meat, salt meat and fresh meat, but, if allowed, I would sup it with a spoon, or take it instead of butter on my bread. The varieties we grow are General Grant, Trophy, Hathaway's Excelsior, Early Smooth Red, Canada Victor, Boston Market, and Large Yellow. Many other sorts are grown, but we confine ourselves to these. Canada Victor has disappointed me; it is not quite solid, and many fruits have prematurely spoiled. Trophy, Hathaway's Excelsior, and General Grant I like best.

We raise them in heat, harden them off in pots or planted in good compost in frames, by full exposure, when safe, a month before planting out in the end of May. We plant in light, warm ground in rows 3 by 4 feet apart, supporting the vines on a 2½ or 3 feet trellis. We do not prune so rigidly as the London market gardeners do, but climatal influence is more favourable for this crop here than in England. Sometimes we get a dish on the great "Fourth of July," but it is often a week later. A grower some 10 miles from North Easton, near Mansfield, informs me that last spring he sold 700 dollars' worth of Tomatos that he forced in a large vinery. *William Falconer.*

Notices of Books.

The Amazon and Madeira Rivers. *Sketches from the Note-Book of an Explorer.* By Franz Keller. Chapman & Hall. 4to, pp. 177.

We apprehend the time is not far distant when the enterprising Mr. Cook, or some equally active *entrepreneur*, will issue his tourists' tickets for a journey up the Amazon, from its mouth to its source in the Andes. Every new book on the subject, every record of travel from botanists and naturalists, does but confirm what the older travellers—Humboldt and Martius—have told us of the surpassing beauty and intense interest to the naturalist of the Amazon, the Orinoco, the Magdalena, and other rivers of tropical South America. The researches of Gardner, of Spruce, of Wallis, of Wallace, of Roezl, and of many others, have shown what vast treasures both for horticulture and botany are to be found along the banks of those mighty rivers. Imagination grows by what it feeds on, and the present handsome volume will assuredly supply a large amount of fresh and tonic nutriment. The volume in question owes its existence to the surveys made by the author and his father for the purpose of constructing a railway along the Madeira River. Not only magnificent scenery, unsurpassable vegetation, and other sources of interest to the intelligent observer are alluded to by our author, but the more material resources of indiarubber, cocoa, timber, dyewoods, agricultural productions, and the like have arrested his attention. A general description of the Amazon and of several of its affluents is given, together with notes of travel and adventure, such as we have been made familiar with in the notes of former travellers, and in particular by botanical explorers. The illustrations, however, with which this book is copiously adorned, serve to give better ideas to the stay-at-home traveller than could be obtained by other means. The specimens we are enabled to give, by permission of the publishers, will bear out our remarks. They are admirable in execution and faithful in portraiture, and as such may be compared most favourably with the beautiful artistic but wholly valueless illustrations in a French work published some time since. We have selected some illustrations which show the prodigious force of vegetable growth in these regions. Fig. 136 shows some Caripuna Indians enjoying the prospect of a meal under the shade of a tree laden with Epiphytes, Orchids, Bromeliads, and Ferns. The meat of the slaughtered animal (the tapir) is said to be excellent, "tasting much like beef. The fat hunch on its neck covered with long black bristles is a delicacy which would do honour to the table of a Lucullus, and equally esteemed are its short trunk and the feet, which yield when boiled a rich jelly."

Our second illustration (fig. 135) represents a group of Javary Palms on the banks of the Madeira River, and where the banks seem to have been washed away and caused the trees to assume an inclined position. We quote from the author's remarks on the Palms the following passage:—

"Splendid trunks, some of them from 6 to 10 metres in diameter, rise like so many pillars supporting the dense green vault of the foliage; and every variety of tall graceful Palms, spare and bushy, and bearing heavy berries of bright yellow or red, struggle to catch a glimpse of the light from which they are shut out by the neighbouring giants, of which the Figueira, or wild Fig tree, is one of the most striking in the dimensions of its crown and stem, and in the strange shape of its roots which project like huge outworks. . . . The Pachiuba Palm, Iriartea exorhiza, and some specimens of Cecropieæ exhibit other extravagancies in their roots. They appear as if standing on stilts, the real trunks only beginning at 2 or 3 metres above ground. But more than all, it is the profusion of Orchids and Bromeliads that excites our admiration. These bright children of the tropics envelope with dense foliage as well the fallen and mouldering trunks as those yet upstanding in full vigour and bloom, thus forming hanging gardens of astounding magnificence, which reveal leaves and flowers of the most irregular shapes and colours. Everywhere on the branches and on the ground, and even from out of the fissures of the bare rock, light Ferns and rich mosses spring up, and clothe the decaying trunks with fresh green. Of mosses and Ferns, especially Tree Ferns, we found a greater exuberance and a larger variety of species, as well as in individuals, in the southern provinces of the empire, San Paulo and Parana; but for splendid Palms and gigantic Dicotyledons, the north is decidedly the richer of the two."

We shall in a future notice give further illustrations of the gorgeous vegetable products of this region, and in the meantime commend the work to our horticultural readers in particular, and to the reader in general for its interesting details on the resources and prospects of the gigantic empire of Brazil, and for its superb illustrations.

—— Two numbers of the *Gartenflora* have lately reached us—viz., those for July and August respectively. The coloured plates represent Tulipa Eichleri, a brilliant red-coloured flower with a purple eye, Ornithogalum fimbriatum, a species with hairy leaves

and white flowers; Iris caucasica, with yellow flowers; Calochortus pulchellus var. parviflorus, Primula auriculata var., Cypripedium concolor, and Agave pubescens. The letterpress comprises an account of M. Linden, his botanical wanderings, and his establishment at Ghent; notes of travel by M. Regel; notes on various exhibitions, on new plants, &c.

— M. Charles Baltet, of Troyes, has issued a second edition of his pamphlet on the cultivation of fruit for market purposes (*Culture des Arbres Fruitiers, au point de vue de la grande production*). Written in M. Baltet's excellent style, and full of practical wisdom, we can only repeat the commendations we passed on this little treatise on its first appearance. It is written by a Frenchman for Frenchmen, so that English cultivators perusing it would have to make the necessary allowances for differences of climate.

— The last number of the *Geographical Magazine*, in addition to articles of purely geographical interest, contains some papers of special interest to our readers, such as Dr. Brown's interesting paper on "Human Agency in the Dispersion of Plants," wherein the writer discusses the influence that man in his wanderings has had in introducing, often against his will, plants of one country into another. Dr. Brown is chiefly concerned with what are generally called weeds, and he adduces several illustrations of the frequently observed fact that the new-comers oust the original natives, and thus alter the character of the flora. An interesting paper might also be written in illustration of the manner in which the characters of the landscape are altered by the intentional introduction of exotic trees and shrubs. Our gardens and plantations owe their present aspect far more to introductions from other countries than they do to the vegetation of our own clime. No one questions the benefits and advantages that have thus accrued, but, on the other hand, it is questionable whether the too exclusive use of foreign forms is not in many cases an error in taste, and productive of false impressions—in other words, of a sham. In the same number Mr. Godfrey Turner gives, amongst other things, a striking word-picture of the noble Silk-Cotton tree of Jamaica, Eriodendron anfractuosum—a plant only known as a shrub in our stoves, but which in its native haunts forms a veritable giant, with enormous buttresses projecting from its trunk, and which serve to counteract the effects which would result from the somewhat shallow roots.

— The *Ninth Report of the Quekett Microscopical Club* contains Dr. Braithwaite's presidential address, and which is devoted to the subject of microscopic anatomy and vegetable physiology.

— Messrs. Bell & Sons have published a second series of *Alpine Plants*, edited by Mr. Wooster. The portraits are correct representations, and make pretty pictures. No particular classification is adopted, and the term "alpine" is evidently to be interpreted in a wide sense, since we find included in the present volume such plants as Trichinium Manglesii, Anomatheca cruenta, and Rhexia virginica. We are, however, by no means disposed to find fault with the editor for his selection, but rather to thank him for furthering a taste for beautiful and interesting plants, and showing the public that there are other plants worthy of attention besides bedding plants. To those commencing a mixed border or a rockery we commend Mr. Wooster's pretty volumes, as they will assuredly create an appetite for more information, and advance the culture of these too neglected gems.

— The last number of the *Flore des Serres* contains coloured plates of Bertolonia Houtteana, a handsome foliage plant with large ovate-lanceolate leaves, of a deep green colour above, traversed by stripes of violet along the palmately disposed nerves, and of a rich violet colour beneath. It is described by the editor as an incomparable diamond. Camellia Madame Ambroise Verschaffelt, C. festiva del Grande, and C. Giardino Santarelli are the subjects of three plates. The first-named is a fine flower, of great size, and a pale rose colour marked with darker blotches of the same colour. C. festiva del Grande is one of the star-like Camellias, with petals of a rich rose colour, marked at the apex with clear white spots. The third variety mentioned has flowers of medium size, with the outer petals white and the central ones rose-coloured. Under the name of Lilium Martagon dalmaticum is figured a variety of the Martagon Lily, with very deep purple flowers. Linaria alpina is a gem which no garden should be without, and as it sows itself as freely as a weed, once introduced there is little fear of losing it. Statice Bonduelli is an interesting yellow-flowered species. Schomburgkia Lyonsi is a remarkable Orchid, with flowers barred with small transverse purple stripes; the figure is copied from that in the *Botanical Magazine*. Salvia gesneriæflora, too, is an old friend that one would be sorry to lose sight of. Pentapterygium rugosum is a singular Thibaudia-like shrub, originally introduced by Messrs. Veitch. Lepanthes Calodictyon is a singular terrestrial Orchid, whose portrait, as in the case of the preceding, has been taken, with due acknowledgment, from the *Botanical Magazine*. Craspedia Richea is a plant deserving wider recognition than it has yet had. It has glaucous lanceolate leaves, and globose heads of yellow composite flowers. Corylopsis spicata (fig. 137) is one of those curious and striking flowering shrubs which should be in every shrubbery whose possessor has a taste for plants not commonly met with. Cattleya maxima is another old friend whose portrait we are glad to see. The same remark applies to the beautiful scarlet flowered Berberidopsis corallina. M. Van Houtte is doing good service by bringing before us again these fine plants, which, in the rage for novelty, are apt to get neglected. Rose Madame Annie Wood, H.P., is too well known to our rosarians to need introduction. The portrait is a fine one. Cœlogyne pandurata is a large green-flowered Orchid which occasionally makes its appearance at our shows, and, from its striking appearance, is always welcome. Oncidium ampliatum majus, a species remarkable for the white under-surface of the flower, is the subject of the next plate. Campsidium chilense was originally described by Dr. Seemann, and was also figured in our pages. Under the name of Azalea sinensis alba, a beautiful free-flowering sweet-scented variety is figured, and which would appear to be well adapted for forcing. Lastly, there is a figure, reproduced

Fig. 137.—Corylopsis spicata.

from the *Floral Magazine*, of a double-flowered deep rose-coloured Chinese Primrose, sent out by Mr. Bull. The letter-press is varied, and is, as usual, seasoned by the wit and satire of the editor.

Natural History.

The new Reptile House at the Jardin des Plantes.—A large, elegant and well-arranged reptile house—Palais des Reptiles our friends in Paris call it—has been opened in the Jardin des Plantes, and is a source of immense attraction.

In the centre of the house is an ornamental tank, arranged by Professor Blanchard, for crocodiles, alligators, water tortoises, turtles, &c.; and the creatures, which have been kept for years, some for more than twenty, in enclosed tanks, in fact mere water boxes, are now swimming about in warm water, with the air around almost of the temperature of Senegal. When first turned into the basin the crocodiles seemed stupid, and, probably terrified, hid themselves in the corners the most remote from the crowd of visitors; but they soon regained the use of their limbs, and became accustomed to the light and to the small rye-bread loaves supplied to them in abundance by the visitors. At first the larger specimens looked very savage and dashed with open mouths towards the lookers on, apparently not seeing the strong iron fencing which separated the two parties, but their small brains soon recognised the fact of an obstacle, and they seem to have given up the idea of dining off a visitor.

The difference between the varieties is evident, the common flat-headed crocodile, which is said not to have the sense to turn round when his tail is attacked, is a sleepy-looking beast compared with the agile, suspicious, round-headed Frontalus, whose tail it would certainly be as well, or rather better, to leave alone; he is evidently always on the look-out for squalls, and curls himself round with the agility of a cat, or what that might be supposed to be, if Master Tom were encased in a tight and stout leather jerkin. There have not been any serious rows yet amongst the reptiles, simply because pugnacious specimens have private apartments, but Monsieur Frontalus looks as if he could take his own part in a fray very respectably. None of the crocodiles are of large size yet, but the specimens give a fair idea of what the creatures must be in the sultry swamps of Africa.

The boas and other serpents, the chameleons, the lizards, and other reptiles, are, of course, in glass cases, but they are furnished with plants and stems of trees, on which they curl themselves, and course and gambol about at times with much excitement.

The chameleons and lizards are not numerous, but Algeria presents a rare hothouse for these creatures, and there is no doubt that the cages will soon be well filled. The lizards present a striking peculiarity compared to the crocodiles with respect to the treatment of their tails—if seized treacherously behind they do not overlook the insult like the flat-headed crocodile, nor do they turn and fight like the round-headed one, they simply go as straight on as they can and flee, leaving their tails in the hand of their tormentors. This is no fiction, as any one may learn who visits the glorious forest of Fontainebleau, where lizards, some of them a foot long and of a brilliant grass-green colour, abound in the hot weather.

The collection of boas and other serpents is very fine, and in their new palace they are seen to infinitely more advantage than they were in the old house.

The most curious, the most hideous, and the most disgusting creatures in the assembly here are two Japanese salamanders as big as cats, only longer and thinner—horrible, slimy-looking black creatures, with eyes smaller than those of the smallest birds, but glistening like the ends of red-hot wires. These creatures dwell, when at home, in dark holes with vipers and scorpions, shunning the light of day.

In one of the tanks at South Kensington were to be seen not long since, and probably are still, some specimens of the water salamander; those of Japan may be easily pictured to the imagination—there are no specimens that I remember to have seen at the Zoological Gardens—by multiplying the little South Kensington beauties by about ten. The two specimens now placed together in a cage, or grot, in the new palace, have been confined for many years in separate boxes, but they seem to recognise each other as relations, and are excellent friends—the darlings!

The new reptile house is very prettily decorated with Palms and other tropical plants, and the tank with rockwork and plants of the same zone, which give the whole an agreeable aspect.

When the temperature of the place is raised to a higher degree than usual, much of the sluggishness of the reptiles disappears and their native ferocity is brought to light—the boas and pythons rear their hideous heads, curling and uncurling their bodies, their eyes flashing fire and their tongues darting out with feverish rapidity. The round-headed crocodile is full of activity and ready for any mischief, and his friend flat-head is also on the alert in his own stupid fashion.

At night, say the keepers, the sounds are sometimes hideously fantastic—the crocodiles bellow like bulls, the serpents hiss with fury, and the other creatures croak and shriek and groan in horrible discord, making a hideous concert, which would form a fitting accompaniment to a dance of witches.

Law Notes.

Dispute as to Deposit on Sacks.—At the Westminster County Court, on Tuesday last, the case of *Sears* v. *White* was heard before Mr. Judge Bailey, and in which the plaintiff, a salesman in Covent Garden, was sued to recover the sum of 4*s.* for money deposited on four sacks, containing Potatos, supplied by the defendant to the plaintiff. The defendant said he had received back the bags, but refused to pay the 4*s.*, as the plaintiff did not produce the tickets, which it was his invariable custom to give when he lent bags. The plaintiff denied receiving any tickets, and he paid the 4*s.*, as he had had frequent prior transactions with the defendant, who had never charged him on sacks before, although he had done so on bushels. In answer to the learned Judge, the defendant said that his object in giving tickets was to prevent persons obtaining the sacks fraudulently, and obtaining money upon them; they were usually charged 1*s.* each to customers, but were worth more. The learned Judge added that he could not conceive any injury the defendant had received; he had evidently got his bags and the plaintiff's 4*s.* as well, and ultimately gave judgment, with costs, in favour of the plaintiff.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under 12, £2 15s.

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

WANTED,

ON LEASE OR OTHERWISE, WITHIN A FEW MILES OF LONDON,

A PIECE of LAND and a Good RANGE or RANGES of GLASSHOUSES,

Suitable for Fruit Growing.

Apply, stating Full Particulars, to

A. D., 16, Queen Adelaide Road, Penge, S.E.

SEED and CORN BUSINESS for DISPOSAL, situate in one of the principal Seaports in the West of England, and near the Market, where a large trade can be carried on. Stock and fixtures low.

For particulars apply to Mr. W. N. PEARCE, Accountant, 10, Frankfort Street, Plymouth.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards, Freehold, from 10s. to 25s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

FOR SALE, a long-established Provincial NURSERY and SEED BUSINESS. The Nursery is well stocked, is within a short distance of two Railway Stations, and is well adapted for a branch business or as a feeder to a large London or Provincial Establishment.

Address B., 142, Adrian Terrace, West Brompton, S.W.

TO BE DISPOSED OF, the WHOLE or PART of an OLD-ESTABLISHED NURSERY BUSINESS, in good working order, within easy distance of London by rail. For further particulars apply to

HORTICULTURIST, *Gardeners' Chronicle* Office, W.C.

SALES BY AUCTION.

City Auction Rooms, 38 & 39, Gracechurch Street, E.C.

SALE THIS DAY, by Messrs. PROTHEROE AND MORRIS, consisting of 500 handsome Standard, Dwarf, and Climbing ROSES, in choice variety; Selected Hardy CONIFERÆ, SHRUBS, and AMERICAN PLANTS; fine FRUIT TREES, DUTCH BULBS, &c. On view, and Catalogues had.

Feltham, Middlesex.

GREAT CLEARANCE SALE of 8 ACRES of beautifully grown NURSERY STOCK, consisting principally of large and well-furnished Plants, admirably adapted for effective planting, and in splendid condition for removal.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. J. & C. Lee to SELL by AUCTION, without reserve (the land being required for other purposes), at their branch Nursery at Feltham, Middlesex, ten minutes' walk from the Feltham Station, South-Western Railway, on MONDAY, November 30, and three following days, at 11 for 12 o'Clock precisely each day, the whole of the beautifully grown NURSERY STOCK, including 15,000 very handsome green Hollies, 2 to 8 feet; 2000 variegated Hollies, 500 Golden Queen Hollies, 10,000 bushy Aucubas, 1 to 3 feet; 3000 well furnished Box, 2 to 6 feet; 6000 bushy Rhododendrons, 1 to 4 feet; 1000 Picea Nordmanniana; fine Cupressus Lawsoniana, Thujopsis borealis, Thujas and Junipers of sorts, and a large assortment of other choice Evergreens and Conifers; also a great variety of Ornamental Trees, comprising 2000 Limes, 8 to 10 feet; 500 scarlet Horse Chestnuts, 200 Robinia inermis, 500 Standard Acer Negundo variegata, 1000 Oriental Planes, 100 Standard Kilmarnock Willows, a quantity of Paul's double scarlet Thorns, Poplars, 2000 Standard, Trained, and Pyramid Fruit Trees, including 500 Standard Cherries; 500 fine Standard Roses, &c.

Gentlemen residing at a distance can have their lots taken up and forwarded at the usual charges.

May be viewed three days prior to the Sale. Catalogues may be had on the Premises, of Mr. DICKSON; of Messrs. J. & C. LEE, Royal Vineyard Nursery, Hammersmith; and of the Auctioneers, 98, Gracechurch Street, E.C.

Wandsworth Road, S.W.

CLEARANCE SALE of WELL-GROWN NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Thomas Surman, who is retiring from business, to SELL by AUCTION, without reserve, on the Premises, adjoining the Lavender Hill Nursery, Wandsworth Road, Surrey, on WEDNESDAY, December 2, at 11 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, consisting of a capital assortment of thriving Evergreens and Conifers, ranging all sizes, and lotted to suit the Trade and private buyers; also a large quantity of Ornamental Trees, Fruit Trees, Hardy Climbing Plants in pots, together with thousands of Aucuba, Box, &c., in cutting beds.

On view two days prior to Sale. Catalogues may be had on the Premises; and of the Auctioneers and Valuers, 98, Gracechurch Street, City, E.C.

N.B.—The COTTAGE, SEED SHOP, and NURSERY, to be disposed of. For particulars apply to the Auctioneers.

Rare and Valuable Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 3, at half-past 12 o'Clock precisely, 144 Lots of BEAUTIFUL FLOWERING ORCHIDS from Messrs. James Backhouse & Son, of York, including fine masses of Lælia autumnalis, Pleione maculata, Dendrobium infundibulum, Oncidium cucullatum, O. macranthum, Epidendrum aurantiacum, Zygopetalum intermedia, Odontoglossum vexillarium, O. Roezlii, Mesospinidium vulcanicum, Odontoglossum Lindleyanum, O. Insleayii, var. leopardinum, O. Pescatorei, Aerides Warneri, Calanthe vestita, C. Veitchii, Angræcum sesquipedale, Lælia præstans, Saccolabium giganteum, Lælia albida, L. anceps, and Maxillaria grandiflora; 48 small cases of Cypripedium niveum, just arrived from Singapore in splendid condition; a collection of established Orchids, comprising fine plants of rare and valuable sorts, and an importation of fine bulbs of Lilium tigrinum florepleno, L. Fortunei, and L. tigrinum splendens, just arrived from America.

On view the morning of Sale, and Catalogues had.

By Order of the Mortgagees.

Summit Road, Walthamstow, close to the Hoe Street Station. FREEHOLD NURSERY GROUND or BUILDING LAND, with DWELLING HOUSE, FORCING HOUSES, and BUILDINGS thereon.

MESSRS. GREEN AND SON will SELL by AUCTION, at the Nag's Head, Walthamstow (three minutes' walk from the Hoe Street Station), on THURSDAY, December 17, at 6 for 7 o'Clock in the evening precisely, the FREEHOLD NURSERY situate in Summit Road, Walthamstow, which has been occupied by Mr. Sherman. It is well adapted for the business, having a Dwelling-house, Forcing-houses, Pits, &c., and will be first offered in One Lot, and, if not sold, will then be offered for Sale in Seven Building Plots, each having a frontage of about 17 feet 6 inches by a depth of 152 feet. Being situate close to the Hoe Street Station, with very frequent and cheap service, the land offers great facilities for the erection of houses, which will command immediate tenants. If the Property is Sold in Plots the Buildings, Forcing-houses, Hot-water Boiler, &c., will then be Sold in Separate Lots.

N.B.—Purchasers will be entitled to Conveyances, at a small fixed charge, and two-thirds of their purchase will be advanced on Mortgage, if required, at 5 per cent. interest.

Particulars of Messrs. ELWES AND SHARPE, Solicitors, 8, Furnival's Inn; at the Nag's Head, Walthamstow; at the various Inns in the neighbourhood; and of GREEN AND SON, 10, St. Swithin's Lane, London, E.C.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to

CARTERS', The Royal Seedsmen, High Holborn, London.

Christmas Trees.

VIRGO AND SON have a splendid lot of SPRUCE FIR, in various heights, bushy, and of good colour. Prices and samples per hundred or per dozen can be obtained at

The Nurseries, Wonersh, near Guildford.

To the Trade.

WATTS' IMPROVED WHITE SPROUTING BROCCOLI.

WATTS AND SON have a limited stock of this superb strain to offer to the Trade. Copies of testimonials and price on application.

56, Gold Street, Northampton.

TO BE SOLD, a great bargain, in order to clear the ground—

20,000	SILVER FIRS,	1 foot high, 2s. per 100.
50,000	,,	,, 1½ foot high, 2s. 6d. per 100.
70,000	,,	,, 2 to 3 feet high, 5s. per 100.
50,000	,,	,, 3 feet high, 7s. per 100.

For particulars apply to The AGENT, Gunton Park, Norwich.

SPRUCE FIR, 3 to 5 feet, well rooted, suitable for Christmas Trees.

SCOTCH FIR, 2½ to 4 feet.
PINUS AUSTRIACA, 3 to 5 feet.
LAUREL, Common, 4 to 5 feet, bushy.
HOLLIES, Common Green, 5 to 10 and 12 feet, removed September, 1873.

Prices on application.

W. ROBERTS (Successor to JOHN MANN) Nurseryman and Seedsman, Bridgnorth.

PEACHES and NECTARINES, in pots, for Forcing; strong pyramids and bushes, in fine fruiting condition.

ROSES (a choice selection) for Forcing or Greenhouse, strong plants, in 6 and 8-inch pots.

STANDARD ROSES, very fine.

Descriptive CATALOGUES sent post free on application.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.—(Great Eastern Railway.)

LAURELS—100,000, 2 feet to 10 feet, bushy and well rooted. ROSES, Standard and Dwarf, 200,000. With a General Stock of FRUIT TREES. Fine Specimen EVERGREENS, &c., all sizes.

CATALOGUE on application.
H. LANE AND SON,
The Nurseries, Great Berkhampstead, Herts.

Bloom.—Bloom.—Bloom.

RHODODENDRONS.

CATALOGUE on application.
H. LANE AND SON,
The Nurseries, Great Berkhampstead, Herts.

From Paris.—Gladioli Seedlings,

Per Colour, Mixed Seedlings, and Sorts to name.

LEVÊQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer, for the first time, SEEDLING GLADIOLI, in separate colours, beautiful, of flowers equal to the collection.

Mixed White, 12s. per 100; do. Red, 12s. per 100; do. Yellow, 24s. per 100; do. Rose, 12s. per 100.

Seedlings, mixed, of all colours, 8s. per 100, £3 4s. per 1000.

Their stock of named sorts is splendid, and cheap.

See the LIST, sent free on application.

NOTICE.—The Firm of DOWNIE, LAIRD, AND LAING, NURSERYMEN and SEEDSMEN, Edinburgh and London, hereby intimate that their CONTRACT of CO-PARTNERY has, by mutual consent, EXPIRED as at this date.

It has been arranged that the Business in future will be carried on in Edinburgh by Mr. John Downie and Mr. R. B. Laird under the firm of Downie & Laird, and in London by Mr. Laing under the designation of John Laing.

All Claims against the Edinburgh House will be Settled by Messrs. Downie & Laird, and all accounts due to the Edinburgh Establishments are to be paid to them.

All Claims against the London Establishment will be settled by Mr. John Laing, and all accounts due to the London House are to be paid to him.

DOWNIE, LAIRD, AND LAING.
JOHN DOWNIE.
R. B. LAIRD.
JOHN LAING.

THOS. F. WEIR, S.S.C., Edinburgh, Witness.
JAMES GARDINER, 17, Frederick Street, Edinburgh, Witness.
ROBERT THOMSON and FRED. WALKER, both of Stanstead Park, London, Witnesses.

Referring to the above the Subscribers beg respectfully to intimate that THE BUSINESS IN EDINBURGH WILL BE CARRIED ON AS USUAL at their Seed Warehouses, 17, South Frederick Street; at the Royal Winter Gardens, West Coates; and at Pinkhill; and they hope to be favoured with a continuance of the patronage so liberally bestowed on them during the past twenty-six years.

THE BUSINESS, as hitherto, WILL BE CARRIED ON BY MR. JOHN LAING INDIVIDUALLY AT STANSTEAD PARK AND RUTLAND PARK, FOREST HILL, LONDON; and it is fully anticipated that all the advantages accruing to the joint establishments will continue to be derived by both houses through friendly reciprocal co-operation.

JOHN DOWNIE.
R. B. LAIRD.
Nov. 14, 1874. JOHN LAING

STANDARD TRAINED PEACHES, NECTARINES, and APRICOTS, fine Trees of the hardiest and best sorts, with all other forms of Fruit Trees in great variety. Descriptive Price Lists gratis.

RICHARD SMITH, Nurseryman, Worcester.

FRUIT TREES.—One hundred thousand strong Standard and Pyramid Cherries, Apples, Pears, and Plums, from 75s. per 100. Gooseberries, 3-yr., from 10s. per 100; Currants, 3-yr., from 6s. per 100. CATALOGUES on application to

T. EVES, Gravesend Nurseries.—Established 1810.

To the Trade.

CAULIFLOWER, Veitch's Autumn Giant, true, direct from the raiser. CUCUMBER, Telegraph: we hold perhaps the largest stock of the true Rollisson's Telegraph in the country. Special low quotations on application to

F. SANDER AND CO., Seed Growers, St. Albans.

Gladioli.

CHARLES VERDIER, FILS, NURSERYMAN, 28, Rue Baudricourt (late 12, Rue Duméril), Paris, has just published his CATALOGUE of GLADIOLI, containing all the Novelties of the Season. It will be sent post free on application to

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

To Nurserymen and the Trade.

SEAKALE ROOTS, for Forcing (very fine), 9s. per 100, 80s. per 1000. ASPARAGUS ROOTS, 2-yr. old, 3s. per 100, 25s. per 1000; 5-yr. old, for forcing, 6s. per 100. Terms, cash on delivery.

SAMUEL ALLAWAY, Earl's Court Farm, Old Brompton London, S.W.

Twelve Camellias, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon, can now supply beautiful young bushy plants, 12 to 18 inches high, full of buds, and choicest distinct sorts, at 21s., 30s., and 42s. per dozen. Package and delivery to any Railway in London, for cash with order included.

N.B.—A few fine half-specimens, in 8-inch pots, finest sorts, and full of buds, 84s. per dozen, 10s. 6d. each.

New Roses of 1874.

E. COOLING offers nice healthy plants of the above, budded low on Manetti, from open ground, at 2s. each, 21s. per dozen, package free. Also splendid plants of older sorts, Standards, 18s., Dwarfs, 10s. to 12s. per dozen.

New CATALOGUE free.
Mile Ash Nurseries, Derby.

Standard Roses.

F. C. WOOLVEN, Langhedge Nurseries, Edmonton, N., has splendid sorts of the above, good stems and large heads, to offer at 9s. per dozen.

For the convenience of persons in town, F. C. W. has a quantity sent to No. 155, Flower Market, Covent Garden, on Tuesday, Thursday, and Saturday mornings. The market closes at 9 A.M.

Rhododendrons.

HENRY FARNSWORTH, Matlock Bank, Derbyshire, has to offer a fine stock of the following sizes, and at a very reasonable rate:—

3-yr. Seedling (fine).
3-yr. Seedling and 2-yr. transplanted.
3-yr. Seedling and 3-yr. transplanted.
4 to 8 inches, very bushy.

For prices and samples apply as above.

COTTINGHAM POMOLOGICAL NURSERIES (Established 1788).

THUJA OCCIDENTALIS, 5 to 6 feet, 50s. per 100.
,, (Libocedrus) GIGANTEA, 3 to 4 feet, 30s. per dozen.
JUNIPERUS SINENSIS, 3 to 4 feet, 18s. per dozen.
,, DRUPACEA, 1½ to 2 feet, 30s. per dozen.
LIGUSTRUM SINENSIS, 2 to 3 feet, 30s. per dozen.
,, JAPONICA, 1½ to 2 feet, 50s. per dozen.
BEECH, 2 to 3 feet, 30s. per 1000.
PINE, Austrian, 2 to 3 feet, 50s. per 1000.
FIR, Scotch, 2 to 3 feet, 20s. per 1000.
LAUREL, bushy, 1 to 1½ foot, 8s. per 100; 1½ to 2 feet, 10s. per 100; 2 to 3 feet, 14s. per 100.
,, caucasica, 1½ to 2 feet, 25s. per 100.
,, Colchic, 1½ to 2 feet, 15s. per 100.

See our General Nursery CATALOGUE.

MARTIN AND SON, Seed Growers, Merchants, and Nurserymen, Cottingham, and 61, Market Place, Hull.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM | CANADA, FRANCE | JAMAICA, NEW ZEALAND | WEST INDIES, UNITED STATES

£1 10s. 4d. *for* 12 *months, including postage to*—
AUSTRIA, CHINA | HOLLAND, INDIA | PORTUGAL, PRUSSIA | SPAIN, SWITZERLAND

£1 14s. 8d. *for* 12 *months, including postage to*—
RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, NOVEMBER 28, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 30	Clearance Sale of Nursery Stock at Feltham. Sale of 1000 lots of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Dec. 1	Three days' Chrysanthemum, &c., Show at Birmingham. Sale of 360 Pens of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Dec. 2	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M. Clearance Sale at the Lavender Hill Nursery. Sale of Plants, Hardy Trees and Shrubs, and Dutch Bulbs, at Stevens' Rooms.
THURSDAY,	Dec. 3	Meeting of the Linnean Society, at 8 P.M. Sale of 48 Cases of Cypripedium niveum, Flowering Orchids, Liliums, &c., at Stevens' Rooms.
SATURDAY,	Dec. 5	Sale of Hardy Trees and Shrubs, Roses, and Dutch Bulbs, at Stevens' Rooms.

MR. JAMES HOWARD of Bedford, has lately brought the subject of the SANITARY CONDITION OF VILLAGES before the London Farmers' Club. This was emphatically the right subject in the right place. None but the cultivators of the soil can cope with and master the sewage difficulty. It is a big job, well suited to the pursuits and abilities of farmers and gardeners. Hitherto sanitary matters have been left too much to medical men, scientists, philanthropists, and statesmen, but the time has now arrived when practical steps must be taken, by those most immediately concerned, to remedy the sanitary state of country villages, farmhouses, &c. The theory and science of the matter are now tolerably well understood. Dirt in the wrong place means disease, suffering, preventible death; in the right, it represents improved health, growing wealth, and increasing growth of plants. There is but one right place for the residuum of labour—that place is the earth. Each field and garden is, or ought to be, a sanitarium. Whatever mode of cleansing—the dry or the liquid—be adopted, the natural extinguisher of all that endangers our health is the earth and its covering vegetation. This is the great dry earth-closet that not only absorbs, deodorises dirt, but holds it fast till it is transformed into food. The question lies in a nut-shell. We may allow the residuum of our houses to become the nucleus of fever and other horrible diseases, or convert it into a means of health, strength, and wealth. And this great power and serious responsibility rests with those connected with the soil. The earth is the only outlet for the residuum of life and labour—the air and the water but carry it abroad, disperse it wider, diffuse it further, to work more mischief. Neither have any means of annihilating it. Even cremation, were it possible, is more of a distributing than a converting force. But the earth is fed and nourished with our waste, and the point of most importance is to get it into the earth as quickly as possible, and in detail. Hitherto, one of the greatest mistakes has arisen from the accumulation of dirt. This has added much to the trouble and expense of re-distribution, and to the total neglect in general of the sanitary state of villages and isolated houses. The refuse of these has not been thought worth collecting or distributing; hence it has not only been wasted, but allowed to scatter broadcast the seeds of disease, until the sanitary state of rural districts has frequently become much worse than that of towns. Each farmyard, house, or hamlet has poured its refuse into the nearest ditch and stream, and thus polluted the rivers far above the sites of cities and great towns. The national drinking fountains are poisoned at their sources, and hardly has a mountain stream leaped, a thing of purity and life, from its clean home of beauty amid the rocks than it is contaminated by the foul pollutions that trickle from the first shanty, cotter's house, hamlet, village, or farmhouse that it passes by. And so on and on, all the way to the fleet-carrying river and the sea—each one adding to the pollutions of his neighbourhood higher up, and each lower town drinking tea made from the foul refuse of his neighbour's slops and solid residuum. Faugh! were the practice not so common, it would be held disgusting to nauseation. And had not the water by its power of deposition, and the earth by its cleansing functions stepped in to counteract the suicidal unreason of man, the race would long ago have perished—its strength laid, its vitality quenched by the intolerable burden of its own pollution.

The national loss arising from our lack of sanitary arrangements is appalling, and may be partially measured by such outbreaks as that at Over Darwen, but, considering the Registrar-General's catalogue of preventible deaths, it gives us no correct measure of the magnitude of the evil. Hundreds, nay, thousands, die yearly who might be still alive. Who can estimate the possibilities, the potentialities, that might have been stored up in lives thus prematurely cut off?

It would be still more impossible to measure the loss to the nation and the world arising from that lassitude, lack of energy, stolidity, stupidity—that almost total incapacity to do any good work, physical, mental, or moral, which is in a large measure traceable to the wretched sanitary arrangements of men's dwellings. Some of us can write from experience in this matter. Under the very smoke of the most lordly mansion we have seen young men herded together—like swine, shall we say?—in black dreary bothies, destitute of every convenience that could ensure either common decency or the first elements of sanitary provision; and though some men with iron resolution have come through the trial and risen to eminence, too many of the rank and file have sought and found some recompense for their hard lot and wretched lodgings in the blazing fire and the scorching excitement of public-houses and society of some sort. Looking back on the roll of young men that we have known we are struck more with the number we miss from the rolls of ordinary prosperity or fame than the comparatively few we find. Where are the missing ones? Many dead—perhaps more worse than dead; and we charge the wretched sanitary arrangements of their lodgings when young—we cannot call them homes—with their loss. We have known a head gardener's bedroom, in a good place, at the far end of a packshed, in the same quarters with his men; and need it be added, that two out of three who slept there went to ruin on the rocks of intemperance. What was there to keep men steady in such a four-roomed kennel?

A wretched home provided by an employer is the worst possible investment on an estate: it saps a man's physical strength, lowers his mental capacity, quenches the fire of his intellect, and exerts an ever-present force to drag him down, soul and body, to its own low level. Man is the servant of his home, perhaps, more than its master; therefore, let the home be clean, sweet, comfortable, attractive, improving, and the chances are its occupier will be likewise. It is even more certain that a wretched, dilapidated home developes similar qualities in those that dwell in it. At this charitable season it is therefore hoped that charity in a new sense may begin at home—that those who delight to give away food and clothing at the coming season of festivity and also of cold, will also take a turn through the cottage homes on their estates, and while doing so not forget to look into the farmhouses, shepherds', foresters' and gardeners' cottages, and the lodgings provided for young men on their estates. One inspection would surely often suffice to abolish the rural rookeries that yet exist in the back sheds of many gardens, and to improve many rooms and cottages that are yet far from being what a home that shall preserve the health, improve the morals, and aid the intellectual culture of its inmates, ought to be.

Increased production is the rage over the whole field of industry. One of the first results of an improved sanitary state of the rural districts will be to remove the clog which dirt has fastened on the agents engaged in it—men. They, strengthened by improved sanitary arrangements, will be the better able to deal in detail with all other sanitary difficulties. As in most other difficult matters, so emphatically here is prevention better than cure. The quickest scavenging is for each to sweep his own door-step. It is just so with sewage. If all the rural districts would but get rid of their own (the problem is now more easy for towns), the country would become the richer. This is the best kind of self-help. Let the rural districts do the best for themselves, and they will at the same time be doing their best for the whole nation. The rural districts have a great advantage over towns. An expensive machinery for collection, storage, re-distribution, are not necessary. The bane and the antidote are close together. Here is the thing to be rid of, there all around is the land eager to receive it. Our danger and difficulty is the land's safety and opportunity. It needs more abundant replenishment with good things, and there—in the residuum of each house and farm—are the things it lacks and craves for. Surely the ability and energy will be forthcoming to put this and that together; that is all the service needed from men, the earth and its covering vegetation will do the rest. Shall the earth ask for this service from cultivators in vain? Assuredly not; they have done much greater things than these for it—they have drained, trenched, ploughed, dug, manured, harrowed, rolled, crushed, smashed, until the poor earth has often groaned beneath our fussy husbandry, and prayed to be left to its own devices. And now it asks for a few meals of solid or liquid food from each house or farm throughout the country, it cannot, will not surely be denied—especially while the relief craved is from disease, weakness, death to us, and the boon required for it is strength, growing force, increased production, fresh life. The cry of increased production must be met by more food forthwith, and here is the food ready to our hand with a double blessing in it for us—greater plenty for ourselves, and better health to enjoy it. How both may be brought about we may endeavour to show in a future number.

—— LONDONERS who have been familiar with leafless trees for the past month are struck with the leafiness and beauty of the Oak as still presented in districts remote from the metropolis, and which is attributable to the destruction of the first growth by the late May frosts. Specially beautiful is the OAK LEAFAGE just now in the northern parts of the counties of Berks and Hants, where the trees are generally young, full of vigour, and retain their foliage almost until the end of the year. The varied colourings found in the decaying Oak foliage are most beautiful, ranging from bright yellow to rich russet brown, with now and then tints of deep red, and in the sunlight of a clear November day these lend a delightful charm to the landscape. Masses of Scotch Fir yield a wearisome hue of unvarying green, but where judiciously mixed with other blocks of deciduous trees the variety is indeed charming, and the beautiful network of the leafless branches in winter, or the varied tints of the foliage in the autumn, are all brought more visibly into contrast when a dense background of green foliage produced by the Fir is found. In country districts the Oak is still the grandest of woodland trees. Its form and contour are unrivalled, it preserves its foliage to the latest, and its timber is still the most valuable and useful.

—— Many will be glad to hear that BOLDOA FRAGRANS, the plant yielding the new drug "boldo," to which attention has been drawn by the medical press, may be seen in the economic collection of the Royal Gardens, Kew. It was introduced in 1844, and has been known under the names Peumos fragrans, Pers.; P. Boldu, Molin; and Ruizia fragrans, Ruiz and Pav. The properties of the alkaloid "boldine" are chiefly that of stimulating digestion, and acting markedly on the liver. The discovery was somewhat accidental, but it is likely to be of much value. Some sheep with diseased liver having eaten the leaves and shoots were found rapidly to recover. It is a native of the mountain regions of Chili, where the wood is made into valuable charcoal, the bark is used by tanners, and the fruit is eaten. A figure is given in the *Botanical Register* and in LINDLEY'S *Vegetable Kingdom*. It belongs to the Monimiaceæ, and forms a small much branched tree, aromatic in all its parts. The leaves are opposite, shortly petioled, rough, and contain much essential oil. The flowers are borne in axillary racemes, the sexes on different plants. Boldu is the Chilian name of the tree, whence its generic name. In general appearance it much resembles Rondeletia speciosa; the branches, however, are much more rigid, and the internodes shorter.

—— It is proposed to establish a PUBLIC GARDEN AND AQUARIUM AT LIVERPOOL. The winter garden or floral palace is to be a structure of iron and glass, 200 feet in length by 80 feet in width, and 95 feet in height. The central dome will be 80 feet in diameter, and 200 feet in height. A theatre, large aquarium, and "valley of rocks," are also projected. The latter is intended for the exhibition of "Ferns, mosses, fungi, lichens, Ivies, flowering creepers, and alpine shrubs," and will be constructed of the natural red sandstone of the district, with cascades, rustic bridges, &c. The gardens will consist of a series of geometric terraces encircled by picturesque belts of shrubs, &c. Mr. PHILIP MASEY is the architect and landscape gardener.

—— We are glad to hear that there are some prospects of the much felt want of a new range of glass in the ROYAL BOTANIC GARDENS, GLASGOW, being speedily supplied by the erection of a range—half-span—272 feet long and 17 feet wide, with a 3-feet frame running in front the whole length. The contract has been gained by Mr. J. G. MESSENGER, of Loughborough, in competition with several of the leading firms; and the whole range is to be heated by one boiler, a new one, designed for this special purpose by Mr. BULLEN.

—— At the distribution of prizes a few evenings since, by Lord LYTTELTON, to the successful students in the classes connected with the QUEBEC INSTITUTE, Lower Seymour Street, Portman Square, it was pleasing to notice that the prize-takers for proficiency in Chemistry, Mathematics, Magnetism and Electricity, Animal Physiology, Geology, &c., had made choice of such works as DARWIN'S *Origin of Species*, LINDLEY'S *Elements of Botany*, LINDLEY'S *Medical and Economical Botany*, PRIOR'S *Popular Names of British Plants*, &c. The noble Chairman highly complimented the young men on having selected such high-class standard works, evidencing a desire to become proficients in these and allied subjects of scientific study.

—— Several complaints have reached us as to the DOUBLE CINERARIA, the seeds of which, it is alleged, have caused some disappointment to their growers owing to the double character not being fixed. One of our correspondents takes us to task in the matter, but it is obvious we could only speak of what we have seen. Both at Florence and at South Kensington we saw, publicly exhibited, a batch of plants which fully justified all we said upon the subject. We shall be glad to learn the experience of other correspondents on the matter.

—— Last January our esteemed correspondent, Mr. ALEXANDER SCOTT, Auchendenan Gardens, Alexandria, Dumbartonshire, sent us specimens of black cord-like fungus spawn (for identification) found infesting his garden beds to such an extent as to prove a most intolerable nuisance; the spawn was so abundant, and grew in such cord-like masses that it had to be pulled out of the beds in large quantities, and nothing could grow in a proper manner for it. On examining these black hard cords under the microscope, they presented the usual compacted cellular structure of consolidated spawn or sclerotia. Our correspondent, Mr. W. G. SMITH, kindly undertook to see whether perfect fungi could be raised from these cords, and Mr. SCOTT was requested to look out for perfect plants in the summer, with the following results. Mr. SMITH had the cords carefully planted and cared for in a garden bed, and also in pots, with no result whatever, all the cords quickly perishing. Mr. C. E. BROOME, of Batheaston, however, to whom some specimens were sent by Mr. SMITH, planted his cord-like spawn in damp sand under a bell-glass, and at the present time the result is a growth of a number of long, erect, nearly linear bodies, resembling the early state of some Xylaria, with as yet no appearance of fruit. Both our correspondents would like more specimens, if convenient to Mr. SCOTT, though Mr. BROOME does not yet despair of getting the perfect plants from the spawn now under his glass. Mr. SCOTT writes us a day or two ago to the effect that he has well examined the ground, and can find nothing above the earth, and that upon recent examination of the soil in that portion of the garden where it exists, he finds it is taking increased possession, particularly of any piece which has been heavily manured, the partially decayed manure being so interlaced with the cords of spawn as to require a good pull to separate it. A curious Xylaria from Mushroom beds is figured and described in the *Gardeners' Chronicle* for April 15, 1871.

—— It is by no means a frequent occurrence for TROPÆOLUM ADUNCUM, the Canary-flower, to be found in bloom up to the middle of November in exposed positions, as has been seen this year; while the ordinary dwarf and climbing Nasturtiums were exceedingly gay in the open ground for some time during the present month.

—— We have received from Messrs. DRUMMOND BROTHERS, of Edinburgh, a FUCHSIA BLOOM, which is interesting in having a second flower complete as to all its organs (except the ovary) projecting from the centre of the first flower. In fact, the supplementary flower occupies exactly the position of the style of the normal flower. We presume that the vase-like expansion of the axis (calyx-tube), after having given off calyx, petals, and stamens in succession, has then been prolonged into a new flower by the process called Median Prolification. There remains the question, To which of the two flowers does the single ovary which exists beneath the first flower belong, or are there two blended in one? Again, it may be asked to which flower does the single style rightly belong?

—— Quite a young plant of ARALIA SIEBOLDI, re-potted last spring, is now flowering finely in a cold conservatory attached to the residence of Mr. RICHARD DEAN, Ranelagh Road, Ealing.

—— The committee of the GARDENERS' ROYAL BENEVOLENT INSTITUTION have determined to present their energetic Secretary with a testimonial, and solicit subscriptions for the purpose. Since Mr. CUTLER'S tenure of office the number of pensioners has been increased from two to sixty-eight.

—— COLLETIA CRUCIATA is extremely pretty, and is now flowering in the temperate-house at Kew. It is covered with small white flowers sweetly scented, springing from the bases of the large triangular spines. These afford the plant a remarkable appearance: they represent branches, and may be seen in every degree of lengthening out, which appears to be the usual method of branching, though branches sometimes proceed from beneath the spines. The leaves are small, and seem of little consequence in the economy of the plant. It appears to have been supposed a seedling of C. spinosa, and was thus considered an "extraordinary transformation," and was named C. bictoniensis, and figured in the *Journal of the Horticultural Society* (vol. v., 1850). In the Kew Herbarium copy is written the note that "this is Colletia cruciata of HOOKER, and cannot have been raised from seeds of C. spinosa; specimens of C. cruciata from Chili are in the Hookerian Herbarium from BRIDGES." With the figure above referred to is an interesting article by Dr. LINDLEY. The plant was sent to him by Mr. BARNES, then of Bicton, in connection with whom (p. 655) it has recently been mentioned. So curious and withal possessing the merits of a flowering plant, it is worth cultivation in all cool conservatories. At Bicton and many other places it is quite hardy, and does well in the open air even near London.

—— The very beautiful NUYTSIA FLORIBUNDA, a West Australian Loranthaceous shrub, of which there is a fine specimen in the Botanic Garden, Sydney, is said to be exceedingly difficult to propagate. Its seeds germinate, but as the plant is parasitic the young plants do not grow in the absence of the appropriate "host." A Sydney paper, however, tells us that one young plant has been successfully reared on the roots of a Palm, Hyophorbe indica, in the Australian Nurseries, Camden, by Mr. FERGUSON. We see that in PAXTON'S *Dictionary* the plants are therein said to be obtained readily from cuttings, but we have no personal experience in the matter, and should be glad to hear that of others.

—— M. DURIEU DE MAISONNEUVE, of Bordeaux, has lately sent to M. VAN HULLE, of Ghent, according to the *Bulletin d'Arboriculture*, seeds of a WATER LILY, described as the most splendid Nymphæacea in the world, and before which even the Victoria regia must bow its head. The seeds were derived from M. BALANSA, now travelling in Paraguay. Like our contemporary, we await the issue with impatience, but we fear the conditions under which the seeds were sent are not very promising of success. Has M. BALANSA not sent dried specimens of this prodigy?

—— ASPARAGUS DECUMBENS, flowering in the succulent-house at Kew, is one of several species worthy of cultivation among decorative plants for their graceful and delicate habit. The stems of the species are unarmed, slender, and wavy. The branches, performing the function, and having the appearance of leaves, are needle-like, in fascicles of three, close together, on short laterals. The true leaves are represented by a membranous scale throughout the tribe Asparageæ, as pointed out by Mr. BAKER at the Linnean Society (see p. 660). The flowers are numerous—as it were spangled about on the plant, and very sweetly scented, the cinnamon-coloured anthers contrasting prettily with the white perianth. It is a native of South Africa.

—— The following is the complete SCHEDULE OF PRIZES offered by the PELARGONIUM SOCIETY, to be competed for at South Kensington, July 21, 1875. This competition will take place by permission of the Royal Horticultural Society, and subject to the regulations issued by the Society:—

Class 1.—Twelve distinct varieties of Zonal Pelargoniums, "florists' class," in pots of 8 inches in diameter. Open. £8, £5.

Class 2.—Twelve distinct varieties of Zonal Pelargoniums, "decorative class," in pots of 8 inches in diameter. Open. £8, £5.

Class 3.—Thirty distinct varieties of Zonal Pelargoniums, "irrespective of class," in pots not exceeding 6 inches in diameter. Open. £6, £4.

Note.—The varieties to be shown in the above classes are to be of the flowering section—not those with variegated leaves. Class 1, designated "florists' class," is intended to include only those varieties which have finely-shaped flowers, according to the florists' model. Class 2 is intended for profuse-flowering, showy varieties, otherwise known as hybrid nosegays.

Class 4.—Six ornamental Cape Pelargoniums, dissimilar. Open. £3, £2.

Class 5.—Best hybrid Pelargonium, of distinct character. Open, £2, £1.

Class 6.—Twenty-four Pelargoniums, cut blooms, single trusses, dissimilar. Open. £2, £1.

Class 7.—Twelve Pelargoniums, cut blooms, single trusses, dissimilar. Amateurs. £2, £1.

Note.—The judges may in their discretion, and subject to the approval of the committee, award a prize to any exhibit worthy of particular notice, which may not be provided for in the schedule. They may also withhold any of the above prizes if the exhibit be not of sufficient merit.

Conditions of Competition.—It is imperative that every variety exhibited shall have conspicuously appended to it its own name, together with that of the raiser, such names to be either printed or distinctly written on a card.—The "Chiswick standard" to be adopted in regulating the sizes of the pots: that is, "8-inch pots" measure 8 inches across and 8 inches deep inside, at a point 1 inch below the top edge; 6-inch pots in like manner measure 6 inches in depth and 6 inches in width inside, at an inch below the edge.

—— PASSIFLORA CŒRULEO-RACEMOSA in the temperate-house at Kew is so thickly covered with fruit as to be quite ornamental. They are as large as small eggs, of a yellow colour, and contain spongy pulp without seeds. P. suberosa var. pallida in the Palm-house is also worthy of note; the berries are as large as those of Solanum capsicastrum, of a violet-black colour, and so numerous along the slender drooping branches, that they would form a pretty wreath.

—— The FRUIT SHOW AT GHENT on October 18 appears, from the *Bulletin d'Arboriculture*, to have been a great success. All the chief pomologists of Belgium took part in the exhibition. The collections

of the Burgomaster, Count KERCHOVE, and of M. DE GHELLINCK DE WALLE, are mentioned with special approbation.

THE COMMON HOLLY AND ITS VARIETIES.—III.

(*Continued from p.* 520.)

A. LEAVES GREEN (*continued*).

‡ Spines marginal, numerous, strongly developed.
* Spines divaricate, *i.e.*, variously directed.
†† Leaves medium-sized, 1½ to 2½ inches long.
‡‡ Leaves lance-shaped in outline, about an inch or less in width (*continued*).

22. I. A. WHITTINGTONENSIS, Fisher, Smith, W. Paul (fig. 138, 1).—A small-leaved and very elegant Holly, with purple bark, and lanceolate or elliptic-ovate thinnish leaves, averaging 2½ inches long and ⅝ inch in width, but sometimes as much as 3 inches long, and about an inch wide; these are furnished with numerous stiff divaricate spines, the spines being often unequally disposed. The leaves are of a dark shining green, and are sometimes rather recurved. It is one of the Handsworth varieties, and quite distinct in character, though apparently occasionally mixed up with the next, which is altogether a much darker-hued plant.

23. I. A. DONINGTONENSIS, Fisher, Waterer, Smith, Lawson, W. Paul; whittingtonensis, Lawson (figs. 138, 2, 3).—This is another of the Handsworth batch, having been sent out by Messrs. Fisher & Co. The plant is of free pyramidal growth, and is a very distinct and effective variety in collections. The bark is of a very dark purple colour; and the leaves, which are variable in size and form, and stout in texture, are also of a dull purplish green, so that the bush contrasts strongly with the bright green varieties. The general outline of the leaves is lanceolate, but they are not unfrequently turned to one side so as to become sickle-like, and they have also frequently a small lateral and often falcate lobe at the base; they average about 2 inches in length and ¾ inch in breadth, but sometimes slightly exceed these dimensions; the margin is frequently quite entire or with a few (1—5) erratic spines, but occasionally the spines become more numerous, and sometimes the margin is furnished throughout with them, the spines when present being strong and much divaricate, as in fig. 138, 3. The spiny leaves bear much resemblance in form to those of Whittingtonensis, but their thicker texture and purple hue at once distinguishes them, while in the plant the presence and prevalence of the entire or slightly spiny leaves furnish additional evidence as to the name. In this variety the midrib shows a streak of purple along the back of the leaf.

The Lawson Company send, under the name of I. A. whittingtonensis monstrosa, a form of doningtonensis which seems to differ only in the fasciated growth of the branches, but whether or not this is confined to the leading shoots, or occurs throughout the plant, we are not informed.

††† Leaves small, usually under 1½ inch long.

24. I. A. MYRTIFOLIA, Waterer, Smith, W. Paul, Lawson; angustifolia, Fisher (fig. 138, 4).—A small-leaved, neat-growing form, occurring both with green and purplish bark. The leaves are usually from about 1¼ inch to 1½ inch in length, and from ½ inch to ⅝ inch in breadth, ovate-lanceolate, with the margin either entire or with one or two erratic spines, or more commonly in the largest leaves moderately spiny throughout, the spines being usually subdivaricate, but sometimes nearly flat, especially in the few-spined examples. They are of a bright green colour. This variety appears to come nearest to serratifolia.

25. I. A. SERRATIFOLIA, Waterer, Fisher, Lawson, W. Paul (fig. 138, 5).—One of the smaller neat-leaved Hollies, a good deal resembling myrtifolia No. 24), but differing in its stiffer leaves having a more elongated apex, its more decidedly divaricate spines, and in its tendency to become recurved at the point. This plant, like the former, is of pyramidal habit and well adapted for training into formal specimens. The bark is green or purplish. The leaves are lance-shaped in outline, about, or rather less, than 1¼ inch long, and about ½ inch broad, of a dark glossy green, stiff, the midrib convexly curved so that the leaf-edges are brought up and form a sort of channel of the upper surface, with the numerous regular and rather stout spines moderately divaricate. Messrs. Lawson send the same variety under the name of angustifolia.

26. I. A. RECURVA, Smith, Masters & Kinmont, Waterer; tortuosa, Fisher; serratifolia compacta, Lawson (fig. 138, 6).—This variety, which has usually a purplish bark, though sometimes green, is harsh-leaved and strongly spined, like serratifolia, but the spines are more divaricate, or appear to be more so, in consequence of the much stronger convex curvature of the leaf in the direction of the midrib, combined with which there is a kind of lateral twist, and also a twisted disposition of the leaves on the stalk. They are ovate acuminate, of a dark dull green, about 1¼ inch long and ½ inch broad, spiny throughout the margin, the apex usually terminating in an elongated spine. The convexity of the leaf surface gives it a kind of channelled appearance from the lifting up of the edges. The plant has a tendency to a dwarfish dense habit of growth, being less spiry in outline than the two preceding sorts.

FIG. 138.—1, WHITTINGTONENSIS; 2, 3, DONINGTONENSIS; 4, MYRTIFOLIA; 5, SERRATIFOLIA; 6, RECURVA; 7 HASTATA.

27. I. A. HASTATA, Smith, Lane; latispina minor, Waterer, W. Paul, Smith; latispina pygmæa, Lawson; latispina nana, Fisher (fig. 138, 7).—A very distinct, small-leaved Holly, sent out by Messrs. Fisher, Holmes & Co., and remarkable for its purple bark, and the dark green tint of its small peculiarly shaped foliage. The leaves vary from ¾ inch to 1¼ inch in length, and are about ½ inch in breadth irrespective of the spines, which are large and very prominent for the size of the leaf, and consist usually of one or two pairs on each side at the base, but occasionally more, the upper half of the leaf forming a large, entire, oblong, bluntish lobe, not unfrequently emarginate; hence the whole leaf in the case of those which are few-spined below, and have the apex entire, has a strongly marked hastate figure. The plant appears to be of rather dwarf habit, but is one of the most distinct in character of all the green-leaved varieties. We have received this variety from the collection at Ochtertyre under the name of heterophylla, which is a very different thing. This variety is so utterly unlike the broad-leaved latispina in aspect and general character, that we prefer to adopt the highly suggestive name, hastata, which it bears in some collections.

28. I. A. COMPACTA, Fisher.—A small-leaved sort, with the bark dark purple; the leaves shortly ovate, from a broad base, about 1¼ inch long by ¾ inch broad, spiny throughout, with the spines comparatively bold, and with a strongly divaricate undulation. It is a distinct looking form. *T. Moore.*

Home Correspondence.

Earley's November Plum.—I was amused when I read the remarks having reference to this Plum, at p. 656, and only regretted that Mr. Douglas was not able to twist off a branch or two from the twelve trees he, from casual observation, thought bore a resemblance to mine, and bring them here, that we might have compared notes on the spot. Every one who enters into the generally unprofitable speculation of seedling fruit-growing knows how difficult it is, when a plant fruits for the first time, to determine whether it is distinct or not. Now, I do not presume to know sufficiently all the cultivated varieties of fruits, and as I had never seen a fruit of this particular character before, or knew of the existence of such in any other place, I had resort to that invaluable authority—the only one I acknowledge in these matters—*Hogg's Fruit Manual.* I failed, however, to find a counterpart thereto. My plant produced fruit for the first time the season before this, when, owing to the resemblance, though much larger, it bore to the Bullace, I took little heed of it. It developed a character this season, however; the long thin branches of the past season's growth formed pendent ropes of fruit, having leaves not acuminate but ovate, and continuing green when all others had fallen off; whilst it is invaluable at that late date for tarts, &c. I tried the little "Bullace cheese" made therefrom, and it was entirely deficient in its sub-acid and peculiar "rough" characteristics. In regard to its keeping qualities, I have still fruit (Nov. 25); and such is its productiveness, as experienced in two seasons, that full-grown trees would produce 1½ to 2 bushels of fruit each—two trees would be ample, in fact, for the supply of any establishment. Though I have fruited eighteen seedling Plums during the last two seasons, unfortunately none were worthy of a name. As I was making plantations in the park and in the pleasure grounds here, not liking to destroy them, I planted them in both places; and most singular those in the park looked last summer when in fruit. Doubtless the only explanation some future wondering rustic will be able to give of them will be, "They wor planted before I wor born." Finally, let me record a disappointment that may afford a suggestion to others engaged in similar pursuits. I made, whilst in Herts, some careful Pear crosses upon blooms secured in muslin bags, the pips from which were sown and germinated together in one pot. When I left these were kindly kept for me by a neighbouring gardener, and it was four years after their germination before I was able to transplant them. These I have failed, with one exception, to keep alive, though every effort was made to do so. This to me suggests a hint, which I shall not readily slight when engaged in similar operations—viz., that seedling fruits should be transplanted from the seed-pot the first season following germination, or at most not later than the second; that is, if any value is placed upon them. *William Earley, Nov.* 25.

An Interesting Group.—A fine specimen of Ilex latifolia is growing in this nursery. It is 18 feet high, and bushy to the ground. The leaves average 7—8 inches in length, and 2—3 inches in breadth. It is

often taken for a Magnolia, and great surprise is manifested when the mistake is pointed out. It berries freely in large clusters at the foot of each footstalk, but the berries themselves are smaller than those of the common Holly, and remain on the tree a long time untouched by birds. Within a few feet of the Ilex are growing in robust health a Cunninghamia lanceolata, about 36 feet high, with two main stems of nearly equal size; a Benthamia fragifera, 18 feet high, which annually produces its singular flat, greenish flowers in abundance, and also fruit of a reddish colour, not unlike large Arbutus berries; and a Rhododendron—arboreum album. This is probably the finest specimen in the kingdom, being 70 feet in circumference round the outside, and 18 feet high. It is globular in appearance, and bushy to the ground. The interior is hollow, and would accommodate a goodly tea-party. It flowers freely and early, generally affording a supply of white blossoms for church decoration on Good Fridays. The above are all growing in a stiff clayey soil, and have been planted about forty years. *W. H. Rogers, Red Lodge Nursery, Southampton.*

The Season in Huntingdonshire.—We have here in Huntingdonshire at the present time several expanded blooms of Lilac, and on more than one bush. They have been going on blooming in this way for the last fortnight or more. We had a small dish of Strawberries and Raspberries on the 10th, and we can still (Nov. 24) pick a few. We have Chrysanthemums, Passion-flower, and various Roses, such as Gloire de Dijon, Souvenir de la Malmaison, the fine old Tea Rose Mrs. Bosanquet, Beauty of Waltham, Smith's Cluster, and others, surviving the frost. As an indication of the general mildness of this "south midland district," I may mention that seeds of Canna and Castor-oil plant ripen here out-of-doors, and that Cyrtomium falcatum and Onoclea sensibilis have done well for several years in an outdoor fernery with a northern exposure. *Lattenbury.*

Hardiness of Lardizabala biternata. — In replying to my query as to the name of the plant Lardizabala biternata, you ask if it is growing in the open air, and quite hardy. The plant from which I sent you a specimen has been growing out-of-doors for several years, without any protection, against the wall of a building facing the west in the south of Ireland (Co. Waterford). It has not been observed to be in flower before, but as the plant is growing amongst several other creepers, and the blossoms are not very conspicuous, it is quite possible they may have existed without being noticed. *L. C.*

Windsor Forest, Virginia Water, &c.—Having seen in your paper, lent me by a gardener here two or three weeks since, a portrait of my old fellow-workman, Mr. Drewitt, also an account of Windsor Park and other places where I have toiled many a cold and hot day, I send for your information some of the sayings and doings of those bygone days, having been employed for full forty-five years with not less than fifty or sixty other rough labourers on the Royal estates, and in forming, in the time of George IV., rides and drives, and making plantations in Windsor Park, at Virginia Water, and the Cumberland and Royal Lodges, illustrations of which I saw in the paper lent me. When the gardener in question read to me your description of the large Vine, I said that was a mistake, as I know the large Vine never was planted out in a Cucumber pit; neither is the date of the time it was planted out correct, as I worked for Mr. Tidy, then gardener at Cumberland Lodge, who raised and planted the Vine, at which time Mr. Thomson—who, I believe, was afterwards head gardener to the Duke of Northumberland—was also employed in the same gardens, and occasionally in the gardens at the Royal Lodge under Mr. Nitchell. Mr. Thomson, if living, can no doubt give you a correct account of the Vine and the time it was planted, he being then a very young man (in 1818) under Tidy and Nitchell, and not classed with us navvies. I also had read to me your account of the ruins at Virginia Water. Now, I was there when they were brought from abroad, and actually helped to unload them, and Thomson, with a young Scotchman named Morrison, who afterwards went to the West Indies as gardener, actually planted the plants now growing on the part you show in the three-sided form of the temple with plants on it. I distinctly remember Thomson, who was then a smart, active young man (I ought to say a full-grown boy), being sent down by Mr. William Aiton, who used to call him "My boy John," to plant the shrubs on the top of those columns, and from their great height I well remember Thomson, when I had placed the ladder for him to go up, shaking like an aspen leaf, as we call it. I, with several labourers, had carried the soil up some days before; therefore, if you desire to give a correct account to the world, you should ask Thomson, if living, to give it, as I know he did a good deal of the writing for the gardens, copies of which were always sent to the Government offices. Thomson could also give you, if inclined, an account of the date that the first tree was cut down on the island where the fishing temple stands, as he, by desire of Mr. Aiton, with what we call a razor [racer], marked, in the presence of George IV. and the Marchioness of Coningham by his side, the very first tree to be cut down, it then being a dense island of Larch and other Fir trees from 40 to 60 feet in height; and he continued to mark them under George IV.'s direction, and Mr. Aiton and myself and at least forty or fifty rough labourers with axes went to work, as was the custom, until nearly enough trees were cut down in the presence of the King and the Marchioness of Coningham to form a space nearly sufficient for the fishing temple and garden; and well do I remember a remarkable circumstance which took place on the same occasion. It was as follows:—The King, with the Marchioness by his side, desired Mr. Aiton to ride on horseback, as he always did when out with the King, to a place in the park called the Belvidere, but Mr. Aiton not understanding him went to another place in the park, called Cranbourne Lodge; and when the King returned, Aiton's boy John was staking a road that turned out of the main road to the island, and the King, thinking the turn not quite right, ordered the boy John to remove some of the stakes; and Thomson not placing them just where he wanted them, and being a little confused and nervous and not catching his ideas, I suppose desired to get out of the job, and Mr. Nitchell coming that way, he said, "Your Majesty, Mr. Nitchell is near, shall I call him?" "You —— fool!" was his reply; and the boy John was soon out of sight in the wood, by which means he got out of his trouble. Mr. Nitchell was the head gardener to George IV. at the Royal lodge, and for a long time the boy John was called the Royal fool by us all. I stood by and heard and saw all this—Thomson also, who, if still living, could tell you all about this, with lots more that I have forgotten that would be very interesting of what occurred about that time, as he had the management under the direction of Mr. Aiton and Mr. Nitchell of all these alterations. I will tell you another curious circumstance that occurred about this time. It was the custom with Mr. Aiton, previous to the young gardeners, as improvers, being sent to Kew, to be sent with we navvies, to help to form the rides and drives in the park, to learn what he called ground-work, and on these occasions there might be eight or ten of these chaps with us roughs. I can name some—John Mann, afterwards director of Hyde Park; James Drewitt, Fentiman, William Gaw, and Henry Gore, and many others whom I do not recollect. The case was this. We had all been working at Virginia Water for a week or more, when an order came from Mr. Nitchell for all to go to work the following week at the Royal Lodge gardens, and each had to take the wheelbarrow he had been using home to the Royal Lodge, a distance of nearly 3 miles—no joke after a hard day's work. Of course all obeyed but Thomson, and Drewitt, seeing Thomson walking by his side, perhaps with his hands in his pockets, he (Drewitt) wheeling the barrow, said to the boy John, "Why don't you take a barrow?" His reply was that "the order only applied to labourers like him;" and I shall never forget the flare-up. Drewitt, a big rough Staffordshire chap, threatened to kick the boy, and had the threat been carried out, I, with forty or fifty others, would have enjoyed the fun. What would your fine-fingered young gardeners think of roughing it as we did? It was quite a gipsy's life without the tent to shelter us. There was no lodging nearer than Englefield Green, 2½ miles from our work; therefore we used to carry our "grub," or "nose-bag," with us, and each of us had a basin with a little coffee and sugar; and a man was allowed to go an hour before breakfast and dinner time to put on two 4-gallon kettles of water, put each man's lot of coffee into the kettles; and in the wood, like so many gipsies, we used to sit on faggots to sup our coffee—hail, rain, blow, or snow. This was the training your John Manns, Drewitts, Thomsons, and others had for a start in life, and some of whom, I suppose, if any are living, would pass me by, as the priests of old did the man by the way-side. I also see you give an account of the Windsor Castle gardens. Now a little correct information may be of service to you on this subject. Now this was all laid out by Thomson, under the direction of Mr. Nitchell, from plans prepared by Mr. Aiton, and the American shrubs were bought, removed, and planted under Thomson's superintendence, as I helped to dig the holes to receive the trees after they were brought from the Duke of Marlborough's sale at Whiteknights near Reading. The way they were bought was as follows: Mr. Aiton took his boy John down to Whiteknights some days before the sale, and marked the lots for him to purchase; the boy attended the sale and made the purchases, and remained there for fully three or four weeks, until all were removed to the Castle gardens, where I believe they are still to be seen growing. You have also omitted [No] a very interesting part—the orangery under the terrace in the Castle gardens; the trees were a present from one of the kings of France to George IV. Thomson went to France to take charge of them until they were delivered by barge at Windsor. I remember Thomson saying what a rough journey he had, being obliged to bring them in a sailing vessel, as there was no steam-vessels going to France in those days. I have forgotten to tell you that all I and the young gardeners had to live upon and pay house-rent and lodging out of wages was 12*s.* per week, and at that time bread was 9*d.* per loaf, meat about the same price per lb.; tea 7*s.* per lb., sugar 7*d.* per lb., coffee 4*s.* per lb.; and mighty as the two Manns, Drewitts, the "Royal fool," and others became in aftertime, my purse was as well furnished as theirs on the pay-night with 12*s.* During this time I resided a ta place near Egham called the Sandpits and near to a butcher's shop kept by a fine old English character, called Jackson, and part of John Mann's and the boy John's time they lodged there, which, like cows in Clover, was a Clover field for them, as Jackson used to say to his wife, who was a thorough kindhearted woman, "I have some waste fat—do give them poor gardeners a good nose-bag to start the week with." This brings an incident to my recollection, as my memory is still good, although I have past the time alloted on earth to man, with shaking feet and hands, but still with a sound roof—as no tile, as the saying is, is yet removed or off. It was on one of these occasions when gipsying about the Temple gardens at Virginia Water, when the boy John, as was customary with him—he being like a king of the Cannibal Islands among us roughs when round the gipsies' fire exalted on his throne—namely, a large faggot of wood—was reading to us labourers, Drewitt and others, that he related a story told to him by Mr. Jones, then gardener to the Duke of Marlborough at Whiteknights. Thomson was there, as I said before, to remove the trees purchased by him for the Windsor gardens, and being a decent chap, I suppose remained in Jones' house, and in course of an evening's gossip Jones related the following story: Jones with Mr. Knight, afterwards the great nurseryman in the King's Road, Chelsea, worked in Lee's nursery at Hammersmith, and both lived in the bothie. In the year of the great Irish row, I think called the Rebellion, or some such name, in 1799, at which time bread was 2*s.* the loaf; and Jones' story was that as they had only 10*s.* per week, he was obliged to allowance his quantity for every meal. He used, he said, to cut the loaf into four parts, and, after taking one for breakfast, throw the next quarter into a watering pot of water to swell for dinner; and Mrs. Jones, being his second wife and a person of some property, had no idea that young gardeners went through such hardships, exclaimed in the presence of the boy John, "Oh, my dear Jones, did you go through and suffer all this." I hope you will give all I have written in my simple way, as every word is correct; and if you put it in fine words those that see it and know me as a common navvy and no scholar will not believe the story is written by me. [We have printed it as nearly *verbatim* as possible. Eds.] I send you these accounts of what young gardeners went through fifty years ago many of them having become by good conduct and perseverance such as Sir Joseph Paxton, John Mann, Knight, Drewitt, Thomson, and others who have become great men in their profession; and any, if living, who were my fellow workmen at that time must know I have given you a faithful account of our hardships, and will be pleased to see these old stories and times brought to their recollection. *J. Morris, Plumstead Common.*

Large Pears.—I have not grown the Marie Louise on a wall, and am therefore unable to give any opinion in respect of them; I have, however, for some years grown the Bon Chrétien (Williams') both on a wall and on standards, and my experience is that those grown on the wall are the largest and handsomest fruit, but they are not to be compared for flavour with well-grown fruit on standards. I do not think, however, that this experience of the Bon Chrétien must be applied to all wall-grown fruit, as, for instance, the larger kind of Plums, of which I grow a great many, and which are certainly very superior in every respect to those grown on standards. *B. S. R. A.*

Floral and Fruit Committees of the Royal Horticultural Society.—I quite agree with your remarks on the constitution of these committees; they are much too large for the business to be done either expeditiously or well. I would reduce them by one-third at once from old members, bad attendance, and, as you aptly term, the "ornamental class," which never should have been put on them. The committees should not be a school to teach gentlemen their A B C in these matters, however much they may be attached to the pursuit, but should be real work for those who have won their spurs, and in whom confidence can be placed by those who send their productions, and also by the public. We want new blood. *A Committeeman from the First.*

Prize Vineries.—I quite expected to have seen "York's" proposal (p. 528) as to these accepted and endorsed by a host of correspondents ere this; but, as yet, only Mr. W. F. Bowman (p. 591) has come to his support. At the show at South Kensington on the 11th I consulted several "Knights of the Spade" as to the feasibility and desirability of carrying out

"York's" suggestion, and without exception a thought the subject worthy of discussion; and one gentleman (Mr. W. E. Rendle) offered to give ten guineas towards a prize fund, if the scheme could be managed. The difficulties at first sight seem insurmountable, and perhaps they are, for first and foremost are the working expenses—such as travelling expenses to judges, who to-day, say, are examining vineries in Cornwall, and to-morrow on the road to Scotland for the same purpose. Suppose that but one competitor from each county in England and Wales entered the lists—though the probabilities are there would be several—even with but one, the expenses would be enormous. As to other details, such as rules for judging, size of vineries, age of Vines, &c., I do not anticipate much difficulty, but must confess that the work and cost of judging staggers me. At present I see but one way of getting over the difficuty, and that is, if the Council of the Royal Horticultural Society could be induced to take up the matter, and offer prizes for one county each year, the scheme would be workable enough, and the funds, I am sure, would be readily forthcoming. What say your readers and correspondents? *W. Wildsmith, Heckfield.*

The "Jersey" Fruit at South Kensington.—I can confirm what "A." (p. 657) says as to the unfair competition in the Pear classes at Kensington on the 11th. A letter now before me, written from Jersey, says:—"The two principal prize-takers at South Kensington on the 11th were not fruit growers but fruiterers, men who procure all the finest fruit at the local shows, and also have the pick from the best gardens in the island." If this be true, which I doubt not, such persons have no right to compete with *bonâ fide* gentlemen's gardeners and amateurs; and if, as "A." remarks, there is virtually no law to exclude them, the sooner the Council make one the better for all concerned. I may add that, like many others, I am fully determined never again to exhibit a dish of either Apples or Pears till fruiterers are excluded from showing in the same class. *W.*

A New Budding-Knife.—We send you sample of an improved budding-knife for your approval.

Besides being able to perform the ordinary operation of budding, the reverse part of the steel blade has a contrivance for slitting the bark, which does away with the necessity of using the ivory handle (generally pointed for the purpose). We think it a great improvement on the ordinary budding-knife, and well worthy favourable notice. *Dick Radclyffe & Co.*

Pelargoniums and Geraniums.—In common, no doubt, with many of your readers, I have been greatly interested in the letters ever and anon published regarding hybrids between Pelargonium zonale and the blue or purple Geraniums of our meadows, woods, thickets, and hedgesides. I cannot, however, see how Mr. J. R. Pearson or Mr. E. J. Lowe can expect to raise a blue Geranium (p. 623, *ante*) between such parents as G. sanguineum and P. zonale. There is very little blue in the former (although Mr. Bentham, in his *Handbook*, says, flowers "dark purple"), the tint of the bloom being deep crimson (see *Eng. Bot.*, vol. ii., p. 192), with a very slight suggestion of blue. (By the way, how differently colour is appreciated by different writers. Dr. Hooker says of this same species, "crimson or pink," and Babington simply "purple.") One would imagine G. pratense or G. sylvaticum would be far better parents to ensure a strain of blue colour in the flowers. A good deal is to be learned from the exact study of the pollen in Geraniaceæ and the allied natural orders, for it will often be found to give a clue to natural affinities. In Geranium, Pelargonium, Erodium, &c., the pollen differs exceedingly in size and marking, the bulk of one species being sometimes as much as thirty-seven times the bulk of another. In the two plants mentioned by your correspondent, I may say that the grains of pollen in P. zonale are just four times the bulk of the grains of pollen in G. sanguineum—both measured from the living plants, as pollen commonly collapses and loses its character when dry. *W. G. Smith.* [We apprehend that it is the size of the pollen-tube, not of the grain itself, which is important in this respect. Moreover, it is possible the pollen-tube is compressible, and could therefore penetrate smaller spaces than might be supposed. EDS.]

—— In the early part of last September I called at Chilwell, and was very much gratified by a sight of Mr. Pearson's really splendid collection of Zonal Pelargoniums, which are nearly all of his own raising, and many of the best of them are not yet sent out. On the same day I also saw at Highfield, near Nottingham, the seat of E. J. Lowe, Esq., that gentleman's unique and very interesting collections of Ferns, Ivies, and various other families of plants. Mr. Lowe was also kind enough to show me the "queer" seedling Pelargoniums, alluded to by Mr. Pearson in your issue of last week (see p. 623). But if I rightly understood Mr. Lowe, I think he said that he had used Geranium pratense as the pollen parent, not G. sanguineum, as stated by Mr. Pearson. But be that as it may, the conclusion I came to on seeing these plants was, that if they were really hybrids they were by no means examples of the potency of the male parent; but, on the other hand, I could not account for Pelargonium Madame Vaucher producing such seedlings, unless influenced by foreign pollen of some sort. Judging, however, by what I saw of them, I think Mr. Pearson will find little difficulty in inducing them to bear seed, and if he does so this must, I suppose, prove one of two things—that is, either the Pelargonium and the Geranium are not distinct genera, or that the attempted cross in this instance has not taken effect, and that the queer-looking seedlings can only be considered as seminal variations, or *lusus naturæ* produced by some unknown cause or causes. I am inclined to come to the latter conclusion, for should it even be admitted that the Pelargonium and the Geranium are not distinct genera, the plants in question must nevertheless be admitted to be distinct species; and when it is found that seedlings produced between such species as zonale and peltatum are sterile, then those produced between Pelargonium zonale and Geranium pratense or sanguineum (should this ever be accomplished) can hardly be expected to be fertile. A few years since I fertilised blooms of Pelargonium peltatum with the pollen of one of the strongest growing Zonals I could find, and one of the results was a very strong growing climber of the most extraordinary development. At the same time I fertilised some other blooms of P. peltatum with a Bronze Zonal variety, and produced a bronzy-foliaged ivy-leaved sort. These varieties are, I believe, known as "The Emperor" and "Dolly Varden." But all attempts, as far as I know, to induce either of them to produce seeds, have hitherto proved abortive, as have also all attempts to fertilise the blooms of other Pelargoniums with their pollen. In each of the crosses I have alluded to the transmission of qualities from each parent appeared to be for nearly as possible alike, as regards the habit of growth, foliage, size, and colour of flowers, &c. This, however, is by no means always the case with hybrid or cross-bred plants, which more frequently bear a greater resemblance to one parent than to the other. I am not aware whether or not it is admitted that superfœtation may take place in the case of the Pelargonium and other plants producing hermaphrodite flowers; but circumstances have come under my observation which induces me to ask, what may possibly be cosidered by some as an absurd question, viz., "Can it be possible, or otherwise, that the progeny of a plant may be in any degree affected by the application of foreign pollen to the stigmas after the bloom has been already fertilised by its own pollen?" for, should this be admitted to be possible, it may go far to account for the remarkable seedlings produced by Pelargonium Madame Vaucher at Highfield. I will endeavour to describe some experiments bearing upon this subject, which I have recently tried. During the early part of last summer I placed two small plants, in pots, of Pelargonium peltatum, just coming into flower, in a house where no other Pelargoniums of any sort were growing, and when they came into flower, and the stigmas were in proper condition, I carefully fertilised each bloom with its own pollen, or with that of other blooms upon the same plant; while, as regards one of the plants, I as carefully fertilised each bloom for the second time, on the following day, with pollen taken from some variegated Zonal variety. In due time each plant ripened seeds, which were kept and sown separately, and the seedling plants produced by the plant whose blooms had been fertilised by its own pollen only, came all what is called true, that is, all exactly alike, and all like the plant which produced them, as far as can be at present seen in plants so young; while, with regard to the produce of the other plant, the blooms of which had been fertilised at two distinct periods and with two distinct kinds of pollen, no two of the young plants (some twelve in number) are alike, the leaves of some being large, and of others small, some with well-developed zone, and others without any indications of a zone whatever; in no instance has variegation been induced, nor does their present appearance lead to the belief that any of them will prove hybrids, although it strengthens the supposition that the second fertilisation had a disturbing effect of some sort. During last summer I also reversed Mr. Lowe's experiment by fertilising several blooms of Geranium pratense with the pollen of different variegated Zonal Pelargoniums, thinking that, if variegation should be in any degree developed in the offspring, this circumstance would give something like a promise that the attempted cross had been successful; but in no instance has this been the case, and the young seedlings are in all respects identical in appearance with the mother plant as regards foliage and habit of growth. Flowers have not as yet been produced, but there does not appear to be much likelihood of their differing from the parent, but that will of course be ascertained in due time. In a communication just received from M. Jean Sisley, of Lyons, he says:—"As I suppose that you have not obtained any seed from your hybrids between Pelargonium peltatum and zonale, I send you herewith some I have just received from a friend in the South of France, who says that the plant which produced this seed is an offspring from Pelargonium hederæfolium and zonale, and is decumbent like the first, and its flowers red. If there is no mistake, this I consider as a great acquisition, and if the seed reproduces the mother plant we may expect by other crosses to obtain a new and interesting style of climbers." M. Sisley goes on to say:—"As you have been the first to obtain hybrids between these two species of Pelargonium, I think it but just to confide the seed to your care, and hope to hear next year that you have been successful," &c. I have accepted the seed, which shall have every possible care; but I cannot accept the credit so kindly intended to be given, as that I believe belongs to Mr. J. Wills, now of Onslow Crescent, Onslow Square, London, who was the first to obtain a hybrid between the two species of Pelargonium, viz., peltatum and zonale. *P. Grieve, Culford, Bury St. Edmunds.*

Large Pears.—"W. S. G." asks for opinions on the relative flavour of Pears grown on walls or standards. From experience in West Gloucestershire I should give the preference to those grown on walls—the fruit, being less liable to injury from storms of wind or rain, grows unchecked with a thin unbroken skin to maturity. The fruit of the Louise Bonne was most finely flavoured on the walls, as was also that of Williams' Bon Chrétien; but Glou Morceau, possibly from having a particularly good situation, was finest on an espalier. I think more turns than is usually supposed on the storing. If at once, or in a day or two after gathering, placed in drawers, the fruit gains a fine flavour; but if for a time kept in a common Apple-room, and only placed in the drawers to be brought forward when needed for use, the fruit continues hard in the peel, and never gains the fine melting texture of that well cared for from the time of gathering. *G. E. O.*

Green Food for the Polar Expedition.—The absence of fresh vegetables (green food) in high latitudes during long voyages has often been the cause of scurvy and scorbutic diseases. May I suggest a very simple remedy? A few hundredweight of Mustard and Cress seed would afford the means of providing the Polar Expedition with an unfailing crop of green salad. Green Mustard, an effective anti-scorbutic, could be raised on board ship without a particle of soil by thinly sprinkling the seed on a piece of wet flannel or on the surface of a layer of moist ashes. *George Maw, Benthall Hall, Broseley.*

Reports of Societies.

Liverpool Horticultural: *Nov. 17 and 18.*—Chrysanthemums and fruit were the principal productions exhibited at this show, and, as usual, they were brought forward in quantities and in a condition such as no other provincial town has yet produced. So far as regards this most popular of autumn flowers, it has both in plants and cut blooms been for years grown in the neighbourhood of Liverpool quite equal, if not superior to any other place—so much so, indeed, that the Society has found it necessary to restrict the size of the plants in their diameter, not now allowing any plant to compete over 3 feet across. There is also a class equal in importance to the low-trained plants for such as are simply tied in their natural habit of growth, the pots in all cases being confined for large varieties to 12 inches, and 10 inches for the Pompons. It is noteworthy that in this show there was an absence of second-rate productions in each department. Fruit, as usual here, was forthcoming in plenty, and splendid in condition, more especially Grapes, Apples, and Pears. Altogether, St. George's Hall held a finer display than on any previous autumn.

For six naturally grown large-flowered Chrysanthemums, Mr. Morris, gr. to John Robinson, Esq., was 1st with a very good lot, the plants just sufficiently tied to prevent them having a straggling appearance. They were strong, and well clothed with healthy leaves, the flowers thinned so as to get them up large and full, carrying about an average of a dozen and a half blooms each. Mr. Peers, gr. to R. Rayner, Esq., was 2d; and Mr. Ingwood, gr. to J. J. Morris, Esq., whose plants were the most naturally grown of any in the exhibition, was 3d.

For six large-flowered Chrysanthemums, trained low, Mr. Brown, gr. to James Fletcher, Esq., was 1st, with a beautifully flowered group, well furnished with glossy green foliage, the best being Lady Talfourd, the unequalled for general pot culture (white) Mrs. J. Rundle, and Guernsey Nugget.

For three large-flowered varieties Mr. Phythian, gr. to J. R. Pattinson, Esq., was 1st, with beautifully finished plants of Pink Perfection, a fine sort that has that indispensable property for pot culture, an ability to perfect a considerable quantity of flowers: this the

greater number of the very largest kinds will not do, consequently they are more suitable for producing a few fully developed blooms for cutting; Mrs. G. Rundle, and Prince Alfred. In Mr. Wilson's three, which were 2d, was a beautiful example of the fine white Virgin Queen, as pure in colour as a flower well could be; Mr. Tugwood was 3d.

For a single plant of any large-flowered variety, Mr. Whitfield was 1st, with the pale golden-yellow Guernsey Nugget; Mr. Wilson, who was 2d, showing Mrs. G. Rundle; 3d, Mr. A. Brown.

The competition for six Pompons, as in almost all the classes, was very close. First, Mr. Phythian, who staged beautiful examples of the white and lilac forms of Cedo Nulli, Aigle d'Or, Aurora Borealis, Sir J. Paxton, and Amy. Mr. Whitfield was 2d, with plants a little smaller but profusely flowered.

Mr. Blackmore, gr. to George Norris, Esq., was 1st for three Pompons, showing not over large but the most profusely flowered plants; 2d, Mr. Phythian, whose lilac Cedo Nulli and yellow Aigle d'Or were finely furnished. Mr. Wilson had the best single Pompon.

In cut flowers there was a number of exhibitors and the competition was very close, many beautifully finished lots having to go without an award. In the class for eighteen distinct varieties, large flowered Chrysanthemums, the judges had no easy task to decide the respective merits of the different exhibits. Mr. Norris, gr. to D. James, Esq., was 1st, with a very fine stand — large, a beautiful assortment of colours, and in every way good examples of careful culture: his best were Empress of India, white, still the finest individual flowered variety in existence, Queen of England, Jardin des Plantes, Alfred Salter, Princess of Wales, and White Venus; Mr. G. Rhodes, gr. to J. B. Morgan, Esq., was a very close 2d—his Queen of England, Lady Hardinge, Novelty, and Bronze Jardin des Plantes were grand flowers; 3d, Mr. W. Kepps, gr. to George Crosfield, Esq., with somewhat smaller flowers but fine and naturally shown. For twelve varieties there was a large number of exhibitors, Mr. Rhodes taking 1st with the best stand in the exhibition—every flower as near perfection as possible; his Empress of India, John Salter, Queen of England, yellow and bronze Jardin des Plantes, and Princess of Wales were as fine as these flowers probably ever were produced. Mr. G. Moreton, gr. to George Jevons, Esq., was 2d, with compact but smaller flowers; Mr. Kepps, 3d. In the class for six varieties Mr. Peers was 1st; Mr. Ryley, Edge Lane, 2d; Mr. Johns, gr. to J. A. Picton, Esq., 3d, with flowers differing little in variety from the larger collections.

Orchids were few in number, the season being too far advanced for growers to risk their plants out, unless in the case of comparatively hardy sorts. Mr. Anderson, gr. to Lieut.-Colonel Clay, was 1st, with a couple of nice Cypripediums, and a large well flowered example of the old Oncidium ornithorhynchum.

Ten flowering and foliage plants, not more than six of either.—Of these there were some half-dozen collections shown, all good for the season. Mr. Blomily, gr. to H. Crosfield, Esq., was 1st, with a very meritorious group; his flowering subjects were Ixora coccinea, very nice and fresh, the blue Statice Holfordii, the white Epacris candida, and a large fine-flowered Calanthe vestita rubra, bearing a number of long arched spikes, the blooms large and numerous. His foliage plants consisted of a neat Cocos Weddelliana, a couple of Crotons, the handsome Yucca filamentosa variegata, and other plants of similar character. Mr. Wilson was a close 2d.

Stove and greenhouse Ferns were well shown, large and fresh; they were interspersed amongst the flowering plants so as to break the otherwise too even surface, and in this way had a good effect. Here again there was a close competition—Mr. Foster taking 1st honours in the class for six, his most noticeable being Goniophlebium subauriculatum, with its elegant drooping fronds 6 feet in length, the plant some 4½ feet through; a large Cibotium regale, 10 feet across; C. Schiedei, and other good plants. Mr. Cromwell, gr. to Thomas Moss, Esq., 2d: in his lot was one of the best Adiantum Farleyense that has been seen, 5 feet through, all round alike dense and fresh; a good Thamnopteris Nidus, Lomaria gibba, and other well-grown plants; Mr. Gore, gr. to Thomas Holder, Esq., 3d, having, amongst others well grown, a gigantic Cibotium regale.

Three Ferns: Mr. Peers, 1st, having in his lot a good example of the drooping Goniophlebium; W. Pendy, gr. to T. Bright, Esq., 2d; Mr. Gore, 3d.

Fruits, as already alluded to, were produced in large quantities and fine condition. For twelve dishes, Mr. Hanagan, gr. to R. Naylor, Esq., was 1st, with good examples of Lady Downe's, Black Alicante, Muscat of Alexandria, and Mrs. Pince Grapes, the Muscats being beautifully coloured; Beurré Diel, Chaumontel, Glou Morceau, and Winter Nelis Pears; and several varieties of dessert Apples; the whole collection fine and in good condition. Mr. Jamieson, gr. to the Earl of Crawford, who was 2d, had Black Alicante, Tynninghame Muscat, Lady Downe's, and Childe of Hale Grapes, all good examples of their respective kinds; a Melon, and seven dishes of Apples and Pears. Mr. Potts, gr. to S. Mendel, Esq., 3d, with not over large but beautifully finished bunches of Muscat of Alexandria, Lady Downe's, and Mrs. Pince Grapes, the latter quite black; a Melon, and Apples and Pears. A number of other good collections were shown. For six dishes Mr. Hanagan was also 1st, showing Alicante and Muscat Grapes, Apples and Pears; 2d, Mr. R. Curle, gr. to Sir H. Earle, Bart.; 3d, Mr. Jamieson. Mr. Jamieson was 1st for three Pines. In his lot was a very fine Smooth Cayenne, but insufficiently ripe. Mr. Potts 2d, with even, well finished fruit; Mr. Bruce, gr. to J. Fildes, Esq., 3d.

Black Hamburgh Grapes (two bunches) were not produced in nearly such condition as other varieties, being mostly deficient in colour. Mr. Roberts, gr. to Thomas Harrison, Esq., was 1st with small but neat bunches. Any other black variety (two bunches): Mr. Norrie was 1st with Black Alicante, well finished, fine in bunch and berry; Mr. Smith, gr. to J. Knowles, Esq., 2d, who exhibited smaller, but beautiful bunches; Mr. Houlgrave 3d. A number of other exhibitors competed in this class, in which there was a close competition, nearly all showing Black Alicante, evidencing the extent to which this good winter Grape is grown.

The class for two bunches of White Muscats was well filled, Mr. Bruce being 1st with moderate-sized bunches, splendidly coloured, of Muscat of Alexandria; Mr. Hanagan 2d, with bunches larger, but not so finely coloured. Two bunches any other white variety: Mr. Bruce was also 1st here.

Dessert Pears (eight varieties): Mr. Hanagan was 1st, exhibiting a very fine lot, even for the neighbourhood of Liverpool, where this fruit is grown equal to any place in the kingdom. His sorts consisted of Duchesse d'Angoulême, Beurré Clairgeau, Beurré Diel, Glou Morceau, Marie Louise, Chaumontel, the excellent Doyenné du Comice, and Winter Nelis—the last excellent Pear in size such as rarely seen; 2d, Mr. Lowndes, gr. to S. S. Parker, Esq., who had amongst others very fine Beurré Bosc, Glou Morceau, Conseiller à la Cour, and a splendid dish of Marie Louise; 3d, Mr. Norrie. Four varieties of dessert Pears: 1st, Mr. Lowndes, showing Glou Morceau, Beurré Diel, Duchesse d' Angoulême, and Marie Louise.

For a single dish of dessert Pears: Mr. Lowndes was 1st; 2d, Mr. Hardy, gr. to E. P. Bates, Esq.; 3d, Mr. Brown—all showing Marie Louise, which excellent variety is finer here than in the south of the kingdom.

Culinary Pears, single dish: 1st, Mr. Barnett, gr. to W. R. G. Botfield, Esq.

Apples were shown in beautiful condition, large and finely coloured. For six dessert varieties Mr. Gardiner, gr. to E. P. Shirley, Esq., Stratford-on-Avon, was 1st, with splendid fruit of Blenheim Orange, Lord Duncan, Cox's Orange Pippin, Court Pendu-plat, Adams' Pearmain, and Bess Pool.

Three varieties dessert Apples: Mr. Gardiner was 1st, with Blenheim Orange, Ribston Pippin, and Cox's Orange Pippin.

Single dish of dessert Apples: 1st, Mr. Norrie. Eight varieties culinary Apples: Mr. Gardiner was again 1st, with a beautiful lot, comprising Warner's King, Blenheim Orange, French Crab, Royal Russet, Fall Pippin, Alexander, Hanwell Souring, and Rymer Pippin; Mr. Hardy, 2d, having very good Kentish Fillbasket, Custard, Mère de Ménage, Alfriston, Lewis' Incomparable, Yorkshire Greening, and Nelson Codlin; 3d, Mr. Read, whose Gooseberry Pippin, Dumelow's Seedling, and Winter Pearmain, were large and good.

Four varieties culinary Apples: 1st, Mr. Gardiner—his Reinette du Canada and Ettington seedling were remarkably fine. Single dish of cooking Apples: 1st, Mr. Whitfield, with that best of culinary sorts—Alfriston. Messrs. R. P. Ker & Sons exhibited, not for competition, a good miscellaneous collection of moderate-sized plants, comprising Adiantum Farleyense and other Ferns; Pandanus Veitchii, finely coloured; Agave filifera, Palms, new Dracænas, Marantas, Yuccas, and numerous similar things, which occupied the ends of the central stages, and were altogether very effective.

The arrangements here, as always under the management of the able committee, who work with a will, were such as to leave nothing to be desired, either for the convenience of exhibitors, the judges, or the public.

Manchester Botanical and Horticultural: *Nov.* 24.—The show upon this occasion, though open to all the world, owed its principal excellence to the contributions from the Society's own gardens. The uncertain character of the weather, and the imminent danger of frost, appeared to have frightened away all the accustomed exhibitors of Orchids and other stove plants; and from some less obvious or less likely cause, there was not a single amateur exhibitor of Chrysanthemums in pots. Cut flowers of this favourite plant were well done by two gentlemen. Mr. John Allen, of Oldfield Hall, Altrincham, showed a tray of twelve blooms, which included some of the largest and most effective that can ever be expected from a gardener, several of them being fully 5 or 6 inches across. The most beautiful varieties were Barbara, an orange-buff coloured flower, the petals incurved, so as to render it nearly spherical; Empress of India, a pearly white; Jardin des Plantes, a rich and luminous gold; Guernsey Nugget, primrose-yellow; and Eve, which, through the flower being not quite expanded, might have been taken for a snowball in process of transformation. Mr. Peter Spence, of Whalley Range, who on former occasions has exhibited Cattleya labiata in such vast abundance and rare beauty, was well to the front with another tray of Chrysanthemums, numbering thirty blooms, and including Chevalier Domage, golden-yellow; Prince of Wales, an incurved purplish lilac; King of Denmark, Golden Beverley, Formosa alba, Virgin Queen, and other varieties of known repute. In this beautiful set was comprised also a bloom of James Salter, one of those very curious Japanese varieties which blend what seems negligence with consummate perfection of finish. The Chrysanthemums from the Society's garden were in plenty, sufficient to allow of disposal in a large and very effective bank at one end of the room. They presented a very capital *ensemble*, and gave perfect satisfaction, alike in their good forms, lively colours, and ample foliage, a feature so essential to a Chrysanthemum of any pretensions. This beautiful array rendered it so much the more to be regretted that the horticulturists of the neighbourhood had failed to put in the appearance that was very reasonably anticipated. There are collections of Chrysanthemums about Manchester that it would be difficult to beat, and one would think that the owners would have been glad of such an opportunity of letting their merits become generally known.

A very capital table of miscellaneous plants was also supplied from the Society's garden. The chief objects upon this were several examples of Cypripedium insigne, remarkably handsome and effective, with plenty of crimson Amaryllis, winter-flowering Heaths, Roman Hyacinths, succulents, and other decorative plants. Being well marshalled, they formed a thoroughly good supplement to the Chrysanthemums, and, indeed, were worth going all the way to see, had there been nothing besides. A very creditable table of miscellanea was laid out also by Mr. Thos. Studd, of the Grove Nursery, Heaton Mersey. There was nothing upon it out of the common, everything, in fact, was of the familiar and inexpensive kind. To the exhibition of such plants, especially at the present season of the year, there can be no possible objection. We are disposed rather to commend it cordially, seeing that the object of flower shows is by no means merely technical, but to give to the public in general plenty of hints as to the simplest and cheapest mode of making home bright and cheerful with plants and flowers. If there be only little Hyacinths, Cherry-Solanums, Ferns, able to stand the misadventures of life in the parlour, and so forth, the beginning is good. It is almost sure to be followed up by floricultural efforts upon a larger scale; and whoever thus shows people how to make a start, becomes a genuine benefactor, and a valuable auxiliary also to florists of greater pretensions. Those plants, we take it, are, after all, the most estimable, and to be reckoned as Nature's best gifts, which are able to yield to the largest number of the people simple and genuine pleasure, and which win to themselves the largest amount of human love.

Of specialities among flowering plants there were very few. Mr. B. S. Williams exhibited a very beautiful example of Odontoglossum Andersonianum, with about two dozen open blooms—a plant that attracted the attention of every observer, and more particularly that of the connoisseur, this species of Orchid having only once before been shown in Manchester, and then by a metropolitan grower. Mr. S. Hooper, of Timperley, exhibited Odontoglossum Bluntii and Calanthe Veitchii, both very pretty; and from Mr. Spence came what was considered to be somewhat of a novelty in the shape of an unnamed Maxillaria (?). Some very capital Cockscombs were likewise shown by Mr. Hooper. Fruit also was very fairly done. The Rev. T. C. Bréhaut sent from Guernsey half-a-dozen of his mammoth Pears, the largest weighing only an ounce short of 5 lb., and the aggregate weight of the six being 20 lb. Mr. W. P. Warburton showed, on the other hand, what Cheshire can do in Apples, sending from Arley Hall an excellent lot, thirty-six different sorts, six of each. The specimens of Blenheim Orange were as nearly faultless as Apples can be.

The following awards were made by the judges:—

Cultural Certificates. — Pears: the Rev. T. C. Bréhaut, Guernsey. Apples (thirty-six kinds): Mr. W. P. Warburton, Arley Hall, Cheshire. Odontoglossum Andersonianum: Mr. B. S. Williams, Holloway. Chrysanthemums (cut blooms): Mr. John Allen, Oldfield Hall, Altrincham.

Commendations.—Cockscombs: Mr. Samuel Hooper, Timperley. Orchids: Mr. S. Hooper. Chinese or Sooly Qua Cucumbers: Mr. H. T. Broadhurst, Prestwich. Chrysanthemums (cut blooms): Mr. Peter Spence, Whalley Range. Miscellaneous plants: Mr. T. Studd, Heaton Grange.

The Villa Garden.

WALL FRUIT TREES.—Some attention should be given to these at this season of the year. The recent frosts have caused the trees to shed their leaves, and the first consideration should be the cutting out of any old and over-grown wood that is of no real service. In Villa Gardens walls are generally built as dividing lines rather than for fruit culture, and they are frequently too low, not more than 6 feet in height instead of 9 or 10 feet. It is true a tenant can raise his fruit walls if he pleases, and supposing his landlord does not object, but it is not always an advantage, especially if the garden be small—it tends to confine and darken it too much, and many things have to be sacrificed to wall fruit. It is, however, possible, to get good and a fairly plentiful supply of Peaches, Apricots, Pears, and Plums from a 5 or 6 feet wall, if the trees only receive the necessary attention. What the cultivator must aim at is the production of young trees on old stems. When the old growth reaches a certain stage it must be removed, and the younger growth substituted for it. A little forethought and judgment can secure this, if only a proper mode of treatment be followed. Now is the time to cut away any branches whose redundant growth has carried them beyond the confined space they have to fill. If the trees are in good health there will be a constant supply of young wood to take the place of that cut away, and though it may delay for a season the usual crop of fruit, it must result in the ultimate good of the tree. The best plan will be, when the process of cutting out old wood has to be done, to apply it to one tree only in one year, or to not more than two at a time.

In Villa Gardens wall-tree cultivation is too often badly done. It is no uncommon thing to see trees that have been constantly spurred till they are little better than dense flat bushes that have been irregularly clipped with garden shears. Why, even in the higher departments of gardening, we have authorities in wall-fruit culture mourning after the bad management of wall-trees, the result showing itself in "the number of fine walls to be seen not half covered, indicating that some other branch of gardening, or no branch at all, is taking up the attention of cultivators or proprietors." If this be so, what is to be expected from the ordinary jobbing gardener—that fortuitous concourse of horticultural atoms—a numerous class whose ranks are annually being recruited by the waifs and strays of the gardening profession.

It is a great saving of labour to villa gardeners, and a great convenience, also, to have their fruit walls covered with horizontal wires to train their trees to. It does not entail a heavy expense to fit up a few walls; it has the advantage of bringing the branches of the trees a little way further from the walls; it saves a great deal of tiresome labour in the way of nailing; walls are rendered much less unsightly, and afford much less opportunities for the housing of vermin. A gentleman who takes a lively interest in his small garden shrinks instinctively from the tiresome and tedious process of nailing; the tying-out of branches to horizontal wires, on the other hand, would afford agreeable relaxation during periods of leisure.

The work of pruning and nailing should now be prosecuted, especially if it is desired to utilise the border on which the trees are growing. Some years ago an important discussion took place in one of the gardening periodicals of the day as to the policy of planting fruit-tree borders—those that were opposed to it arguing that the practice tended to impoverish the trees and weaken the crops of fruit. In a Villa Garden the space is usually so circumscribed that the cultivator is almost under compulsion to grow something. Given an oblong garden of the usual villa pattern, and it will have walls on either side of its length, with fruit-trees planted against them, and between the trees and the path a narrow border, 3 feet or less in width. In a small garden this can hardly be held sacred to the fruit-trees, and it can be planted with shallow-rooting flowering plants, such as Primroses, Polyanthuses, Hepaticas, Aubrietias, &c., in spring; and Stocks, Asters, and such-like, during summer.

But to return to the wall-trees. The plan that once prevailed among certain old-fashioned gardeners of withdrawing the nails from the fruit-trees, and allowing the branches to be blown and swayed about by the winds of winter, is scarcely ever followed; and as a clever gardener well remarks, "We strongly object to the system of so much unnecessary pulling out of nails, not only because of the waste of time and material, but because of the destruction of walls, and forming nests for insects." In pruning, the object should be to leave just enough probable fruiting wood as to nicely clothe the trees, avoiding a crowded appearance. It is a great mistake to exhaust a tree by leaving too much fruiting wood; it is only experienced fruit cultivators that have the courage to thin judiciously at the proper season. On the part of inexperienced cultivators there is always a great desire to get as much as possible of fruit from a tree.

Not long since a neighbour, who loves his garden, came to us in a sad plight, in consequence of having discovered traces of the American blight, or, as he termed it, the white fungus, on one of his wall-trees. It was in a shady spot, out of the reach of the sun till it had attained the meridian, and it was spreading fast over the branches. Happily for the success of the experiment we recommended to be tried on the blight—a careful application of paraffin oil (the blight had mostly affected the main stems of the branches)—one or two applications of the paraffin soon cleared off the pest. In the case of the young wood, a good dose of Fowler's Gardeners' Insecticide, two or three times applied, cleansed this also. A solution of brine and soft soap has proved efficacious. Brine, however, cannot be kept on hand as can the insecticide; and the villa gardener ought not to be without some of the latter—it is so useful in many ways.

Suckers from Peach trees often prove troublesome in small gardens, and it is an evil that must be patiently borne with. The only thing to be done is to carefully dig them up as deeply as possible. It is a great nuisance when they put in appearance in early summer, thrusting themselves up amid some favourite spring flowers. Plums are given to thrust up suckers also, and especially so when they make a strong growth and the branches are restricted to a small extent of wall.

For tying-in the branches of wall-trees to wires Roffia grass is the best material to use. It is soft and pliable; when of good quality there is no waste about it. It is enduring enough for the purpose, and a thin piece of it slightly twisted will be strong enough to tie a stout branch firmly to a wire.

THE FARM.

METROPOLITAN ROOT SHOW: *Nov.* 20.—This show, at which the produce from seeds supplied by Messrs. Carter, of High Holborn, was exhibited, was held to-day at the Agricultural Hall. Considering the bad year we have had for roots, the show may be considered a very good one. Amongst the exhibitors were Her Majesty the Queen, and by His Royal Highness the Prince of Wales, though not for competition. Mr. Cave, steward to Mrs. Morten, of Pinesworth Farm, Rickmansworth, took by far the largest number of prizes. Some very fine roots were sent from Ireland by Mr. S. Beamish, of Killmaloda—the prize-taker in the 1st class—and whose produce were very much admired. Among the roots exhibited for size we may mention the six of Improved Mammoth Long Red Mangel, shown by Mr. Beamish, which weighed 246 lb., and took the 1st prize in their class. The 2d prize was obtained by Mr. J. Cave, whose roots weighed 201 lb. For six roots of Carter's Warden Prize Yellow Globe Mangel, Mr. Beamish took the 1st prize with roots weighing 162 lb., Mr. Cave following him closely with some weighing 140 lb. In the class for six roots of Intermediate Mangel, Mr. Beamish took the 1st prize with some weighing 165 lb.; Mr. Tough, manager to Lord Warwick, being 2d with roots weighing 125 lb. These latter were of the crop on the Leamington Sewage Farm, which is declared to be the largest crop per acre ever grown in England. Messrs. Carter gave an extra prize to Lord Warwick for having grown such an immense crop on a sewage farm. A silver cup was also awarded to Captain Walter, of Tangley, Wokingham, for a very fine collection of Mangels, Swedes, and Kohl Rabi, grown on a poor soil. Some very good specimens of Kohl Rabi were shown, and also some large Carrots. Capital specimens of these latter were shown by Mr. Tough, manager to Lord Warwick, and were taken from a crop of 20 tons per acre. Some fine samples of Potatos were shown, although some were small.

MESSRS. SUTTONS' ROOT SHOW AT READING: *Nov.* 21.—This show, which was held by Messrs. Sutton on their own premises on a market day, was visited by 3000 visitors. This annual display has now been held for a quarter of a century, and has grown to admirable proportions, representing now a perfect museum of all kinds of solid succulent vegetable growth feed for man and beast. There were no fewer than eighty-seven entries of Suttons' Champion Swedes, the heaviest root weighing 21 lb.; ninety entries of Mammoth Long Red Mangels, the heaviest root weighing 41 lb.—the 1st prize dozen weighed 319 lb.; twenty-five entries of Suttons' Yellow Globe Mangel, the heaviest root weighing 34 lb.; twenty entries of Suttons' Yellow Intermediate Mangel, the heaviest root weighing 21 lb.; thirty-six entries of Suttons' Gold Tankard Mangel, the heaviest root weighing 28 lb.; twenty-seven entries of White Globe Turnip, twenty-nine of Purple-top Mammoth Turnip, fifty-four entries of Imperial Green Globe Turnip, twenty-nine entries of Green Kohl Rabi—all these being shown in dozens. Beside these many other Globe, Tankard, and Long Mangels were exhibited; besides large collections of Swedes, Cabbages, Potatos, and vegetables; and collections, not very numerous, including several kinds of roots, in competition for the silver cups offered. Altogether it was a very remarkable display.

LEICESTER: *Nov.* 18.—We abridge the following from the *Leicester Advertiser*:—At the annual exhibition of roots from the seeds of Messrs. Harrison & Sons, Market Place, Leicester, we noticed specimens from the Duke of Rutland, Earl Howe, the Earl of Warwick, Admiral Sir G. Brooke Middleton, T. T. Paget, A. C. Barclay, M.P., and many other eminent agriculturists in the midland counties, and also from all parts of the country. An extra 1st prize was awarded to the Earl of Warwick for ten Normanton Globe Mangels, grown on the sewage farm at Leamington, of which Mr. Tough is the manager. The Swedes exhibited are really remarkable for the season. The very fine collection of Potatos is well worth seeing. There are also fine specimens of Nuneham Park Onions, Leicester Red Celery, White Turnips, Carrots, Ox Cabbage, and many others, including several large Gourds grown by Dr. Buck, County Asylum, one of which weighs over 80 lb.

Obituary.

THE death is announced of Sir WILLIAM JARDINE, the distinguished naturalist, an occasional correspondent in our columns. The *Scotsman* says of him:—"He was the sixth baronet of Applegirth, but the heir of a family much more ancient than the baronetcy, which was created in 1672. He was the son of the fifth baronet, to whom he succeeded in 1821, by the daughter of Mr. Thomas Maule, the representative of the Earls of Panmure. He was born in Edinburgh, in 1800, and married in 1820 a daughter of Mr. Daniel Lizars, Edinburgh. In 1871 he married a second time the daughter of the Rev. W. S. Symonds, rector of Pendock, Worcestershire, a distinguished geologist. Sir William was educated at the University of Edinburgh, and early in life evinced a decided taste for scientific pursuits, especially for naturally history in all its varied branches, and this taste was maintained to the close of an active and energetic life. He was a good botanist and geologist, but his chief strength lay in his knowledge of animals, and especially of birds. He was a keen sportsman, and much of his information was acquired in the field and by the river side—for the sportsman was always subsidiary to the naturalist. He was equally ready in the study. He could bring down a bird, write a most accurate description of it, draw it, engrave the drawing, and stuff the skin in a most workmanlike manner. His museum at Jardine Hall forms one of the finest and most valuable private collections in Britain. He was as indefatigable as an author as an observer, and the list of his own works and those which he edited shows the life of untiring energy he led. The owner of a fair estate in Dumfriesshire, where he generally resided, he took a leading part in the public business of the county, and he was especially active during the prevalence of cattle plague there. He was one of the Commissioners appointed to investigate the salmon fisheries in 1860. He was in his own special branches a valuable member of the British Association for the Advancement of Science, an advancement to which the greater part of his life was dedicated. Natural history was his favourite pursuit, but he had a loving side to the researches of the antiquary, as well became the laird of Spedlins Castle—the old Border baronial tower which looks down upon the comparatively modern mansion of Jardine Hall—a castle drawn by Grose, who tells the strange story of the ghost by which it was haunted. In social

life Sir William Jardine was most genial; all his weight of learning sat lightly upon him, and the smile which lighted up his face was as sweet as it was frequent. He is succeeded by his eldest son Alexander."

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, NOVEMBER 25, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
Nov.	In.	In.	°	°	°	°	°	°			In.
19	29.54	−0.16	50.5	40.6	9.9	45.1	+ 3.3	41.3	86	WNW: WSW	0.07
20	29.76	+0.06	47.8	37.6	10.2	42.3	+ 0.7	35.2	76	NW: N	0.00
21	29.96	+0.27	37.6	31.2	6.4	33.0	− 8.4	32.2	97	N.W.: WSW	0.00
22	29.91	+0.22	36.2	27.0	9.2	30.5	−10.7	30.0	98	S.W.: S.E.	0.00
23	29.95	+0.27	41.3	25.4	15.9	32.3	− 8.8	26.5	79	S.S.E.: N.E.	0.00
24	30.00	+0.32	40.7	27.0	13.7	32.8	− 8.2	27.4	80	N.W.: S.S.E.	0.00
25	29.79	+0.10	40.0	32.2	7.8	36.5	− 4.4	30.6	79	S.: S.S.W.	0.05

Nov. 19.—Overcast till evening, and rain fell occasionally; partially clear at night.
— 20.—A fine day; the amount of cloud was generally small.
— 21.—Overcast. Dense fog prevailed throughout. A cold day.
— 22.—Dense fog was prevalent during the whole day: a painfully cold day, the temperature on vegetation being as low as 18¼°.
— 23.—Fog and hoar-frost in early morning: fine, with but little cloud till evening. Foggy again at night. A cold day.
— 24.—A fine day; the amount of cloud varied: hoar-frost at night: a cold day.
— 25.—Overcast throughout the day; rain fell occasionally, with sleet, between the hours of 1 P.M. and 3 P.M.

—— In the neighbourhood of the metropolis the reading of the barometer at the beginning of the week, at the level of the sea, was about 30.16 inches, it decreased to 29.71 inches by the morning of the 16th, increased to 29.74 inches by 3 P.M., then decreased to 29.55 inches by the evening of the same day, increased to 29.98 inches by 9 P.M. on the 17th, decreased to 29.66 inches by the afternoon of the 19th, and increased to 30.15 inches by the end of the week. The mean for the week was 29.86 inches, being 0.29 inch lower than that of the preceding week, and 0.04 inch below that of the corresponding week, as deduced from eighteen years' observations.

The highest temperatures of the air, at 4 feet above the ground, ranged from 37½° on the 21st to 54¾° on the 17th and 18th, the mean value for the week being 50°. The mean of the seven low night temperatures was 39¼°, the extreme readings being 31¼° on the 21st and 44¼° on the 17th. The mean daily range of temperature was 10¾°, the greatest being 13¾° on the 15th, and the least 6½° on the 21st.

On the first six days the mean daily temperatures were above their averages, the values being as follows:—15th, 43°.8; 16th, 46°.6; 17th, 46°.9; 18th, 50°.9; 19th, 45°.1; 20th, 42°.3; and their departures from their respective averages, 0°.9, 4°, 4°.6, 8°.9, 3°.3, and 0°.7; but on the last day the mean temperature was 33°, and the departure in defect of average 8°.4. The mean temperature of the air for the week was 44°.1, being 2° higher than the average of the same week as deduced from observations extending over a period of fifty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 71¼° on the 16th and 68° on the 20th, but on the 21st the maximum value was only 37½°. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 27¼° and 23½° on the 15th and 21st respectively, and the mean of the several minimum values was 31½°.

The most prevalent directions of the wind were W.S.W. and N.W. The strength of the wind was brisk during the early portion of the week, but gentle towards the end. The greatest pressures were 7.2 lb. and 10.8 lb. on the 16th and 17th respectively.

Slight fog prevailed on the morning of the 15th, and a dense fog was experienced throughout the 21st.

Rain fell on five days, and the amount collected was 0.44 inch.

In England the extreme high day temperatures ranged between 57° at Birmingham and 50° at Newcastle-on-Tyne, the general average over the country being 54½°. The extreme low night temperatures varied from 33° at Birmingham and Norwich to 26° at Hull, the general average being 30¼°. The mean range of temperature in the week was 24°, the greatest range being at Hull, 28°, and the least at Newcastle-on-Tyne, 18°. The mean high day temperatures ranged from 50¾° at Nottingham and Sunderland to 47° at Hull, with a general average of 49½°. The mean low night temperatures varied from 41½° at Bristol to 35½° at Newcastle-on-Tyne, with an average value of 39¼°. The mean daily range of temperature in the week was 10¼°, the greatest being at Sunderland and Newcastle-on-Tyne, 12¼°, and the least at Leicester, Sheffield, and Liverpool, 8¾° respectively. The mean temperature for the week was 44°, the highest occurring at Bristol, 45¾°, and the lowest at Hull and Newcastle-on-Tyne, 41¼°. Rain fell on every day in the week at Norwich, Nottingham, and Sunderland, to the amount of eight-tenths of an inch respectively, but this amount was exceeded by 1 inch five-tenths at Manchester and Eccles on five days only; at Portsmouth and Bristol three-tenths of an inch only was recorded; the average fall over the country was 1 inch nearly.

The weather during the week was generally fine, but at times overcast and showery.

In Scotland the highest temperatures ranged from 53¼° at Glasgow to 50¼° at Aberdeen, the lowest temperatures varied from 37° at Leith to 31° at Paisley, their averages being 51½° and 34° respectively. The range of temperature in the week was 17½°. The mean temperature for the week was 41¾°, the highest being at Glasgow, 43°, and the lowest at Aberdeen, 40°. Rain was measured to the amount of nine-tenths of an inch at Greenock, but at Dundee one-tenth of an inch only was recorded; the average fall over the country was five-tenths of an inch.

At Dublin the highest temperature was 55½°, the lowest 31°, the mean 46°, the fall of rain 0.62 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS. — The time has now arrived for getting specimen plants cleaned and tied; this work should be got on with without delay. All that have any dead leaves adhering to them should be laid on their side, and the leaves well cleaned out, removing all that have lost their vitality, and are brown and rusty-looking, as they have a very unsightly appearance if allowed to remain. The surface of the soil should at the same time be freed from these dead leaves, or from any Moss that may be inclined to grow upon it. In replacing the sticks, get all the old decaying stumps out of the soil, for they do much harm to the roots when they get in a wet spongey state; and this also gives an opportunity for inserting the new sticks in the old holes, thereby avoiding the mutilation of the roots occasioned by pushing the sticks into fresh parts of the ball, from which cause serious mischief often arises. Every plant in a collection should be re-sticked and re-tied every year; no matter how good or sound the sticks may appear to be, they will not last through a second season; and when the plants so left without having their sticks renewed come to be moved about during the spring and summer, many of the old sticks usually break off at their junction with the soil, giving them a most untidy look, and endangering the snapping off of the plant at the collar. When this yearly tying commences, the largest plants should always be begun with first, as sticks taken from such will re-sharpen above where they have before entered the soil, and do for smaller plants, and so on all the way down until the smallest are finished. By this means there will be no waste of sticks. It is impossible to give more than a general idea how a plant should be tied, as almost every species has some peculiarity natural to it, which in the operation of training needs to be considered. Nothing looks worse in a collection of plants than to see all tied into one exact form, as if they had been cast in a mould, without the slightest consideration as to the natural habit of the plant. Let it be low and bushy, or more disposed, from its upright nature, to form itself into a pyramid, but, whatever form a plant is tied into, it should from the first be so trained as to keep it furnished fresh and green to the rim of the pot, and as far as possible to cover the sticks. When, as too often seen, however, a space devoid of shoots clothed with healthy foliage exists betwixt the rim of the pot and the lower branches, the appearance, despite the healthy and floriferous condition of the head, is simply intolerable, the bare, uncovered sticks being visible, and as objectionable as anything in this way could be imagined. A little forethought in the early training of the plant, with a knowledge of its nature, is all that is required to prevent such a condition. Use no more sticks than necessary for the support of each plant, avoiding the narrow upright chimney-pot shape, that is alike objectionable and difficult to correct when once a plant has been allowed to assume that form. Whatever material is used in tying, especially thread, see that none of the old is left round the shoots, or in time, as they grow, it will cut them. In plant-tying, the material used should never be drawn up tight; sufficient room ought to be left to allow the shoot to grow to double the thickness it is at the time the operation is performed. Where plants are only required for home decoration they do not need nearly so many sticks to support them as when they have to be moved for exhibition, yet, in the latter case, no more should ever be used than necessary to keep them in shape, although it is no uncommon thing to see double the quantity employed, doing serious injury to the plants, and completely destroying the natural appearance which all cultivated plants should have, so far as consistent with the conditions under which they exist. Instead of placing a stick to each branch, one will be found enough for five or six with most things, if the operator is well up to his work in looping the weaker shoots in their places. Keep all pots, especially such as contain valuable plants, washed clean, not allowing them to remain covered with the green mould, which spreads upon them, and which during the dull days and damp atmosphere of winter is very liable to spread over the surface of the soil.

Epacrises.—The best winter-flowering varieties, such as *hyacinthiflora*, *hyacinthiflora candidissima*, *hyacinthiflora carminata*, *salmonea*, and *Lady Panmure* should now be kept a little warmer, which will quickly bring them into flower, when they will be found very useful for conservatory decoration, or, in a cut state, for large vases—their long shoots, which may be cut without injuring the plants, rendering them well adapted for this purpose.

SOFT-WOODED GREENHOUSE PLANTS.—Look over the stock of *Lilies*. If not yet potted no time should be lost in completing the work before they begin to root. Some of the early-flowered *auratums* will by this time be fast pushing their new fibres, and where such is the case they should by no means be disturbed. If the pots they already occupy are large enough simply remove the surface soil, and replace it with such as is new and well enriched; if the pots they have hitherto occupied are too small, simply transfer them to larger without disturbing their roots; in all cases see that this *Lily* does not get too dry at the root, of this it is more impatient than most other varieties, and when it gets in that condition it rarely does well after, from this cause thousands of this fine plant yearly perish. *L. longiflorum* is another that roots early and cannot endure having the soil too dry, yet, from these remarks it must not be inferred that they require, or will bear, the soil getting very wet until they have pushed a sufficient amount of leaves to absorb and utilise it in considerable quantities. The fine decorative tuberous *Tropæolums*, *tricolorum*, *tricolorum Jarratti*, and *pentaphyllum* are not nearly so often seen as they deserve to be; few plants of moderate growth are more effective when well managed; they will now be making growth, and should be placed near the glass and regularly trained. The old flat wire trellises they used to be grown upon are objectionably ugly; they look the best with a small Larch plant inserted in the pot, its branches left upon it with the bark on, and no further training than just loosely covering the support with the thin thread-like shoots of the plants, which must be regularly attended to in training, or they will become so entangled as to prevent the possibility of making them afterwards look well. The bottom of the trellis must in all cases be well covered with the young growth before the shoots are allowed to ramble to the top, or there will afterwards be a difficulty in properly furnishing the base; do not overpot them, and just keep the soil in a medium condition as to water, without getting it too wet. *T. Baines, Southgate, N.*

ORCHIDS.—The houses should be kept comparatively dry during warm foggy weather; the ventilators should be kept closed, and no more traffic allowed in and out of the houses than is absolutely necessary. Thick fog will frequently cause many of the flower-buds to drop off. If any plants require watering let it be done in the forenoon: if water be allowed to remain in contact with the young growth of the plants it is almost sure to rot them off at this season. The present is a good time to overhaul the whole collection, and give them a thorough cleaning. Matters of this kind afford employment for wet days and severe weather. It is not always desirable, however, to wait for wet days to clean plants: the insects should at all times be cleaned off as soon as they present themselves. *Odontoglossum*: requiring larger pots may be shifted, taking care not to disturb the roots more than is necessary in removing the potsherds from the bottom. These plants succeed best in equal parts of fibrous peat and sphagnum, with a good sprinkling of sand; and as they require a very liberal supply of water, thorough drainage is indispensable. The *Pleiones* that have flow-

ered and require larger pots should have all the old material removed from their roots. These are very tractable plants, and will thrive in almost any light compost—equal parts of turfy loam and peat, also leaf-mould and old cow-dung, or peat and sphagnum. The pots or pans in which they are grown should be well drained, placing some moss or rough peat over the potsherds. Fill up with the compost to within half an inch of the top of the pot, place the bulbs an inch apart, covering over the old roots with half an inch of the compost; water lightly until the roots start into growth. *Vanda cærulea*, as exhibited at the Royal Horticultural Society, Kensington, November 11, must make every one that possesses a plant of it desirous of growing it equal to the one exhibited. The species has not been shown in such fine condition for many years. It requires very different treatment to the other Vandas. The plant is a native of Silhet, and is found growing in very exposed places, with a minimum temperature about 50° and maximum about 80°; hence it should be grown in the Cattleya-house; many fine plants have been lost when grown in a hot, close atmosphere. It thrives well when grown in lumps of fibrous peat with the whole of the decayed vegetable matter shaken out of it; the plant should be placed in a basket with the fibre loosely worked in amongst the roots. It requires very little water at this season, but it likes plenty of light, so that, where convenient, it should be suspended to the roof, about a foot from the glass. *G. Baker, Clapham Common.*

Succulents.—Great care is required among *Echeverias* now lest they get over-watered, especially E. agavoides and farinosa—they keep best on a shelf, almost dry, in a temperature not below 40°. The same temperature is best for the Canary Island *Sempervivums*, but they should be watered when dry. All *Cactuses* must be perfectly dry, with a minimum temperature of 40°. *Mesembryanthemums* keep as dry as possible without shrivelling; they are apt to grow during winter, but the growth made is not good, therefore keep them as cold as safe, which is 35°. *Aloes* want very little moisture, but as many will flower now, they should not be allowed to get dust-dry: minimum temperature, 40°. All large *Agaves* not standing near pipes or flues may be kept from water, but small ones, or any subject to the influence of fire-heat, must be watered. The most difficult of all succulents to winter are *Stapelias*, if kept in a mixed collection, but if they can be placed on a shelf well up to the light in a temperature of 50°, they are easily kept if not allowed to get over-dry and never drenched. Seedling plants of any succulents require keeping well to the light. *J. Croucher.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—All winter and spring bedding ought now to be finished, and the walks, paths, edgings, and turf, put in proper trim for the winter. Any beds or borders that are to remain vacant should now be manured, and deeply dug, to get the full benefit of the winter's frost. Planting of all kinds of trees and shrubs may be proceeded with as opportunity offers, but should never be done in wet or frosty weather. Levelling, turfing, making new or altering existing walks, replanting *Box* and other edgings—all such work should be done now, and not left till spring, as usually that season brings plenty of work in other ways. Raking and sweeping up leaves occupies most of our time just now; but at this we should not complain, for we not only get the pleasure of seeing the place made neat, but have the benefit of the leaves for heating and manurial purposes, so that the balance is on the right side. Roll the turf frequently; in some cases it will perhaps be necessary to mow soon as the leaves are cleared, if extra neatness is desired. All bedding stock should be frequently examined; at this season damp is the greatest enemy to contend with. Seeds of any plants required for next summer's bedding that are a long time in making good plants may be sown now, such as *Acacia lophantha*, *Centaureas*, *Chamæpuces*, *Echeveria metallica* and *E. glauca metallica*. *W. Wildsmith, Heckfield.*

FRUIT HOUSES.

The Cherry-House.—The pruning of full-grown trees, which have had the attention indicated in this Calendar in regard to stopping the shoots, &c., during the period of growth, will at this season be confined merely to a shortening back of those shoots to about an inch from the starting point, and the removal of decayed spurs. Young trees, which are in course of formation, will also require the central shoot or shoots cut back as may be necessary, to provide a supply of growths so as to fill up the alloted space with regularity. The fan method of training is the best way where the trees have a good surface of trellis or wall to cover; each affords the means of filling up vacancies which are frequently occasioned by the pernicious effects resulting from gumming, to which Cherry trees are, under any conditions, peculiarly liable. It is not advisable to shorten the terminal shoots, excepting for the purpose indicated above, or where the limit of the trellis necessitates its being done, and in the case of trees which have the roots restricted to pots. These matters should be attended to at once, and a complete cleansing of the house should be effected; also look over the trees, and if insects abound, which is commonly the case under glass, they should be eradicated by washing the trees, and dressing them over also if it be needful. A composition of six parts sulphur, one part slaked lime, and one part dissolved glue will be found suitable for the purpose. If the lights have not yet been replaced this should now be done, and the house should be fully ventilated until the time arrives for starting the trees. Plum trees in pots, which are to be advanced by forcing, should also be pruned; uniformity in appearance, to a certain extent, should be considered, and the knife should be used in this operation accordingly. All last year's growth should be shortened, and superfluous shoots removed entirely; avoid having the shoots too thickly placed. *G. T. Miles, Wycombe Abbey.*

Cucumbers.—A sudden period of bitterly cold weather has necessitated a little sharp firing, and great care should therefore be exercised, when the hot-water pipes are in close proximity to the roots, to guard against the latter becoming too dry. For the next three months, too, be very careful in the admission of air, and while a little should be given at every favourable opportunity, it should certainly be excluded as far as is possible when it is cold and sharp. See that the valves work well, and when it is found that a bright sunshine, acting in concert with the hot-water pipes, is likely to increase the temperature beyond 78° or 80°, turn off the top-heat and at the same time subdue the force of the fire, and thus prevent the necessity for giving air. Keep a fair amount of moisture in the atmosphere in bright sharp weather, while in dull foggy weather be very sparing, and cease to charge the evaporating troughs. Cut over the foliage regularly every week, and do not cease to employ a periodical dusting of flowers of sulphur. A night temperature of 70° or thereabouts must be secured; on very cold nights the blinds may be rolled down to secure this end. The leaves are now falling apace, and as opportunity offers choose a nice dry day to collect a good quantity of Oak leaves, to be in readiness for the early spring. It is important that they be protected from the drenching rains, or they will lose much of their heating power. Horse-droopings, too, must not be lost sight of shortly, likewise the preparation of different soils. *T. Simpson, Broomfield Lodge.*

Enquiries.

He that questioneth much shall learn much.—Bacon.

[Many enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. Eds.]

23. How to Sow Orchid Seeds.—Paxton's *Botanical Dictionary* says that Ophrys seed germinates on roots of grass. I tried the seed of Bee Orchis without any success; but raising Orchids from seed appears to be an art and mystery. I have a Cattleya pod nearly ripe. Query, as to how to sow the seed? *Amateur.*

24. Crystallising Flowers: *M. D.* will be very much obliged for a recipe for crystallising flowers in alum for winter decoration.

Answers to Correspondents.

Chrysanthemum: *J. Kingsbury.* Your seedling from Marabout does not appear to be any improvement, so far as the blossoms are concerned; but if it is of naturally dwarfer habit, it may be useful as a decorative sort. The colour is a pure white, and the florets fringed as in the parent.

Daisies on Lawn: *J. A. S.* The safest way of getting rid of them, and the cheapest in the end, would be to have them dug out, and early next spring make a light sowing of good grass seeds, adding a dressing of rich compost, and rolling all down well, choosing dry weather for the latter operation.

Figs: *G. N.* The Brown Turkey.

Hepatica, &c.: *W. E.* Both the plants you name are natives of North America.

Loam: *Young Amateur.* The earth called loam is one in which clay and sand are mingled in varying proportions: if clay preponderates, it is heavy loam; if there is a larger proportion of sand, it is light. Loam of medium texture, inclining to clay, is that generally preferred for garden purposes. If friable, and at the same time rather smooth, or soapy to the touch, it is of a good consistency. Cockscombs are annuals.

Moss on Walks: *J. A. S.* A dressing of salt, or of diluted sulphuric acid.

Names of Fruits: *H. Pope & Son.* 2, Marie Louise; 1, quite smashed.—*R. Wilton, Conby.* 1, 2, 3, Beurré Diel; 4, Beurré Rance; 5, rotten; 6, not known. *Mrs. C., Maywood.* A small Gansel's Late Bergamot. *B., Exmouth.* 1, 2, Blenheim Pippin; 3, Court of Wick. *Pear:* Glou Morceau.—*S. W. T., St. Leonards.* Most probably a small specimen of Maréchal de la Cour.—*E. S. W.* Your Pear is like a small Beurré Hardy, but we are not certain.—*Bowers Brothers.* We do not recognise any of the Apples you have sent; the specimens are exceedingly poor. No. 2 may be Yorkshire Greening.—*W. R. Fryer.* 3, Hawthornden; 6, Old Nonpareil; 5, Winter Quening.—*J. B. D.* 1, Grange's Pearmain; 5, Margil; 6, probably Court Pendu-plat; 8, probably Court of Wick; 9, Old Nonpareil; 10, Scarlet Nonpareil (it is almost impossible to name such wretched specimens); 12, Passiflora edulis.

Names of Plants: *G. L. C.* 7, Cheilanthes lendigera; 8, Adiantum pedatum; 9, insufficient; 10, Nephrodium molle; 11, Selaginella Martensii; 12, Adiantum hispidulum.—*Mrs. C., Maywood.* The crimson-berried shrub is Euonymus europæus; the Fuchsia is a garden variety, and beyond our province.—*W. S.* We cannot name your specimens from leaves only.—*N. M.* Cœlogyne brunnea.—*W. Muir.* Maxillaria decolor var.—*P. H. Gore.* Bolbophyllum cupreum, but not of *Bot. Mag.*—*N. G.* Cymbidium giganteum.—*W. Young.* 1, next week; 2 and 3 are varieties of Epidendrum elongatum.—*J. J. A.* A species of Cistus which we cannot determine without the flower. Send again when in bloom.—*J. Verschaffelt.* Cassia lævigata, Willd., a common and widely-spread tropical shrub.—*L. B. B.* 1, Pimpinella Saxifraga; 2, Holcus lanatus; 3, Lythrum Salicaria; 4, Narthecium ossifragum; 5, Filago germanica; 6, Mercurialis perennis.—*H. M. T.* 1, and 3, forms of Gymnogramma chrysophylla; 2, Selaginella Martensii; 4, Adiantum hispidulum; 5, Lastrea intermedia; 6, Blechnum occidentale; 7, Cyrtomium falcatum; 8, a form of Gymnogramma Calomelanos.—*M. J.* 1, Veronica Devoniana; 2, Adiantum assimile; 3, Adiantum excisum,—Nos. 2 and 3 were, however, mixed.

Plane Trees: *W. B. T.* We presume the branches you saw were "layered"—*i.e.*, pegged down—when they will form roots, and the branches can then be removed as new plants. It is a common practice in our nurseries.

Vine Stocks: *C. Klofron.* Yes; we have proved both the black and white Frontignan to make good stocks to graft upon. They are strong-growing sorts.

Weights of Fruits: *W. Dean.* The subject has been treated of in our columns during the last few weeks, and we must refer you to the information there given.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

Communications Received.—R. A. P.—East Somerset.—E. S. D.—H. W. W. (next week).—J. Mill (thanks).—B. M.—W. P.—J. S.—W. B. H.—J. B.—M. H.—W. H.—C. A.

BIRTH—November 23, at No. 3, St. Ann's Place, Streatham Hill, the wife of R. N. Sherwood of a son.

Markets.

COVENT GARDEN, November 26.

Supply moderate; the demand having slackened a little, prices remain nearly as last week. Another cargo of Pines from St. Michael's has arrived in good condition, making at auction from 10s. to 20s. each. *Thos. Taylor, Wholesale Apple Market.*

—— Amongst the choicest descriptions of fruit and vegetables in the retail market, we may quote the following:—Prickly Pears, 2s. doz.; Pomegranates, 5s. to 6s. doz.; Glou Morceau Pears, 4s., 6s., and 8s. doz.; American Lady Apples, 2s. doz.; Tangierine, 1s. 6d. to 2s. doz.; Oranges, 1s. to 2s. doz.; Belle Angevine Pears, £30 doz.; Carolina Sweet Potatos, 4d. lb. Asparagus and French Beans are making their appearance.

Fruit.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Melons, each	1 0– 3 0
Filberts, per lb.	1 0– 1 6	Nuts, Cob, p. lb.	1 0– 1 6
Grapes, English, p. lb.	2 0– 6 0	Oranges, p. 100	8 0–12 0
— Muscats, do.	3 0– 6 0	Pears, p. doz.	2 0– 3 6
Lemons, per 100	8 0–12 0	Pine-apples, p lb.	3 0– 6 0
Medlars, per doz.	0 6– 1 0	Walnuts, p. bush.	16 0– ..

Vegetables.

	s. d. s. d.		s. d. s. d.
Artichokes, green, ea.	0 3– 0 6	Lettuces, per doz.	1 6– ..
Beet, per doz.	1 0– 2 0	Mushrooms, per pott.	1 0– 2 6
Broccoli, p. bundle	0 9– 1 6	Onions, young, bun.	0 4– 0 6
Brus. Sprts., p. bush.	5 0– ..	Parsley, per bunch	0 4– 0 6
Cabbages, per doz.	1 0– 2 0	Parsnips, p. doz.	0 9– 1 0
Carrots, p. bundle	0 4– 0 6	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	— black, Turnip, do.	– 0 6
Celery, per bundle	1 6– 2 0	Seakale, per bundle	1 6– 2 6
Cucumbers, each	2 0– 2 6	Shallots, per lb.	0 3– ..
Endive, per doz.	1 0– 2 0	Salsify, per bundle	1 6– ..
Herbs, per bunch	0 2– 0 4	Spinach, per bush.	2 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Tomatos, per doz.	1 0– 3 0
Leeks, per bunch	0 2– 0 4	Turnips, per bundle	0 3– 0 4

Potatos:—Round, 60s. to 90s. per ton; Kidneys, 90s. to 120s. per ton.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Camellias, 12 blooms	3 0–	9 0	Pelargoniums, 12 spr.	1 0–	1 6
Carnations, 12 blooms	2 0–	4 0	Pelargoniums, Zonal, per 12 sprays ..	0 6–	0 9
Corn-flower, doz. bun.	3 0–	6 0	Roses, indoor, p. doz.	2 0–	6 0
Eucharis, per doz. ..	6 0–	9 0	— Outdoor, do...	0 6–	1 6
Gardenias, p. doz...	4 0–	9 0	Spiræa, per 12 sprays	1 0–	2 6
Gladiolus, doz. sprays	1 0–	2 0	Stephanotis, 12 sprays	5 0–	9 0
Heliotropes, per doz. sprays	– 0	6	Tuberoses, p. doz. ..	1 0–	2 0
Mignonette, 12 bun.	2 0–	6 0	Violets, p. doz. bun.	0 9–	1 6

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz. ..	6 0–	12 0	Fuchsia, per dozen	4 0–	12 0
Bouvardias do. ..	9 0–	18 0	Heaths, in var., do.	12 0–	30 0
Coleus, do.	3 0–	9 0	Mignonette, do. ..	4 0–	6 0
Chrysanthemums, do.	4 0–	9 0	Myrtles .. do.	3 0–	9 0
Cyperus, do... ..	6 0–	12 0	Pelargoniums, dble., per doz.	6 0–	12 0
Dracæna terminalis	12 0–	30 0	— Scarlet, do. ..	3 0–	9 0
— viridis, per doz.	12 0–	24 0	Primula sinensis, do.	4 0–	8 0
Epiphyllums, each ..	1 6–	3 6	Solanums, do. ..	6 0–	18 0
Ficus elastica ..	1 6–	7 6			

SEEDS.

LONDON: *Nov.* 26.—More attention has during the last few days been given to Red Clover seed, and all descriptions are dearer. The offers to hand both from France and America are 2*s.* to 3*s.* per cwt. in advance of last week's. Cable advices received to-day from New York, quote red seed at 45*s.* to 46*s.* per cwt., cost, freight and insurance. Trefoils are easier. In Alsike and White Clover seeds there is more doing, and values are exceedingly firm. Mustard and Rape seed show no change. Feeding Linseed is in improved request, and realises 1*s.* to 2*s.* per qr. more money. Canary seed must again be noted several shillings per quarter dearer; the rates now reached are most exorbitant. The colder weather brings us a better demand for boiling Peas, Haricot Beans, and new Dutch white Runners are in good request. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday English Wheat was firm, at the extreme rates of the previous Monday, and foreign was equally firm. Flour remained unaltered in value; malting Barley was 1*s.* per qr. dearer on the week, and grinding sorts also ranged higher. Beans were quoted 1*s.* per qr. dearer; Peas were firm, with an upward tendency; for Oats the trade ruled firm, and Maize was unchanged in value.—The tone of the trade on Wednesday was quiet. English Wheat realised the quotations of Monday, and foreign ruled steady at former rates. In flour there was no alteration to note. Barley of all sorts was firm at previous prices. Maize as last reported. Oats were at late rates, with a tendency to hardening for fine quality. Beans steady, Peas unaltered.

CATTLE.

At the Metropolitan Market on Monday the supplies of English beasts were of fair extent, and sales of all descriptions were effected readily, the prime qualities fully sustaining late rates, and middling sorts recovering quite 2*d.* per stone. Foreign cattle, in many cases, brought 2*d.* to 4*d.* per stone more than on the previous Monday. English sheep met a good steady demand, and prices advanced about 2*d.* per stone; foreign brought generally 2*d.* to 4*d.* per stone advance. Calves did not participate in the improvement, and pigs remained unaltered in value. Quotations:—Beasts, 1st quality, 5*s.* 10*d.* to 6*s.* 4*d.*; 2d do., 4*s.* 2*d* to 4*s.* 8*d.*; sheep, 1st quality, 6*s.* to 6*s.* 4*d.*; 2d do., 5*s.* 4*d.* to 5*s.* 8*d.*; calves, 1st quality, 5*s.* 4*d.* to 5*s.* 10*d.*; 2d do., 4*s.* 4*d.* to 5*s.*; pigs, 1st quality, 4*s.* 8*d.* to 5*s.*; 2d do., 4*s.* to 4*s.* 4*d.*—There was a fair demand for beasts at Thursday's market, but prices were scarcely altered. For sheep the quotations were rather lower. Choice calves found a ready sale, other sorts dull. For milch cows trade was dull, at late rates.

HAY.

The supplies at Whitechapel have been good, trade rather dull, and quotations were unaltered, though the tendency was in favour of buyers. Quotations:—Clover, best, 115*s.* to 120*s.*; inferior do., 70*s.* to 90*s.*; hay, best, 105*s.* to 110*s.*; inferior, 60*s.* to 70*s.*; straw, 33*s.* to 40*s.* per load. Cumberland Market quotations:—Superior meadow hay, 108*s.* to 115*s.*; inferior do., 70*s.* to 92*s.*; superior Clover, 117*s.* to 126*s.*; inferior do., 90*s.* to 105*s.*; and straw, 38*s.* to 42*s.* per load.

POTATOS.

The supplies on sale at the Borough and Spitalfields markets are moderate, and trade is steady at the following prices:—Regents, 80*s.* to 100*s.*; Victorias, 100*s.* to 110*s.*; flukes, 100*s.* to 120*s.*; rocks and kidneys, 60*s.* to 70*s.* per ton.—The supplies from abroad last week reached 13,869 sacks, principally from Antwerp. The sales were at, for French, 50*s.* to 60*s.*; do. seedlings, —*s.* to 75*s.*; Belgian kidneys, 60*s.* to 70*s.* per ton.

COALS.

The cold weather gave a fillip to the market on Monday, and best house coals advanced 1*s.*, or to 27*s.* per ton. There was no alteration on Wednesday: Hartleys recovered 1*s.* per ton. Quotations:—Walls End—Haswell, 27*s.*; Hetton, 27*s.*; East Hartlepool, 26*s.* 9*d.*; Lambton, 26*s.* 6*d.*; Tees, 26*s.* 9*d.*; Hetton Lyons, 23*s.* 9*d.*; Tunstall, 23*s.* 9*d.*; Bebside West Hartley, 22*s.* 3*d.*

DANIELS' DUKE OF EDINBURGH.

"THE FINEST CUCUMBER IN CULTIVATION."

This magnificent variety, sent out by us last season, is undoubtedly the grandest ever offered to the Horticultural Public. It is a fine pearl-white-spined variety, of a beautiful rich green colour, which it retains to the last. It is a remarkably shy seeder, immensely prolific, and of a quality for table that is not to be excelled. It grows rapidly to the length of 30 to 36 inches, being at the same time tender and crisp, and of the most beautiful proportions. For exhibition this variety will be found to have no equal, and for general use cannot be surpassed.

In Sealed Packets, 2s. 6d. and 5s. each. Price to the Trade on application.

£10 IN PRIZES

Will be given by us as follows, at the Grand Provincial Meeting of the Royal Horticultural Society in 1875:—

£5 for the best Brace; £3 for the second best Brace; and £2 for the third best Brace.

N.B.—We wish it to be clearly understood that this variety is perfectly distinct from that sent out by Mr. Monro under the same name, and to which it has been suggested, by the Editors of the *Gardeners' Chronicle*, we ought to give priority, But we beg to inform the Horticultural Public and the Trade that the name, "Duke of Edinburgh," was fixed on for our Cucumber so early as August, 1873, at which time it appears Mr. Monro's variety was known under the name of "Rabley Improved." We therefore feel that we are perfectly justified in retaining the name we have given, although the two being named alike is an unfortunate coincidence, and apt to cause some slight confusion. We may add that we have communicated with Mr. Monro on this subject, and that he is perfectly satisfied with our explanation.

As we do not attach much importance to the value of Special Certificates from the Fruit Committee of the Royal Horticultural Society, we did not send up specimens for their inspection, but we much regret that that highly respectable body should have committed the grave error of identifying our Duke of Edinburgh with "Marquis of Lorne," and feel confident that, had fair specimens of the true variety been exhibited by the London firm, so gross a mistake would have been impossible, as the annexed correspondence from the *Gardeners' Chronicle* and the *Journal of Horticulture* will plainly show there exists the widest difference between the two varieties in quality, colour, prolificacy, habit, &c.; and, notwithstanding what has been written by interested persons to the contrary, we still maintain that it is by far the finest Cucumber in cultivation—an assertion that can be supported by abundant testimony.

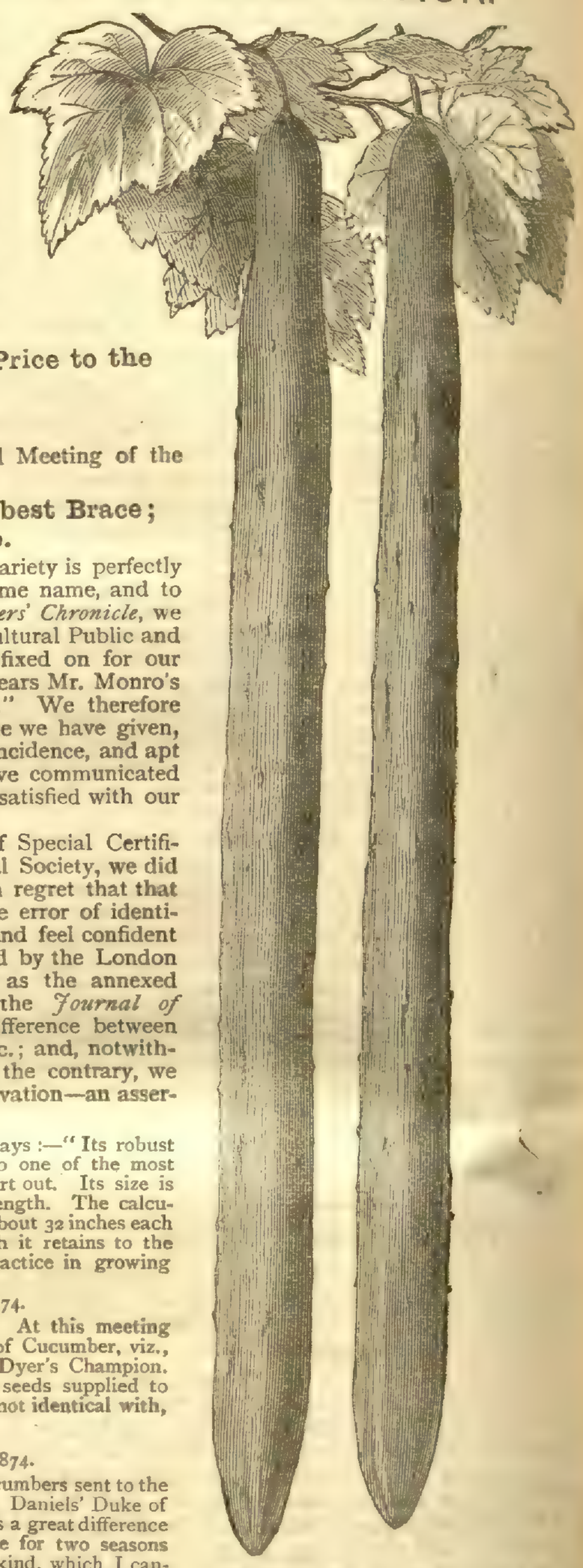
Mr. ABBOTT, the eminent Cucumber grower, writing of this, says:—"Its robust habit and constitution surpasses all I have ever seen. It is also one of the most prolific sorts possible to grow, and cannot be exceeded by any sort out. Its size is most enormous; the longest fruit I grew was 3 feet 4 inches in length. The calculated length of 107 fruit grown by me was 284 feet (an average of about 32 inches each fruit). It is a splendid pearl-white-spine, colour best green, which it retains to the last. . . . I give this after twenty-one years' successful practice in growing Cucumbers."

From the GARDENERS' CHRONICLE *of July* 15, 1874.

"FRUIT COMMITTEE.—A. Smee, Esq., F.R.S., in the chair. At this meeting Mr. Barr, 12, King Street, Covent Garden, sent three varieties of Cucumber, viz., Daniels' Duke of Edinburgh, a fine variety of Telegraph, and Dyer's Champion. The committee decided that the former, which was the produce of seeds supplied to Messrs. Barr & Sugden by Messrs. Daniels, was too much like, if not identical with, Marquis of Lorne to be considered distinct from it.

From the JOURNAL OF HORTICULTURE, *July* 23, 1874.

"CUCUMBER, DUKE OF EDINBURGH.—As the grower of the Cucumbers sent to the Royal Horticultural Society by Messrs. Barr & Sugden as Messrs. Daniels' Duke of Edinburgh, and said to be the Marquis of Lorne, I can say there is a great difference between the two varieties. I have grown the Marquis of Lorne for two seasons before, and have it now; and I find the Duke a very free-fruiting kind, which I cannot say the other variety is, and it is much larger. The Cucumbers sent were not grown one to a plant on purpose to be exhibited, but were all cut from one plant bearing other smaller fruit. The largest of them, although only 2 feet long, weighed 3 lb. 8¼ oz.—T. REDLEY, Uxbridge."



Electrotypes of Block, as above, can be supplied.

Mr. D. F. FISH *in the* GARDENERS' CHRONICLE *of July* 25, 1874, *writes*:—

"DANIELS' DUKE OF EDINBURGH CUCUMBER.—The decisions of the Fruit and Floral Committees of the Royal Horticultural Society are generally given with so much care and correctness that they are seldom called in question. Perhaps, too, the fact of these decisions being so often given in reference to novelties with which the major part of your readers have little or no acquaintance may partly account for the general acquiescence with which their estimate is received of the worth or worthlessness of particular varieties. Be that as it may, assuredly the committee have made a mistake in refusing an award to the above Cucumber on the ground of its not being sufficiently distinct from the Marquis of Lorne. I grow both side by side, and it would be almost impossible for two Cucumbers corresponding nearly in length to be more unlike each other. In colour, in texture, in height, in quality, in form, in bloom, they are almost as unlike as Telegraph is to Blue Gown. The committee must have had the wrong variety of either one or the other Cucumber before them, or they could never have made such a mistake. In colour and bloom there is the widest difference, while in quality, which might not be tested by the committee, the difference is wide as the poles asunder, the Marquis of Lorne being one of the worst; and the Duke of Edinburgh (Daniels') one of the best long Cucumbers grown. I may add that it took the prize at the Bury St. Edmund's show in competition with several model braces of the Marquis of Lorne, shown by other exhibitors and myself. So much I have felt compelled in justice to say, as a grower of both Cucumbers. I have not grown Monro's Duke of Edinburgh—a totally different Cucumber, of the Telegraph or Ipswich Gem type, and also, I believe, of excellent quality. The two of one name is unfortunate, but they are totally distinct, and both good in their class; and the two varieties of one name could not, of course, influence the Fruit Committee to declare that Daniels' Duke of Edinburgh was not sufficiently distinct from Marquis of Lorne to be certificated; on the contrary, the distinction is almost emphatic, I might add glaring. *D. T. Fish.*"

From the GARDENERS' CHRONICLE, *August* 1, 1874:—

"CUCUMBERS: DANIELS' DUKE OF EDINBURGH AND THE MARQUIS OF LORNE.—On reading the reports of the Fruit and Floral Committees of the Royal Horticultural Society, knowing how very careful they are in examining specimens sent to them, I was surprised to find that Daniels' Duke of Edinburgh Cucumber was thought the same as Marquis of Lorne. Surely the two varieties could not have been shown true, or, as Mr. D. T. Fish remarks, there would not be any trouble in distinguishing one from the other. I should fancy that both the specimens shown were of one and the same variety. I am now growing Daniels' Duke of Edinburgh, Marquis of Lorne, Wonder of the North, Blue Gown, Telegraph, &c., all in one house, and the two varieties now under discussion are as different from each other as any two sorts grown. Both are about of the same length, but different in shape, colour, &c. The Duke will bring more fruit to maturity in a given space of room than will the Marquis. I have some nice specimens of the Duke of Edinburgh in pits for seed, and I find as they get old they turn lighter before ripening, as also does the Marquis of Lorne: but even then the two varieties can easily be distinguished. The Marquis of Lorne is round at the point when the blossom drops, the Duke of Edinburgh is pointed. I shall give preference to the Duke of Edinburgh for my own use, and class it as a useful and good exhibition variety. *C. Osman, Sutton.*"

A List of those Firms from whom our "Duke of Edinburgh" Cucumber can be obtained true will be published in a future Number.

DANIELS BROTHERS, The Royal Norfolk Seed Establishment, Norwich.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.
PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.
All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.
POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

FOR AVENUES and ORNAMENTAL PLANTING.
ABIES DOUGLASII, 10 to 12 feet, £3 per dozen.
CEDAR, Mount Atlas, 10 to 12 feet, £8 8s. per dozen.
CHINESE JUNIPER, 5 to 6 feet, 30s. per dozen, £10 per 100; 6 to 7 feet, 30s. per dozen, £12 10s. per 100; 7 to 8 feet, 42s. per dozen, £15 per 100.
PICEA NORDMANNIANA, 3 to 4 feet, 42s. per dozen, £12 10s. per 100; 4 to 5 feet, 60s. per dozen, £20 per 100.
PICEA PINSAPO, 6 to 7 feet, £6 6s. per dozen; 7 to 8 feet, £8 8s. per dozen.
THUJA LOBBII, 12 to 15 feet, £4 4s. per dozen.
WELLINGTONIA GIGANTEA, 5 to 6 feet, £5 per dozen.
All well grown and recently transplanted. For full descriptions see LIST of the EVERGREEN FIR TRIBE.
RICHARD SMITH, Nurseryman, Worcester.

4000 Double-flowered Chinese Primrose.

E. G. HENDERSON AND SON can now offer of the above, strong healthy New Plants, of 1874 growth, including Atro-rosea, Blushing Beauty, Exquisite, Empress, Emperior, Lilac Queen, King of Purples, Magenta Queen, Magnifica, Mrs. Eyre Crabbe, Pearl Blossom, Princess of Wales, rubra grandiflora, &c. Twelve varieties, from 30s. to 42s. and 60s.
PRIMULA JAPONICA, mixed varieties, 9d. each, 6s. per dozen; in six colours, raised from selected varieties, 1s. 6d. each.
AUBRIETIA HENDERSONI, the finest variety in growth and colour, strong plants, 2s. each, 18s. per dozen.
DAISY, Flower of Spring, beautiful and effective, pure white, with elegant gold-blotched leaves, 1s. each, 9s. per dozen.
VIOLETS, White Czar and Victoria regina, 1s. 6d. each.
CYCLAMEN PERSICUM (from 3000 plants), mixed colours, 9s., 12s., and 18s. per dozen; collection to name 21s. and 30s. per dozen.
IRIS KÆMPHERI, Edward George Henderson and Andrew Henderson, the most beautiful of all the Iris group.
LEUCOJUM VERNUM, the true Spring Snowflake, with fragrant, large, Snowdrop-like flowers, dwarfer in habit than other species, 1s. 6d. per dozen, 8s. per 100.
MYOSOTIS RUPICOLA, the most beautiful of Forget-me-nots, 1s. 6d. each.
The Trade supplied on usual terms for all the above.
For full descriptions see CATALOGUE 155.
Wellington Nursery, St. John's Wood, London, N.W.

Forest and Ornamental Trees, Evergreens, Plants
For GAME COVERTS, &c.

FRANCIS & ARTHUR DICKSON & SONS, the "Upton" Nurseries, Chester, respectfully invite attention to or inspection of their almost unlimited stock of
FOREST TREES, PLANTS for GAME COVERTS,
ORNAMENTAL TREES, CONIFERS,
EVERGREEN and DECIDUOUS SHRUBS,
FRUIT TREES, VINES, &c.;
ROSES, STOVE and GREENHOUSE PLANTS, &c.
The special recommendations of their Plants are extreme hardiness; and, from frequent transplantation, their plants are well furnished, and have abundance of fibrous roots, so that they remove to any part of the country with perfect safety. Inspection invited. Visitors should ask for "The Upton" Nurseries, distant about a mile from Chester Station.
Descriptive Priced CATALOGUES post free on application.

JAMES ANDERSON, NURSERYMAN and HORTICULTURAL VALUATOR, Meadowbank, Uddingston, Glasgow, begs to announce to the public generally that he is now offering SELECTIONS of ORCHIDS, either in small or in large lots, suitable either for cool, intermediate, or warm temperatures; and that he is prepared to deal liberally with those who may entrust him with their orders.
Mr. ANDERSON'S stock of AMARYLLIS is the rarest and finest selected in the Kingdom, and he is prepared to offer them singly, in dozens, or hundreds, to suit purchasers. His stock, too, of the beautiful family of NERINE is large, and comprises some seedlings not yet in commerce.
Mr. ANDERSON is also offering SPECIMEN CAMELLIAS and AZALEAS in splendid health and full of buds, as well as a general lot of beautiful-leaved PLANTS, suitable either for indoor decoration or exhibition purposes.
Mr. ANDERSON'S stock of HARDY SHRUBS and TREES, both Deciduous and Evergreen, is a particularly choice one.
Special quotations to buyers on application.
Meadowbank Nurseries, November 11.

PLANTING SEASON.
LARCH, SCOTCH FIR, ENGLISH OAK, and all other Forest Trees.
QUICK, and all other Hedge Plants.
COVERT PLANTS in great variety.
FRUIT TREES, including all the best and most esteemed varieties—quarter of a million trees.
ROSES, Standards, Dwarfs, the newest and best varieties—100,000 to select from.
VINES, all the leading varieties in 2000 well ripened canes for fruiting in pots and for planting out.
EVERGREENS in great variety, including large quantities of all the choicest Hollies, &c.
CONIFERS, including Picea Nordmanniana, &c.,
ORNAMENTAL TREES and Plants of all sorts.
*** The whole in very great quantity and stout vigorous condition, with fine roots, for safe removal.
Priced LIST and all particulars on application.
JAMES DICKSON & SONS, Newton Nurseries, Chester.
☞ The "Newton" Nurseries are within eight minutes' walk, by the new road, from the Chester Railway Station.

ROSES, Dwarf, on Manetti.—The finest plants in the Trade, all good leading sorts, at 30s. per 100, £14 10s. per 1000.
SEAKALE, extra strong, for forcing, No. 1, 80s. per 1000.
SEAKALE, forcing, No. 2, 60s. per 1000.
CURRANTS, Black and Red, fine, with good stems from the ground, 16s. per 100.
STRAWBERRIES, leading sorts, 12s. 6d. per 1000.
The above are for Cash only with Orders.
R. LOCKE, Red Hill, Surrey.

The Nurseries, Reddish, near Stockport.
SPECIAL OFFER to the TRADE.

B. WHITHAM begs to call attention to the subjoined LIST of TREES and SHRUBS, all fine, bushy plants, many times transplanted:—
AREA THEOPHRASTA, 4 to 6 feet, 20s. per 100; 6 to 8 feet, 30s. per 100.
ASH, Mountain, 6 to 8 feet, 12s. 6d. per 100; 8 to 10 feet, 25s. per 100.
BEECH, 3 to 4 feet, 8s. per 100; 4 to 6 feet, 16s. per 100; 6 to 8 feet, 30s. per 100; 8 to 10 feet, 50s. per 100.
CHESTNUT, Horse, 2 to 3 feet, 6s. per 100; 3 to 4 feet, 8s. per 100; 6 to 8 feet, 25s. per 100; 8 to 10 feet, 30s. per 100.
LIMES, 2 to 3 feet, 8s. per 100; 3 to 4 feet, 14s. per 100; 4 to 5 feet, 20s. per 100; 5 to 6 feet, 25s. per 100; 6 to 7 feet, 40s. per 100; 7 to 9 feet, 60s. per 100.
PINUS AUSTRIACA, 2 to 3 feet, 12s. 6d. per 100; 3 to 4 feet, 25s. per 100.
POPLAR, Lombardy, 4 to 6 feet, 8s. per 100; 6 to 8 feet, 16s. per 100.
POPLAR, Ontario, 4 to 6 feet, 8s. per 100; 6 to 8 feet, 15s. per 100.
PRIVET, 2 to 3 feet, 15s. per 1000.
ARBOR-VITÆ, American, 2 to 3 feet, 20s. per 100; 3 to 4 feet, 25s. per 100; 4 to 5 feet, 35s. per 100; 5 to 6 feet, 50s. per 100; 6 to 7 feet, 75s. per 100.
ARBOR-VITÆ LOBBII, 2 to 3 feet, 30s. per 100; 3 to 4 feet, 50s. per 100; 4 to 5 feet, 75s. per 100.
BERBERIS AQUIFOLIA, 9 to 15 inches, 5s. per 100; 12 to 18 inches, 6s. per 100; 1½ to 2 feet, 12s. 6d. per 100.
BERBERIS DARWINII, 2 to 3 feet, 40s. per 100.
DOGWOOD, strong, 4 to 5 feet, 12s. 6d. per 100.
LAUREL, Common, 4 to 6 feet, 25s. per 100.
LAUREL, Portugal, 6 to 12 inches, 10s. per 100; 12 to 18 inches, 25s. per 100; 18 to 24 inches, 40s. per 100.
RHODODENDRONS, 6 to 9 inches, very bushy, 60s. per 1000; 9 to 12 inches, 20s. per 100; 1 to 1½ feet, 25s. per 100; 1½ to 2 feet, 40s. per 100; 3½ to 4½ feet, extra strong, £10 per 100. Best named varieties, fine bushy plants, £7 10s. per 100.
YEWS, English, fine, 6 to 12 inches, 10s. per 100; 12 to 18 inches, 20s. per 100; 1½ to 2 feet, 30s. per 100; 2 to 3 feet, 60s. per 100.
YEWS, Irish, 3 to 4 feet, 18s. per dozen.
CHERRIES, extra strong, 5 to 7 feet, 12s. per dozen.
CHERRIES, Pyramids, 4 to 6 feet, 30s. per 100.
CURRANTS, Red, strong, 7s. per 100.
CURRANTS, Black, strong, 10s. per 100.
GOOSEBERRIES, best Lancashire show varieties, 20s. per 100.
STRAWBERRY, Yates' Seedling, 15s. per 1000. One of the best in cultivation, very prolific; no grower should be without this variety.

The BEST DWARF FRENCH BEAN for EARLY FORCING and for GENERAL CROPPING is

OSBORNS' NEW EARLY FORCING.

It is very dwarf, wonderfully prolific, and of an excellent flavour, and is equally valuable also for open ground culture. We have received letters from many eminent Gardeners speaking of it in the highest terms, but as it is now so well known, and as so many articles have appeared in the leading gardening papers in its favour, we think it unnecessary to make any further quotations than those noted below.

Extract from the "GARDENERS' CHRONICLE" *of August* 16, 1872, *p.* 1115.

OSBORNS' FORCING FRENCH BEAN.

"Some few months ago I took the opportunity to bring before the notice of your readers the good quality of the above French Bean for forcing purposes. Having now given it a trial out-of-doors, I am in a position to speak of its merits there. To those who have not hitherto grown this French Bean, I can confidently recommend it as a really good useful variety. It is moderately dwarf in growth, a tremendous cropper, and as early as any French Bean I know. We have this season grown 'Fulmer's Forcing,' 'Negro Long-podded,' 'Sion House,' and 'Sir J. Paxton;' and 'OSBORNS', in my opinion, is the best of the batch. I purchased only a half-pint packet of seed this spring; after trying about a dozen pots of it, the rest was sown in a row 50 feet long, from which we could pick to-day at least five pecks of good Beans. In these days of great Novelties, when so many useless vegetables are palmed on the gardening public, I think it only right that any good thing that does come out should be well known. Like 'Veitch's Autumn Giant Cauliflower,' 'OSBORNS' FRENCH BEAN' will come to be a standard vegetable in most gardens."

H. J. C., The Gardens, Grimston Park, Tadcaster.

The late Mr. BROWN, *of Powis Castle, Welshpool, in a letter of January* 5, 1874, *says:*—"I have proved your Bean. With me it beats all I have hitherto grown, both for forcing and out-door supply."

Mr. JOHN STIRLING, *Park Wern, Swansea, July* 14, 1874, *says:*—"My principal object in writing is to congratulate you on the very superior qualities of your Bean. I have sown it side by side with 'Fulmer's' and 'Negro,' and I find it about ten days earlier than either of those varieties, and from its compact growth and very prolific bearing qualities it cannot fail to become a general favourite. It will be invaluable to small gardens with limited space, as from its dwarf and compact habit it does not require nearly so much room as other varieties."

The results of our own trials, supported by the unanimous opinion of those who have thoroughly tested the capabilities of the Bean in question, satisfy us that it is the best of its class for the purposes for which it is particularly recommended, and it is therefore that we offer it again with the greatest confidence to the Public.

Price 3s. per Quart.

Our Trade List, containing Special Quotations of the above, and other Choice Seeds, is now published, and may be had on application.

OSBORN AND SONS, THE NURSERY, FULHAM, LONDON, S.W.

SEVEN INTERNATIONAL MEDALS AWARDED TO

JAMES GIBBS AND COMPANY,

SOLE MANUFACTURERS OF THE

PATENT AMMONIA-FIXED GUANO,

The Cheapest and Best Manure in use. Consumers are warned that none is genuine unless the Bags bear the TRADE MARK, and are secured with a Leaden Seal.

ALSO BONE AND SPECIAL MANURES,

OF THE BEST QUALITY, AND IN THE HIGHEST CONDITION.

PARTICULARS OF

JAMES GIBBS AND COMPANY,

Works—Victoria Docks, London, E., and Cattedown, Plymouth. Offices—16, Mark Lane, London, E.C.

SWEET VIOLETS.

MARIE LOUISE, the best Violet in cultivation, large double blue, white centre; flowers from August to May. Sample flowers sent post-free on application. Large flowering clumps, 12*s.* per dozen; rooted plants, 30*s.* per 100.

BLANDYANUM, double dark purple; flowers from August to May. Large clumps, 6*s.* per dozen, 40*s.* per 100; rooted plants, 20*s.* per 100.

KING OF VIOLETS, very large double. Good clumps, 6*s.* per dozen, 40*s.* per 100; rooted plants, 20*s.* per 100.

REINE DES VIOLETS, very large double white. Large clumps, 6*s.* per dozen, 40*s.* per 100; rooted plants, 20*s.* per 100.

NEAPOLITAN, double, lavender-blue, 6*s.* per dozen; rooted plants, 20*s.* per 100.

NEAPOLITAN, single, lavender-blue, 4*s.* per dozen.

The above are all strong, healthy plants, and suitable for Potting or Forming Masses in the Flower Garden.

Priced CATALOGUE of BULBS and SPRING BEDDING PLANTS free on application.

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

EVERGREEN SHRUBS for WINTER BEDDING.

	Per doz.—*s.*	*d.*		Per doz.—*s.*	*d.*
Aucuba japonica, 12 to 15 inches	8	0	Laurel, rotundifolia, 12 to 15 inches	6	0
Biota elegantissima, 9 to 10 inches	12	0	Mahonia Aquifolia, 12 to 15 inches	2	0
Double Gorse, 12 to 15 in.	6	0	Menziesia, dwarf purple	6	0
Erica carnea, dwarf	6	0	,, ,, white	6	0
,, multiflora rubra	6	0	Pernettya angustifolia, dwarf	8	0
,, vagans rubra	6	0	Tree Ivy, 12 to 15 inches	10	0
Golden Yews, 12 to 15 in.	12	0	,, ,, Rœgneriana, 12 to 15 inches	12	0
,, Vinca, dwarf	3	0	,, ,, yellow berried, 9 to 12 inches	12	0
Hartogia capensis, 12 to 15 inches	8	0	,, ,, silver striped, new, 9 to 10 in.	12	0
Japan Privet, 12 to 15 in.	6	0	,, tricolor, 9 to 10 in.	12	0
,, Yews, 12 to 15 in.	9	0	Yucca filamentosa, 12 to 15 inches	12	0
Laurel, willow-leaved, 12 to 15 inches	6	0	,, gloriosa pendula, 12 to 15 inches	12	0
,, Portugal, 12 to 15 inches	4	0			
Laurel, Caucasian, 12 to 15 inches	4	0			

RICHARD SMITH, Nurseryman, Worcester.

ROSES.

Twelve Acres of Standard and Dwarf Roses, all clean, strong, healthy, fully ripened and well rooted.

Eighty thousand choicest Tea-scented and Noisette Roses, in pots for Conservatories, walls, and sheltered situations out-of-doors.

Extra strong Hybrid Perpetual Roses of best sorts, in pots, for forcing.

Climbing Roses in great variety, for quickly covering Rockwork, Pillars, Trellises, &c.

Descriptive Price LIST on application.

R. S. will be happy to give a special quotation for large quantities.

RICHARD SMITH, Nurseryman, Worcester.

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.

JACKMAN'S LIST of FRUIT TREES.

JACKMAN'S LIST of ROSES.

JACKMAN'S LIST of AMERICAN PLANTS.

JACKMAN'S LIST of CONIFERS.

JACKMAN'S LIST of HARDY SHRUBS.

JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.

JACKMAN'S LIST of CLEMATIS (Special Catalogue).

JACKMAN'S LIST of TRANSPLANTED FOREST TREES.

JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.

GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality:—

MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 ft.
CHESTNUTS, Common Horse and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.

Woking Nursery, Surrey, S.W.

LANDSCAPE GARDENING.—Parks and Pleasure Grounds laid out, Croquet Lawns and Cricket Grounds made, Ferneries built. Personal superintendence given to all works. Plans designed, and Estimates for Contracts given.

G. B. SIMPSON, Landscape Gardener, Nightingale Lane, Clapham, S.E.

CHOICE RHODODENDRONS.

ALARM, white centre, edged with bright carmine.
BRAYANUM, vivid scarlet, very fine.
CONCESSUM, fine clear rosy pink.
ELFRIDA, deep rose, much spotted.
EVERESTIANUM, rosy lilac, with dark spots.
HENDERSONII, purplish crimson, very free bloomer.
JOSEPH WHITWORTH, very dark rich lake, spotted, fine blooms.
LADY ELEANOR CATHCART, fine clear rose, beautifully spotted.
MICHAEL WATERER, splendid crimson, large truss.
MINNIE, blush white, large chocolate spots.
MRS. JOHN CLUTTON, beautiful clear white, fine truss.
NERO, fine dark rosy purple, large blooms.

The above very beautiful and distinct varieties are offered by W. H. ROGERS, Red Lodge Nursery, Southampton, at 2*s.* 6*d.* each.

An immense number of other named varieties, as per Catalogue, at 1*s.* 6*d.* each, selected; or £6 per 100.

IMPORTANT to GRAPE GROWERS.—Complaints reach me from several Customers of the delay in the delivery of ROLLER CRUSHED BONE. This is occasioned by the Letters being addressed to my Mills at Rotherhithe, instead of the Seed and Manure Warehouses, Borough End, London Bridge, S.E.

RANSLEY TANTON, F.R.H.S.

TURF of excellent quality can be put in trucks at the Lea Railway Station, on the South-Eastern Dartford Loop Line, at 9*s.* per 100 (33 square yards). Apply to Mr. J. POUND, Burnt Ash Lane, Lee, Kent, S.E.

THE LONDON MANURE COMPANY (ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

CANTHARIKOPHO.
COCKROACH AND BEETLE POISON.
Destroys Rats and Mice.
Sold everywhere in Tin Boxes. By post, 1*s.* 3*d.* and 1*s.* 10*d.* each.

TRADE MARK.

Entered at Stationers' Hall.

F. STEVENSON'S ABYSSINIAN MIXTURE, Warranted to Destroy Mealy Bug, and all Insects infesting Plants. Unequalled as a Winter Dressing for Vines and Fruit Trees.

Sold by all Nurserymen and Seed Merchants, in Bottles, 1*s.* 6*d.*, 3*s.*, 4*s.* 6*d.* & 5*s.* 6*d.* each.

Inventor and Sole Manufacturer, F. STEVENSON, STAMFORD ST., ALTRINCHAM, CHESHIRE. (Late of Lark Hill, Timperley.)

MILDEW

May be entirely prevented as well as cured by EWING'S INFALLIBLE COMPOSITION. Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions for use.

TEN THOUSAND ARCHANGEL BEST MATS, and 10,000 ST. PETERSBURG MATS, just arrived. Prices, &c., on application to WM. PETERS, 44, Tenter Street South, Goodman's Fields, near Minories, E.

Protection from Frost.

TRELOAR AND SONS' COCOA-NUT PALM-LEAF GARDEN MATS will keep out many degrees of frost. Price 30*s.* per dozen.

TRELOAR AND SONS, 69, Ludgate Hill, London, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing, Second sized Archangel, 100*s.*; Petersburg, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; packing Mats, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of Mats at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

GARDEN TARPAULINGS, 24*s.* per dozen; size, 6 by 4; with cords and eyelet-holes. Other sizes at the rate of 9*d.* per square yard. They are made from second-hand railway-truck covers, and are re-dressed. Excellent POLICE CAPES, 36*s.* per dozen; DRIVING APRONS, 2*s.* Large WATERPROOF CAPES, 4*s.* 6*d.*; LEGGINGS, 2*s.*

R. RICHARDSON, 99, Euston Road, N.W.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton, and the late Professor Lindley, &c., &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.

PROTECTION FROM COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.
"FRIGI DOMO" CANVAS.

Two yards wide	.. ..	1*s.* 10*d.* per yard run.
Three yards wide	.. ..	3*s.* per yard.
Four yards wide	.. ..	3*s.* 10*d.* per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

Labels—Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3*s.* 6*d.* per 1000, or 30*s.* per 10,000; if eyeleted, 4*s.* per 1000. Vellum Cartridge, 4 inches long, 3*s.* per 1000 or 10,000. Sample Labels sent on receipt of Postage Stamps. Orders delivered free in London.

JOHN FISHER AND CO., Label Works, Boston.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Gardener* for March 1, 1873:—"ROBERTS'S Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,

THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

Reduced Prices.

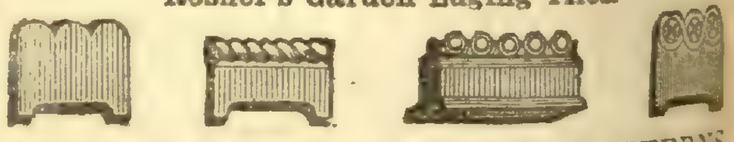
THE CELEBRATED GRANITIC PAINT, Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars, and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

Rosher's Garden Edging Tiles.



THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants. See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

T. G. MESSENGER,

CONTRACTOR, MIDLAND HORTICULTURAL BUILDING AND HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH,

Begs to inform his numerous Patrons and the Public generally, that since his recent disastrous fire he has erected new, more extensive, and commodious works, fitted with the best steam-power machinery, for the construction of Horticultural Buildings in wood or iron, plain or ornamental, of any required dimensions. T. G. MESSENGER is now, therefore, in a position, from his great facilities and experience, to carry out with dispatch and in the best manner, at moderate cost, the orders with which he may be entrusted. Glasshouses erected on Messenger's Patent principles are, owing to mechanical arrangements, very strong, *most durable*, light, *elegant; perfect efficiency* for purpose intended is *guaranteed;* are economical in cost and maintenance. Hot-water engineering in all its branches. Messenger's Patent Hot-water Boilers, Flexible Jointed Hot-water Pipes and Valves, are now in use in many thousands of instances, with the greatest success. Particulars on application.

Plans and Estimates forwarded. Ladies and Gentlemen waited upon. The Plans of Architects and others carried out.

A richly Illustrated CATALOGUE forwarded Post Free on receipt of 33 Stamps.

ST. PANCRAS IRON-WORK COMPANY.

CONSERVATORIES, GREENHOUSES, &c.

ARCHITECTS' DESIGNS CAREFULLY CARRIED OUT.

APPLY FOR ESTIMATES TO

OLD SAINT PANCRAS ROAD, LONDON, N.W.

THE THAMES BANK IRON COMPANY

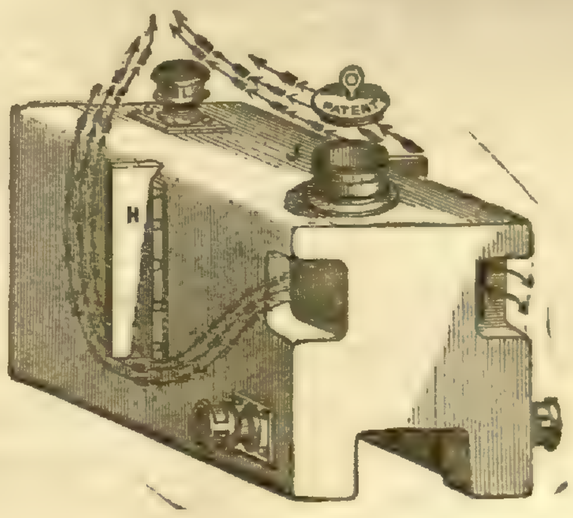
(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

SURREY SIDE, BLACKFRIARS BRIDGE,

Have the largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.

HOT-WATER BOILERS,



("CLIMAX.")

PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

NEW PATENT "CLIMAX" BOILER (1874). See p. 666, *Gardeners' Chronicle.*

"GOLD MEDAL" BOILER (Birmingham, 1872).

PATENT "EXCELSIOR" BOILER (1871).

"WITLEY COURT" BOILER (Silver Medal, 1872).

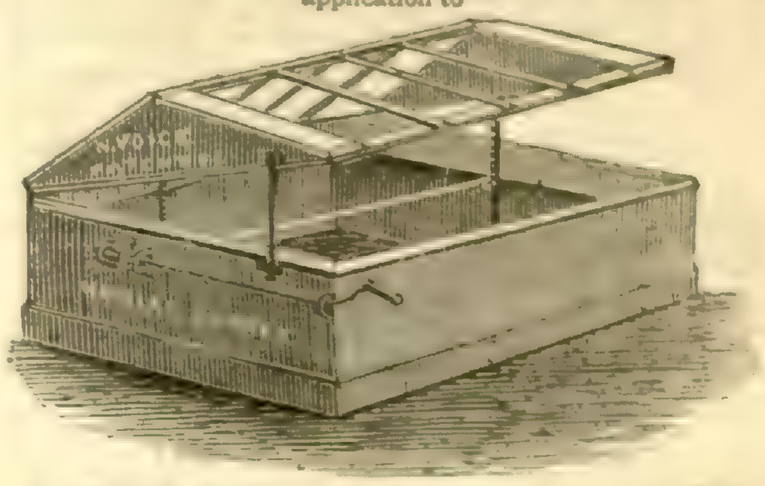
"TRENTHAM IMPROVED" BOILER, with Waterway End and Smoke Consumer.

"TUBULAR," and every other Boiler of known merit or excellence.

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

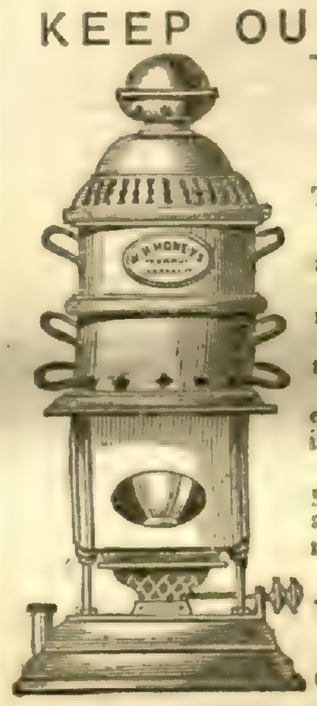
W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

ESTABLISHED 1856.

KEEP OUT THE FROST.



WILLIAM H. HONEY'S PORTABLE VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

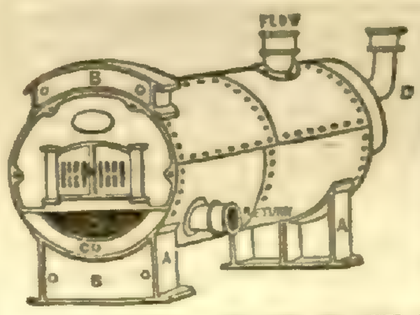
Prices, in block tin, 30*s.*; in copper, 50*s.* Copper, with glass, to give light and heat, 55*s.* Either will be sent on receipt of Post-office Order.

To be seen in operation at

WILLIAM H. HONEY,

263, REGENT STREET, W.

Catalogue free. No agents appointed.



STEVENS' TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

HOT-WATER APPARATUS

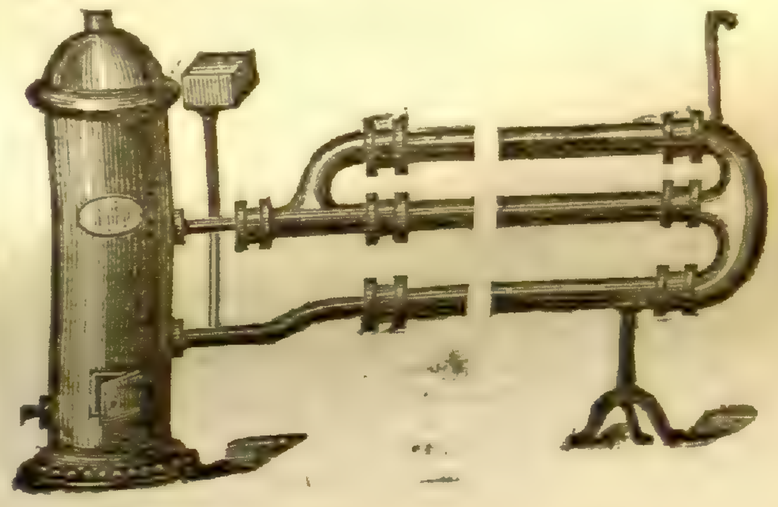
(Heated by Gas)

FOR SMALL CONSERVATORIES, GREENHOUSES, &c.

Price from £3 3*s.* To be had of

JOHN GILL AND CO., 299, Oxford Street, London, W., and of all Ironmongers.

Wholesale only of JOHN WRIGHT AND CO., Essex Works, Broad Street, Birmingham.



GALVANISED WROUGHT IRON

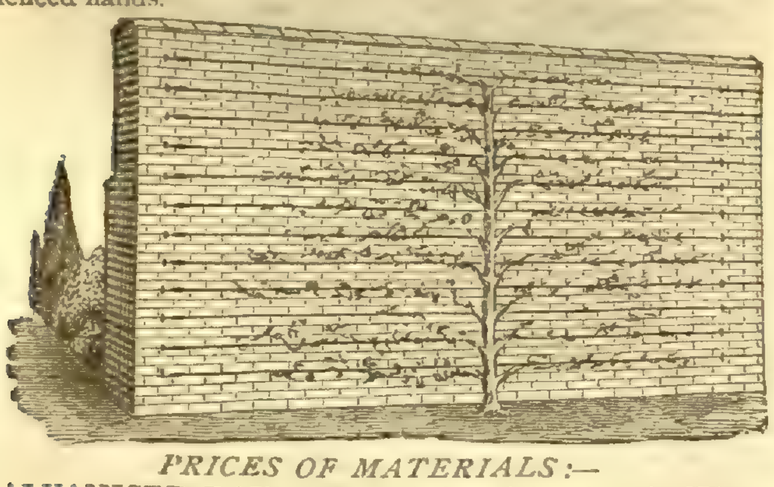
FITTINGS for WIRING WALLS,

For the Purpose of Training Fruit Trees

ON THE FRENCH SYSTEM,

and as recommended by Mr. W. ROBINSON, F.L.S., in his new work, "The Parks, Promenades, and Gardens of Paris."

By this system nails and shreds are entirely dispensed with, the walls are not injured, and no harbour is afforded to small insects. The Tying of the Fruit Trees is effected in one-fifth of the time required by the old system. The arrangement is so simple, that it can easily be applied to any Walls by inexperienced hands.



PRICES OF MATERIALS:—

GALVANISED RAIDISSEURS for Tightening the Wires. One of these required for each Line of Wire.

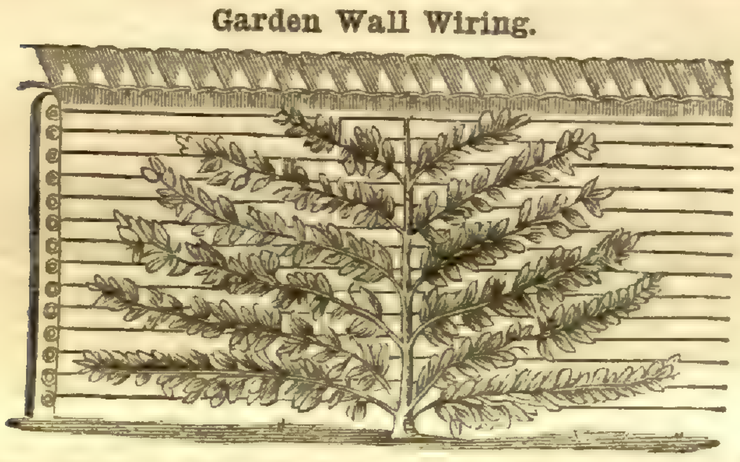
No. 900. 4*s.* per doz.

GALVANISED WALL EYES, 6*d.* per dozen.
GALVANISED TERMINATING HOLDFASTS, 2*s.* per doz.
GALVANISED WIRE, 2*s.* 6*d.* and 3*s.* per 100 yards.

ILLUSTRATED LISTS, with full particulars of the above, and of FITTINGS for ESPALIER TRAINERS, on very economical principles, free on application to

BARNARD, BISHOP & BARNARDS,
NORFOLK IRONWORKS, NORWICH.

Garden Wall Wiring.



R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.

For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.

Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.

Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA. BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast-tables with a delicately flavoured beverage, which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us, ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame." See article in the *Civil Service Gazette*.

Made simply with boiling water or milk.

Sold in packets (in tins for abroad) labelled:—
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS,
48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, London, N.W.
Makers of Epps's Glycerine Jujubes for Throat Irritation.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

For Park, Farm, and General Enclosures.

FRANCIS MORTON & Co's (LIMITED) LIVERPOOL NAYLOR STREET CABLE FENCING

Is in use over many thousand miles,

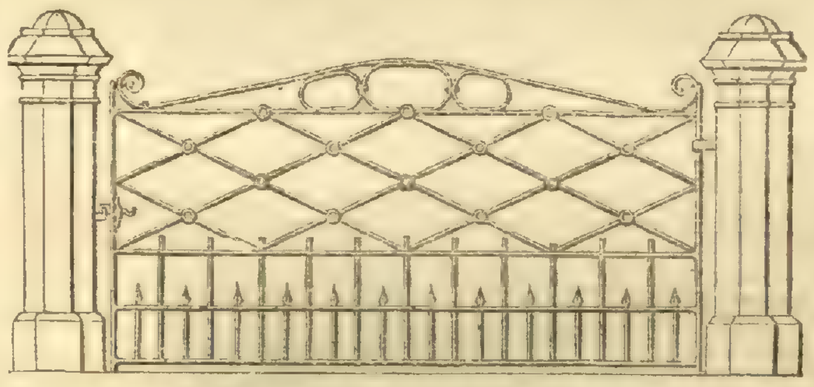
And has been awarded the Silver Medals and Highest Commendations of the leading Agricultural Societies, it forms the most efficient strained iron fence known.

ORNAMENTAL

IRON ENTRANCE GATES, &c.,

IN WROUGHT AND CAST IRON,

Designed for the Mansion, Villa, or Farm.



Field, Wicket, and Garden Gates
In Great Variety of Patterns.
ORNAMENTAL and FIELD HURDLES,
With Round or Flat Bars.
Continuous Bar Iron Fencing,

Fitted with F. M. & Co.'s Patent Self-locking Joints, which form a continuous rigid brace from end to end of the Fence, and the most perfect system for securing its efficiency.

F. M. & Co.'s New Illustrated CATALOGUE is now ready, and will be forwarded on application.

LONDON OFFICE—
1, DELAHAY ST., WESTMINSTER, S.W.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE. Illustrated Price Lists free. HEREMAN AND MORTON, 14, Tilsborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

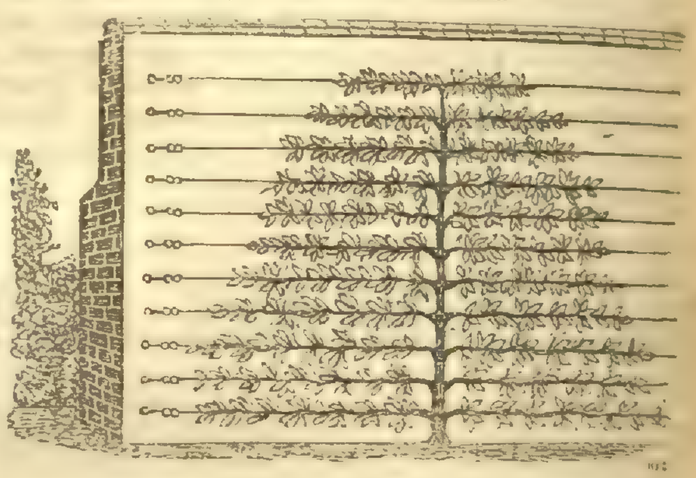
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

THOMAS'S
GALVANIZED

WROUGHT-IRON FITTINGS

FOR WIRING WALLS, FOR THE PURPOSE OF TRAINING FRUIT TREES

On the French system, and as recommended by Mr. W. Robinson, F.L.S., editor of *The Garden*, and author of "The Parks, Promenades, and Gardens of Paris."



Prices of Materials. Per doz.—*s. d.*

GALVANISED RAIDISSEURS 4 0
GALVANISED TERMINATING HOLDFASTS .. 2 0
(Two required for each line of wire.)
GALVANISED WALL EYES 0 6
GALVANISED WIRE, 2*s.*, 2*s.* 6*d.*, and 3*s.* per 100 yards.

Illustrated Lists, with full particulars of the above and Fittings for Espalier Trainers, on very economical principles free on application.

Five per cent. discount allowed for prompt cash on orders amounting to 20*s.* and upwards. Special quotations for larger quantities.

J. J. THOMAS & CO.,
PADDINGTON WIREWORKS, 285 and 362, EDGWARE ROAD, LONDON, W.

Illustrated and Priced Catalogues of every description of Horticultural Wirework on application.

Notice.

(*By Appointment to the Royal Horticultural Society*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

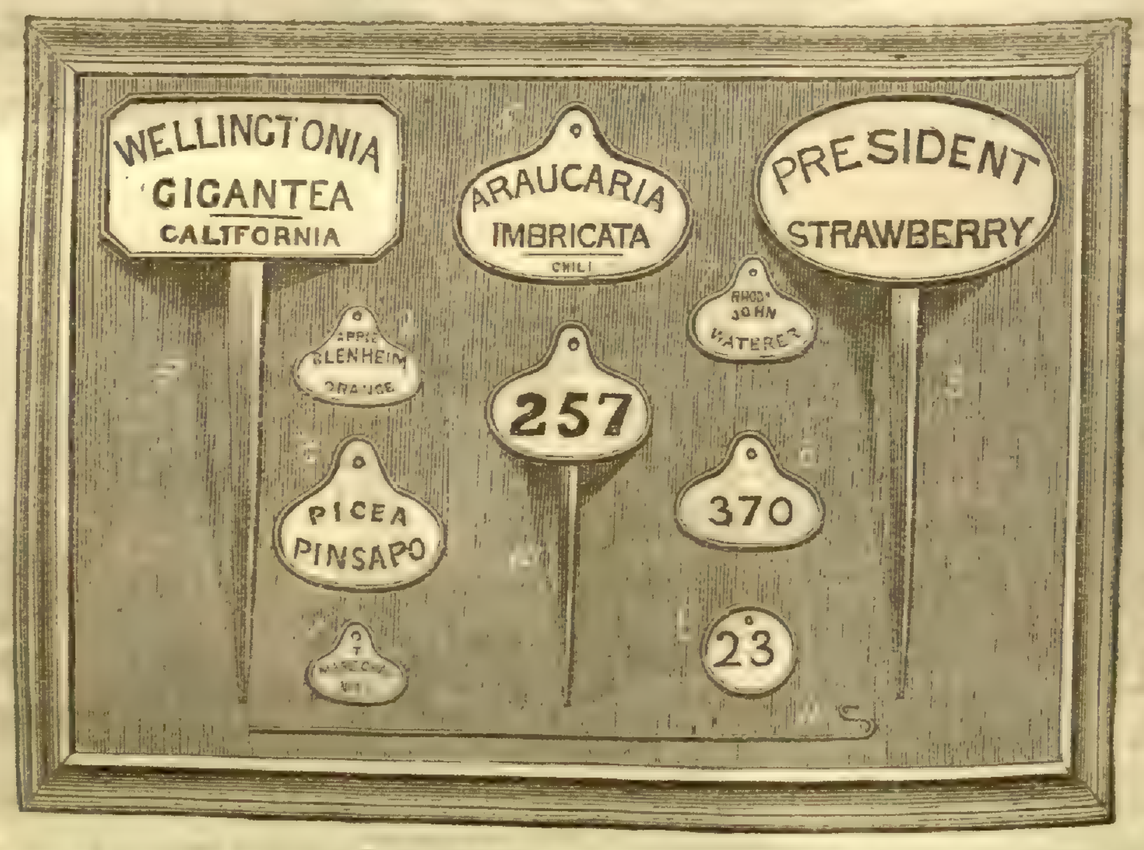
ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

By Appointment to and under the distinguished Patronage of Her Majesty.

J. SMITH'S IMPROVED GARDEN LABELS

(REGISTERED).



The above Labels, which have just been adopted for the Royal Gardens at Windsor, are made of a white metal with RAISED BLACK-FACED LETTERS.

Samples and Price List free.

SOLE MANUFACTURER,
J. SMITH, THE ROYAL LABEL FACTORY, STRATFORD-ON-AVON.

THE AGRICULTURAL GAZETTE,
SATURDAY, NOVEMBER 28, 1874,
Contains—

ORIGINAL ARTICLES on the Feeding of Store Cattle—How to Tell the Age by the State of the Dentition—Fish and Fowl in China—The Hen Roost—Rules for Choosing Poultry—Household Pets—A Useful Piece of Furniture (Illustrated)—The Speedville Creamery, New York—Small and Large Milkers—"A Tenant-Right Bill"—Agricultural Machinery (Illustrated)—Number of Horses, Cattle, Sheep, and Pigs in England and Wales in 1873 and 1874—The Beech an Alien in Wales—Agricultural Politics—College Fours at Oxford and Cambridge—Rural Sanitary Reform—Common Law for Farmers—The Pertenhall (Beds) Farm Buildings (with Page Illustration)—Shorthorn Intelligence—Hedgerows and Enclosures—The Future of British Farming, &c.

HOME AND FOREIGN CORRESPONDENCE on Why are Good Horses so Rare?—"School Board *v.* The Agricultural Labourer"—Notes from Lancashire—Great Mangel Crops—Wheat *v.* Bread—Steam Ploughing—French Agricultural Notes—Agriculture in Russia, &c.

FARM NOTES AND MEMORANDA from a large number of Counties in Great Britain and Ireland.

REPORTS OF SOCIETIES, FARMERS' CLUBS, CATTLE AND ROOT SHOWS, &c.

ALSO—

The Veterinarian—The Poultry Yard—The Garden of the Farm—The Household—Forestry—The Weather—Reports of Markets—Notices of Books—Miscellaneous, &c.

Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W. C.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London .. Mr. George Street, 30, Cornhill, E.C.
Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham. Mr. R. S. Kirk, 90, New Street.
Liverpool .. Lee & Nightingale, 15, North John Street.
Bristol .. James & Henry Grace, Royal Insurance Buildings.
Edinburgh .. Robertson & Scott, 13, Hanover Street.
Glasgow .. W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

The Greville Memoirs.
Second Edition, in 3 vols. 8vo, price 36*s.* cloth,
A JOURNAL of the REIGNS of KING late GEORGE IV. and KING WILLIAM IV. By the C. CHARLES F. GREVILLE, Esq., Clerk of the Council to those Sovereigns. Edited by HENRY REEVE, Registrar of the Privy Council. London: LONGMANS AND CO.

HORTICULTURE.—The following Works (by THOMAS RIVERS) may be had by post at the prices quoted:—
THE ORCHARD HOUSE; or the Cultivation of Trees in Pots. Fifteenth Edition. 3*s.* 6*d.*
THE MINIATURE FRUIT GARDEN; containing Directions for Root Pruning, &c. Seventeenth Edition. 3*s.*
THE ROSE AMATEUR'S GUIDE; containing the History and Culture of Roses. Tenth Edition. 4*s.*
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Just Published, price 6*d.*
FRANCIS MOORE'S ALMANAC for 1875.
This very popular Almanac, which, besides the usual Calendar, contains a fuller account of the Eclipses and Astronomical phenomena of the Year than any publication of its class, was lately increased by several pages, giving Lists of the Members of the Government, the Houses of Parliament, and other useful information, to which has been since added a List of the Principal Business Fairs in England and Wales.
The Stationers' Company, Ludgate Hill, London, and all Booksellers.

Belgian.
BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAICHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid 10*s.* per annum.
H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

New Works by the Rev. J. G. Wood, M.A.
Author of "Homes without Hands," &c.
OUT of DOORS; a Selection of Original Articles on Practical Natural History, uniform with "Strange Dwellings" by the same Author; with Six Illustrations from Original Designs engraved on Wood by G. PEARSON. Crown 8vo. Price 7*s.* 6*d.* cloth.
INSECTS ABROAD; a Popular Account of Foreign Insects, their Structure, Habits, and Transformations. With 600 Figures by E. A. SMITH and J. B. ZWECKER, engraved on Wood by G. PEARSON. Forming a Sequel or Companion Volume to "Insects at Home" by the same Author. 8vo. Price 21*s.* cloth.
London: LONGMANS AND CO.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.
Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

NOTICE.—The VACANCY for HEAD GARDENER to Sir H. W. Peek, Bart., M.P., Wimbledon House, has been FILLED UP.

WANTED, a PLANT COLLECTOR.—Mr. WILLIAM BULL is desirous of engaging a single Man to proceed to South America in the above capacity.—Personal application only at Mr. William Bull's Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

WANTED, a quick, intelligent, young MAN, to Manage a small Plant Nursery; must thoroughly understand Growing Chrysanthemums and Ferns, as well as the general kinds of Plants suited for a London Nursery. One used to Laying-out Gardens, and Superintending Jobbing Work on a small scale indispensable.—Apply personally, or by letter stating terms and all particulars, to S. DIXON AND CO., Seed Merchants, 48A, Moorgate Street, London, E.C.

Southport and Churchtown Botanic Gardens and MUSEUM COMPANY, LIMITED.
WANTED, a WORKING HEAD GARDENER, who thoroughly understands Vines and Plants, and is competent to take general Charge of Nursery and Pleasure Gardens. A residence will be provided shortly on the premises.—Applications, stating age of applicant and salary required, must be sent, not later than MONDAY, November 30, endorsed "Application as Head Gardener," and addressed to the Chairman of the above Company, 36, London Street, Southport.

WANTED, a GARDENER—his Wife to undertake Laundry. A good five-roomed cottage found. The Gardener must thoroughly understand his Business; would have the care of Kitchen and Flower Garden, and two Greenhouses with Vinery. Wages for both, 35*s.* per week.—Apply to W., Post Office, Wye, Kent.

Bulbs and Herbaceous Plants.
WANTED, an active young Man, to take Charge of a large Collection of the above.—Apply, noting where previously employed, age, and wages desired, to JAMES DICKSON AND SONS, Newton Nurseries, Chester.

Indoor Foreman.
WANTED, a thoroughly energetic and experienced PLANTSMAN, to take full Charge of the Glass Department of a large Provincial Nursery. A single Man, or married without family, preferred.—Apply, stating age, wages required, and where previously employed, to X., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

WANTED, a trustworthy, industrious Man as FOREMAN for the Indoor Department; must have a general knowledge of the Business, and be able to Grow Plants well. Also a young MAN to make himself generally useful. Both must have been bred up to the Nursery Business, and whose characters will bear strict investigation.—HENRY GODFREY, Nurseryman, Stourbridge, Worcestershire.

WANTED, a GROUND FOREMAN (principally for Roses); with some knowledge of Exhibiting preferred. Good character indispensable.—Mr. GEO. PRINCE, 14, Market Street, Oxford.

WANTED, as ASSISTANT SHOPMAN, a steady intelligent young Man (18 to 20 years of age). Must be willing to make himself generally useful.—Address, with full particulars, A. E. McMULLEN, The Wash, Hertford.

WANTED, as SHOPMAN, and to Assist in Book-keeping, an active, industrious young Man, with a knowledge of the Seed and Plant Trade.—Apply by letter, stating age, experience, references, and salary required, to PHIPPEN AND ROBINSON, Victoria Nursery, Reading.

Seed Trade.
WANTED, as SHOPMAN, a young Man who understands the Retail Trade in all its branches—a good Counterman, must write a good hand, and know something of Book-keeping.—X. Y., Hurst & Son, Seedsmen, Leadenhall Street, E.C.

WANTED, a SECOND SHOPMAN. Wages, £80 per annum.—Apply by letter, stating particulars as to age and experience, to B., Barr & Sugden, 12, King Street, Covent Garden, W.C.

WANTED, as BAILIFF and GARDENER, for a Farm of 90 acres, an active, handy, married Man, who will work, can Milk, and is thoroughly accustomed to all kinds of Stock. Wages £1 a week, with house-rent and firing. His wife will have 7*s.* 6*d.* per week, and must be a good plain Cook and Housekeeper, Dairy and Poultrywoman. Children objected to.—Address, and send references, to H. T. E., Mount Pleasant, West Hoathley, East Grinstead.

OSBORN AND SONS have a VACANCY in their Seed Department for a respectable YOUTH, who Writes a good hand; one who has had two or three years' experience preferred.—Apply with all particulars to The Nursery, Fulham, London, S.W.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.
THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

Christmas Engagements.
EMPLOYERS REQUIRING BAILIFFS, FORESTERS, GARDENERS, WORKING FOREMEN, &c., for the Estate, Farm, or Garden, are respectfully invited to apply to Mr. T. BOWICK, Bedford, who has a list of eligible Men. Careful attention is given to this department of business, and none are received as candidates whose character, abilities, and antecedents have not been investigated.

GARDENER (HEAD).—Age 25, married, no family; has a thorough knowledge of Fruit, Flower and Kitchen Gardening. Good character, from last and present employers.—G. P., Oak Villa, Lessness Heath, Belvedere, Kent.

GARDENER (HEAD).—Age 27, married; a thoroughly experienced Man in all branches of the profession. Twelve years' experience.—C. J. G., The Furlong, Warminster, Wilts.

GARDENER (HEAD).—Age 32, married, no family; thoroughly experienced in the profession, learned under the best Gardeners of the day. Good character.—Address, with full particulars, GARDENER, Denham Rectory, Uxbridge, Bucks.

GARDENER (HEAD).—J. BAKER, for about seven years Gardener to the Rev. Prebendary Morrice, Longbridge, Deverill, Warminster (who is leaving Deverill), will shortly require a situation; accustomed to Plant-houses, Vines, &c. Married, with a small family.—Reference may be made to the Rev. Prebendary Morrice.

GARDENER.—The Advertiser, a first-class Gardener, well educated, is open for an Engagement with any Nobleman or Gentleman in want of a highly qualified Man, capable of Managing every Department of an extensive Flower and Kitchen Garden, with Pine Stoves, Vineries, Orchard-houses, Conservatories, Orchid-houses, &c.; he could also take the Charge of Woodlands and a Farm, if required.—Address S. D., Little & Ballantyne, Seedsmen and Nurserymen, Carlisle.

GARDENER (to go abroad preferred).—Age 20, single, Scotch; a thoroughly practical Man. Ten years' good references.—GARDENER, Post Office, Kenilworth.

FOREMAN (GENERAL), in a Gentleman's Establishment, where five or six are kept. Good references, &c.—W. M., Post Office, North Ockendon, near Romford, Essex.

SHOPMAN and TRAVELLER, or MANAGER of a Branch Establishment in the Seed and Nursery Trades.—Has had seventeen years' experience. Good references.—E. S., 2, East Street, Plymouth.

SHOPMAN, or SHOPMAN and CLERK.—Married; 11 years' experience in all branches of the trade. Good knowledge of Plants.—W. T., Mr. Scotney's, Albert Place, Peterborough.

TRAVELLER or WAREHOUSEMAN.—Age 29; fourteen years' experience in Wholesale Seed Trade. Knows West of England, South Wales, Ireland and Scotland. Has no objections to going abroad. First-class references.—J. S., Maze, near Lisburn, Ireland.

CLERK and SALESMAN.—The Advertiser, who has had almost eleven years' experience in the Seed and Nursery Trade, is now open to treat with any good Firm as above.—Full particulars and first-rate references may be had on applying by letter to J. B. S., 175, Seymour Street, Euston Square, N.W.

ST. ALBANS ALL HEART COS LETTUCE.

Electrotypes of this Block 4s. 6d. each.

The best of all the types of self-folding varieties, immense size, solid heart, fine crisp flavour, and its standing the heat of the summer without running to seed will soon make this sterling novelty the favourite of both the Amateur and Market Growers.

1s. 6d. per Packet.

Price to the Trade on application.

Electrotypes of this Block 4s. 6d. each.

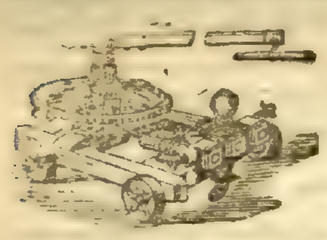
PHLOX DRUMMONDI GRANDIFLORA SPLENDENS (C. Cropp).

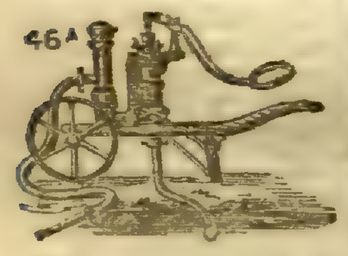
Most justly named "splendens" by the raiser of some of the very finest varieties of these so popular annuals. Flower very large, flat and round, dark carmine-purple with clear white eye. The most brilliant Phlox for Market purposes and the Flower Garden.

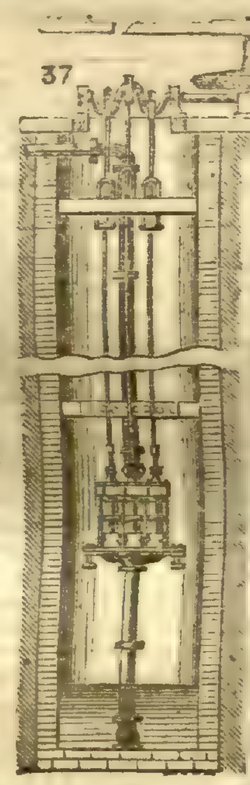
1s. 6d. per Packet. **Price to the Trade on application.**

We offer, to be competed for at the Provincial Show of the Royal Horticultural Society, 10 guineas, in two prizes, for the most distinct Collection of New Vegetables (seed supplied by us or any other Firm), including ST. ALBANS ALL HEART COS LETTUCE.

F. SANDER & CO., SEED GROWERS, ST. ALBANS.







S. OWENS & CO.,

HYDRAULIC ENGINEERS,

WHITEFRIARS STREET, LONDON, E.C.

THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
No. 63. PORTABLE IRRIGATORS with Double or Treble Barrels for Horse or Steam Power.
No. 46*a*. IMPROVED DOUBLE ACTION PUMPS on BARROW for Watering [Gardens, &c.
No. 49*a*. GALVANISED SWING WATER CARRIERS, for Garden use.
No. 50 and 54*a*. FARM and MANSION FIRE ENGINES of every description.
No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.
No. 49. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.
No. 54*b*. THE CASSIOBURY FIRE EXTINGUISHER, as designed for the Right Hon. the Earl of Essex.
No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.
No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.
No. 39*b*. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution. FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, November 28, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 49.—Vol. II. { New Series. } SATURDAY, DECEMBER 5, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Anemones blooming in the autumn 720
Anthurium Scherzerianum 718
Books, notices of 714
Bound for Belgium .. 709
Boussingaultia baselloides 718
Cattleya gigas 720
Cleveland House, Clapham Park, flower gardening at (with cut) .. 711
Cyyripedium Argus .. 710
Douane on the French Frontier, the 713
Emu as a farm bird, the . 714
Evergreens, the best season for planting .. 721
Floors Castle and Park (with cuts) 712
Floral and Fruit Committees 720
Florists' flowers 714
Forestry 714
Galls on the roots of Oak trees 714
Garden operations .. 723
Geaster Michelianus .. 719
Hawthorn borer, a .. 720
Henderson, Mr. M. (with portrait) 719
Hibiscus rosa-sinensis, fruit of 721
Horticultural section of the Vienna Exhibition 718
Lancashire garden, notes from a 711
Masdevallia Davisii .. 710
Natural history 714
Obituary 723
Opuntia Rafinesquii .. 718
Orchids, the best .. 719
Ozokerit 720
Peach, the yellows in the 718
Plants, new garden .. 710
Plants, open-air border .. 720
Plants, recently published portraits of garden .. 715
Portrait of Mr. M. Henderson 720
Sanitary science 717
Societies :—
Pomona Gardens, Manchester 722
Royal Horticultural .. 721
Soyal Jersey 723
Solanum Capsicastrum .. 720
Sugar-cane in Carthagena 719
Toad, the viviparous .. 714
Tree Aloes of South Africa 720
Trees *v.* rabbits 714
Trochetia melanoxylon . 720
Weather, the 723
Wellingtonia gigantea .. 720
Willows, pollarded (with cut) 718
Wimbledon House .. 720
Window gardening in London 718

Important Notice to Foreign Subscribers.

FOREIGN SUBSCRIBERS are particularly requested, when sending Post Office Orders through the Post Office, to Advise the Publisher that they have done so. (Signed)

W. RICHARDS, Publisher.

Post Office Orders should be made payable at the King Street Office, Covent Garden, London, W.C.

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is **$6.30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

To Secretaries of Horticultural Societies.

THE EDITORS of this JOURNAL will be greatly obliged to Secretaries of Horticultural Societies, who have fixed the Dates for their Exhibitions of next year, if they will kindly communicate the same, as soon as possible, FOR PUBLICATION in the GARDENERS' CHRONICLE ALMANAC.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth,* 16*s.*
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

MR. LAXTON'S NEW PEAS—Unique, Dr. Hogg, Supplanter, and Connoisseur. Three First-class Certificates, Royal Horticultural Society. For descriptions and prices see large advertisement, at p. 732 of this week's *Gardeners' Chronicle.*
HURST AND SON, 6, Leadenhall Street, London, E.C.

To the Trade.

EAST LOTHIAN INTERMEDIATE STOCK, warranted pure. Lowest price on application.
THOMAS METHVEN AND SONS, 15, Princes Street, Edinburgh.

APPLE, PEAR, and WALNUT TREES for Sale; transplanted, strong, choice sorts, for Gardens or Orchards, especially Orchards. Height 5 to 11 feet, butts 2 to 8 inches round. Apply to
Mr. TASWELL, Lichfield.

PINE PLANTS for SALE.—CHARLOTTE ROTHSCHILD and SMOOTH CAYENNE, both fruiting and succession, very fine, from a stock that never had scab.
M. ROCHFORD, Market Gardener, Page Green, Tottenham, N.

QUICKS, 5-yr. transplanted, 10*s.*; do., 7-yr. do., 16*s.* per 1000, very strong. All kinds of FOREST TREES, cheap. £10 worth carriage free.
W. JACKSON, Blakedown, Kidderminster.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

To the Trade.

CARTER'S LIST of NOVELTIES, containing all the best new Vegetables and Flowers of the season, can now be had on application to
Messrs. JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

To the Trade.

HURST AND SON beg to say their LIST of NOVELTIES in GARDEN and FLOWER SEEDS is now ready, and can be had on application to
HURST AND SON, 6, Leadenhall Street, London, E.C.

BEECH, 3 feet, very fine and well rooted, 7*s.* 6*d.* per 1000.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

SPECIAL LIST of PLANT COLLECTIONS, for Winter Decoration of Apartments or Conservatory, free from
J. H. LEY, Royal Nursery, Croydon.

A Bargain.

HORSE CHESTNUT TREES, 5 to 6 feet, 4*s.* per 100; 7 to 8 feet, 10*s.* per 100, or 3*s.* per dozen. OAKS, 4 to 5 feet, 2*s.* 6*d.* per 100, for cash.
WILKIN, Tiptree, Kelvedon.

TO BE SOLD, 100,000 SPANISH CHESTNUTS, 12 to 18 inches, stout, well-rooted, transplanted. Apply to
Mr. CHORLEY, Midhurst, Sussex.

SPRUCE FIR, fine, from 4 to 9 feet; SCOTCH FIR, fine, from 6 to 9 feet; PURPLE BEECH, WEEPING ASH, and other Standard Trees; Standard and Dwarf ROSES, and a variety of other Trees suitable for Ornamental Planting, Forest Trees, &c.
W. GROVE, Tupsley and St. Owen's Nurseries, Hereford.

Christmas Trees.

SPRUCE FIRS of all sizes, from 6 to 14 feet in height. For prices apply to
THOMAS CRIPPS AND SON, Tunbridge Wells.

To Gentlemen and Others.

FOREST TREES for SALE.—Larch, Spruce, and Scotch Firs, 1½ to 2½ feet; also strong Quickwood for fencing. Apply to
G. BEAN, Foord's Nursery, Leavening, York.

Twelve Graceful Palms, 21s.

HEALTHY young plants, to grow on for table decoration, and will be ready in about six months; or fit for immediate use, including choice and many very rare kinds, 63*s.*, 84*s.*, and 106*s.*
J. H. LEY, Royal Nursery, Croydon.

Vines.

B. S. WILLIAMS has a large and fine stock of FRUITING and PLANTING CANES, of all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, N.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s.* to 60*s.* per dozen. Extra strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s.* each.
RICHARD SMITH, St. John's Nurseries, Worcester.

GRAPE VINES.—Strong and extra strong, for immediate Fruiting and for Planting—the leading varieties. CATALOGUE and prices upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

SEAKALE, ASPARAGUS, and RHUBARB. Extra strong, for immediate Forcing and Planting. Prices upon application.
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three, and four years old.
Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

LEAMINGTON BROCCOLI.—A quantity of PERKINS' LEAMINGTON BROCCOLI, Seed saved from selected heads. Price per ¼ lb., ½ lb., or more, on application to
T. WALMESLY, Bore Street, Lichfield.

United States.

GERMANTOWN NURSERIES, Philadelphia: THOMAS MEEHAN, Proprietor.—Special attention given to Collecting SEEDS of AMERICAN TREES and SHRUBS, and Raising SEEDLINGS for the Trade. Seventeenth Annual CATALOGUES now ready.

WANTED, 10,000 yards of BOX EDGING. Sample and Price to
R. NEAL, Nurseryman, Wandsworth Common, S.W.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s.* carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Hyacinths, Tulips, &c.

WM. CUTBUSH AND SON beg to announce that their DESCRIPTIVE PRICED CATALOGUE of HYACINTHS, TULIPS, CROCUS and other BULBS, &c., is now ready. It contains their usual fine assortments, which have for many years held the highest reputation. Post free on application.
Highgate Nurseries, London, N.

AMATEUR'S BUNDLE of ROSES.—Twenty best kinds of Dwarf Roses, including packing, 20*s.*; twenty ditto, Standards, 30*s.* Selected by purchaser from Catalogue, excepting the new sorts of 1874.
DAVISON AND WHITTEM, White Cross, Hereford.

New Climbing Rose.

JULES MARGOTTIN, 3*s.* each, 30*s.* per dozen. The old favourite Rose in all respects, except in being a free climber.
RICHARD SMITH, Nurseryman, Worcester.

Roses! Roses!! Roses!!!

FORTY CHOICE PERPETUAL ROSES, strong plants, best varieties, sent to any address on receipt of Post-office Order for 21*s.*, package included, by
JAMES WALTERS, Mount Radford Nursery, Exeter, Devon.

ROSES.—Fine strong Dwarfs on Manetti, 30*s.* per 100, £12 10*s.* per 1000; Standards, 80*s.* per 100; Half-standards, 60*s.* per 100.
MAURICE YOUNG, Milford Nurseries, Godalming.

QUICKS.—Good strong Quicks, 6*s.* to 8*s.* per 1000, or £25 per 100,000; extra do., 10*s.* 6*d.* to 15*s.* per 1000, or £45 to £55 per 100,000.
MAURICE YOUNG, Milford Nurseries, Godalming.

WHOLESALE CATALOGUE of TREES, SHRUBS, CLIMBERS, &c., free on application.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

GIANT LILY of the VALLEY.—Strong blooming roots, 2*s.* per dozen, 12*s.* 6*d.* per 100, package free.
E. COOLING, Mile Ash Nurseries, Derby.

Pelargoniums.

WILLIAM BRYANT begs to offer strong plants of Show, Spotted, and Fancy varieties of the above, in single pots, at 3*s.* 6*d.* per dozen, 25*s.* per 100, £10 per 1000.
The Nursery, Rugby.

Double White Primulas.

MRS. J. SHILLING begs to offer forty dozen good plants of the above, just coming into bloom, in 32 pots. Price on application.
Southgate Nurseries, Winchester.

Nurseries, Dundee, Scotland.

PRICES of SEEDLING and TRANSPLANTED FOREST and ORNAMENTAL TREES, SHRUBS, &c., may be had on application.
W. P. LAIRD AND SINCLAIR.

Johnstone's St. Martin's Rhubarb.

EARLIEST and BEST in CULTIVATION for open ground; it has a splendid colour, and excellent for forcing. Strong roots, 1*s.* each. Trade price on application.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

SPECIAL OFFER.—Must be cleared: 10,000 ANTWERP and FILLBASKET RASPBERRIES, strong Canes; 20,000 do. do., 5 to 6 feet; and 10,000 COMMON LAURELS, 2 to 3 feet, very bushy. Prices on application to
JOSEPH GREEN, The Nurseries, Garforth, near Leeds.

Black Currants.

WM. WOOD has a fine stock of the above to offer.
Woodlands Nursery, Maresfield, Uckfield, Sussex.

RED and BLACK CURRANTS, strong 2-yr., at low prices, to clear the ground. Price per 100 or 1000 on application.
WM. POTTEN, The Nursery, Sissinghurst, Staplehurst, Kent.

COCOA-NUT FIBRE REFUSE, invaluable for Forcing, Plunging, and Resisting Frost and Cold. Price 9*d.* per bushel; 20 bushels, 5*d.*; 100, 4½*d.* per bushel.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

COCOA-NUT FIBRE REFUSE — 3000 bushels. Used by all Gardeners. Twenty and fifty bushels at 4*d.* per bushel. Free on to rails to any part. Sample free.
H. WRIGHT, Fibre Merchant, 4, Peterborough Terrace, King's Road, Fulham, S.W.

Hyacinths, Tulips, Crocus, &c.

The best material in which to grow the above is COCOA-NUT FIBRE REFUSE.—Price 1*s.* per bushel, or 6*d.* per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

PEACHES and NECTARINES, in pots, for Forcing; strong pyramids and bushes, in fine fruiting condition.

ROSES (a choice selection) for Forcing or Greenhouse, strong plants, in 6 and 8-inch pots.

STANDARD ROSES, very fine.

Descriptive CATALOGUES sent post free on application.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.—(Great Eastern Railway.)

Standard Roses.

F. C. WOOLVEN, Langhedge Nurseries, Edmonton, N., has splendid sorts of the above, good stems and large heads, to offer at 9*s.* per dozen.

For the convenience of persons in town, F. C. W. has a quantity sent to No. 155, Flower Market, Covent Garden, on Tuesday, Thursday, and Saturday mornings. The market closes at 9 A.M.

Rhododendrons.

HENRY FARNSWORTH, Matlock Bank, Derbyshire, has to offer a fine stock of the following sizes, and at a very reasonable rate:—

3-yr. Seedling (fine).
3-yr. Seedling and 2-yr. transplanted.
3-yr. Seedling and 3-yr. transplanted.
4 to 8 inches, very bushy.

For prices and samples apply as above.

LAURELS—100,000, 2 feet to 10 feet, bushy and well rooted. ROSES, Standard and Dwarf, 200,000. With a General Stock of FRUIT TREES. Fine Specimen EVERGREENS, &c., all sizes.

CATALOGUE on application.
H. LANE AND SON,
The Nurseries, Great Berkhampstead, Herts.

Bloom.—Bloom.—Bloom.

RHODODENDRONS.

CATALOGUE on application.
H. LANE AND SON,
The Nurseries, Great Berkhampstead, Herts.

PHLOX DRUMMONDI GRANDIFLORA (F. C. Heinemann, 1873).

A. KERMESINA ALBA OCULATA: dark carmine, with beautiful neat marked white centre.

B. VIOLACEA ALBA OCULATA: dark bluish violet, with splendid neat marked white centre.

These charming novelties are not yet surpassed by the many new varieties introduced up to the present season. In comparison its flowers are as large and cylindrical-shaped as the newest kinds of Phlox decussata.

Trade price, 100 seeds, 1*s.*; 1000 seeds, 9*s.*

Those Firms from whom the above named varieties can be obtained, true, will be published in another number.

J. C. HEINEMANN, Erfurt, Prussia.

RARE CONIFER SEED, from the CALIFORNIAN SIERRA NEVADA, collected by Mr. R. Roezl, in October, 1874.

Having been entrusted with the Sale, in Great Britain, of the following rare Seeds, which have arrived in very excellent condition, we beg to offer—

PICEA LASIOCARPA VERA.—The true long-leaved species (not to be confounded with Picea grandis), already well known as one of the finest of Piceas. It is the first time that Mr. Roezl has succeeded in collecting the Seed; in previous years he either found no cones at all, or the seeds were empty and perfectly useless. The trees of the Picea tribe carry a small percentage of perfectly formed seeds only, 40 per cent. being considered as the maximum. The quality of Seed now offered may justly be announced as first-rate, as a close examination in cutting several hundreds of them gave an average of 50 per cent. perfectly-formed seeds. Price 2*s.* per 100, 16*s.* per 1000, £3 per 5000, and £5 per 10,000 seeds.

PICEA MAGNIFICA (Murray).—This rare and little-known species has much resemblance to P. nobilis robusta in its young growth, but is totally distinct and much hardier, not suffering from spring frosts. It forms gigantic trees on the Californian Mountains, where it has to sustain intensely cold and long winters. The seed is of good quality, 30 per cent. being the average of perfect seeds. Price 2*s.* per 100, 16*s.* per 1000, £3 per 5000, and £5 per 10,000 seeds.

PICEA MAGNIFICA MACROCARPA.—Mr. Roezl found only a single tree of this remarkable variety, which differs from Picea magnifica by a strongly pronounced glaucous colour of the leaves, larger cones, and much darker seeds. The quality of the latter is inferior, only 16 per cent. being perfect, and the price has been reduced accordingly to 1*s.* 6*d.* per 100, 12*s.* per 1000, £2 10*s.* per 5000, and £4 per 10,000 seeds.

PICEA (STROBUS) LAMBERTIANA.—The gigantic Sugar Pine, attaining frequently, and specially in sandy soil, a height of 200 feet. Seed very excellent, 50 per cent. at least quite perfect. Price 1*s.* per 100, 7*s.* 6*d.* per 1000 seeds.

PICEA CONCOLOR.—Advice from the shipping agents being to hand, we hope to be able to offer seed of this new and magnificeht Conifer in next week's issue of the *Gardeners' Chronicle*.

Our TRADE CATALOGUE of CONIFERÆ TREE and SHRUB SEEDS is now ready, and will be forwarded, gratis, on application to

F. SANDER AND CO., New and Rare Seed Importers and Growers, St. Albans.

COTTINGHAM POMOLOGICAL NURSERIES (Established 1788).

THUJA OCCIDENTALIS, 5 to 6 feet, 50*s.* per 100.
,, (Libocedrus) GIGANTEA, 3 to 4 feet, 30*s.* per dozen.
JUNIPERUS SINENSIS, 3 to 4 feet, 18*s.* per dozen.
,, DRUPACEA, 1½ to 2 feet, 30*s.* per dozen.
LIGUSTRUM SINENSIS, 2 to 3 feet, 30*s.* per 100.
,, JAPONICA, 1½ to 2 feet, 50*s.* per dozen.
BEECH, 2 to 3 feet, 30*s.* per 1000.
PINE, Austrian, 2 to 3 feet, 50*s.* per 1000.
FIR, Scotch, 2 to 3 feet, 20*s.* per 1000.
LAUREL, bushy, 1 to 1½ foot, 8*s.* per 100; 1½ to 2 feet, 10*s.* per 100; 2 to 3 feet, 14*s.* per 100.
,, caucasica, 1½ to 2 feet, 25*s.* per 100.
,, Colchic, 1½ to 2 feet, 15*s.* per 100.

See our General Nursery CATALOGUE.

Seed Growers, Merchants, and Nurserymen, Cottingham, and 61, Market Place, Hull.

SPRUCE FIR, 3 to 5 feet, well rooted, suitable for Christmas Trees.

SCOTCH FIR, 2½ to 4 feet.
PINUS AUSTRIACA, 3 to 5 feet.
LAUREL, Common, 4 to 5 feet, bushy.
HOLLIES, Common Green, 5 to 10 and 12 feet, removed September, 1873.

Prices on application.

W. ROBERTS (Successor to JOHN MANN) Nurseryman and Seedsman, Bridgnorth.

TREE FERNS.

THE LARGEST STOCK IN EUROPE,

and at Half the Prices usually charged.

Mr. WILLIAM BULL'S ESTABLISHMENT for NEW and RARE PLANTS,
King's Road, Chelsea, London, S.W.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

PLANTING SEASON.

RHODODENDRONS

WILL BE SUPPLIED,

In Fifty of the most Popular and finest known Hardy Kinds,

Sturdy, Bushy Plants, 1½ to 2 feet high, at

£10 per 100,

Carriage Free to any Railway Station in England.

Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.

A Descriptive Catalogue free on application to

ANTHONY WATERER,

KNAP HILL NURSERY, WOKING, SURREY.

NEW HYBRID BEGONIAS.

THE following NEW BEGONIAS belong to the handsome-flowered, bulbous-rooted section, and are most desirable acquisitions, as they succeed and bloom well in an ordinary Greenhouse. The Bulbs being similar to those of Gloxinias, and now dormant, can be sent by Post:—

ANACREON, deep crimson, a beautiful flower, very long petals, 7*s.* 6*d.*
BRILLIANT, very rich bright orange, a fine showy flower, 7*s.* 6*d.*
CARDINAL, magnificent variety, fine large flowers of a rich deep magenta-rose, 7*s.* 6*d.*
CAROLINE, deep rosy pink, with broad petals, 5*s.*
CLIMAX, deep rich rosy carmine, broad outer petals, 5*s.*
CORSAIR, rosy salmon, profuse bloomer, 5*s.*
ENSIGN, bright pink, a very elegant variety, 5*s.*
GEM, cream colour, the reverse of the petals pink, 5*s.*
GLITTER, vivid orange-scarlet, extremely showy, 7*s.* 6*d.*
HERMINE, bright orange-cinnamon, very distinct, 5*s.*
LOTHAIR, deep rose, a fine flower, with short broad petals, 7*s.* 6*d.*
LUCINDA, fine flowers with long petals, of a deep rose colour, 7*s.* 6*d.*
MAGNET, light pink, the reverse of the petals deep pink, 5*s.*
MAZEPPA, light cream colour, tinted with orange-pink, 5*s.*
PHYLLIS, delicate sulphur colour tinted with pink, 5*s.*
SERAPH, soft pink suffused with rose, 5*s.*
SURPRISE, bright pink, a very pretty colour, 5*s.*
TROJAN, light rosy pink, very distinct, 5*s.*

The entire Collection of the above Eighteen Varieties for Four Guineas.

Seed of the above New Begonias, separate kinds, 2*s.* 6*d.* per packet; mixed, 3*s.* 6*d.* per packet,

WILLIAM BULL, F.L.S.,

ESTABLISHMENT FOR NEW AND RARE PLANTS,
KING'S ROAD, CHELSEA, LONDON, S.W.

MAURICE YOUNG'S

NEW DESCRIPTIVE CATALOGUE

Is now ready, and may be had on application.

IT COMPRISES:—

HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

HARRISON'S

"KING KOFFEE" SAVOY.

We have great pleasure in introducing this splendid new variety. It is quite distinct from any kind yet sent out, and is sure to become a general favourite. Its habit is very compact, occupying about the same space as "Suttons' Tom Thumb," and possesses very few outside leaves—being, in fact, nearly all heart. Its colour is deep glossy green; is very curly and finely crimpled. One trial will prove it to be the earliest, handsomest, and best variety for a Gentleman's garden, or Amateur's, ever introduced.

Per packet, 1*s.*

From Mr. A. CRAMB, *Head Gardener to Earl Ducie, October* 22, 1874.

"My experience of your 'King Koffee' Savoy enables me to recommend it strongly. It is certainly very distinct from any other kind. The habit is very dwarf; and the crimpled state of the foliage gives a peculiar appearance."

From Mr. F. WOODFORD, *Gardener to H. R. H. The Duke of Edinburgh, Eastwell Park, October* 20, 1874.

"It is a very superior variety. Its chief feature seems an almost complete absence of stem—the leaves resting on the ground; offering perfect resistance to frost."

From Mr. G. BEECH, *Gardener to the Marquis of Northampton.*

"It is now being sent to table for consumption. I consider it the best of all Savoys—being very small, compact, dwarf, and more crisp than any other. Priority will be given to 'King Koffee' when better known."

From Mr. BOGUE, *Gardener to the Earl of Verulam.*

"I have tried your 'King Koffee' Savoy, and think highly of it. It is finely curled, and very distinct from anything I have ever seen."

CELERY "Leicester Red."

Tested this year at the Royal Horticultural Society's Gardens, Chiswick, and proved to be the best of all Red Celeries. An immense number of Testimonials were received to the same effect last season.

Packets, 1*s.*

From Col. CHARLTON, *Braddon, Isle of Man, Feb.* 9, 1874.

"Your Celery, 'Leicester Red,' I have never tasted to compare to it."

From Mr. A. F. BARRON, *Royal Horticultural Society's Gardens.*

"'Leicester Red' is the best Red Celery."

SPECIAL TERMS TO THE TRADE.

HARRISON & SONS,

SEED GROWERS, LEICESTER.

KNIGHT'S NEW PEA—DUKE OF CONNAUGHT.

This is a really useful New Pea, of a branching habit, about 3 feet high, and very prolific—well adapted for Second and General Crops; also for Late Sowing, as it is never affected by Mildew. It is a fine Exhibition and Market Pea.

Quarts, 5s.; Pints, 2s. 6d.

THE OXONIAN PRIZE ONION.

A very superior White Onion, growing to an immense size, quite surpassing the White Spanish, both in Mildness of Flavour and Quality of Bulb. Ripens early. Has obtained First Prize wherever exhibited.

Per Packet, 1s.

NUTTING & SONS,

SEED WAREHOUSES, 60, BARBICAN, LONDON, E.C.

WAITE, BURNELL, HUGGINS & CO.'S SPECIALITIES.

CAMPANULA MEDIUM CALYCANTHEMA and CAMPANULA MEDIUM CALYCANTHEMA ALBA.

We have again the pleasure to offer Seed of these splendid Novelties. The blossoms individually are much larger than the old Canterbury Bell, while the calyx forms an elegant cup round the base of the bell, of the same beautiful colour as the corolla.

Per Packet, 1s. 6d.

The fact of it coming true from Seed renders it easy of access, placing it within the reach of all Amateurs and lovers of their Garden.

Per Packet, 1s. 6d.

CAMPANULA MEDIUM CALYCANTHEMA.

LEAMINGTON BROCCOLI.

The only Broccoli awarded a First-class Certificate by the Royal Horticultural Society for four years.

We beg to announce that we have arranged with Mr. F. PERKINS for the whole supply of his LEAMINGTON BROCCOLI, saved from PICKED HEADS GROWN IN HIS OWN GROUNDS, which we offer in Sealed Packets only, bearing the Trade Mark.

Owing to the great demand and shyness in seeding our supply this season is very limited.

Sold only in Sealed Packets, 2s. 6d. each.

CANTELLO'S PRIZE ONION.

The shape of the Old Reading, but double the size, very handsome, and regular in form and colour; distinct from, and superior to all we have proved of this type. Has invariably taken a first prize wherever it has been exhibited for competition.

Packets, 1s. each.

The best form of the most useful of Onions for Spring Sowing.

WESTBURY PRIZE BEAN.

This is considered by all who have grown it to be the best type of Broad Windsor Bean. Of medium height and earliness, the heaviest cropper known, and distinct in the round shape, close eye, and great thickness of the Bean. It is a beautiful pale green when fit for use (which shade it retains in the dry seed), and is very tender eating. Forty-four pods have been grown on one stem; average height, 2½ feet to 3 feet. Should have plenty of room to bring them to perfection.

Crop nearly a failure, can only be sent out this season, in pints and half-pints, for trial.

Pints, 2s. 6d.; Half-Pints, 1s. 6d.

NEW QUEEN ONION.

Remarkable for its keeping qualities and the rapidity of its growth.

We beg to inform the Trade that we have procured, in conjunction with one other firm, the entire produce of this season's harvest.

Packets, 1s. 6d.

BURNELL'S ALEXANDRA WHITE COS LETTUCE.

This splendid White Cos still maintains its reputation as being the largest, crispest, and finest flavoured Lettuce grown. It does not run to seed before very late in the season, and, as it turns-in of itself, produces a very compact head without the trouble of tying.

1s. per Packet.

SPECIAL PRICE TO THE TRADE ON APPLICATION.

WAITE, BURNELL, HUGGINS & CO.,
SEED MERCHANTS, 79, SOUTHWARK STREET, LONDON, S.E.

Bouvardias—Vreelandii, jasminiflora, &c.

MESSRS. JOHN STANDISH AND CO.'S Stock of the above beautiful Winter-flowering Plant is exceptionally fine this season. 15*s.* to 18*s.* per dozen, fine plants.

They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24*s.* to 36*s.* per dozen.

Royal Nurseries, Ascot, Berks.

CATALOGUE of AUTUMN PLANTS, SEEDS, and BULBS, free on application to J. H. LEY, Royal Nursery, Croydon.

N.B.—The Nursery is three minutes' walk from West Croydon Station, London, Brighton, and South Coast Railway; twenty minutes' from London.

Pelargoniums.

D. S. THOMSON begs to offer strong healthy plants of Show, Spotted, and Fancy PELARGONIUMS, in 60 pots, distinct varieties, at 4*s.* per dozen.

A fine stock of WINTER BLOOMING PLANTS, comprising Ericas, Camellias, Azaleas, Cytisus racemosus, Epiphyllums, Bouvardias, Poinsettias, Cinerarias, Cyclamen, single and double Primulas, Solanums (well set with berries), &c.

A large stock of CROTONS, beautifully coloured.

The Nurseries, Wimbledon, S.W.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum).—SEEDS of the Blue Gum, and other Tasmanian and Australian Forest Trees and Shrubs, can be obtained of

C. F. CRESWELL, Wholesale and Retail Seed Merchant, Hobart Town, Tasmania; or at his Branch Establishments, 478, George Street, Sydney, New South Wales; and 37, Swanton Street, Melbourne, Victoria.

Price LISTS sent gratis to any part of the World on application.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—

DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,

CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

LAURUSTINUS, 2 to 3 feet, 6*s.*; 3 to 4 feet, 9*s.* per dozen, fine, in bloom, planted last Spring.

LAURELS, 2 to 3 feet, 12*s.* 6*d.*; 4 to 5 feet, 25*s.* per 100.
LARCH, 2 to 3 feet, 30*s.*; 3 to 4 feet, 40*s.* per 1000.
PINUS INSIGNIS, 3 to 4 feet, 9*s.* per dozen.
,, AUSTRIACA, 3 to 4 feet, 25*s.* per 100.
DEODARA, 2½ to 3 feet, 18*s.* per dozen.
ARAUCARIA IMBRICATA, 1½ to 2 feet, 18*s.* per dozen.

DAVISON AND WHITTEM, Hereford.

The Planting Season.

WOOD AND CO., in consequence of having to clear a portion of their Land this season, are prepared to offer, at very reduced prices, a part of their extensive NURSERY STOCK, consisting of some thousands of Fruit and Forest Trees, Conifers, Laurels (Portugal do., handsome specimens), Evergreen Shrubs and Roses; all which are very healthy and in fine condition for removal. Price and all particulars on application.

BARBOURNE NURSERIES, WORCESTER.

Twelve Azaleas, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon, can supply twelve splendid named AZALEAS, full of buds, bushy plants, in 5-inch pots, 18 inches high, for One Guinea, including package and delivery to London, for cash with order.

Also a few very fine plants, in 6-inch and 8-inch pots, 18 inches across, at 42*s.* and 60*s.* per dozen; fit to grow on at once for exhibition.

Standard Oaks, &c.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers several thousand well-grown transplanted Standard OAKS, from 12 to 14 feet, at 1*s.* 3*d.* each, franco Rotterdam and Harlingen.

ROSA MULTIFLORA DE LA GRIFFERAIE, stocks, 20*s.* per 1000.

ROSA MANETTI, stocks, 20*s.* per 1000.

Samples can be seen at Mr. T. S. WARE'S, Hale Farm Nurseries, Tottenham, near London.

The Nurseries, Dumfries, N.B.

FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, ROSES, GREENHOUSE PLANTS, &c.

Our Stock of the above is one of the largest in Scotland. The Trees and Shrubs are of all ages and sizes, and are well adapted for extensive Planting, or giving immediate effect in the Formation and Improving of Ornamental Parks, Pleasure Grounds, &c.

Priced CATALOGUES free on application.

THOMAS KENNEDY AND CO., Seed and Nursery Establishment, Dumfries.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.

The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.

Knap Hill Nursery, Woking, Surrey.

Thimbleby Nurseries, near Horncastle.

W. CROWDER has the following to offer, in quantities, at low prices:—

APPLES, Standards, 4 to 5 feet stems.
ABIES DOUGLASII, 2 to 3 and 3 to 4 feet.
BEECH, 3 to 4 feet.
LAURUSTINUS, 1½ to 2 feet, full of bloom and bushy.
PRIVET, evergreen, 2 to 3 and 3 to 4 feet.
,, ovalifolium, 3 to 4 feet.
OAK, 2 to 3, 3 to 4, and 4 to 5 feet.
FIR, Spruce, 1 to 1½, 1½ to 2, and 2 to 2½ feet.
,, Scotch, 1 to 1½, 1½ to 2, and 2 to 3 feet, twice transplanted.
SYCAMORE, 2 to 3, 3 to 4, 4 to 5, 5 to 6, and 6 to 8 feet.

Prices on application.

ROSES.

CHARLES TURNER'S CATALOGUE

IS NOW READY.

STANDARD ROSES.

These are grown in great numbers, they are very fine this season, with well-ripened wood, and are now ready for removal.

DWARF ROSES

Are also grown most extensively, and can be had on the Manetti and Briar Stocks, or on their Own Roots.

ROSES IN POTS

Are a speciality at the Royal Nurseries, where a fine stock can be seen of extra strong TEAS and HYBRID PERPETUALS, grown especially for early forcing.

☞ *The CATALOGUE also contains full Lists of FRUIT TREES, CONIFERÆ, EVERGREEN and DECIDUOUS SHRUBS, &c., and can be had on application.*

THE ROYAL NURSERIES, SLOUGH.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,

SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.
First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, *price* 7*s.* 6*d.* *each.*

NEW HYBRID PERPETUAL ROSE,

CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3*s.* 6*d.* *each*; 30*s.* *per dozen.*

CLIMBING PERPETUAL ROSE,

CLIMBING JULES MARGOTTIN (Cranston's).

A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3*s.* 6*d.* *each.*

Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

PRETTY WINTER and SPRING FLOWERS

OF EASY CULTURE.

Carter's

COLLECTIONS OF BULBS

Sent on receipt of Post Office Order.

No. 14—*For the Open Ground, adapted for Ordinary Good Garden Soil—Price* 21*s.*, *contains:—*

12 Hyacinths, in three colours.
12 Narcissus, double white.
12 ,, Poeticus, or Pheasant-eye.
25 Double Daffodils.
12 Tulips, extra fine mixed, double.
12 ,, ,, ,, single.
12 ,, finest mixed, late.
12 ,, Duc Van Thol.
6 Campernel Jonquils.
6 Polyanthus Narcissus, fine mixed.
12 Star of Bethlehem.
6 Triteleia uniflora.
6 Dog's-tooth Violets.
25 Crocus, blue.
50 ,, striped.
50 ,, large yellow.
25 Crocus, white.
24 Anemones, extra fine mixed.
12 Iris, extra choice mixed English.
12 ,, extra fine mixed Spanish.
3 Lilium candidum.
3 ,, tigrinum.
24 Ranunculus, extra fine mixed.
50 Snowdrops.
24 Winter Aconites.

Packing and Carriage Free.

Other Collections, price 10*s.* 6*d.*, 42*s.*, 63*s.*, and 84*s.* 20*s.* value Carriage Free.

From F. WALTON, Esq., *St Cuthbert's.*

"The Collection of Bulbs is truly a wonderful one for the money.

CARTER'S, THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

MONRO'S
DUKE OF EDINBURGH CUCUMBER.

First-Class Certificate, Royal Horticultural Society, 1873.

For Photograph of House and Certificates see "Gardeners' Chronicle," October 31, 1874.

TO THE TRADE ONLY.

SEEDS OF THE ABOVE CUCUMBER

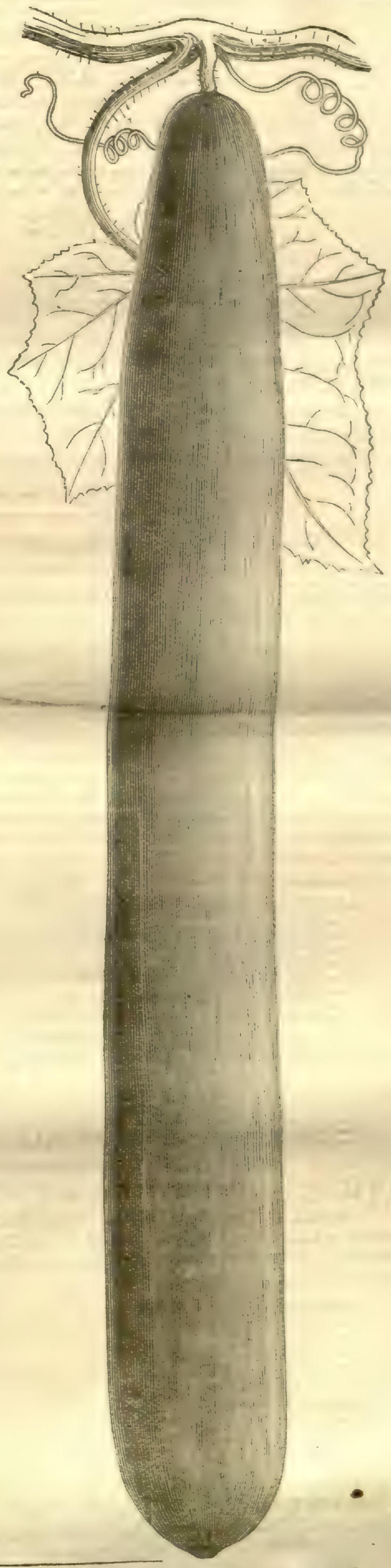
will be sent out to the Trade by

J. MONRO himself.

Orders sent off same day as received till Stock is exhausted, Carriage paid.

Post Office Orders at Potter's Bar, N.

Price per 100 Seeds, £1; 500, £4 10s.; 1000, £9.



PRIZES OFFERED.

To Show that the above Cucumber is all that it is represented to be, J. MONRO will,

AT THE

Great Provincial Exhibition

OF THE

ROYAL HORTICULTURAL SOCIETY,

IN 1875,

GIVE THE FOLLOWING PRIZES:—

£3 for the best brace; £2 for the second best; and £1 for the third.

ALSO, AT THE

Great International Exhibition at Edinburgh, 1875,

£3 for the best brace; £2 for the second best; and £1 for the third.

LIST of FIRMS PURCHASING SEED will be Published in the last Number of the *Gardener's Chronicle* for 1874.

Electros of large block (see *Gardeners' Chronicle* for October 31, *p.* 545), 9*s.* each, must be ordered one week before wanted, as first stock is exhausted.

J. MONRO, POTTER'S BAR, N.

Grape Vines.

THOMAS METHVEN AND SONS have at present a large and very fine Stock of GRAPE VINES, thoroughly ripened, which they beg to offer at the following prices:—1st size, 7s. 6d.; 2d size, 5s. each.

T. M. & Sons had the honour of supplying to the Gardens at Glamis Castle the Vines which have succeeded so admirably under the management of Mr. Johnston; and their present Stock is raised from eyes taken from these famous Vines.

Leith Walk Nurseries, Edinburgh.—December 1.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.

Their NEW CATALOGUE is now ready, and will be sent, post free, on application.

Royal Nurseries, Ascot, Berks.

ELMS, LIMES, and CHESTNUTS, well-rooted and fine straight stems.

ELM, English, 6 to 8 feet, 60*s.* per 100; 8 to 10 feet, 100*s.* per 100; 10 to 12 feet, 18*s.* per dozen; 12 to 14 feet, 30*s.* per dozen.

ELM, Chichester, 6 to 8 feet, 50*s.* per 100; 8 to 10 feet, 75*s.* per 100; 10 to 12 feet, 18*s.* per dozen.

CHESTNUT, Horse, 6 to 7 feet, 75*s.* per 100; 10 to 12 feet, 120*s.* per 100.

LIMES, 5 to 6 feet, 60*s.* per 100; 6 to 8 feet, 90*s.* per 100; 8 to 10 feet, 15*s.* per dozen; 10 to 12 feet, 24*s.* per doz.

JNO. JEFFERIES AND SONS, Royal Nurseries, Cirencester.

Forest and Ornamental Trees, Evergreens, Plants For GAME COVERTS, &c.

FRANCIS & ARTHUR DICKSON & SONS, the "Upton" Nurseries, Chester, respectfully invite attention to or inspection of their almost unlimited stock of

FOREST TREES, PLANTS for GAME COVERTS,
ORNAMENTAL TREES, CONIFERS,
EVERGREEN and DECIDUOUS SHRUBS,
FRUIT TREES, VINES, &c.;
ROSES, STOVE and GREENHOUSE PLANTS, &c.

The special recommendations of their Plants are extreme hardiness; and, from frequent transplantation, their plants are well furnished, and have abundance of fibrous roots, so that they remove to any part of the country with perfect safety. Inspection invited. Visitors should ask for "The Upton" Nurseries, distant about a mile from Chester Station.

Descriptive Priced CATALOGUES post free on application.

EDWARD TAYLOR, NURSERYMAN, Malton, Yorkshire, offers as under:—

TRITOMA UVARIA, strong roots, 10*s.* per 100.
DELPHINIUM FORMOSUM, 3*s.* per dozen, 20*s.* per 100.
HEPATICA, Double Red, 3*s.* per dozen, 20*s.* per 100.
AUBRIETIA PURPUREA VARIEGATA, 3*s.* per dozen, 20*s.* per 100.
PRIVET, Evergreen, 2 to 3 feet, 15*s.* per 1000.
" " extra bushy, 20*s.* per 1000.
ISOLEPIS GRACILIS, strong, in pots, 2*s.* 6*d.* per dozen, 15*s.* per 100.
SNOWBERRIES, 2½ to 3½ feet, 3*s.* 6*d.* per 100, 30*s.* per 1000.
WALLFLOWERS, Double German, strong, transplanted, 5*s.* per 100.
" Golden Tom Thumb, 5*s.* per 100.
" Single Blood, strong, 5*s.* per 100.

CATALOGUES gratis on application.

To Gentlemen, Planters, and Others, Purchasers of ROSES, FRUIT TREES, FOREST TREES, SHRUBS, and ORNAMENTAL TREES.

MESSRS. W. VIRGO AND SON, of the Wonersh Nurseries, near Guildford, can now supply the public with the undermentioned STOCK, in either large or small quantities, viz., 10,000 clean-grown Standard, Half Standard, and Dwarf Roses, 100,000 2-yr. and 3-yr. transplanted Quicks, 50,000 Hazel, 2 to 3 feet, transplanted, 50,000 Alder, 2 to 3 feet, transplanted; 50,000 Birch, 2 to 3 feet, transplanted; 100,000 Spanish Chestnut, 2 to 3 feet, transplanted, 100,000 Ash, 2 to 3 feet, transplanted; 50,000 Scotch Fir, 2 to 3 feet, transplanted; Elm and Beech, 3 to 4 feet, transplanted; Ornamental Trees, 6 to 10 feet; Horse Chestnut, Spanish ditto, Elm, Sycamore, Norway Maple, 1000 Paul's new Scarlet Thorns, 8 feet, straight stems; 10,000 Laurels, 2 to 6 feet; Poplars, various; Limes, Laburnums, Turkey Oak, Hornbeam, Spruce Fir, Weymouth Pine, austriaca ditto, 2 feet to 5 feet; a large stock of fine Standard Apples, Pyramids and Dwarfs; Pears and Plums, 10,000 Red, Black, and White Currants; 5000 Gooseberries, various; a large collection of Deciduous and Flowering Shrubs, Coniferæ, Green Hollies and Yews, together with a great variety of other sorts too numerous to mention.

Full particulars in CATALOGUES, to be had on application.

TO GENTLEMEN or GARDENERS wishing to PURCHASE SPECIMEN PLANTS for EXHIBITION or DECORATION, the following Stove and Greenhouse Plants, in splendid condition—the Camellias and Azaleas being heavily set with bloom—are offered for Sale (height of plants given from top of pot):—

6 AZALEA INDICA, large—largest, 3 feet 6 inches by 2 ft.
5 CAMELLIAS, large—largest, 8 feet by 6 feet.
5 ERICA HYEMALIS, large—largest, 3 feet by 3 feet.
2 MITRARIA COCCINEA, each 3 feet by 1 foot 8 inches.
1 CHOROZEMA CORDATA SPLENDENS, 2 feet 6 inches by 2 feet.
1 POLYGALA DALMAISIANA, 3 feet by 3 feet 6 inches.
1 STEPHANOTIS FLORIBUNDA, 3 feet by 2 feet.
1 CLERODENDRON BALFOURII, 3 feet by 2 feet.
1 ALLAMANDA NERIIFOLIA, 3 feet by 2 feet.
1 " HENDERSONII, 3 feet by 2 feet.
1 " GRANDIFLORA, 3 feet by 2 feet.
1 FRANCISCEA CONFERTIFOLIA, 3 feet by 3 feet.
1 ANANASSA SATIVA VARIEGATA, half specimen.
1 ALOCASIA METALLICA, 3 feet through.
1 BEGONIA NITIDA, 4 feet 6 inches by 2 feet 6 inches.
1 DICKSONIA ANTARCTICA, height of stem 1 ft., spread of fronds 6 feet.
1 LOMARIA GIBBA, height of stem 1 foot 6 inches.

For price and further particulars, or to view, apply to J. HEMMING, The Gardens, Plas Newydd, Aberdare.

Extra Fine Transplanted Pinus austriaca.

WILLIAM WOOD AND SON have to offer—

PINUS AUSTRIACA, transplanted, 1½ to 2 feet, 20s. per 100; 2 to 3 feet, 30s. per 100.

" " quartered, and three times transplanted, 3 to 4 feet, 75s. per 100; 4 to 5 feet, 100s. to 150s. per 100.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

FOR AVENUES and ORNAMENTAL PLANTING.

ABIES DOUGLASII, 10 to 12 feet, £3 per dozen.
CEDAR, Mount Atlas, 10 to 12 feet, £8 8s. per dozen.
CHINESE JUNIPER, 5 to 6 feet, 30s. per dozen, £10 per 100; 6 to 7 feet, 30s. per dozen, £12 10s. per 100; 7 to 8 feet, 42s. per dozen, £15 per 100.
PICEA NORDMANNIANA, 3 to 4 feet, 42s. per dozen, £12 10s. per 100; 4 to 5 feet, 60s. per dozen, £20 per 100.
PICEA PINSAPO, 6 to 7 feet, £6 6s. per dozen; 7 to 8 feet, £8 8s. per dozen.
THUJA LOBBII, 12 to 15 feet, £4 4s. per dozen.
WELLINGTONIA GIGANTEA, 5 to 6 feet, £5 per dozen.

All well grown and recently transplanted. For full descriptions see LIST of the EVERGREEN FIR TRIBE.

RICHARD SMITH, Nurseryman, Worcester.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.
PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.

All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.

POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

4000 Double-flowered Chinese Primrose.

E. G. HENDERSON AND SON can now offer of the above, strong healthy New Plants, of 1874 growth, including Atro-rosea, Blushing Beauty, Exquisite, Empress, Emperior, Lilac Queen, King of Purples, Magenta Queen, Magnifica, Mrs. Eyre Crabbe, Pearl Blossom, Princess of Wales, rubra grandiflora, &c. Twelve varieties, from 30s. to 42s. and 60s.

PRIMULA JAPONICA, mixed varieties, 9d. each, 6s. per dozen; in six colours, raised from selected varieties, 1s. 6d. each.

AUBRIETIA HENDERSONI, the finest variety in growth and colour, strong plants, 2s. each, 18s. per dozen.

DAISY, Flower of Spring, beautiful and effective, pure white, with elegant gold-blotched leaves, 1s. each, 9s. per dozen.

VIOLETS, White Czar and Victoria Regina, 1s. 6d. each.

CYCLAMEN PERSICUM (from 3000 plants), mixed colours, 9s., 12s., and 18s. per dozen; collection to name 21s. and 30s. per dozen.

IRIS KÆMPHERI, Edward George Henderson and Andrew Henderson, the most beautiful of all the Iris group.

LEUCOJUM VERNUM, the true Spring Snowflake, with fragrant, large, Snowdrop-like flowers, dwarfer in habit than other species, 1s. 6d. per dozen, 8s. per 100.

MYOSOTIS RUPICOLA, the most beautiful of Forget-me-Nots, 1s. 6d. each.

The Trade supplied on usual terms for all the above.
For full descriptions see CATALOGUE 155.
Wellington Nursery, St. John's Wood, London, N.W.

The Nurseries, Reddish, near Stockport.

SPECIAL OFFER to the TRADE.

B. WHITHAM begs to call attention to the subjoined LIST of TREES and SHRUBS, all fine, bushy plants, many times transplanted:—

AREA THEOPHRASTA, 4 to 6 feet, 20s. per 100; 6 to 8 feet, 30s. per 100.
ASH, Mountain, 6 to 8 feet, 12s. 6d. per 100; 8 to 10 feet, 25s. per 100.
BEECH, 3 to 4 feet, 8s. per 100; 4 to 6 feet, 16s. per 100; 6 to 8 feet, 30s. per 100; 8 to 10 feet, 50s. per 100.
CHESTNUT, Horse, 2 to 3 feet, 6s. per 100; 3 to 4 feet, 8s. per 100; 6 to 8 feet, 25s. per 100; 8 to 10 feet, 50s. per 100.
LIMES, 2 to 3 feet, 8s. per 100; 3 to 4 feet, 14s. per 100; 4 to 5 feet, 20s. per 100; 5 to 6 feet, 25s. per 100; 6 to 7 feet, 40s. per 100; 7 to 9 feet, 60s. per 100.
PINUS AUSTRIACA, 2 to 3 feet, 12s. 6d. per 100; 3 to 4 feet, 25s. per 100.
POPLAR, Lombardy, 4 to 6 feet, 8s. per 100; 6 to 8 feet, 16s. per 100.
POPLAR, Ontario, 4 to 6 feet, 8s. per 100; 6 to 8 feet, 15s. per 100.
PRIVET, 2 to 3 feet, 15s. per 1000.
ARBOR-VITÆ, American, 2 to 3 feet, 20s. per 100; 3 to 4 feet, 25s. per 100; 4 to 5 feet, 35s. per 100; 5 to 6 feet, 50s. per 100; 6 to 7 feet, 75s. per 100.
ARBOR-VITÆ LOBBII, 2 to 3 feet, 30s. per 100; 3 to 4 feet, 50s. per 100; 4 to 5 feet, 75s. per 100.
BERBERIS AQUIFOLIA, 2 to 15 inches, 5s. per 100; 12 to 18 inches, 6s. per 100; 1½ to 2 feet, 12s. 6d. per 100.
BERBERIS DARWINII, 2 to 3 feet, 40s. per 100.
DOGWOOD, strong, 4 to 5 feet, 12s. 6d. per 100.
LAUREL, Common, 4 to 6 feet, 25s. per 100.
LAUREL, Portugal, 6 to 12 inches, 10s. per 100; 12 to 18 inches, 25s. per 100; 18 to 24 inches, 40s. per 100.
RHODODENDRONS, 6 to 9 inches, very bushy, 60s. per 1000; 9 to 12 inches, 20s. per 100; 1 to 1½ foot, 25s. per 100; 1½ to 2 feet, 40s. per 100; 3½ to 4½ feet, extra strong, £10 per 100. Best named varieties, fine bushy plants, £7 10s. per 100.
YEWS, English, fine, 6 to 12 inches, 10s. per 100; 12 to 18 inches, 20s. per 100; 1½ to 2 feet, 30s. per 100; 2 to 3 feet, 60s. per 100.
YEWS, Irish, 3 to 4 feet, 18s. per dozen.
CHERRIES, extra strong, 5 to 7 feet, 12s. per dozen.
CHERRIES, Pyramids, 4 to 6 feet, 50s. per 100.
CURRANTS, Red, strong, 7s. per 100.
CURRANTS, Black, strong, 10s. per 100.
GOOSEBERRIES, best Lancashire show varieties, 20s. per 100.
STRAWBERRY, Yates' Seedling, 15s. per 1000. One of the best in cultivation, very prolific; no grower should be without this variety.

THE LAWSON NURSERIES,

EDINBURGH.

The Extensive Stock of

Seedling and Transplanted Forest Trees, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, &c.,

Is this Season in Splendid Health, and will be Sold at Moderate Prices.

Catalogues on Application, and Special Offers will be made for Large Contracts.

THE LAWSON SEED AND NURSERY COMPANY, LIMITED,
EDINBURGH AND LONDON.
LONDON ADDRESS: 106, SOUTHWARK STREET, S.E.

THE FINEST BROCCOLI IN CULTIVATION, COOLING'S MATCHLESS.

GEORGE COOLING

Begs again to offer Seed of the above now well known Broccoli. It has taken its rank as one of the finest self-protecting varieties grown, coming into use immediately after Snow's Winter White, with immense pure white heads of a pyramid shape, very close, and of a delicious flavour. It was awarded a First-class Certificate by the Royal Horticultural Society when first exhibited, and has upon several occasions since been shown and Specially Commended, and again obtained the First Prize in a strong competition at South Kensington last sping.

Price 1s. 6d. per packet.

Price to the Trade per Hundred Packets or per Pound on application.

GEORGE COOLING, NURSERYMAN AND SEEDSMAN, BATH.

LILIUM AURATUM—ENGLISH-GROWN BULBS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 10, at half-past 12 o'Clock precisely, a quantity of English-grown Bulbs of LILIUM AURATUM, several of them very fine Bulbs from 8 to 10 inches in circumference, and including many of the handsomest varieties yet introduced; a few Bulbs of the beautiful new LILY (L. Bloomerianum oscellatum), now imported for the first time from Santa Rosa Island, the only Bulbs that could be found of it in the island; several Bulbs of the true LILIUM CANADENSE RUBRUM, until now reintroduced not in this country; also, some Bulbs of the true LILIUM COLUMBIANUM; also, a quantity of other rare BULBS and TUBERS from California and elsewhere, including various Calochortus, Cyclobothra, Brodiæa, Cypripediums, Pancratiums, &c. Among the Lilies will be found the following rare kinds:—

LILIUM HUMBOLDTII
" BROWNII
" SPECIOSUM KRŒTZERI
" PULCHELLUM
" DALMATICUM
" AURATUM RUBRO-VITTATUM
" TENUIFOLIUM
" THUNBERGIANUM SPLENDENS
" TIGRINUM FLORE-PLENO

LILIUM CALIFORNICUM
" SPECIOSUM ATROSANGUINEUM
" WASHINGTONIANUM
" PARVUM
" ROSEUM
" MONADELPHUM SZOVITZIANUM
" KAMTSCHATCENSE
" WILSONI
" PURPUREUM.

On view the morning of Sale, and Catalogues had.

ESTABLISHED AND IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 14, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED ORCHIDS, including twenty fine strong plants of Odontoglossum Alexandræ, a dozen strong plants of the Dove Flower (Peristeria elata), and comprising many choice and rare kinds, amongst them the following:—

ODONTOGLOSSUM SCEPTRUM
" ANGUSTATUM
" ODORATUM
" ROEZLII
" CORONARIUM
" GLORIOSUM
" VEXILLARIUM
PESCATOREA CERINA
DENDROBIUM LASIOGLOSSUM
" RHODOCENTRUM
ANGULOA RUCKERI
ERIOPSIS BILOBA

MASDEVALLIA LINDENI
" VEITCHII
" NYCTERINE
" POLYSTICTA
CYPRIPEDIUM NIVEUM
" PARDINUM
" HARRISIANUM
" SCHLIMII
ONCIDIUM MACRANTHUM
" MACRANTHUM HASTIFERUM
" CHEIROPHORUM

—and an importation, from New Grenada, of various Odontoglossums, Oncidium superbiens, O. Kramerianum, and three new Oncidiums, viz., O. Balderramæ, O. tetracopis, and O. plagianthum. At the same time Mr. J. C. STEVENS will Sell an Importation, ex steamer *Severn*, from La Guayra, of huge and splendid masses of CATTLEYA MOSSIÆ—some of the masses have from forty to fifty bulbs each.

On view the morning of Sale, and Catalogues had.

THE FINEST ROOTS OF THE YEAR.

Carters

PRIZE ROOTS

WILL BE ON VIEW DURING THE

SMITHFIELD CLUB CATTLE SHOW,

ON THEIR

STAND, No. 81, in the usual place (NORTH GALLERY),

DECEMBER 7, AND FOLLOWING DAYS.

Orders Booked during the Show.

The Exhibitions will include

SPECIMENS OF CARTER'S PRIZE MANGEL AND SWEDE

GROWN BY

HER MAJESTY THE QUEEN,

AND

HIS ROYAL HIGHNESS THE PRINCE OF WALES;

ALSO SPECIMENS GROWN BY

THE RIGHT HON. LORD WARWICK,

Taken from a Crop producing 84 Tons per Acre.

Carters

THE ROYAL SEEDSMEN, HIGH HOLBORN, LONDON, W.C.

TO THE TRADE.

KING OF THE BROCCOLIS.

Electrotypes of this block, 3s. 6d. each.

Price to the Trade on application.

1s. 6d. per Packet.

This magnificent variety comes in for cutting from the beginning of May to the first week in June, and is undoubtedly the finest late Broccoli in cultivation. It is of a fine dwarf habit, and being well protected is exceedingly hardy. Its heads are remarkably fine, close, and white, and of enormous size, and cannot fail to prove a great acquisition to the kitchen garden.

Messrs. HURST & SON are pleased to announce to the Trade that the entire disposal by wholesale of this fine Broccoli has been placed in their hands by Messrs. Daniels, Brothers, Norwich, but regret that, in consequence of their limited supply, they are only able to offer for the coming season, in sealed packets, retail, 1*s.* 6*d.* each. Early orders solicited. A List of those firms from whom "King of the Broccolis" can be obtained will be published shortly.

HURST & SON,

SEED MERCHANTS, 6, LEADENHALL STREET, LONDON, E.C.

Lilies.

MR. WILLIAM BULL, being the largest Importer of LILIES direct from their native habitats, can offer them on special terms by the 100 or 1000 for planting in large groups.

LILIUM AURATUM, small sound English-grown bulbs, 18*s.* and 24*s.* per dozen; fine bulbs, on arrival of the annual importations from Japan, 30*s.* and 42*s.* per dozen.
,, AURATUM RUBRO-VITTATUM, the most handsome of the "auratum" group, 15*s.*, 21*s.*, and 31*s.* 6*d.* each.
,, BLOOMERIANUM OSCELLATUM (Kellogg), new; first time imported from Santa Rosa Island. Mr. W. B. has imported all and the only bulbs of this Lily that could be found in the Island. 42*s.* and 63*s.* each.
,, BROWNII, 10*s.* 6*d.* each.
,, CALIFORNICUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
,, CALLOSUM, very rare, 7*s.* 6*d.* each.
,, CANADENSE RUBRUM, very rare, 5*s.* and 7*s.* 6*d.* each.
,, DALMATICUM, exceedingly handsome, 10*s.* 6*d.* each.
,, HUMBOLDTII, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
,, ,, PUNCTATUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
,, KAMTSCHATCENSE, the Black Lily, 3*s.* 6*d.* each.
,, MONADELPHUM, one of the most handsome of Lilies, 3*s.* 6*d.* each.
,, PARDALINUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
,, PARVUM, 7*s.* 6*d.* each.
,, PULCHELLUM, 5*s.* and 7*s.* 6*d.* each.
,, ROSEUM, 2*s.* 6*d.* and 3*s.* 6*d.* each.
,, SPECIOSUM ATRO-SANGUINEUM, the most handsome of the whole section; 7*s.* 6*d.* each.
,, SPECIOSUM KRŒTZERI, flowers of snowy whiteness and symmetrical form, 5*s.* and 7*s.* 6*d.* each.
,, TENUIFOLIUM, 3*s.* 6*d.* each.
,, THUNBERGIANUM SPLENDENS, one of the best of the Thunbergianum group, 3*s.* 6*d.* and 5*s.* each.
,, TIGRINUM FLORE-PLENO, the most handsome of the double-flowering Lilies, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
,, TIGRINUM SPLENDENS, 3*s.* 6*d.* and 5*s.* each.
,, WASHINGTONIANUM, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each.
,, WASHINGTONIANUM PURPUREUM.—This Lily is well figured in *Florist* for November; no more of it can be found in its native habitat. 7*s.* 6*d.* and 10*s.* 6*d.* each.

The above are a few choice Lilies, of which Mr. B. holds a large stock.

GOOD and VARIED SELECTIONS of LILIES made, at 12s., 18s., 30s., and 42s. per dozen.

Where the selection is left to Mr. W. B. the Catalogue Prices are not strictly adhered to, the Purchaser being given a considerable advantage.

Mr. WILLIAM BULL'S Annual Importations from California of CALOCHORTUS of sorts, CYCLOBOTHRAS, BLOOMERIA, and BRODIÆAS, have now been received.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

Picea nobilis.

THOMAS METHVEN AND SONS beg to announce that, having a very large and fine Stock of this, one of the hardiest and most ornamental of the Californian Conifers, raised from SEED saved from the original glaucous-leaved variety, they are in a position to offer it in large quantities, on terms more favourable to purchasers than it has ever been offered since its introduction to this country: 1-yr. Seedlings, 1-yr. transplanted, about 3 inches high, 90*s.* per 1000; 1-yr. Seedlings, 2-yr. transplanted, 4 to 6 inches high, 120*s.* per 1000. Price to the Trade on application.

Leith Walk Nurseries, Edinburgh.—December 1.

JAMES ANDERSON, NURSERYMAN and HORTICULTURAL VALUATOR, Meadowbank, Uddingston, Glasgow, begs to announce to the public generally that he is now offering SELECTIONS of ORCHIDS, either in small or in large lots, suitable either for cool, intermediate, or warm temperatures; and that he is prepared to deal liberally with those who may entrust him with their orders.

Mr. ANDERSON'S stock of AMARYLLIS is the rarest and finest selected in the Kingdom, and he is prepared to offer them singly, in dozens, or hundreds, to suit purchasers. His stock, too, of the beautiful family of NERINE is large, and comprises some seedlings not yet in commerce.

Mr. ANDERSON is also offering SPECIMEN CAMELLIAS and AZALEAS in splendid health and full of buds, as well as a general lot of beautiful-leaved PLANTS, suitable either for indoor decoration or exhibition purposes.

Mr. ANDERSON'S stock of HARDY SHRUBS and TREES, both Deciduous and Evergreen, is a particularly choice one.

Special quotations to buyers on application.

Meadowbank Nurseries, November 11.

PLANTING SEASON.

LARCH, SCOTCH FIR, ENGLISH OAK, and all other Forest Trees.
QUICK, and all other Hedge Plants.
COVERT PLANTS in great variety.
FRUIT TREES, including all the best and most esteemed varieties—quarter of a million trees.
ROSES, Standards, Dwarfs, the newest and best varieties—100,000 to select from.
VINES, all the leading varieties in 2000 well ripened canes for fruiting in pots and for planting out.
EVERGREENS in great variety, including large quantities of all the choicest Hollies, &c.
CONIFERS, including Picea Nordmanniana, &c.
ORNAMENTAL TREES and Plants of all sorts.

*** The whole in very great quantity and stout vigorous condition, with fine roots for safe removal.

Priced LIST and all particulars on application

JAMES DICKSON & SONS, Newton Nurseries, **Chester.**

☞ The "Newton" Nurseries are within eight minutes' walk, by the new road, from the Chester Railway Station.

Violet.

LEE'S VICTORIA REGINA.—It gives me great pleasure to offer again the above magnificent and exquisitely sweet-scented Violet, which last season gave such remarkable satisfaction, at greatly reduced prices. For LIST of the Trade see the *Gardeners' Year Book* and the *Garden Oracle* for 1875. Extra strong plants, 12*s.* per dozen, 6*s.* 6*d.* per half dozen; smaller, 6*s.* to 9*s.* per dozen, 3*s.* 6*d.* to 5*s.* per half dozen.

Several persons having written for seed of the Victoria Regina, and although a very shy seeder, G. LEE has succeeded in harvesting a small quantity, which he offers in sealed packets at 2*s.* 6*d.* each, post-free.

N.B.—It should be sown in pans not later than the end of December, and kept in a cold pit or frame till well up.

GEORGE LEE, Market Gardener, Clevedon, Somerset.

HORTICULTURAL BUILDINGS

OF

EVERY DESCRIPTION,

FROM

THE MOST ORNAMENTAL CONSERVATORY or WINTER GARDEN,

TO

THE PLAIN AND INEXPENSIVE HOTHOUSE.

ALL DESIGNED AND BUILT WITH A STRICT REGARD TO ECONOMY IN PRICE,

THE BEST OF MATERIALS AND WORKMANSHIP, AND PRACTICAL ADAPTATION.

UNSURPASSED BOILERS AND HEATING APPARATUS.

Surveys made and Gentlemen waited on in any part of the Country.

PLANS AND ESTIMATES ON APPLICATION.

TENDERS FOR DRAWINGS PREPARED BY ARCHITECTS.

HENRY ORMSON,

HORTICULTURAL BUILDER AND HOT-WATER APPARATUS ENGINEER,

STANLEY BRIDGE, KING'S ROAD, CHELSEA, LONDON, S.W.

SUTTONS'
PRIZE STOCKS of FARM SEEDS

SMITHFIELD CATTLE SHOW,

STAND 86.

Sutton & Sons

WILL EXHIBIT AN IMMENSE COLLECTION OF SPECIMENS OF THEIR

Improved Varieties of Agricultural Roots,

GROWN BY THEIR CUSTOMERS,

Under Ordinary Field Cultivation, in various parts of the United Kingdom.

THE COLLECTION WILL INCLUDE SPECIMENS OF

SUTTONS' BERKSHIRE PRIZE YELLOW GLOBE MANGEL,

which this year has produced, on the Earl of Warwick's Heathcote Farm, Warwick, the extraordinary weight of 84 tons per acre, being the heaviest field-crop ever known.

SUTTONS' MAMMOTH LONG RED MANGEL,

weighing upwards of 40 lb. each, and which has been awarded, for the past six years, the First Prizes at the Birmingham Cattle Show.

SUTTONS' CHAMPION SWEDE,

the best Swede in Cultivation, which has produced 62 tons per acre (Irish) and been awarded £2800 in Prizes.

Orders will be received at the Stand, at very Moderate Prices.

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

SATURDAY, DECEMBER 5, 1874.

BOUND FOR BELGIUM.

(*Continued from p. 676.*)

AT the next station, Mouscron (pronounce Moocron), you are in Belgium, and no mistake. Here you leave the French train, not to re-enter it, but to continue your journey in a Belgian train—a fact worth noting, because here, also, everybody gets out to have his or her luggage inspected by the Belgian Customs' officers, and sticks or umbrellas left behind in your railway carriage would probably be lost. The examination is not severe, and is perhaps maintained principally as a right and a formality to set off against French protectionist rigours. Although you have not crossed a mountain range nor steamed over a strait, on looking round you at the station you find a change. The Belgian railway authorities seem determined to do everything that concerns them differently from the French. There is less red-tapeism and bureaucratism about their ways. Tickets even (*billets*) are now called coupons. Waiting-rooms are also refreshment-rooms; in some, in summer, on a table, a decanter of water and glasses offer themselves to the public gratis. Consequently, Belgian waiting-rooms are quite free-and-easy, and much frequented. As a corollary, they often post on their walls the caution, which you first behold at Mouscron, and which, being given in four languages, I transcribe for the perusal of my polyglot readers:—"Gardez-vous des filous"; "Past op de dieven"; "Man hüte sich vor taschendieben"; "Beware of pickpockets."

On entering the Belgian train you find even the third-class carriages lofty and roomy, causing them to be used by many persons whose appearance would bespeak them to be second-class at least. But a most praiseworthy merit is the lowness of the Belgian railway fares. For instance, Lille may be roughly taken as half-way between Calais and Ghent; but the fare from Lille to Ghent (and part of the journey is still in France) is less than half the fare from Calais to Lille, and that with inferior accommodation on the French portion of the line. Soon after leaving a Belgian station, the conductor of the train looks in at your carriage, mentions the next station, and takes the tickets of the passen gers who get out there; which is a warning to dozers not to overshoot their mark, and leaves the luggageless traveller free to depart the instant he has left the train. Less time is lost at Belgian stations than at French, but of course the peculiarities of Belgian railway travelling cannot be spoken of in general terms, because they are so diverse on different lines. On some few, though cheap, it is not nice, and you are driven to ask yourself, "If this is the second-class, what must the third class be?" Still, cheapness is a great privilege for the million. It is better to be able to travel, even if roughly, than to be prevented by high fares from travelling at all. Other lines offer third classes, airy yet shady, presenting all the advantages of a locomotive balcony furnished with seats.

In France the prices of first and second-class tickets are exactly the same, whether you travel by express or by ordinary trains. By express trains, indeed, you can only go first-class; although there are quick trains, called "direct," which give second and third-class tickets for long distances only. In the slow French trains, called "mixte"—goods and passengers—the tickets are not a centime cheaper than if you took them for quicker trains. Now, in Belgium you can go second-class (though not third-class) by express; but the first and second-class tickets by express trains are dearer than by slower and ordinary trains. This is no more than fair. If time be money, it is just that a saving of time should be paid for with money.

The absence of severe rule on Belgian railways is not only agreeable but convenient. If not content with the accommodation accorded to your class on that particular line on which you are travelling, you can shift from one class to another at an early period of the journey, tell the conductor, and pay the difference. He would never dream that you meant to cheat the company by the move, but only to suit your own convenience. You can get up into a train without any ticket at all, and when the conductor or guard appears, pay him. He is furnished with "coupons," which he tears out of a sort of cheque-book, intended for those emergencies. Indeed, every facility, as a rule, is afforded for the speed and convenience of travellers with purses. In consequence of the complicated network of railways which covers Belgium, to get from one town to another, say from Liège to Antwerp, you have often to make a halt, in this case at Louvain—which gives you ample time to go and see the elaborate façade of its famous Town Hall. Suppose you are second-class, and in a hurry to reach Antwerp, by taking a third-class ticket at Louvain, with the two tickets you can go first-class by the next express train, and reach Antwerp two or three hours sooner.

On French railways each passenger is allowed 30 kilos., about 70 lb. of luggage, with no other charge than the 10 centimes, or one penny, for registering it; and a party travelling together may have their luggage registered in a lump on one ticket: so that if the average per head is less than 30 kilos., the total charge is only 10 centimes. Any excess above 30 kilos. is paid for extra; but with quiet-dressing people it goes a long way. The Belgian railways allow no weight of luggage gratis, except what you carry with you by hand—and very respectable quantities of baggage are so conveyed by hand. In Belgium every kilo. of property which does not accompany you as your personal effects is charged for. In crossing the railway net obliquely, with frequent change of lines, the trouble, not the expense, of luggage becomes so great as to convert it into a serious and heavy drag. If tourists, therefore, wish to excursionise irregularly in Belgium, they are advised to send on all except needful baggage to the town at which they propose making any stay.

To complete these differences the time is not the same. As the sun rises earlier in Belgium than in France, the clocks must accord with the noon marked by the local meridian. But for convenience sake, railway time is the same all over France, and all over Belgium likewise, notwithstanding the different longitudes of different localities along the area stretching from east to west. A difference of clock-time must be fixed upon somewhere, and it is at the frontier that it is made. At Tourcoing we bid adieu to French time, and set our watches to Belgian time at Mouscron.

Smoking carriages and ladies' carriages were probably French and Belgian before they were English; but, after all, it is not to be wondered at, nor complained of, that Continental travelling arrangements should in some respects be more commodious than our own. Ours are the first-born railways of Europe, and other nations have had the opportunity of improving on our experience. Our railroads resemble the first child of a family, on whose rearing and educa-

FIG. 139.—FLOWER GARDEN AT CLEVELAND HOUSE, CLAPHAM PARK.

tion young parents experimentalise, to the manifest advantage of subsequent little strangers.

The slight inspection of your baggage at Mouscron over, you glide away direct north-east. The transition, though slight, is perceptible. You pass patches of what look like purple Broccoli, but are in fact Cow Cabbages, to be gradually stripped of their leaves from below, as the kine require them, till they attain remarkable lankiness, though inferior to that of their congeners in Normandy, where a man may often sit under the shade of his own Cow Cabbage tree. As you advance, you find the country more thickly spread with homesteads and cottages. For why? Because, amongst other reasons, they do not send all their robustest youth to the wars, and consequently have more arms to till and garden the ground. You don't see any of their delightful Tobacco, because it is all gathered and in the way of preparation. You note their cutting off the tops of Beet before drawing the root; which may give them more juice; but will they get more sugar from it? What dumpy, slim-spired little churches bestud the plain! That at Waereghem, to the right, is all spire and no body, looking as if a great church spire had been cut off and stolen, to be stuck upon a little one. Labour must be valuable hereabouts; for there is a big dog dragging a small harrow. Great precautions are taken to prevent land being water-logged. Mark how it is laid up in ridges, like so many Asparagus beds, with furrows between them neatly cut out by hand, with the hoe or more frequently the spade. Now and then the breeze comes redolent of liquid manure; but earth, like animals, cannot thrive without having an occasional feed. And so, through a fertile district, onward you roll, until the slackening speed directs your attention to belfries and massive buildings, from which you are parted by patches of verdure and clusters of trees. The latter belong to the Ghent Zoological Gardens, one of whose members rendered himself famous by apologising to the Comte de Flandre for the smallness of the collection, and adding, "Your Royal Highness, it is not our fault. If we had more shareholders, we should have more animals (*bêtes*)!"

The train comes to a standstill. Your ticket has been already taken. You descend, and walk out of the station into the town of Ghent with no more hindrance than you would meet on walking out of your own house-door.

(*To be continued.*)

New Garden Plants.

CYPRIPEDIUM ARGUS, *Rchb. f., supra.*

Having recently had a visit from Mr. Wallis, I showed him the specimens of this plant, which he remembers very well having gathered on Luzon, one of the Philippines. One could suspect now that the C. Argus is "No. 2060, Island of Bohol," Cuming; yet the shape of the upper sepal and the straight divaricate direction of the petals are against it, and persuade one to regard the Bohol plant as nothing more than the common C. barbatum, Lindl. *H. G. Rchb. f.*

MASDEVALLIA DAVISII, *n. sp.*

This is a beautiful thing, much like Masdevallia Harryana and Veitchiana, but at first sight differing in its very narrow fleshy leaves, by a straight tube of the perigone, by the lateral sepals not being gradually tapered to the point, but oblong and with suddenly abrupt short tails, as well as by the outline of the upper sepals, the petals and the lip. The tube would appear to be whitish yellow with a blackish violet great eye-spot on each side. The other parts of the flower are yellowish, white outside, and of deepest

* Aff. M. Harryana Rchb. f. Dense cæspitosa; foliis cuneato-ligulatis obtuse acutis valde carnosis angustis; pedunculo longe exserto, cupula perigonii recta; sepalo superiori a triangula basi in caudam longiorem extenso; sepalis lateralibus oblongis ultra medium connatis, lobis oblongis subito ac abrupte breve aristatis; tepalis ligulatis obtuse acutis, antice emarginatis ante unguem semi-sagittatis, bicarinatis; labello pandurato acuto, antice latiori, tricarinato; androclinii membrana serrata. —*Masdevallia Davisii*, Rchb. f., Xenia Orchidacea, vol. iii., tab. No. 3, MSS.

splendid orange inside; so that it would appear to give a most welcome contrast in a group of the scarlet and vermilion and white Masdevallias. It was discovered by a, most probably, new collector, Mr. W. Davis, somewhere in the Western Cordilleras of South America, where are so many places fit for good Orchids. I have a very good opinion of this collector, who was introduced to me by a set of new dried Orchids; so I thought it my duty to attach the name of such a promising collector to such a welcome Masdevallia. I have to thank Messrs. Veitch for the communication. *H. G. Rchb. f.*

FLOWER GARDENING AT CLEVELAND HOUSE, CLAPHAM PARK.

WHEN the fashion of summer bedding first came into existence it met with favour from most people; for a time it was kept within reasonable limits, the combinations frequently of a number of plants differing considerably in form as well as colour did not produce the objectionable effect consequent upon the use of enormous quantities of high distinct colours in masses or straight lines, which afterwards were to be seen in all directions. Gardeners seemed to vie with each other who could propagate and find room to plant the greatest numbers. The system became a complete rage, and did very serious harm to gardening in general. In hundreds of places it completely elbowed out of cultivation innumerable old favourites in the herbaceous department—plants that gave all but a continuous charm to the whole year were sacrificed or thrust out of the way in any corner, comparatively neglected for things of short and uncertain duration. The garden for more than half the year was a blank, to relieve which many means were resorted to, in the shape of dwarf shrubs, with which the beds were filled during the winter season. The quantities of plants every year required, filled houses, pits and frames, until the legitimate occupants, both fruits and plants, suffered seriously. Another difficulty of a different nature became apparent—that was the labour which the system entailed; the continuous propagation and attention required considerable time, which in many cases had to be abstracted from such as formerly was expended in the fruit and vegetable department, all of which received less attention, for in few places was the increase of labour commensurate with the increase of work; until the evil was so bad that it was no uncommon occurrence to see a trim flower garden with every other department in a neglected condition, and this state of matters is yet existent in too many even large places.

The system, as carried out when at its height, was simply a barren waste for the greater part of the year with a profusion of glaring colours during the remainder, monotonous through its sameness, and offensive to the eye of good taste. Bad as it was in this respect, viewed from the higher ground of pure landscape art, in many places it was immeasurably worse. Imagine a noble mansion, occupying a commanding position, in an extensive park, with the adjuncts of fine old timber, open glades, and water, possessing everything, in fact, most approved in the art of landscape gardening, where all has been scrupulously omitted or removed that could possibly distract the eye from the broad distant views—where even so much as the colour of the Snowdrop or Primrose was in such a situation considered objectionable; and yet we frequently see right under the eye, standing in front of places such as the above, a modern flower garden, refulgent in all the hues of the rainbow. Shades of Brown and Repton, what horrors wou'd you experience could you see th e doings at the present day in many a fine old place! As soon would you have thought of tattooing your faces as tattooing the earth in such situations. Yet there is no reason that because a thing may be hideously out of place in a particular position, or under certain conditions of arrangement highly offensive to the educated eye, that it should be non-existent altogether. Under our leaden sky we require an amount of colour that would be objectionable in a more sun-favoured sphere, consequently we cannot dispense with the flower gardener's art, for art it is when seen in the beautiful arrangements of form and subdued colour combined that are frequently met with at the present day. The evil of modern flower gardening has been in the unreasonable extent it has been carried to—the excessive amount of colour introduced, to the exclusion of beauty and diversity in form, and the glaring errors in the selection of suitable sites. Even spring bedding, so subdued in colour as the majority of plants employed in this description of flower gardening are, is only so much less objectionable than the brighter tints of the summer bedders when the situation is ill-chosen. The same holds good with the still higher style of subtropical or leaf gardening, where form occupies and fills a more important part than flowering plants. No flower-garden, not even a single bed, should ever under any circumstance stand where it can draw or distract the eye from an extended open view, which it must necessarily do if placed in the front of a mansion commanding such. Yet there is scarcely a place in the kingdom, large or small, wherein a situation cannot be found that may with advantage be occupied by a modern flower-garden without interfering objectionably with the surroundings. Yea, rather, in many instances nothing could be better calculated to attract and withdraw the eye from something objectionable in the distance, as in the case of places of moderate or small extent, such as the innumerable villas in the vicinity of large towns, which in most cases are not more than a few acres in extent; and where there is too often in the distance something more or less unattractive. In such places a well-planted flower garden in addition to its individual merits, is the best means of accomplishing the desired object of diverting the eye from such objects—a better example of which it would be difficult to find than the one which forms the subject of this notice—Cleveland House, the residenee of S. Ralli, Esq. The grounds attached are some 10 or 12 acres in extent, the garden altogether occupying, say, one-sixth of the whole, the rest devoted to meadow, and pasturage for cows; the surface quite flat, with a railway embankment on the boundary that excludes any further view, and in itself the reverse of attractive.

Here then is just the place to illustrate the most appropriate site for a flower garden to fulfil the double purpose of withdrawing the vision from the distance and fixing it upon an object by far the best of its kind I have ever seen. Previous to seeing this garden I had heard much of it from persons well able to judge of artistic flower gardening, yet I must confess to have not anticipated anything so perfect in its way. As will be seen from the engraving (fig. 139) the materials used in the carpet beds were of the usual description, but the general effect produced by the perfect arrangement of the plants, their much more than ordinary strength and colour, was such as no description can convey. Some idea of the labour attached to this garden may be imagined when it is stated, and I have no doubt correctly, that the seven principal beds contained 19,000 plants. The outside circular beds, filled with large foliage plants averaging 5 feet in height, every plant a picture of health and vigour, independent of their own attractions contributed much to the general effect, counteracting what would otherwise have been too even a surface with an excess of formality This was still further assisted by the outside row of small coniferous plants, which were about 2 feet 6 inches high. This garden is in the centre of a good broad panel, with plenty of grass margin, the absence of which in sufficient breadth is the most objectionable feature in the majority of flower gardens—effectually destroying any pretensions they may have to true garden art, and reducing them to the condition of pictures deficient in background. The flower garden was designed and made by Mr. Legg, Mr. Ralli's clever and intelligent gardener, and does him very great credit, as does also the other departments, which were equally well cared for.

There is considerably more bedding, equally well done; some eight or ten houses filled with a fine collection of young stove and greenhouse plants—amongst the former several new Crotons, such as C. Weismanni and C. Johannis, with foliage of an extraordinary size and colour; some beautiful Palms, Nepenthes, Ixoras, and Dipladenias, with that peculiar strength and vigour of growth about them that is evidence of their liking the treatment they receive; a number of Ferns, and some promising Orchids. The greenhouse plants and Azaleas were eqally well done. Adjoining were two vineries, planted this spring, in as fine condition as could be desired, very strong short growth, and as even as possible, not a single weak plant amongst them at the time of my visit (the end of August); the wood was quite ripe, the foliage as healthy and free from insects as if they had only just commenced growth. Out-of-doors was a splendid lot of specimen Chrysanthemums, well but not over-formally trained. The kitchen garden was full of good vegetables—a state of matters not to be seen everywhere this parching season. The place altogether, so far as its size would permit, bore evidence of what may be accomplished by the union of ability and liberal encouragement. *T. Baines.*

REFERENCES TO THE PLAN. (FIG. 139.)

The centre bed, A, consists of a central circle of Chamæpeuce diacantha, surrounded by a band of Alternanthera amœna, and this again by a similar one of Sempervivum calcareum. This central patch is placed in a six-sided figure, consisting of Mesembryanthemum cordifolium variegatum, outside of which is a series of arching bands, with the concavity directed outwards, of Echeveria secunda glauca, surrounding patches of Alternanthera magnifica. The series of circles which come outside the latter are composed of a centre of Alternanthera amœna, bordered with Pyrethrums. The four bands which encircle the whole bed are filled from within outwards in the following manner:—Pyrethrum, Alternanthera versicolor, followed by two rows of Sempervivum calcareum and one of Mesembryanthemum cordifolium variegatum.

The beds B B consist of a central dagger-shaped mass of Alternanthera versicolor in a setting of Pyrethrum, outside which is a single row of Alternanthera amabilis. Then follow a series of oblong, alternating with circular, panels; the oblong panels are planted with a centre of Echeveria secunda glauca bordered by Alternanthera paronychioides. The circles consist of a centre of Pyrethrum encircled by Alternanthera amœna. The setting round these beds consists of Mesembryanthemum cordifolium variegatum, and the whole is surrounded by two bands—the inner of Alternanthera amœna, the outer of A. paronychioides.

CC consists of four circular masses with triangular patches in between, and each enclosing from one to five radiating egg-shaped masses, which are thus planted: The central plots consist of—1, Pyrethrum in a setting of Alternanthera magnifica, encircled by Mesembryanthemum cordifolium variegatum, and that again by Alternanthera paronychioides major. The triangles consist of a centre of Sempervivum calcareum, bordered by Echeveria secunda glauca. The whole is bordered by two bands—the inner of Alternanthera paronychioides major, and the outer of Pyrethrum.

D D. The centre of these beds consists of—1, Alternanthera amabilis, edged with Sempervivum calcareum, in a setting of three Pyrethrums, the two outside rows being of Alternanthera paronychioides and Echeveria secunda glauca outside.

E. 1, Ricinus Obermanni; 2, Chamæpeuce diacantha.
F. 1, Canna purpurea; 2, Salvia argentea.
G. 1, Melianthus major; 2, Chamæpeuce Casabonæ.
H. 1, Solanum robustum; 2, Iresine Lindeni.
I. 1, Canna Chatei grandis; 2, Chamæpeuce diacantha.
J. 1, Nicotiana wigandioides; 2, Coleus Verschaffeltii splendens.

Coniferous Trees.—K. Picea Nordmanniana; L. Cryptomeria elegans; M. Sciadopitys verticillata; N. Retinospora pisifera aurea; O. Retinospora argentea variegata; P. Abies polita; Q. Retinospora plumosa; R. Picea Nordmanniana.

NOTES FROM A LANCASHIRE GARDEN.

November 7.—The soft autumn weather still spares the flowers the rains have left us, and here and there are signs as if of another spring. Violets along the grass walk, Strawberries in flower, and to-day a little yellow Briar Rose, blossoming on an almost leafless spray, remind us of the early months of the year that is no more. But here, too, are some of the flowers of November. The Arbutus has again opened its bunches of waxen pink, and the Chrysanthemums are again blooming on the shrubbery beds. The year has all but completed its circle since first I wrote these notes, and I speak to-day of the flowers, the same, yet not the same, as those of which I wrote eleven months ago.

The trees have lost nearly every leaf, and our little wood is bare as the wood wherein poor Millevoye, so soon to die, once strolled when

> "De la dépouille de nos bois
> L'automne avait jonché la terre;
> Le bocage était sans mystère,
> Le rossignol était sans voix."

> "The autumn's leafy spoil lay strewed
> The forest paths along;
> The wood had lost its haunted shade,
> The nightingale her song."

Had there been in happier days a "mystère" beyond the charm of waving branches and whispering leaves?

Another French poem on a withered leaf is better known, for it was Macaulay who translated Arnault's verses, and rendered the last three lines so perfectly:—

> ["Je vais où va toute chose,
> Où va la feuille de Rose,
> Et la feuille de Laurier."]

> "Thither go I, whither goes
> Glory's laurel, Beauty's rose."

Among my ideas—I cannot call it plan, for my mind is not quite made up about it—I half fancy putting up a statue of some sort in a nook in the little wood, where the Beeches grow the tallest and the Elders are the thickest. Such things were once common, and then they got so common, and often so out of place, that they became absurd. Every villa garden had its statue and its rockery.

Batty Langley has an amusing chapter about statues. He says:—"Nothing adds so much to the beauty and grandeur of gardens as fine statues, and nothing is more disagreeable than when they are wrongly placed; as Neptune on a terrace walk, mound, &c.; or Pan, the god of sheep, in a large basin, canal, or fountain;" and then, "to prevent such absurdities," he gives the most elaborate directions. Mars and Jupiter, Fame and Venus, Muses and Fates, Atlas, Hercules, and many more are for open centres or lawns. Sylvanus, Actæon, and Echo are among those recommended for woods. Neptune, Oceanus, and the Naiades will do for canals and fish-ponds. Pomona and the Hesperides for orchards, Flora and Runcina ("the goddess of weeding") for flower gardens, Bacchus for vineyards, Æolus for high terrace walks, and "the goddess Vallonta" for valleys. He gives the right deities for paddocks, for wheat-fields, for "ambuscados," and for beehives. In short there is no place for which he does not think a statue ornamental and appropriate. I hope he would approve of my own very humble idea, which is a statue of Hyacinthus,

for where I thought of placing it the wild Hyacinths or Bluebells will come clustering up, and make the grass all blue. The poetry of gardens is so entirely neglected in these days of "bedding stuff" that it is well to do anything that can properly be done, without extravagance of taste or method, to revive it.

In the inner garden I think also of placing a sundial, which would be in good keeping with the rather formal character of the beds. Mrs. Gatty's beautiful book on sundials should help me to a motto. They are of two sorts—the mottoes that warn, and the mottoes that console. "The night cometh," or "Pereunt et imputantur," are good examples of the one; "Horas non numero nisi serenas," or "Post tenebras lucem spero," are the best instances of the other.

Nov. 28.—We wake to find snow all thick upon the ground, over lawn and flower-bed, and the children are out betimes rolling up huge snowballs on the grass. This snow is the best thing possible for the garden, for we have already had a night or two of sharp frost, which killed all it could reach of our herbaceous plants. "Autumn's last delights were nipped by early cold," as in the garden of Monckton Milnes' "Old Manorial Hall," and the Dahlias and the Fuchsias were all shrivelled into brown unsightly tufts. We have covered up the Fig trees on the wall. We have trenched up the shrubbery borders. We have done our last planting—a Catalpa in one place, a Paulownia in another—and some more fruit trees in the orchard. We have planted our bulbs and sowed our autumn annuals for spring gardening. I was so pleased with the Nemophila bed of last May that I am repeating the experiment on a larger scale. I shall have one bed of Nemophila, and another of Virginia Stock. I shall have a bed of pink Saponaria edged with white. Along the Vine border I shall stretch a ribbon of white Saponaria, blue Myosotis, pink Silene, and many coloured Sweet Peas.

Then, again, at the end of the grass walk, where it runs up against the hedge of the croft, I am fixing an arched trelliswork of wire, with a wire seat inside, and over it I shall train and trail the broad leaves of the Aristolochia and the scarlet blossoms of the Tropæolum speciosum.

The vineries are of course at rest; but in them are Roman Hyacinths, now ready for the house, and pots of Polyanthus Narcissus will be also ready within a week.

The porch of the house is filled on either side with stages of Chrysanthemums, and the fine glossy foliage of an Aralia lends a grace to the inside vestibule.

And now I bring these notes to an end. My aim has been to show how much interest and pleasure may be gathered out of a garden of moderate pretensions, and with no great appliances in the way of glass, nor any advantage in the way of climate.

I have endeavoured, too, to reclaim for our English gardens those old flowers which Shakspeare and Milton, and Marvell and Cowley loved. They have been far too long neglected for flowers, whose only charm is charm of colour, and a certain evenness of growth. The ordinary bedded garden of to-day is as inferior to the Elizabethan gardens of old, as all gardens anywhere must be to the delight which fancy conjures up in the enchanted gardens of Armida, or the bowered pleasaunce of Boccaccio. Meanwhile we can only do what best we can, and when all else fails, we can say, like Candide, "Il faut cultiver *notre* jardin."

And so I bid a hearty farewell to those readers, who for months past have followed the fortunes, and shared with me the hopes, of a year in a Lancashire garden. *H.*

FLOORS CASTLE AND PARK.

NEAR the north bank of the River Tweed, not far from its junction with the Teviot, and about a mile from the town of Kelso, is Floors Castle, the principal residence of the Duke and Duchess of Roxburghe. It was about the middle of the seventeenth century that Robert Ker, the first Earl of Roxburghe, transferred the family seat from the strong fortress of Cessford, the ruins of which still exist near the Border hills, in the neighbourhood of the Tweed, to where the climate was better, and where the windows of the mansion could overlook the rich lands acquired from the churchmen in successive royal gifts. The site was admirably chosen. It is high enough to be clear of the vapours which in damp weather collect along the course of the river, and yet it is not more than a quarter of a mile from the river's brink. The rising ground forms a sweeping arc of a circle of which the river is something like the chord, and the Castle is situated just at the apex of the arc. The river-course has obviously, at some time in the distant past, been at the bottom of the bank, but gradually its old windings have been forsaken for a more direct course.

The Castle in its modernised form was begun in 1718 by John, the fifth earl, who had in 1707 been created the first Duke of Roxburghe, one of the most accomplished men of his time, a public-spirited nobleman, and a great advocate of the union with England. The designs were furnished by Sir John Vanbrugh, an eminent architect and dramatist, who wrote some good comedies, and who was the architect of several great edifices, including Castle Howard in Yorkshire, Blenheim Palace, and Floors Castle. His style of architecture was heavy, and hence the epitaph suggested for his tombstone:—

"Lie heavy on him, earth, for he
Laid many a heavy load on thee;"

but Floors Castle is elegant in appearance, and, with improvements made little more than thirty years since, it forms one of the most complete and admired specimens of the Tudor style to be found anywhere in Scotland. The central part of it is a square and massive building, having on one flank the necessary adjuncts for the accommodation of servants, and at the other end the stables and coach-houses. The dining-room, which occupies the north-west corner, is a spacious hall, fitted up and furnished in Oak, with a richly-carved ceiling, all of solid Oak. The mantelpieces and side-tables are of carved Oak, and at the west end is a large bay-window, the recess of which is filled up with an oaken sideboard. The fireplaces and window-shelves are of Italian marble, and the former are beautifully carved. On the same elevation, all looking toward the south, are the drawing-rooms, and at the south-east angle is the very elegant boudoir of the Duchess. The ball-room is a spacious apartment, in which some hundreds of guests can be easily accommodated.

FIG. 140.—FLOORS CASTLE: PRINCIPAL FRONT.

The park is of large extent and is bounded along its southern frontier by the River Tweed, while a massive wall, 15 feet high, leaves the Tweed close to the town of Kelso, making a sweep to the northward, enclosing the park on the east, north, and west, till it joins the Tweed 3 miles farther up. There are many elements of natural beauty as well as historic associations, and from the front of the Castle the prospect is surpassingly rich and picturesque. In the immediate foreground is the green lawn, dotted with clumps of trees, some of which have a historic interest. Near the margin of the Tweed is the stump of an old tree, carefully enclosed, which marks the spot where King James II. of Scotland was killed by the bursting of his own cannon when besieging Roxburgh Castle. The river itself, winding gracefully between its grassy banks, is a great attraction. Beyond it is the site of Roxburgh, one of the first four burghs of Scotland, but of which not a stone now remains. On a green mound, with the Tweed on one side and the Teviot on the other, are the ruins of Roxburgh Castle, once a favourite royal residence, and the walls of which have often in olden time rolled back the tide of English invasion. All is peaceful now, and as we behold these fragments of grey stone walls, overshadowed by ancient Ash trees, the words of Sir Walter Scott come almost unbidden to our lips—

"Sweet Teviot, on thy silver tide
The glaring bale-fires blaze no more;
No longer steel-clad warriors ride
Along thy wild and willowed shore;
Where'er thou windst, by dale or hill,
All, all is peaceful, all is still,
As if thy waves since time was born,
Since first they rolled upon the Tweed,
Had only heard the shepherd's reed,
Nor started at the bugle horn."

Farther to the eastward, but in full view of the Castle, is the town of Kelso, as clean and tidy a country town as can be seen anywhere, with its ruined abbey, its handsome villas, its elegant spires, and its spacious five-arched bridge, nearly 500 feet long, which spans the newly united waters of the Tweed and Teviot. Over woods and fertile, well-cultivated fields the eye wanders to the distant Cheviot hills, once the boundary of two kingdoms, which are visible over their whole length from the neighbourhood of Wooler on the east to the borders of distant Liddesdale in the south-west. It is a rare combination of beauty, romance, and fertility, and one is reminded of Sir Walter Scott's words, "The modern mansion of Floors, with its terrace, its woods, and its extensive lawn, form altogether a kingdom for Oberon or Titania to dwell in, or any other spirit who, before their time, might love scenery, of which the majesty and even the beauty impress the mind with a sense of awe mingled with pleasure."

The plantations have been so arranged as to afford complete shelter to the Castle from all the directions whence cold winds may be expected. On the east of the Castle is a clump of magnificent Oaks, but beyond them a dense forest of Beech and Oak and other trees stretches for a long distance, the underwood consisting principally of large and flourishing Yews. Along all the drives and walks is a screen of Rhododendrons and evergreens, which serve as cover, and are very ornamental. Mr. H. Knight, the present able and accomplished gardener, has largely extended these, and is adding to them every year. The park in front is very picturesque, with its green turf, its clumps of trees, its winding river, its herds of long-horned Highland cattle, and various kinds of native sheep. Among the stray clumps of trees some fine old Planes are notable, and standing alone is the old Holly where King James lost his life. Near the margin of the Tweed is a peculiar Thorn, one half of which is in blossom some time before the other half. Close to the Castle on the west is a little garden and conservatory which specially belong to the Duchess, and at the back of which rise a clump of Elms, tall and stately and erect, looking almost like a fragment of the old abbey, so close and erect are they. A great improvement might be made by having a larger conservatory, and a corridor leading to it from the dining-room window, which would be an immense convenience in winter, and on the occasion of large assemblies in the Castle. In the conservatory at present are some particularly fine Camellias. One of the finest features about the grounds is a terrace west from the Castle, right opposite the principal window of the dining-room, and about a quarter of a mile long. On the north side of it are some Spanish Chestnut trees, with trunks about 20 feet in circumference. On its south side is a sloping bank covered with immense Beech trees, their pendulous branches feathered to the ground. Near them are some picturesque old Hawthorns, and on the flat ground below, where the old

garden was situated, are some purple Beeches that have a fine appearance in contrast to the prevailing green. In a vacant space, sheltered by the Beeches near the west end of the terrace, is a Sequoia gigantea (Wellingtonia), which was planted by the Queen on the occasion of a visit to Floors, in August, 1867. It is a fine healthy symmetrical tree, and is now about 20 feet high. From the west end of the terrace there is a grass drive to the Duke's fishing lodge on the Tweed, and a broad gravelled walk parallel to it at the bottom of the bank. Each of them is about 2 miles long, and they are lined like the other walks and drives with Rhododendrons, Box, Yew, and other evergreens.

Near the west end of the terrace a gate opens into the flower-garden, which, at this season, is in all the bloom of autumnal beauty. The gardens as now existing were laid out in the year 1859, and the changes then made tended much to the improvement of the whole place. The garden was formerly situated at the bottom of the bank on which the Castle stands, but at a quarter of a mile west from the Castle; and it was a great disfigurement to the park. In 1859 it was removed from the park altogether, and was placed to the north-west of the Castle, only a quarter of a mile distant, but not within view. The situation is perfect, except that it is exposed to the north-west winds—a disadvantage which will be obviated after the trees planted some years since shall have grown sufficiently high to afford shelter. The whole space occupied by the gardens is a square of 12 acres in extent. Of the flower-garden there are about 4 acres, and 4 acres are enclosed by a wall to form the kitchen garden, while there are 3 acres of an orchard outside the wall, and the remainder is occupied by houses.

Along the whole north side of the square are houses and sheds for potting, for tools, for fruit, for boilers to heat the houses, and for bothies. In the middle is a house for the gardener, which is as comfortable as any ordinary farmhouse. The bothies are commodious, clean, well-ventilated, with a plentiful supply of water, and they are thoroughly well drained. There are eleven men, and they have a woman-servant who keeps everything neat and clean and tidy. The back of these houses forms the north wall of the garden and it extends the whole length of both the kitchen and flower gardens. Inside the wall along the north side of the flower garden is a corridor 300 feet long, from which seven span-roofed houses, each 60 feet long by 20 feet wide, open at right angles. At the east end of the corridor is a beautiful ladies' room with tiled floor, walls of Minton china, and oak furniture. It is a cool and comfortable and elegant summer room. In the corridor itself is a great variety of rare and valuable plants. It is chiefly designed for Camellias, of which there are some large and symmetrical specimens, but the space is filled up with many other graceful and flourishing plants. Among these we notice several specimens of Sikkim Rhododendrons, including the fine hybrids that have been raised now and then in this country and India. We observe, likewise, a fine sample of the Citrus Limonum, a large Shaddock, very healthy specimens of Norfolk Island Pines, a plant of variegated New Zealand Flax, a large tree of the Guava covered with fruit, and handsome plants of the Aralia pulchra and dactylifera. The Palms include a tree of Seaforthia elegans, 20 feet high and very handsome, and other valuable sorts. Among the Ferns are the Cibotium Schiedei; and there is a very fine Cycas revoluta. There are many of the Abutilons, including the Boule de Neige, and there are fine plants of the Oleanders, and a beautiful blue Hovea Celsi. There are likewise many specimens of the Dracæna, including the Cordyline indivisa; a fine Loquat, which fruited last year; a fine Daphne, 10 feet high, and an Acacia Riceana which has grown so well that it covers a portion of the roof 20 yards long. Other parts of the roof are covered with Lapageria rosea, and some old species of Fuchsia including F. serratifolia. The wall is covered with plants of sub-climbing habit, such as Heliotropes, Cacti, &c. From one end to the other is a serpentine walk, which consists of a perforated cast metal pathway, beautifully bordered with Selaginella denticulata.

From this corridor, as we have already said, seven houses open at right angles, the first of which at the east end is the Azalea-house, at present filled with Pelargoniums, as the Azaleas are in the vineries for the purpose of making their growth, but the bloom on them last season was something extraordinary. In this, as in all the houses, every inch of space is skilfully and carefully utilised by Mr. Knight, Ferns and all sorts of trailing plants growing underneath the stages, and Maréchal Niel roses covering the gables, passing through, and spreading along the roof of the corridor. Next to the Azalea-house was a vinery, which is in process of being converted into a Fig-house, and is at present filled partly with Vines and to some extent with Figs. Next in order is a vinery planted chiefly with Black Hamburgh Grapes. Next is the tropical house, which contains some rare and beautiful plants, including Palms, Caladiums, Pandanuses, and Rondeletia speciosa major, which flowers very freely. The centre of the house is planted with Bananas and Monstera deliciosa, both of which fruit very abundantly. The roof is covered with fine creepers, such as Allamandas, Ipomœa Horsfalliæ, and Thunbergias, which show very fine flowers. Next is a Muscat-house, one half of which is planted with Muscats and the other with Black Hamburghs. Next is a Peach-house, with fine Peach trees planted along the sides, and spreading up the roof. These have all been renewed by Mr. Knight within the past five years, but one side of the roof is now quite covered, and the other nearly so. The kinds used are the Pitmaston Orange Nectarine, the Noblesse Peach, and the Early Beatrice Peach, which is a special favourite here, and which ripened fruit so early as April 24. Standard Peaches are planted along the centre of the house. The last to be noticed is the Heath-house, containing a choice collection of exotic Heaths, tree Carnations, &c. The roof is covered with the handsomest climbers, including the Hibbertia volubilis, and some of the Tacsonias and Begonias. All the houses are of exactly the same size and dimensions, one end opening into the corridor, the other out into the flower garden, of which they form the northern boundary. The flower garden itself is beautifully filled in, showing a fine combination of colours; and it is bounded on the east and south by woods fringed with evergreens, and on the west by the wall of the kitchen garden, which on that side is completely covered with Ivy.

FIG. 141.—FLOORS CASTLE: GARDEN FRONT.

Of the kitchen garden 4 acres are surrounded by a wall 15 feet high, built partly of stone and partly of brick. Entering from the flower-garden we first find a Peach-wall covered with glass, which is 150 feet long, and runs in a line with the corridor, to which we have already referred, but the continuity is interrupted by a wide entrance into the garden, and by the gardener's house.

The same line is farther continued by a vinery in three divisions, which is in all 200 feet long. In front of this is a broad border planted with cordon Apple trees, and a walk 12 feet broad, beyond which are four other parallel lines of houses, of the same length as the vineries. First is the Orchid-house in two divisions, with a very large and fine collection; and the line is continued by a succession pinery and a Fern-house, with a rare and fine collection. Next are Peach-houses and Melon-houses, in four divisions. Then comes a fruiting pinery of the same length, in three divisions, and then there is a span-roof range of the same length, devoted chiefly to the rearing of early vegetables. All these houses are heated with Meiklejohn's cruciform boiler, and the heating and ventilation are perfect. At the north-west corner of the garden, outside the wall, is a compost-yard of about half an acre, enclosed by a wall, which keeps the very useful rubbish there collected from spreading where it is not wanted. The wall and standard fruit trees are excellent, and in the orchard there is a very fine selection of Apples, including the Ecklinville, Dumelow's Seedling, the Irish Peach, Baldwin, Hawick King, Alexander, Lord Suffield, and others to the number of over one hundred.

The gardens and grounds are of manageable extent, and are all kept in admirable order. The new gardens were laid out under the superintendence of Mr. Rose, who remained at Floors till he was promoted to the service of Her Majesty, when he was succeeded by the present gardener, Mr. Knight, a man of nature, ability, of cultured mind, and of large experience both in this country and in France, who has an excellent faculty for making the most of everything, and whose whole heart is in his profession. The efforts of Mr. Knight are well seconded by the Duke and Duchess, whose good taste and liberality are conspicuous, and who really take pleasure in seeing their beautiful place looking as well as possible. *J.*

Foreign Correspondence.

THE DOUANE ON THE FRENCH FRONTIER.—Having more than once traversed the line of route mentioned in your correspondent's article, "Bound for Belgium," I am in a position to endorse most of his remarks, but I cannot say much for the civility of some French officials. Coming from Ghent one raw, foggy morning I was turned out, with the rest of my fellow travellers, at the frontier station, and my baggage duly examined. The passengers consisted of a very few tourists and a large proportion of peasants taking their goods to market. Their baskets, their pots of butter, nay, their dresses and petticoats, were submitted to rigorous prodding with probes and wires; men's pockets were felt and punched, the recesses of their blouses duly scrutinised. By-and-by it came to my turn. Now, whatever others might have thought, I considered myself a law-abiding, inoffensive tourist, disposed rather than otherwise to be extra polite to the officials. This view of my own acquirements evidently did not consort with that of one of the officials on duty. What was my fate? My modest portmanteau was pounced on by a female with the manners of a harpy and the customs of a *petroleuse*. I do not say she was a *petroleuse*, mind, but she might have been one. In my politeness I offered to undo the straps for her inspection. This was not to be. My "Gladstone" was wrenched out of my hands, straps undone, contents all turned out, the recesses of stockings, the folds of linen, the cavities of boots, all peered into relentlessly—every single article shaken out before the gaze of the bystanders: and with what result? With fiendish glee my harpy pounced on a box of chocolate, value 1 franc, bought as a present for the little ones at home—and, oh, horror! a pair of lady's boots—boots, brand new, of the latest fashion, and which had been entrusted to me by a friend in Ghent to carry to a relative in England. Here, then, was a justification of the searcher's severity. "*Ces bottines ne sont-pas à vous!*" she shrieked. I could not say they did. I felt humiliated. Bottines and chocolate were forthwith impounded, and myself, at the bidding of the *petroleuse*, marched off between two *douaniers* into the presence of the *chef du douane*. In him, I am bound to say, I found a courteous gentleman. My chocolate and the boots were immediately restored; the *douaniers* were instructed to help me pack up my scattered garments, and I was able to pass out with a smiling countenance in full view of the horrid female

searcher, who glared at me as never, I thought, woman could do. I ought in justice to French officials in general to say that this experience is quite unique. My intercourse with French custom-house officials has not been infrequent, but I never before or since fell under the tender mercies of such an interesting specimen as this female searcher, though I once had to submit with the best grace I could to the Jack-in-office braggadocio of a commissary of police at one of the French ports. Moral 1: Get a man to search your baggage, if you can. Moral 2: Don't carry new boots for your friend's lady friend—it's dangerous. *Rambler.*

Florists' Flowers.

AT one of the meetings of the Royal Horticultural Society held during the past summer, some very beautiful forms of Mimulus maculosus (if this name sufficiently distinguishes a type), were shown by Messrs. E. G. Henderson & Son, of St. John's Wood, and awakened much interest because of their large size and splendid marking.

A remarkably fine strain is also in the hands of Mr. A. Clapham, of Ramsdall Bank, Scarborough—a gentleman who cultivates flowers for the great gratification they afford him, and who has been successful in other directions than that of the Mimulus. As far as the North of England is concerned, at least, his collection is regarded as unrivalled, novelty of colour and marking being combined with large size.

Mr. Clapham sows for his first crop of seedlings very early in March, and as soon as the plants are large enough to handle they are pricked off into pans of about fifty each an inch apart. When they begin to establish themselves the pans are placed in a cold frame, and allowed to flower, the first blossoms putting in an appearance about twelve weeks from the time of sowing. As they flower the poor types are weeded out, and the improved varieties potted singly into thumb-pots, and grown on into specimen size. Any types of unusual merit remain in the thumb-pots, and produce their seed therein, which is ripened as early as possible, and actually sown again from the 4th to the 20th of July; this second batch of seedlings is got into flower in from eight to twelve weeks; only the very best are saved, and from them seed is obtained to sow in March following. Thus two generations of flowers are had in one year.

The Mimulus should be grown in a cool and moist shady house. They are impatient of a dry atmosphere and sun-heat. In what is generally known as a north house, they cannot fail to do well. They make good window plants when the position of the window is northward. Really wonderful examples of it can sometimes be met with in country districts—the old-fashioned large-flowered type flowering with great profusion all the summer through. *R. D.*

Forestry.

TREES *v.* RABBITS.—The plan noted at p. 657 by a Darlington correspondent of sticking Willows round young trees to prevent rabbit depredations in barking is, I can say, as effectual as it is simple. Just as effectual and more simple still is the placing round the trees any sticks or rubbish that the ground may happen to be strewed with. For upwards of a quarter of a century it was part of the duties of my father to superintend the planting and see to the nursing up of many thousands of trees annually of all sorts, but mainly Larch and Oak. The woods abounded with rabbits, and the havoc they made by their nibbling the young stuff as soon as planted was a source of extreme annoyance and much loss. The ubiquitous marauders seemed to baffle all attempts at extermination, and the ruin they effected was a continual source of anxiety. Wiring was put down by miles, but it was a matter of wiring them in where the ground was full of them, and men, ferrets, and dogs were foiled in attempts to catch and kill. It was observed, however, that when a tree was untouched, it was invariably surrounded by some rubbish by which it had accidentally become enveloped. This accident, on being turned to account, on a small scale at first, has proved to be valuable. The portions of newly-planted trees, roughly protected by a few sticks, were found to be invulnerable; they were seldom or never touched by the vermin, while those left without this protective aid were devoured in all directions. This plan of protection was gradually extended until it became a necessary adjunct to the planting, and acres of trees were preserved by the simple means employed. It was found in practice that a man would, where litter was plentiful, protect as many trees in an hour as he had planted in the day. It became the practice, therefore, immediately after dinner to protect the trees planted in the morning, and to cease planting a little sooner at night, and surround those planted in the afternoon.

The work was thus finished as it went on, to the great comfort of the manager, and real profit to the owner. This prompt protection was found to be of the first moment. If left some days unprotected the after care was less satisfactory. The rabbits had then got a taste and did not like to be disappointed in their nibbling ground, and would find their way through the stuff to several of the trees, but if the day's planting was protected at the time, it was extremely rare for a single tooth-mark to be found afterwards. Dead sticks were found to be as effective as live ones, as barriers, if not more so. It is seldom that a tree planted for a year or more is touched by rabbits; they like their food juicy, and will never stop to pare a dead stick. Neither do they appear to be endowed with the penetrative curiosity which characterises the rat and other carnivorous vermin, but seem to be easily satisfied by "outside show," and they look at a bundle of dead rubbish with contempt and unworthy of internal examination; however, be that as it may, not one tree in a thousand was injured when thus rudely fortified with dead twigs and rubbish tightly pressed round the stems. Two or three bunches of furze laid round a tree will keep it safe, as, in fact, will almost anything that happens to be lying about. But there is nothing better than five or six dead Larch sticks stuck round the trees. Rabbits will hardly ever push through them, but turn away with disgust at the very first smell. Let those who are troubled with rabbits eating their newly-planted trees try this simple plan, on a small scale first, and prove for themselves, as they easily may do, how effective it is. If their rabbits are not gifted with greater intelligence than the breed thus successfully combated, this stockade plan will be further adopted as the easiest, cheapest, and best of rabbit barriers for rough plantation work. With bushy Pine shrubs or Hollies the live Willows as a counter bait is a good idea, as a few might serve the purpose. Such shrubs cannot easily be stuck round closely with dead sticks and rubbish, but the stem of a young Larch or Oak can in a moment. *Young Woodman.*

Natural History.

THE VIVIPAROUS TOAD (*Gardeners' Chronicle*, p. 654).—Botanical marvels are, by right of conquest, Mr. Meehan's own peculiar province, but his incursions into the domain of zoology should be met by at least some show of parley.

The progress of scientific discovery is nowadays so rapid that in many cases *stare super antiquas vias* has become but a synonym for the obstinacy of wilful ignorance. The present inquiry is, however, made in no other than a respectfully receptive attitude.

It always used to be supposed that among the annurous batrachians impregnation was effected externally during the passage of the ova. If this be still the accepted doctrine, and Mr. Meehan's observations be correct, the toad would, it seems to me, furnish an instance of parthenogenesis rather than of, strictly speaking, viviparous reproduction. The explanation may be a very simple one, but so startling a novelty, to me at least, seems to plead for some further inquiry.

To what species of toad, then, do these observations refer?—and where can the opinions of those zoologists who have accepted this view be met with? Is any such doctrine really held on this side of the Atlantic? And where, too, can we find the "overwhelming evidence as to the snake"? Or is that reptile not alone in its capacity for swallowing? Be this as it may, I shall be very glad to have my ignorance dispelled. *R.*

THE EMU AS A FARM BIRD.—The Paris Acclimatisation Society has received a large number of emus from Brazil with the view of breeding them on their farms. It has possessed some specimens for a considerable time, and they are perfectly acclimatised and lay regularly. They are reported to be perfectly hardy, bear the coldest weather without inconvenience, and thrive on the coarsest food. The society believes that the great size and good quality of the flesh of these southern ostriches, their large and plentiful eggs, and their feathers, would render them highly valuable as domestic fowls. Our Australian friends would be able to inform us whether the emu promises to become a denizen of our straw yards.

GALLS ON THE ROOTS OF OAK TREES.—I thank you for your courteous reply to my question respecting Cynips aptera. Anxious to determine the point as to whether the galls were on Oak or Holly roots I visited the spot again, and fortunately found another group on what was evidently a continuation of the same root as that of which I sent you a portion. I was thus enabled to trace it through the mass of entangled Holly roots past the Holly tree, trending towards an Oak tree some distance away, so that I can now affirm with confidence it was not on Holly roots. How the parent Cynips aptera was able to select the Oak from the dense growth of Holly roots surrounding it is a mystery, and shows a knowledge of botanical structure which I envy. *W. Phillips, Shrewsbury.*

BIRDS FREQUENTING THE BOTANICAL GARDENS, REGENT'S PARK.—Mr. Henry Smith, 82, Wimpole Street, W., has recently contributed to *The Field* the following list of birds which he has seen in these gardens during the last few years:—

House Sparrow	Rook	Chiff-chaff
Tree Sparrow	Jackdaw	Willow Wren
Hedge Sparrow	Greenfinch	Garden Warbler
Robin	Yellowhammer	Reed Warbler
Chaffinch	Linnet	Blackcap
Larger Tit	Goldfinch	Whitethroat
Long-tailed Tit	Lark	Nightingale
Cole Tit	Pipit	Fly-catcher
Blue Tit	Wagtail	Cuckoo
Song Thrush	Kingfisher	Fieldfare
Mistleto Thrush	Redpoll	Redwing
Blackbird	Siskin	Moorhen
Starling	Tree Creeper	

Notices of Books.

THE second part of the thirtieth volume of the *Transactions of the Linnean Society*, just published, is occupied with Mr. Miers' memoir of the Lecithydaceæ and Mr. Cambridge's systematic list of British spiders. The former is illustrated with a large number of plates executed by the venerable author with his own hands. Mr. Miers considers the Lecithydaceæ to possess the rank of a distinct order. It is true that, unlike Myrtaceæ, they have alternate leaves without pellucid dots. Apart from this the main distinction appears to be that while in Myrtaceæ the stamens are free, in Lecythideæ they form a cup which often grows out unsymmetrically on one side into a curious hooded appendage (symmetrical in Gustavia). Notwithstanding these distinctive characters, the essential structure of Lecythideæ is Myrtaceous, and they have been generally considered to form a group of only subordinal value. Mr. Miers rejects Berg's term urceolus for the staminal arrangement in these plants in favour of androphorum, long before given to it by Mirbel. The matter is of no great importance, but androphore was certainly not limited in its application to Lecythideæ by Mirbel, but applied to any case of united stamens. Mr. Miers also speaks of the stamens as borne upon appendages, in their turn attached to the androphorum; but what are these appendages if not filaments? The Lecythideæ are so far matter of general interest that they contain the plants yielding Brazil and Sapucaia Nuts. According to Mr. Miers the former are produced by Bertholletia nobilis, Miers; and the latter by Lecythis usitata, Miers. The analyses which Mr. Miers gives are extremely valuable. Chytroma, Eschweilera, and Jugastrum, however, will probably have to be regarded as small-fruited subgenera of Lecythis. Nor is Allantoma apparently sufficiently distinct from Couratari. Cariniana appears to be a valid genus; Lecythopsis, on the other hand, Mr. Miers considers to have been improperly separated from Couratari. A good many of the new species of Lecythis are founded on fruits only. They may of course hereafter be vindicated by additional characters derived from other organs. At present, however, many of them do not seem to possess more than varietal distinctions, and it is even conceivable that some of them might have been produced by one individual tree. The genus Cercophora is founded by Mr. Miers on a single flower entangled in a specimen of Chytroma Spruceana. It is most probable, however, that Mr. Miers has described flowers for that species which do not really belong to it at all. The true flowers are about the same as that of his Cercophora in size. The suggestion arises whether the solitary flower on which Cercophora is founded may not really belong to Chytroma Spruceana, and owe its apparent distinctive characters to injury, and consequent withering of the androphore. The thanks of the botanists are due to this renewed instance of Mr. Miers' painstaking labours.

—— A fifth edition of Dr. J. H. Bennet's delightful book, entitled *Winter and Spring on the Shores of the Mediterranean*, has lately been published by Messrs. Churchill. We are relieved from the necessity of saying aught in favour of this volume from the fact that it is a fifth edition, that considerable portions of it have been published in our columns, and that thus our readers have been enabled to form their own impressions as to the freshness and accuracy of the writer's views on the relation of vegetation to climate. Suffice it to say this fifth edition is no mere reprint, but includes much additional matter, embracing the author's most recent experiences of various parts of the Mediterranean shores, and including notices of the additional facts in geology, &c., which have been brought to light by various observers. The work is divided into four sections, the first devoted to the northern shores of the Mediterranean in general and the Riviera in particular; the second to the large islands of the Mediterranean; the third to the southern coasts—Algiers, Tunis, Smyrna, &c.; the fourth to the Italian lakes, Biarritz, Arcachon, and other places not strictly Mediterranean.

RECENTLY PUBLISHED PORTRAITS OF GARDEN PLANTS.

Name and Reference to Figure.	Character and Quality.	Leaves.	Flowers.	Season.	Native Country.
MASDEVALLIA MYRIOSIGMA, *E. Morr.* .. Belg. Hort. 1873, t. 23.—Orchidaceæ	Cool stove perennial, tufted, curious	Oblong-spathulate	Yellowish, with small brown dots	....	Mexico *M. Jacob-Makoy*
MASDEVALLIA NYCTERINA, *Rchb. f.* .. Illust. Hort., 3 ser., t. 117-8 (as M. Chimæra); G. C. 1874, i. 639, fig. 134	Cool stove perennial, tufted, and free-blooming, the flowers of grotesque appearance	Oblong-cuneiform, elongate ..	Dull yellow blotched with purple, the tails wholly purple; lip calceiform, white	June	New Grenada *M. Linden*
MASDEVALLIA TOVARENSIS, *Rchb. f.* .. Flor. and Pom. 1873, 169, with tab., fig. 5.	Cool stove perennial, of tufted growth, handsome	Oblong-obtuse subspathulate ..	Pure white..	November	Columbia ....
MASDEVALLIA VEITCHIANA, *Rchb. f.* .. Warner's Orchids, 2 ser., t. 33; Flor. and Pom. 1873, 169, with tab., fig. 1.	Cool stove perennial, beautiful, of tufted growth; habit of M. Harryana	Oblong-obtuse, spathulate, of leathery texture	Brilliant orange-red, shot with rich purple, produced by short transparent coloured hairs	Various	Peru *Messrs. Veitch*
MEDINILLA AMABILIS, *Dyer* .. .. Gard. Chron. 1874, i. 372, fig. 81	Stove shrub of ornamental aspect (Melastomaceæ)	Oblong-elliptic, sessile, large (stem wavy-winged)	In large dense panicles, rose-colour	March	Ind. Archipel. *Mr. Bull*
MELALEUCA WILSONI, *F. Muell.* .. .. Bot. Mag., t. 6131.—Myrtaceæ.	Greenhouse evergreen shrub, ornamental	Subulate-lanceolate rigid spreading, nearly 1 in. long	On 2-yr. old wood, sessile, crowded, purple	....	S. Australia *Kew*
MENINIA TURGIDA, *Fua* .. .. .. Bot. Mag., t. 6043.—Acanthaceæ.	Stove herb or subshrub, glabrous; a celebrated febrifuge	Opposite, elliptic-lanceolate, 4—7 in.	White, reticulated with rosy pink lines; in thyrsoid panicles	April	Cochin China *Jard. des Plantes*
MESEMBRYANTHEMUM ABYSSINICUM, *Reg.* Gartenfl., t. 774.—Ficoideæ.	Greenhouse succulent shrub, of decumbent habit	Linear, semi-cylindrical, blunt ..	Axillary, stalked, purple.. ..	Summer	Abyssinia *Petersb. Garden*
MESEMBRYANTHEMUM INTONSUM, *Haworth* Bot. Mag., t. 6057 (as introrsum).	Greenhouse succulent shrub, decumbent, neat	Semiterete, light green, cellulose-tessellate; bristles tufted	Tawny orange, purple at the back	July	South Africa *Kew*
MESEMBRYANTHEMUM TRUNCATELLUM, *Haworth.*—Bot. Mag., t. 6077.	Greenhouse succulent, obconical, fleshy, stemless	Broadly cuneate, carinate, truncate	Yellow, 1½ inch across	October, November	South Africa *Kew*
MICONIA PULVERULENTA TRIFASCIATA, *Lind. et And.*—Illust. Hort., 3 ser., t. 148.—Melastomaceæ.	Stove shrub, with branches, leaves and panicles velvety-tomentose	Elliptic, acute, with the three nerves marked by a broad silvery band	Small and inconspicuous, in terminal panicles, white	July	Eastern Peru *M. Linden.*
MILLA UNIFLORA, *Graham* .. .. .. Gartenfl., t. 749.—Liliaceæ.	Hardy dwarf bulb, ornamental (= Triteleia)	Elongate, linear, glaucous ..	White in var. conspicua, purplish in var. violacea	March	Buenos Ayres ....
MIMULUS PRIMULOIDES, *Benth.* .. .. Gartenfl., t. 739, fig. A.—Scrophulariaceæ.	Hardy cæspitose perennial ..	Obversely lanceolate or obovate, many-nerved	Solitary, on axillary scape-like peduncles, 3—4 in. long, yellow	....	California *Zurich Garden*
MUSA SUPERBA, *Roxb.* .. .. .. Flore des Serres, t. 1940-1.—Musaceæ.	Stove perennial, deciduous; stem conical, permanent	Oblong lanceolate, 7—10 ft. long, dying away in winter	Purple, in a nodding spike	July	India ....
NARCISSUS CLUSII, *Dunal* .. .. .. Rev. Hort. 1874, 329, fig. 45.	Half-hardy bulb, dwarf, pretty (Amaryllidaceæ)	Solitary, semi-terete, from small globose bulbs	White, with large hemispherical crenulate corona	December January	North Africa ....
NEPENTHES SANGUINEA, *Lindl.* .. .. Floral Mag., t. 128.—Nepenthaceæ.	Stove climbing perennial, remarkable	Sessile, obovate oblong, leathery	Pitcher 1 ft. long, cylindraceous, with 2 narrow ciliated wings	....	Mount Ophir *Messrs. Veitch*
NICOTIANA WIGANDIOIDES, *C. Koch* .. Belg. Hort. 1873, 331, t. 18.—Solanaceæ.	Greenhouse shrub, adapted for sub-tropical gardens	Large, ovate-acuminate, pilose, sometimes 32 in. long	Yellowish-white, hypocrateriform, in drooping panicles	April	Columbia *Cracow Gard.*
NIDULARIUM SPECTABILE, *T. Moore* .. Bot. Mag., t. 6024.—Bromeliaceæ.	Stove epiphytal perennial, pretty	Rosulate, loriform, recurved, with deep rose-coloured tips	In a dense central fascicle, pale violet; calycine segments red	December	Brazil *Mr. Bull*
NUNNEZHARIA GEONOMÆFORMIS, *Hook. f.* Bot. Mag., t. 6088.—Palmeæ.	Stove Palm, of dwarf habit, elegant	Erect, obovate, biparted, 8—12 in. long	Male spadices axillary, with slender drooping panicles	May	Guatemala *Kew*
ODONTOGLOSSUM BREVIFOLIUM, *Lindl.* .. Illust. Hort., n. ser., t. 170.—Orchidaceæ.	Stove epiphyte, very distinct and striking (fl. 2 in. across)	Ovate-oblong, short, solitary ..	In racemes, showy, light brown, with gold edge; lip yellow	May	Peru *M. Linden*
ODONTOGLOSSUM MULUS, *Rchb. f.* .. .. Xenia Orch. 151, t. 160, i., ii.	Stove epiphyte, allied to luteo-purpureum and gloriosum	Habit and vegetative organs of luteo-purpureum	Bright yellow, with cinnamon-brown spots	October March	New Grenada ....
ODONTOGLOSSUM NÆVIUM MAJUS, *Warner* Gartenfl., t. 791.	Stove epiphyte, handsome, the flowers in racemes or panicles	Linear-oblong, acute	White spotted with crimson, star-shaped	April and May	New Grenada ....
ODONTOGLOSSUM ROEZLII, *Rchb. f.* .. Xenia Orch. ii. 191, t. 182, i.; G. C. 1873, 1302, fig. 296; Bot. Mag., t. 6085; Fl. Mag., t. 90.	Cool stove epiphyte, remarkable for its beauty; allied to vexillarium and Phalænopsis	Linear-lanceolate, 1 ft. long, on small ovate compressed pseudobulbs	Large, white, petals with a broad purple bar at base, the obcordate lip 2½ in. broad, with yellow crests and spots	Sept. and June	New Grenada *Mr. Bull*
ODONTOGLOSSUM ROSEUM, *Lindl.* .. .. Bot. Mag., t. 6084; Ill. Hort., 3 ser., t. 66; Batem. Mon. Odont., t. 22.	Cool stove epiphyte, pretty ..	Loriform acute, on compressed ovate brownish pseudobulbs	Bright rose-coloured, in racemes	April	Peru *M. Linden*
ODONTOGLOSSUM ROSSII MAJUS, *Van Houtte.*—Flore des Serres, t. 2110.	Stove epiphyte, pretty, dwarf	(Pseudobulbs monophyllous, tufted)	Larger, blotched with brown, lip pure white	March	Mexico ....
ODONTOGLOSSUM RUCKERIANUM, *Rchb. f.* Gard. Chron. 1873, 105, fig. 18.	Stove epiphyte, allied to crispum and Andersonianum.	(Flowers panicled, blotched with chestnut-brown; lip oblong-ligulate, angulate at base)	Sepals and petals creamy-white, edged with violet; the lip yellow	....	New Grenada *Mr. S. Rucker*
ODONTOGLOSSUM TRIPUDIANS, *Rchb. f.* .. Bot. Mag., t. 6029.	Stove epiphyte, showy	Linear-lanceolate, 7—10 in. (fl. in racemes, 2 in. across; the lip white, blotched with rose	Sepals maroon with gold tips; petals yellow with maroon blotches	January	Peru *Messrs. Veitch*
ODONTOGLOSSUM VEXILLARIUM, *Rchb. f.* . B. M., t. 6037; Ill. H., 3 ser., t. 113; G. C. 1873, 644, fig. 123; Flore, t. 2058.	Stove epiphyte, of great beauty; the fl. 4 in. long.	Elliptic-lanceolate, acuminate, 1 ft., on narrow, oblong, compressed pseudobulbs	Large, in racemes, of a charming rosy tint; the broad, flat bilobed lip white at the base	April and May	New Grenada *Messrs. Veitch*
OMPHALODES LUCILIÆ, *Boissier* .. .. Bot. Mag., t. 6047.—Boraginaceæ.	Hardy or half-hardy decumbent perennial, suitable for rockery	Elliptic-oblong, long-stalked, those of the stems sessile	Profuse, showy; corolla rotate, changing from pink to azure	Summer	Asia Minor *Mr. J. Atkins*
ONCIDIUM AMPLIATUM MAJUS, *Rchb. f.* .. Flore des Serres, tt. 2140-1.—Orchidaceæ.	Stove epiphyte, showy	Oblong-lanceolate, flat	In erect racemes, bright yellow, white behind	March	Central America ....
ONCIDIUM DUBIUM, *André* .. .. .. Illust. Hort. 1873, 184, with fig.	Stove bulbless epiphyte	Linear-acute, keeled	White, spotted with brown and lilac, the lip striped with purple	July	Country unknown *M. Linden*
ONCIDIUM FUSCATUM, *Rchb. f.* .. .. Illust. Hort., n. ser., t. 156; Flore des Serres, t. 1831.	Stove epiphyte, handsome (= Miltonia Warscewiczii, and Oncidium Weltoni)	Linear-oblong, on oblong ribbed pseudobulbs	Panicled, red-brown, edged with yellow, the lip quadrate, rose-purple tipped with white	May	Peru and New Grenada
ONCIDIUM KRAMERIANUM, *Rchb. f.* .. Flore des Serres, tt. 1956-7; Belg. Hort. 1874, t. 11.	Stove epiphyte, handsome, allied to Papilio; the sepals long, narrow, erect	Oblong-cuneate, dull green mottled with violet	Yellow, the frilled petals spotted, and the fringed lip bordered with brown	July	Ecuador *M. Linden*
ONCIDIUM LEUCOCHILUM SPECIOSUM, *Regel* Gartenfl., t. 763.	Stove epiphyte, pretty	Resembling those of the type ..	Yellowish-green, with brown-purple blotches, the lip white	Winter and spring	Mexico *Messrs. Low*
ONCIDIUM VARICOSUM ROGERSII, *Rchb. f.* Warner's Orchids, 2 ser., t. 31.	Stove epiphyte, very showy ..	Ligulate-lanceolate, 1 ft. long ..	Bright yellow, numerous, in large drooping panicles	November, December	Brazil *Messrs. Veitch*
OXALIS CERNUA FLORE-PLENO, *Van Houtte* Flore des Serres, t. 1964.—Oxalidaceæ.	Greenhouse stemless perennial, neat and pretty	Trifoliolate, with obcordate leaflets	Umbellate, drooping, yellow, double	Spring	Italian gardens ....
OXALIS CORNICULATA ROSEO-NIGRA, *Van Houtte.*—Flore des Serres, t. 1968.	Hardy annual, decumbent ..	Trifoliolate, blackish-green, freely variegated with rose colour	Small, yellow, numerous.. ..	August	Garden variety *M. O. Liebmann*
PANAX SAMBUCIFOLIUS, *Sieber* .. .. Bot. Mag., t. 6093.—Araliaceæ.	Greenhouse shrub, with beautiful translucent berries in autumn	Pinnate or bipinnate	Small, greenish, in umbels ..	Spring	N. S. Wales *Kew*
PANAX SESSILIFLORUS, *Pancher* .. .. Rev. Hort. 1874, 248, fig. 32.	Stove shrub, ornamental ..	Long, spreading, bipinnatisect; pinnæ ovate inciso-lobate	(Leaflets larger in old plants) ..	....	New Caledonia *M. Thibaut*, &c.
PASSIFLORA SANGUINOLENTA, *Mast. et L.* . G. C. 1874, ii. 226, fig. 47.—Passifloraceæ	Stove climbing shrub, curious ..	Bilobed, the lobes bluntish, divergent	Reddish-violet or rosy-pink, small	July	Colombia *M. Linden*
PELARGONIUM ENDLICHERIANUM, *Fenzl* Flore des Serres, t. 2031.—Geraniaceæ.	Greenhouse perennial, with simple erect stems	Mostly radical, roundish-reniform, crenately-toothed	In umbels; upper petals large, rose-coloured, the lower minute	Summer	Mount Taurus ....
PELARGONIUM ZONALE LYCOPODIOIDES, *Carrière.*—Rev. Hort. 1874, 38, fig. 7.	Greenhouse evergreen shrub, curious	Normal, on vigorous stems ..	Abortive; pedicels elongate, bearing crowded setiform bracts	....	French Gardens *M. Pescatore*
PELECYPHORA ASELLIFORMIS CONCOLOR, *Hook. f.*—Bot. Mag., t. 6061.—Cactaceæ.	Greenhouse succulent, with cylindric stem, 3—4 in. high	Mammillæ oblong, crowned vertically by two contiguous rows of short horny processes	Rose-purple, 1½ in. across, clustered near the top of the stem	June	Mexico *Mr. Corderoy*
PENTAPTERYGIUM RUGOSUM, *Hook.* .. Flore des Serres, t. 2132.—Vacciniaceæ.	Greenhouse evergreen shrub, interesting (fl. nodding, corymbose)	Lanceolate, coarsely serrate, leathery	Angular-tubulose, white with transverse purple lines	May	Himalaya *Messrs. Veitch*
PENTSTEMON GORDONI GLANDULOSUS, *Reg.* Gartenfl., t. 743.—Scrophulariaceæ.	Hardy or half-hardy perennial, showy	Oblong-spathulate; stem l. linear-lanceolate	Panicled, bright blue, lower lip purple-veined	July	California ....
PENTSTEMON HUMILIS, *Nuttall* .. .. Bot. Mag., t. 6122	Half-hardy perennial, dwarf and showy	Narrow, linear-lanceolate, or elliptic spathulate	Deep blue with red throat, in terminal racemes	June	Rocky Mounts. *Messrs. Backhouse*
PENTSTEMON JAFFRAYANUS, *Hook.* .. Rev. Hort. 1874, 430, with tab.	Hardy or half-hardy perennial, very showy	Spathulate, those of the stem oblong-elliptic	Panicled, deep rich blue, red at the base	August	N. California

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. JAMES FRASER, HORTICULTURAL and AGRICULTURAL VALUER and AUCTIONEER, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

SIMPSON'S RED SPIDER and THRIPS, &c., ANTIDOTE.—*Bonâ fide.* See former advertisements. Prepared by JOHN KILNER, Wortley, Sheffield.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under 12, £2 15*s.*

For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards, Freehold, from 10*s.* to 25*s.* per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

WANTED,

ON LEASE OR OTHERWISE, WITHIN A FEW MILES OF LONDON,

A PIECE of LAND and a Good RANGE or RANGES of GLASSHOUSES,

Suitable for Fruit Growing.

Apply, stating Full Particulars, to

A. D., 16, Queen Adelaide Road, Penge, S.E.

FOR SALE, a long-established Provincial NURSERY and SEED BUSINESS. The Nursery is well stocked, is within a short distance of two Railway Stations, and is well adapted for a branch business or as a feeder to a large London or Provincial Establishment.

Address B., 142, Adrian Terrace, West Brompton, S.W.

TO BE DISPOSED OF, the WHOLE or PART of an OLD-ESTABLISHED NURSERY BUSINESS, in good working order, within easy distance of London by rail. For further particulars apply to

HORTICULTURIST, *Gardeners' Chronicle* Office, W.C.

SALES BY AUCTION.

Bulbs from Holland.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 7, at half-past 12 o'Clock precisely, 800 lots of DUTCH BULBS, in lots to suit the Trade and private buyers, just arrived from Holland.

On view the morning of Sale, and Catalogues had.

Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, December 9, at half-past 12 o'Clock precisely, first-class Standard and Dwarf ROSES, CONIFERS and SHRUBS, CARNATIONS, PICOTEES and PINKS, and a variety of Hardy Herbaceous Plants, Greenhouse Plants, and a quantity of choice Double and Single Hyacinths, Tulips, Crocuses, Narcissus, Anemones, Ranunculi, Iris, Lilies, &c., in large and small lots—just arrived from well-known farms in Holland.

On view the morning of Sale, and Catalogues had.

Lilium auratum—English-grown Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 10, at half-past 12 o'Clock precisely, a quantity of ENGLISH-GROWN BULBS of LILIUM AURATUM several of them very fine bulbs 8 to 10 inches in circumference, and including many of the handsomest varieties yet introduced. A few bulbs of the beautiful NEW LILY, L. BLOOMERIANUM OSCELLATUM, now imported for the first time from Santa Rosa Island: the only bulbs that could be found of it in the Island. Several bulbs of the true LILIUM CANADENSE RUBRUM, until now re-introduced not in this country. Also some bulbs of the true LILIUM COLUMBIANUM. Also a quantity of other rare bulbs and tubers from California and elsewhere, including various Calochortus, Cyclobothra, Brodiæa, Cypripediums, Pancratiums, &c. Among the Lilies will be found the following rare kinds:—

Lilium Humboldtii	Lilium californicum
,, Brownii	,, speciosum atrosanguineum
,, speciosum Krœtzeri	,, Washingtonianum
,, pulchellum	,, parvum
,, dalmaticum	,, roseum
,, auratum rubro-vittatum	,, monadelphum Szovitzianum
,, tenuifolium	,, kamtschatense
,, Thunbergianum splendens	,, Wilsoni
tigrinum flore-pleno	,, purpureum

On view the morning of Sale, and Catalogues had.

English-grown Camellias.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on SATURDAY, December 12, at half-past 12 o'Clock precisely, a COLLECTION of SPECIMEN CAMELLIAS, from 2 to 4½ feet high, mostly well set with bloom-buds; a great variety of Hardy TREES and SHRUBS, and ROSES; and an importation of Choice Double and Single Hyacinths, Tulips, Crocuses, Narcissus, Iris, Anemones, Ranunculi, and other Bulbs, just arrived from Holland, in lots to suit large and small growers.

On view the morning of Sale, and Catalogues had.

Cattleya Mossiæ.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 14, at half-past 12 o'Clock precisely, an Importation, ex steamer *Severn*, from La Guayra, of huge and splendid masses of CATTLEYA MOSSIÆ. Some of the masses have from forty to fifty bulbs each.

On view the morning of Sale, and Catalogues had.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 14, at half-past 12 o'Clock precisely, a COLLECTION of ESTABLISHED ORCHIDS, including twenty fine strong plants of Odontoglossum Alexandræ; a dozen strong plants of the Dove Flower, Peristeria elata; and comprising many choice and rare kinds, among them the following:—

Odontoglossum sceptrum	Masdevallia Lindeni
,, angustatum	,, Veitchii
,, odoratum	,, nycterine
,, Roezlii	,, polysticta
,, coronarium	Cypripedium niveum
,, gloriosum	,, pardinum
,, vexillarium	,, Harrisianum
Pescatorea cerina	,, Schlimii
Dendrobium lasioglossum	Oncidium macranthum
,, rhodocentrum	,, ,, hastiferum
Anguloa Ruckeri	,, cheirophorum
Eriopsis biloba	

And an Importation from New Grenada of various Odontoglossums, Oncidium superbiens, O. Kramerianum, and three new Oncidiums, viz., O. Balderramæ, O. tetracopis, and O. plagianthum.

On view the morning of Sale, and Catalogues had.

Beautiful New Masdevallia and Oncidium,

Both offered for the first time. Established plants of ODONTOGLOSSUM ALEXANDRÆ, ROEZLII, MAXILLARE, and VEXILLARIUM; good plants of CATTLEYA GIGAS and DOWIANA, SOPHRONITES GRANDIFLORA, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 21, at half-past 12 o'Clock precisely, by order of Messrs. Veitch & Sons, of Chelsea, a splendid NEW MASDEVALLIA—M. DAVISII. This species has been named and described by Professor Reichenbach as coming near the M. Veitchiana and Harryana section; the flowers are about the size of those of M. Harryana, and of a bright orange-scarlet. Dried flowers will be exhibited at the sale, and the plants are in excellent condition. Also a very distinct and fine ONCIDIUM named AUREUM. See dried specimens. The ODONTOGLOSSUM ALEXANDRÆ are established plants, and from the same importation which produced the fine O. Andersonianum and other beautiful varieties, and the other plants offered are all in good health.

On view the morning of Sale, and Catalogues had.

City Auction Rooms, 38 & 39, Gracechurch Street, E.C.

CONSIGNMENT from GHENT, for ABSOLUTE SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on TUESDAY, December 8, at 12 o'Clock precisely, a Choice Collection of about 300 DOUBLE CAMELLIAS and AZALEA INDICA, compact Plants, beautifully set with bloom-buds; a superb Assortment of 500 handsome Standard Dwarf and Climbing ROSES of the best varieties; selected hardy CONIFERÆ, SHRUBS, and AMERICAN PLANTS, fine FRUIT TREES, with a Collection of DUTCH BULBS, LILIUM AURATUM, &c.

May be viewed the morning of Sale. Catalogues at the Rooms and of the Auctioneers, Valuers, and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

To Florists, Nurserymen, and Others.

By order of the Executors of the late Thomas Foster, Esq.

MESSRS. C. D. FIELD AND SON will SELL by AUCTION, at the Dover Castle, Broadway, Deptford, on THURSDAY, December 17, at 5 for 6 o'Clock P.M. the LEASE (with possession) of the HOPE NURSERY, George Street, Lewisham Road, close to St. John's Railway Station, having a frontage of about 180 feet to the railway, together with the erections thereon, comprising a fine Span-roof Forcing-house, spacious Lean-to House (166 feet long), two Plant-houses, five Span-roof Stoves, and a Propagating Pit, all (with one exception) efficiently Heated by Water supplied from Tubular and other Boilers, and two of the Stoves being fitted with Tanks for bottom-heat; there is also a small Cottage and Sheds. The Nursery is in good working order, and is held for a term of about ten years unexpired, at the rent of £12 per annum.

Particulars at the place of Sale and of the Auctioneers, 15, Borough, S.E.

Standard Tea Roses from Paris.

LEVÊQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer for next autumn a splendid and large stock of TEA ROSES, comprising all the best sorts, Maréchal Niel, per hundred. The price will be £5 per 100. LIST of sorts on application.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6*s.*, 9*s.*, and 12*s.* per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40*s.* cash. Baskets and Packing included.

Crown Nursery, Reading.

N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1*s.* per packet, post-free.

Home Grown Agricultural and Garden Seeds.

H. AND F. SHARPE are now prepared to make special offers to the Trade of their home-grown choice selected stocks of AGRICULTURAL and GARDEN SEEDS of this season's growth. They have been harvested in very fine condition, and are quoted low in price.

Seed Growing Establishment, Wisbech.

Dissolution of Partnership.

From the "London Gazette," October 27, 1874.

DISSOLUTION of PARTNERSHIP.—Notice is hereby given that the Partnership heretofore subsisting between us, as Nurserymen at Potter's Bar, in the County of Middlesex, is dissolved by mutual consent, as and from this 23d day of October, 1874.

JOHN MONRO,
HERBERT WILKINSON.

The above Business being now in the hands of JOHN MONRO, he will receive all moneys and pay any debts that may be owing.

Potter's Bar, N.—Nov. 12, 1874. JOHN MONRO.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to

CARTERS', The Royal Seedsmen, High Holborn, London.

TO BE SOLD, a great bargain, in order to clear the ground—

20,000	SILVER FIRS,	1 foot high, 2*s.* per 100.
50,000	,,	,, 1½ foot high, 2*s.* 6*d.* per 100.
70,000	,,	,, 2 to 3 feet high, 5*s.* per 100.
50,000	,,	,, 3 feet high, 7*s.* per 100.

For particulars apply to The AGENT, Gunton Park, Norwich.

Christmas Trees.

VIRGO AND SON have a splendid lot of SPRUCE FIR, in various heights, bushy, and of good colour. Prices and samples per hundred or per dozen can be obtained at

The Nurseries, Wonersh, near Guildford.

Roses—Roses—Roses.

CHARLES VERDIER, FILS, NURSERYMAN, 28, Rue Baudricourt (late 12, Rue Duméril), Paris, begs to inform his numerous Clients that his stock of ROSES (Standards, Half-standards, Dwarfs, &c., on own roots), for this Season, is very large and in the finest possible condition

Seed Potatos.

H. AND F. SHARPE'S Wholesale Special Priced LIST of SEED POTATOS is now ready, and will be forwarded, post free, on application. It includes all the best English and American sorts in cultivation, and the prices will be found very moderate.

Seed Growing Establishment, Wisbech.

The Planting Season.

LARGE TREES.—Limes, Horse Chestnuts, Giant and English Elms, Sycamores, Norway Maples, Upright and other Poplars, Bedford and Cœrulean Willows, Weeping and Cut-leaved Beech, Turkey Alders, &c. Fine Trees for immediate effect. For particulars and prices apply to EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Twelve Choice Selected Flowering Plants for WINTER, 21*s.*, including—

BOUVARDIAS, CAMELLIAS, AZALEAS, Spiræas, Daphne, Lily of the Valley, Kalmias, Heaths, Double Primula, &c., fine plants. Package free for cash with order. J. H. LEY, Royal Nursery, Croydon.

LAURELS.

COMMON LAUREL, 2 to 3 feet, 16*s.* per 100, £7 per 1000; 3 to 4 feet, 25*s.* per 100, £10 per 1000.

COLCHIC LAUREL, 3 to 4 feet, 30*s.* per 100; 4 to 5 feet, 42*s.* per 100.

PORTUGAL LAUREL, 1½ to 2 feet, 34*s.* per 100.

Good, bushy, well-grown plants.

RICHARD SMITH, Nurseryman, Worcester.

NEW CATALOGUES for 1874.

A Descriptive CATALOGUE of ROSES.
A Descriptive CATALOGUE of FRUITS.
A Descriptive CATALOGUE of BULBS.
A General CATALOGUE of GENERAL NURSERY STOCK. Address

WM. WOOD AND SON, The Nurseries, Maresfield, near Uckfield, Sussex.

STANDARD TRAINED PEACHES, NECTARINES, and APRICOTS, fine Trees of the hardiest and best sorts, with all other forms of Fruit Trees in great variety. Descriptive Price Lists gratis.

RICHARD SMITH, Nurseryman, Worcester.

To Nurserymen and the Trade.

SEAKALE ROOTS, for Forcing (very fine), 9*s.* per 100, 80*s.* per 1000. ASPARAGUS ROOTS, 2-yr. old, 3*s.* per 100, 25*s.* per 1000; 5-yr. old, for forcing, 6*s.* per 100. Terms, cash on delivery.

SAMUEL ALLAWAY, Earl's Court Farm, Old Brompton, London, S.W.

Gladioli.

CHARLES VERDIER, FILS, NURSERYMAN, 28, Rue Baudricourt (late 12, Rue Duméril), Paris, has just published his CATALOGUE of GLADIOLI, containing all the Novelties of the Season. It will be sent post free on application to

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

New Roses of 1874.

E. COOLING offers nice healthy plants of the above, budded low on Manetti, from open ground, at 2*s.* each, 21*s.* per dozen, package free. Also splendid plants of older sorts, Standards, 18*s.*, Dwarfs, 10*s.* to 12*s.* per dozen.

New CATALOGUE free.

Mile Ash Nurseries, Derby.

From Paris.—Gladioli Seedlings,

Per Colour, Mixed Seedlings, and Sorts to name.

LEVÊQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer, for the first time, SEEDLING GLADIOLI, in separate colours, beautiful, of flowers equal to the collection.

Mixed White, 12*s.* per 100; do. Red, 12*s.* per 100; do. Yellow, 24*s.* per 100; do. Rose, 12*s.* per 100.

Seedlings, mixed, of all colours, 8*s.* per 100, £3 4*s.* per 1000.

Their stock of named sorts is splendid, and cheap.

See the LIST, sent free on application.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom:—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM, CANADA, FRANCE, JAMAICA, NEW ZEALAND, WEST INDIES, UNITED STATES

£1 10s. 4d. *for* 12 *months, including postage to*—
AUSTRIA, CHINA, HOLLAND, INDIA, PORTUGAL, PRUSSIA, SPAIN, SWITZERLAND

£1 14s. 8d. *for* 12 *months, including postage to*—
RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

To Secretaries of Horticultural Societies.

THE EDITORS of this JOURNAL will be greatly obliged to Secretaries of Horticultural Societies, who have fixed the Dates for their Exhibitions of next year, if they will kindly communicate the same, as soon as possible, FOR PUBLICATION in the GARDENERS' CHRONICLE ALMANAC.

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 5, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Dec. 7	Meeting of the Entomological Society, at 7 P.M. Sale of 850 lots of Dutch Bulbs, at Stevens' Rooms.
TUESDAY,	Dec. 8	Sale of 400 Pens of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Dec. 9	Sale of Roses, Shrubs, Herbaceous Plants, and Dutch Bulbs, at Stevens' Rooms.
THURSDAY,	Dec. 10	Sale of Scarce Lilies, at Stevens' Rooms.
SATURDAY,	Dec. 12	Sale of English-grown Camellias and Dutch Bulbs, at Stevens' Rooms.

LEAVING the first principles of sanitary science, or, rather, accepting them as settled, we proceed to urge their practical application in detail. Concentration is force, and therefore evils must not be permitted to concentrate nor accumulate. The earth is wide, and of all this residuum of life and labour there is but little for a small proportion of it. Apply that little where it is formed, and increased fertility follows in its track. All this is as obvious as that twice two are four, and it is a sheer loss of time to go on demonstrating what has been proved over and over again *ad nauseam*. Seven or more crops of Peas in the year, 40 tons of Mangels, enormous yields of vegetables, fruits, and flowers, follow the judicious application of liquid or solid pollutions. Where applied, there is abnormal production; where withheld, the ratio of produce sinks to its natural level. And this transformation of filth into food is not only certain but sudden—the residuum of to-day becomes, as it were, the food of to-morrow, loads the earth with plenty, and adorns it with beauty. This utilisation of waste purifies the air, cleanses the water, and literally makes the earth itself, and those that live thereon, rejoice and blossom as the Rose. Health and strength join hands with increased production as they trip along together with a light heart on the promising road of sanitary improvement.

Hardly, however, has a start been made when difficulties become apparent, and it may be well to notice a few of these, so that they may be brushed aside. One of the most formidable is the accumulation of dirt. Let us break the back of that by cutting off the sanitary sewage at its source, and applying it at once to the soil. A second difficulty is dilution. By mixing the rainfall with sewage we increase its volume and lower its strength until the expense of applying it to the land is so increased, and its worth as a fertiliser so diminished that it is hardly worth a candle in a manurial sense. It is a simple matter to separate the rainfall from the sewage, and thus bring the latter within manageable dimensions. Then, again, a formidable contest has arisen between the liquid and solid systems, as if both might not be best according to circumstances, and the subject did not naturally thus divide itself. It matters comparatively little how the residuum of human and animal life gets to the land provided it does get there, and that by a summary prompt process. Other difficulties will be seen as we proceed, arising from imperfect powers and unwilling agents; but it may be wise now to turn to encouragements.

One of the chief of these is the recognition of the sanitary evils that exist in the rural districts. For over a quarter of a century most of us have been familiar with the difficulties and dangers of sanitary matters in relation to great cities, and, as Mr. HOWARD pointed out, that subject had even been before the London Farmers' Club as early as 1848, and yet it was only the other day that the question of the rural districts was taken into consideration by a body of men better qualified to deal with the practical phases of the question than any other. No body has sinned more against sanitary science than the farmers. Thousands throughout the rural districts have converted the horse-pond into a sewage-tank, and brought about leanness and disease in their stock by giving the black draught to them instead of to the land; and none consequently are called upon to make a fuller atonement in such matters, for themselves, and to the nation. If such prodigal examples of waste and reckless danger were seen on the farm, better things could hardly be expected from cottages.

For years too the public and the press remained comparatively indifferent to the whole matter. A few before their age had what wits ridiculed as the sewage craze, but the great public and the Press were indifferent. All this is now changed. Through almost every channel of public opinion the demand for sanitary improvement is heard. The present Prime Minister has advocated a clean and a foul water-tank for every cottage, and declared that the health of the people ought to be the great consideration of a Minister of the Crown. The recent labour struggle has brought prying Press Commissioners into the rural Arcadias, who have been taken to see the wretched sanitary state of the country, and to publish it to all the reading world. As the result of this growing knowledge, intelligence, and the spread of education, we have the new canon promulgated, which, if accepted in its entirety, must humble our pride, and lay our boasted pre-eminence in the dust, in that the degree of civilisation of a community may be gauged by its attention to cleanliness, and its observance of the laws of health. In relation to sanitary matters we are doubtless far behind most of the nations of antiquity, for the records and ruins alike of such great people as the Greeks, Romans, Egyptians, and Jews attest the care taken to provide for cleanliness, and to promote the health of the people. Many of the religious rites of the Jews, their many ablutions, careful selection of food, the enforcement of simple sanitary measures, such as open-air earth closets, &c., were obviously designed to preserve intact their bodily health. And the same enlightened regard to bodily health finds expression in the New Testament statement that "Cleanliness is next to godliness"—one that seems to have been wholly ignored throughout the dark ages, and still almost universally sinned against throughout Christendom.

Notwithstanding, however, our deficiencies, we agree with Mr. HOWARD that the revival of interest in, and the improvement of, sanitary practice, promises to be one of the most distinguishing characteristics of the Victorian era. We stay not here to discuss whether or not the Government of the day will or will not initiate what has been facetiously called a sewage policy. Of more importance is it to be assured that immense improvements in sanitary matters are now inevitable, and that the whole nation has become awake to its vital importance. Something has already been done, and motive powers awakened to do much more. Notwithstanding, however, the paradoxical pictures that have been drawn of rural life and rural homes, it is almost impossible to draw in colours darker than fact the wretched sanitary state of the rural districts. There is an immense deal to deplore which every well-wisher of his country would gladly see remedied; and it only makes bad worse to endeavour to shift responsibility, as some have attempted to do, with the special plea that the sanitary state is as bad or worse. If so, there is at least the excuse of greater difficulty in dealing with the matter in towns, and it may be for concerted action and new powers to improve the entire sanitary state of the kingdom. But two evils can never make a good between them; nor two dirty places or two dirty faces a clean one.

Instead of thus bandying blame, let us note facts. Mr. HOWARD collates a few from one of the most highly favoured counties in England—Bedfordshire. Every one has heard of the care that the Dukes of BEDFORD have exercised over their estates, and of the number of improved cottages they have built. Within the last thirty years hundreds, with every sanitary convenience, have been erected. This praiseworthy example has been followed by other landlords; and yet what is the testimony of the medical officer of the sanitary authority of that favoured county? A history of horrors as appalling and revolting as any to be found, from Mr. CULLEY'S or Dr. FRASER'S—from the crowded manufacturing towns of the North. Here is a sample:—

"Whole villages almost devoid of water are dependent on ponds and holes made by the roadside; families herded together in wretched houses unfit for human dwellings—often a married couple with five or six grown-up sons and daughters sleeping in one, or at most two rooms, without chimney, or any means of ventilation.

"The medical officer states that he has often been called into such rooms at night when the family were in bed—that the air was most sickening, and that no more fertile source of scrofulous disease, the scourge of the inhabitants, could be conceived. Outside the cottage the condition of things was no better—no drainage—no privy accommodation—and with foul middens at their very doors."

Pure water, and plenty of it, is perhaps the first requisite to perfect health. On the contrary, impure water conveys disease to the very citadel of life, and is one of the most fruitful sources of blood poisoning—diarrhœa, dyspepsia, dysentery, malarious and typhoid fevers! Pure water is much more scarce in the country than in towns, in fact it cannot be had at any price in many places. The incumbent of a parish of 3000 acres, near to Mr. HOWARD, in Bedfordshire, writes—"There are no springs, and wells are out of the question, because of the great depth of the stratum of clay. During the past summer the poor people had to go miles for their pailful of water, and the farmers sent to the river, a distance of several miles."

And yet there need be no scarcity in any part

of England. The question is merely one of sinking or storing. There is abundance of water alike above and under the earth. The average rainfall of England is 32 inches a year; each inch is equal to 23,000 gallons, or to about a weight of 100 tons per acre. Even our driest counties have 20 inches of rainfall, in addition to dews, or over 2000 tons per acre. It is calculated that we use less than a seventieth part of the rainfall, or, in other words, that the twenty-five million inhabitants of England and Wales use for all their machinery, cooking, washing—throwing all the beasts in to drink with us—only three hundred and sixty-five thousand million gallons of water a year; whereas the supply by rain alone is twenty-seven million millions of gallons, or one hundred and eighteen thousand four hundred millions of tons.

And then we draw from wells, streams, rivers, reservoirs also. No doubt a good deal of this is rainfall at second-hand; and the water may be best at times at second hand. Some authorities affirm that the best drinking water is that drawn from wells not exceeding 30 feet in depth. The great danger of wells arises from the filtration of the filth of cesspools into them. This often occurs when it is least expected. At a farmhouse near Bedford, a water closet was put up and the excreta conveyed into a large pond or moat, over 100 feet from the well. An outbreak of illness occurred, when it was discovered that the well had been poisoned by human excreta.

Reservoirs for the storage of rain-water are, however, frequently the only resource, and could often be formed at a trifling expense. Mr. BAILY DENTON shows how if villages combined together they might be plentifully supplied with water at a very low charge per head per annum, and that if even the necessary working capital had to be borrowed at 5 per cent. and the repayment spread over forty years, the maximum cost would still be very moderate. Again, the storage of water in tanks from the roofs of houses is a simple matter, and a tank 10 feet deep and 6 feet over can be made in stiff soil by simply plastering the sides and bottom with three coats of Portland cement for an outside cost of £2. Of course in light soils concrete or bricks would be useful. Such a tank would be found sufficient for ten cottages. It would hold a thousand gallons for every foot in depth, and the roof of an ordinary cottage covering only 2½ poles of ground would furnish 7000 gallons per annum where the rainfall was only 20 inches, and more in proportion. A farmhouse and outbuildings covering but 10 poles would furnish 28,000 gallons a year. Of course in constructing storage tanks and reservoirs great care should be taken to exclude impure filtrations, and the troughs and roof also would occasionally have to be looked over and kept clean. It would also be desirable to pass the water through a filtering bed of stones or charcoal.

—— THE official report of the HORTICULTURAL SECTION of the UNIVERSAL EXHIBITION at VIENNA in 1873, by Dr. E. FENZL, has only just reached us. It opens with some notes on the rise and progress of horticulture, and the impulses it has received from the competitive displays at various international exhibitions. But the writer complains very strongly of the bad arrangements at Vienna, whereby many exhibitors suffered great losses, and adds that it would be far better to leave horticulture to the organised societies, instead of including it within the plan of a general exhibition, where the necessary conditions for success are often wanting, and, as he very justly observes, the horticultural section (especially in the case of pot plants) is less international in character than any other. To a great extent it must be so, because the heavy cost of transport and the risk of injuring or killing valuable plants will always deter growers at great distances from taking part in the competitions. With regard to the permanent exhibitions, they necessarily bear still more exclusively the stamp of local displays. Altogether 238 persons exhibited at the permanent and five temporary exhibitions, whereof 137 were residents in Austria or Hungary, the remainder from the following countries:—Germany, fifty-six; Belgium, fifteen; France, ten; Italy, five; Holland, three; Russia, Greece, and Japan, two each; Sweden, Denmark, Egypt, North America, Brazil, and Australia, one each; England, whence so much of interest was expected, was absolutely unrepresented!

—— At Hawkstone, one of the most picturesque parks in England, may be seen a fine collection of the older CONIFERS, which have ever been great favourites with the noble proprietor, Lord HILL—who is one of the finer specimens of Nature's noblemen. We may specially indicate some handsome Pinsapos and Araucarias, and free-growing symmetrical trees of Wellingtonia at least 30 feet high, raised from cuttings, and in no way distinguishable from seedling plants. There are also some well-grown and characteristic plants of Cryptomeria japonica, which will, when well advanced, become quite a picturesque tree.

—— The accompanying cut (fig. 142), copied from the *Schriften der phys.-ökon. Gesellschaft zu Königsberg*, vol. iv., represents one of a number of pollard Willows that were split upwards from the base many

FIG. 142.—SPLIT WILLOW.

years ago, in consequence of a landslip on the right bank of the Augerapp, opposite the village of Darkehmen, in Prussia. In the journal above-named Dr. CASPARY gives a detailed account of all the circumstances attending the landslip in question, with a full description of the local conditions, which is of little interest to any one except those on the spot. A few words of explanation will suffice here. Formerly the road from Darkehmen to Gumbinnen traversed the site of the landslip, having the river on one side, and a steep declivity on the other. Both sides of the road were planted with trees, chiefly Salix alba. The deposit is a blue marl, which is very solid, and holds well together, except when exposed to the air. The marl is intersected by water-conducting strata of sand. As long ago as 1821 the insecure state of the road was a source of anxiety, and, in spite of all that could be done, it gradually slid riverwards, and was finally abandoned. In consequence of the nature of the ground, it parted in a line with the centre of the Willow trees, rending their roots and trunks in half. Being firmly rooted on both sides of the cleft, the trees continued to grow until gradually carried away by the river. Out of a considerable number of trees thus split only seven now remain. The one sketched is about 10 feet high, excluding the branch to the right, and 3 feet 6 inches in circumference above the cleft. The cleft is about 6 feet 6 inches high, and the legs, as it were, of the tree are about a yard apart at the base.

—— The HARDINESS OF OPUNTIA RAFINESQUII in this country is now pretty well established. From Greifswald, Neufchatel, and other places its hardiness is corroborated; but it is in the Mediterranean region where it will flourish in perfection. Possibly in some desert parts of North Africa it might prove valuable as food for animals, for in the Rocky Mountains it is used for horses. In a recent number of the *Illustration Horticole* M. ANDRÉ refers to this plant, or a plant under this name, as the same as O. vulgaris, but ENGELMANN, who is generally pretty cautious in making species, describes it as distinct.

—— WINDOW GARDENING in London is indeed looking up! Many of us remember the creditable exhibition in Draper's Gardens of plants grown in the windows of London artisans, &c., but we are sure the promoters of that exhibition will be surprised to learn that the prizes amounted to £1000. Yet such was the statement originally produced, we believe, in one of the French horticultural journals, and which has gone the round of the French and Belgian periodicals without challenge!

—— One of the best-grown examples of the ANTHURIUM SCHERZERIANUM which we have anywhere seen was met with a short time since in the collection of Lord HILL, at Hawkstone, under the care of one of the trusty veterans in the ranks of British gardeners, Mr. DANIEL JUDD. This specimen measured fully 3 feet across, and was remarkable for the strength and vigour of its inflorescence, some of the spadices measuring as much as 15 inches in length. The plant was still in perfect health and vigour, and rapidly increasing in bulk. In the same house was probably the largest example to be found in this country of the exceedingly rare Nicaraguan Palm, GEONOMA SEEMANNI, which was blossoming freely.

—— The YELLOWS IN THE PEACH seem to be a common complaint in America. If you dig round a Peach tree so affected, says the *Gardeners' Monthly*, you will be struck with a Mushroomy smell. Picking out the roots, and examining them with a lens, you will see millions of thread-like fibres, which are the spawn of fungi. These eat the young fibres, and leave only the main roots, through which all the nutriment of the plant has to be gathered; and as an old root is unable to do much more than draw in water, the tree becomes in a measure starved, and the leaves become yellow, just as they would be if growing in poor soil, which, though the plant might have plenty of roots, furnished nothing for the roots to eat. To have plenty of roots and no food is equivalent to having plenty of food and no roots. The effect on the plant is just the same. Remedies which look to the destruction of this root parasite are employed. Hot water has done it, so has a weak solution of salt: others have found a solution of potash succeed. The exact nature of this fungus, so far as we know, has not been investigated to entire satisfaction. Fungi are very polymorphous. This one may enter into the circulation of the plant, and exist in that case as an apparently distinct species, extending through the tissue, and destroying it as it goes. This seems likely from some experiments by Mr. THOMAS TAYLOR, of the Department of Agriculture. At any rate it is generally believed that a bud, or even a knife used in pruning a diseased tree, will communicate the disease to a healthy one.

—— One of the most valuable of late summer-flowering plants for the conservatory is BOUSSINGAULTIA BASELLOIDES. During September and October this fine introduction from the Quitinian Andes is most effective in the conservatory of the Royal Botanic Society in the Regent's Park, growing on one of the mounds, sending its branched twining stems up into the roof, where they flower in great profusion from the axils of the leaves at the ends of the branches. The flowers are white, highly fragrant, and disposed in clusters of from 2 to 4 inches in length. As a cool conservatory plant, easy to cultivate, and flowering abundantly, it is of great value. The stem throws out a number of tubercles, each one of which will make growth from its point; the long fibrous roots throw the tubercles out in all directions, and if any one will examine the mound on which the plant is growing in the Regent's Park, they will find them distributed about the surface in clusters of fleshy knots. It would appear that when first introduced it was considered to require hothouse treatment, but subsequent experience of the plant has not only demonstrated that a cool conservatory is best suited to it, but also that it will flower in the open air in exceptional positions. Mr. WILLIAM ROBINSON gives it a place among hardy plants, and states that it prefers a rich vegetable soil and sunny aspect. It, however, soon succumbs to frost, and it is by far the most satisfactory plan to plant it in a cold house, where it would form an excellent companion to Plumbago capensis, Solanum jasminoides, &c. As the point of

every tubercle thrown out by the roots will make growth, there is no difficulty in propagating it; it can also be raised from seed.

— At the meeting of the Institution of Surveyors to be held on Monday evening, December 7, a paper will be read by Mr. W. STURGE, entitled "Agricultural Geology (South-western District)." The Chair to be taken at 8 o'clock.

— We are requested to state that the Council of the Royal Horticultural Society, acting on the advice of a committee appointed to consider the question, has determined to hold some half-dozen EVENING MEETINGS at South Kensington, commencing shortly after Christmas—the object, as we understand, being somewhat of an educational character, and by means of oral lectures and addresses, or the reading of papers, to spread amongst those interested in the subject a better acquaintance with the Scientific Principles of Practical Gardening. These meetings are in some degree experimental, and, if successful, may, it is hoped, lead to some more decided efforts in the same direction. The particulars, no doubt, will be duly announced. The initiation of this movement is due to the Secretary, Mr. W. A. LINDSAY.

— We understand that Mr. FORD, late gardener to the Duke of MANCHESTER at Kimbolton Castle, succeeds Mr. WOODFORD at the Duke of EDINBURGH'S new residence, Eastwell Park. Mr. BURR succeeds Mr. FORD at Kimbolton. Mr. HENDERSON, who for several years has had the management of Sir HENRY PEEK'S garden at Wimbledon House, is leaving there, and Mr. OLLERHEAD is named as his successor.

— Some idea of the extent of HORTICULTURAL INDUSTRY IN GHENT may be obtained from the following figures, furnished to the *Gartenfreund* by Professor VAN HULLE:—There are as many as 200 nurseries in and around that town, almost exclusively devoted to raising ornamental plants and the better sorts of fruit trees. The glasshouses occupy an area of nearly 18 acres, and in these houses from 2,705,000 to 3,542,000 plants are annually raised, to the value of from 5,930,000 to 7,705,000 francs.

— We have received from the Hon. and Rev. J. T. BOSCAWEN, of Lamorran, Cornwall, flowers of Lapageria rosea, grown out-of-doors, and gathered on the 1st inst. The plant producing them was a seedling raised in this country. With the Lapageria were also flowers of Parochetus communis, a lovely blue creeping rock-plant of the Leguminous family.

— Three fine specimens of GEASTER MICHELIANUS, which was described and figured for the first time by Mr. G. W. SMITH in our last year's volume at p. 608, were found on November 20 in a Rose-bed in the gardens at Penrhos, near Hollyhead, the seat of the Hon. W. O. STANLEY. This is the more interesting, as it has, we believe, hitherto only been found in England in the Rhododendrons at the Marquis of NORTHAMPTON'S, Castle Ashby.

— The SUGAR-CANE IN CARTHAGENA has hitherto been grown only in small quantities, sufficient for making rum and a spirit called anisado. Its cultivation, however, has latterly increased, and there is now a prospect of Carthagena becoming an important sugar-producing country. One firm in Carthagena "planted in 1872 about 300 acres of cane, and have since gone to great expense in getting out from London large and powerful steam machinery, which they have erected on their estate. They have already expended upwards of £20,000 on this project." It was estimated that the first year's crop from this plantation would yield about 10,000 quintals of sugar, which would probably realise about £7000. Several of the merchants and landed proprietors are said to be keenly watching the result of this speculation, and intend, should it turn out successful, entering largely into sugar cultivation.

"The climate and rich soil are peculiarly adapted to the growth of the Sugar-cane. The chief difficulty hitherto to its cultivation to any extent has been the scarcity of labour. This want the above-mentioned firm have overcome by importing a batch of East Indian coolies from Jamaica, with a good result; and there is now every prospect of their enterprise and outlay being rewarded with the success it deserves. Should the venture turn out as is reasonably anticipated, there can be but little doubt that the cultivation of Sugar-cane in this district will be largely entered upon; and with the prospect of the cessation of slave labour in Cuba, it is probable that its production in Carthagena will become still more remunerative."

— The *Botanical Magazine* is this year dedicated to Mr. G. MAW, of Benthall Hall, Broseley, as a tribute from Dr. HOOKER to the value of his exertions in introducing hardy herbaceous plants into English gardens. "No one of late years, or perhaps ever, has collected with his own hands as many of these for transmission to England, cultivated them with more success, or distributed them with more liberality—as the pages of this work to some small extent testify."

BRITISH GARDENERS.—VII.

MONTGOMERY HENDERSON.

MR. M. HENDERSON, whose fame as a Grape grower is well-known, was born in March, 1808, in the village of Swanston, at the foot of the Pentland Hills, near Edinburgh. At the age of fourteen he was placed for three years in one of the market gardens of that city, where he was thoroughly initiated into the laborious part of the business. He then went for two years into Messrs. James Dickson & Sons' nursery at Inverleith, at the end of which time Mr. Dickson sent him to Lochend, the seat of Sir George Warrender, in East Lothian, where he remained for eighteen months under Mr. John Dods. On Mr. Dods leaving to take charge of Sir George's gardens at Cliveden, or Cliefden, as it was also called, in Buckinghamshire, he sent Henderson to his father's at Salton Hall, a then celebrated place in East Lothian, where he continued for twelve months; after which he went to be foreman at Melville Castle, near Lasswade, the seat of Lord Melville, but remained only ten months—his old master, Mr. J. Dods, having sent for him in August, 1830, to come to England to be his foreman at Cliefden. In the autumn of 1832 Mr. Dods sent him to be gardener to Captain Foster, at Warmwell House, near Dorchester; but finding this not to be a place to settle in, he left in December, 1834, and went to be foreman under Mr. Neil Wilson, at Gopsall Hall, Leicestershire, the seat of Earl Howe. This situation he left in March, 1838, and obtained employment in the nursery of Mr. Knight, of Chelsea. In June of the same year Mr. Knight sent him to his present situation as gardener to Sir George H. Beaumont, Bart., Cole Orton Hall, Leicestershire.

M. Henderson

"I began to learn gardening," Mr. Henderson writes, "for the love of the business. I was often told I should never succeed in it, as I had no friends in that line to help me on, but I persevered, and found plenty of friends, and have never once been out of a situation. Had I so desired, I could have risen higher in the profession than I have done, for when at Gopsall the late Earl Howe offered me to go as gardener to Queen Adelaide at Bushey, but I did not then feel myself confident to occupy so prominent a position. Since I have been at Cole Orton I have been offered better places in point of position both in England and Scotland, but I have been made so comfortable both by the late and the present Baronet, who have always treated me more like a friend than a servant, that I have never thought of leaving them so long as I had strength to carry on my duties.

"My success as a Grape grower is pretty well known, thanks to the *Gardeners' Chronicle*. When I came here, however, I found the Grapes very poor, and the Vines in a sad condition. I at once removed the top soil of the borders, and gave them a good dressing of turfy loam, on which I placed some strong manure, and then made a gentle hotbed over all. This drew the roots up to the surface. I endeavour to keep them there by using the same means, and to this I ascribe the fact that my Grapes are so well coloured.

"The winter of 1837-8 was a very severe one, and the thermometer here had fallen to 7° below zero. The Vines were planted outside the houses, and had bare stems 2 feet long above the border before they entered the house. My predecessor had got the Vines into leaf, but had not protected either the stems or the border, so one very cold night they were completely cut down. When I came in June, some of them had grown again from towards the base of the stems, but others were totally killed. I encouraged the live ones in every way I could to make growth, and thus filled up the vacant spaces: and I succeeded so well that in two years they were carrying heavy crops, with bunches of from 4 lb. to 6 lb. weight. This first led me to adopt what has since been called the extension system.

"I think it a great mistake to destroy old Vines. Renovate them, and they will pay you back with a full crop of fine Grapes much sooner than you can get such an one from young Vines.

"One year I made a mistake with my early Vines. We had 9° of frost at the beginning of October, and in case it might continue I set men to put a slight covering of leaves and manure over the border—just enough to keep out frost, but the men put on more than I intended, and the weather becoming very mild, a gentle heat was raised. When I wanted to begin forcing at the end of November, I gave instructions to turn the manure over and to add a little more to it, but the men soon informed me they durst not turn it, as it was a mass of roots. This being the case, I told them not to disturb it, but to put more carefully on the top, and I concluded that the Vines would break very strongly from having so many fresh roots in advance. However, it turned out very differently. It took a month longer than usual to start the Vines, and when they did start they broke very weakly. The new roots had been formed from the sap stored up in the branches, and which should have gone to develope the leaves. Ever since then I have allowed the young leaves to make the fresh roots, and consider it damaging to a plant to make it grow roots when it has no leaves.

"I have been also very successful in the cultivation of the Pine-apple, having often thirty years ago, when large Pines were not so plentiful as they are now, had Queens of between 6 lb. and 7 lb. in weight.

"These few experiences of mine may supply something for the instruction and encouragement of young gardeners, for which object they are here recorded."

Home Correspondence.

The Best Orchids.—Sometimes we hear the question asked, Which are the twelve best Orchids in cultivation? No doubt, if put to a lover of this lovely family, it is not an easy one to answer, and perhaps such an one would feel he could better do justice were he asked to name the best hundred. Still one may have his particular fancies. I have heard of one grower who said, were he called upon to grow one Orchid only he would choose Dendrobium nobile—perhaps one of the very best, all things considered, but not the best, for it is not so durable as some and the perfume not so grateful. In choosing my favourite I must say it is with reluctance I leave the Cattleyas and Lælias, as so many of these are really beautiful; but for general beauty, durability and perfume I know of none to equal Phalænopsis Schilleriana. It has a beautiful leaf, and grows freely when liberally and well treated, and in the dark days of winter throws up a panicle 4 or 5 feet high, which droops gracefully (as if to invite attention), of the most beautiful formed flowers, softly coloured; and after being expanded for some weeks, and when one would expect to see it begin to fade, the delicious perfume is given off to fill your house for some weeks to come. If cut before the first flowers begin to fade, no spike of flowers could surpass this to fill a box and send to your friends—for a lining of white tissue paper will bring out a new beauty not seen when on the plant, although you may have seen and admired it every day for three months. Some one has said if you would put a lady in good humour cut her a bloom of La France Rose; I would add, if that should not succeed, cut for her your P. Schilleriana. Mr. B. S. Williams, speaking of the capabilities of this plant, is quite within bounds, giving as a guide the dried spike, which had more than 100 flowers. Seeing what can be done with this plant, I shall not be surprised to hear of a panicle of 300 flowers. As a plant only second to this, I am inclined to think we have it in Oncidium tigrinum. But some one will say—What about Odontoglossum Alexandræ, with all its beautiful varieties? Well, very beautiful, lasting a long time in flower, with very little or no scent. Oncidium tigrinum came into Mr. Stevens' rooms last autumn with a good character, and, as is proved by a plant I have here now in bloom, a very faithful

account was given of it in the catalogue of sale. A bulb, very small compared to some of those imported, has thrown a 3-feet spike of over thirty large flowers of extraordinary substance. The greatest diameter of the flowers is 2¾ inches, and that of the labellums 1¾ inch; on opening, the latter are a rich yellow, getting paler with age. The first flower opened on September 28, and lasted in beauty fifty days; the buds at the tips of the branches and main stem opened to-day (November 28), and I shall expect to see them in beauty in January, 1875. The plant seems to be of easy cultivation in a night temperature of 55° at the present time, which will soon be allowed to drop to 50°. It takes plenty of water, like Cœlogyne cristata, which keeps the bulbs fat and shining; and a nice addition to the above qualities is that the flowers give a delightful perfume very like that of Violets. Can any of your readers inform me how the Mexicans use it, as it is said to be their "Flor de Muertos"? *W. J. Cross, Melchet Court Gardens.*

Hawthorn Borer.—The enclosed specimen of a young Hawthorn which I planted in a mixed plantation in the park at this place two years since, I found broken down by the wind a yard above the ground. Upon examination I found a borer, having entered from below, had turned suddenly, and bored a tunnel with mathematical precision horizontally around the main stem, and immediately within the inner bark: hence the destruction of the young tree. Is not this unusual? *William Earley.* [I incline to think that this is the work of Bostrichus dispar (now Xyloborus dispar). I never met with so complete a ring before, but Ratzeburg gives a figure of a branchlet of an Apple tree (and Apple and Hawthorn are much alike), about the same size as Mr. Earley's specimen, ringed so far exactly in the same way as this, only the burrow does not go more than half way round in the soft wood, and then dives into the central harder wood. In his figure too the burrow is represented as originating a little below the ring, and coming up to it as in Mr. Earley's specimen. At first sight the burrow looks too large for the larva of B. dispar, but it has obviously been made some time since, and the effect of the shrinking of the wood about it would naturally be to enlarge it. *A. Murray.*]

Ozokerit (p. 679).—If "opoponax" was no mystery to botanists, chemists at least ought to have known the secret of ozokerit. It is mentioned as a hydrocarbon allied to paraffin in Kekulé's *Lehrbuch der Organischen Chemie*, vol. i., p. 633, 1867. *W. T. Thiselton Dyer.*

Wellingtonia gigantea.—Seeing in the *Gardeners' Chronicle* of November 21 (p. 657), the dimensions of a Wellingtonia, given by your correspondent, Mr. Ogley, I have to-day measured the largest one we have here, which is 38½ feet high and 55 feet in circumference of the lowest branches. The bole is 9 feet in circumference at the lowest part. It is a fine specimen, being quite perfect in form throughout. It was planted in the spring of 1860, being then about 3 feet high. I should be glad to know if any of your readers or correspondents are in possession, or know, of a larger specimen of this noble tree. *W. Manning, The Gardens, Amport House, Andover.*

Wimbledon House, the seat of Sir H. Peek, Bart., was so minutely described in your columns in 1870, that I need not venture into details respecting it. A visit I paid lately was simply a run through, and no one would have been any the wiser were it not for the circumstance that Mr. Henderson, who has been in charge of these gardens for some years, is about to leave. Mr. Henderson has taken an active share in the Gardeners' Mutual Improvement Society, the meetings of which have been held in part of his house. His varied knowledge and general urbanity have happily fitted him for the post of conducting these meetings, and he therefore leaves regretted by those under him and by the gardeners in the locality. It is satisfactory to find that he leaves everything in excellent order. There has been no attempt at specimen growing, nor the riding of any particular hobby, but everything bespeaks its own share of attention. When a full report appeared in your columns, it then had naturally more reference to the architecture of the place, for it had been recently remodelled. At this time every house is well furnished with its respective occupants. The early Peach-house, which is 20 feet by 11 feet, is nicely on the move; three trees were originally planted, one will soon monopolise the whole, the lateral ones having been cut as space was demanded. The early vinery, as well as Vines in pots, have been started. The latter are excellent for strength of wood. A nice houseful of late Grapes is still hanging. All the Vines and Peach trees prove that they have been well attended to. The four houses of Pines are in excellent condition, and in one of them there were two Bananas occupying each end, and bearing a cluster of fruit, the heaviest of which will weigh from 40 to 50 lb. when matured. I may add, that they are grown in large tubs. In two other houses devoted to plants there are two plants of Heliotrope covering each a space of 30 by 17 feet. In what is termed the Orchid-house, the collection in which is small, there was Calanthe Veitchi, in flower; Cypripedium niveum, with others; the Dendrobiums, of which there are thriving little bits, are grown in one of the Pine-stoves, where they seem to enjoy the full light and the dry high temperature. Notable amongst these was D. albo sanguineum, which like the others was growing in a basket made of Bamboo cane. The conservatory was gay with Chrysanthemums and the usual class of plants in flower at this season of the year. To remark upon the contents of each house would take more time than the short hour spent by me, seeing that there are in all thirty houses on the place, with several ranges of pits. I can only add that it is some time since I saw such order and cleanliness in a garden as is exhibited at Wimbledon House. *R.*

Anemones Blooming in the Autumn.—Looking through the nursery grounds of Mr. T. Bundy, Bishopstoke, near Southampton, a few days since, I came across some beds of Anemones in full bloom, and the flowers wonderfully fine for this time of year. These beds bloomed freely last spring, and when the foliage died off the beds received a dressing of superphosphate and a thin covering of rotten manure soon after. On November 23, when I saw these beds, they were in luxuriant foliage and full of rich blossoms. Is it not, therefore, possible to make Anemones valuable as autumn-blooming plants, dropping in at a time when flowers are scarce, and they last in a cut state for a long time? Clumps of these lifted into pots in November could surely be made very useful. *H. H.*

Tree Aloes of South Africa.—The Kew plant of the Natal arborescent Aloe, sent to this country by Mr. Baines, has now begun to grow vigorously. The leaves are no longer crowded into a rosette, but are becoming spaced from one another by the elongation of the axis, so that the main distinction between the Natal and Caffrarian arborescent species seems to disappear. I am now strongly inclined to think that they are identical, though there is still some discrepancy as to the colour of the flowers. Aloe Barberæ is the name which I think should stand. I may also take this opportunity of correcting an unfortunate slip—mine or the printer's?—by which Mr. Roland Trimen is made to say (*Gardeners' Chronicle*, May 2, 1874, p. 568) that the greatest girth of Aloe dichotoma which he had seen was 30 feet; it should have been 12 feet. *W. T. Thiselton Dyer.*

Cattleya gigas.—I send you by to-day's post a flower of Cattleya gigas (the same as figured in *Gardeners' Chronicle* of November 14, p. 617). It is, as you have described, a grand addition to our Cattleyas, and with us it seems to be a very free-growing variety. The flower I send is from a growth since September 1—the same plant having flowered here at that time. We find it does best in pots. Some of the growths are at least 20 inches in length, and since we bought it (an imported plant), scarcely two years ago, it has made seven pseudobulbs from one lead. *J. Mill, The Gardens, Rendlesham Hall.*

Open-air Border Plants.—I have jotted down a few hardy and beautiful plants, which I think may worthily be added to my friend Mr. Elwes' list in the *Gardeners' Chronicle* of last Saturday:—

BRITISH.

Orchis fusca	Gymnadenia conopsea alba
,, latifolia	Scilla verna carrea
,, hircina	,, ,, alba
Erica vagans	

CENTRAL AND EASTERN EUROPE.

Crocus Weldeni albus	Pulmonaria dahurica
Muscari racemosum pallens	

SOUTH EUROPE, BORDERS OF THE MEDITERRANEAN.

Crocus medius	Scilla italica alba
,, pulchellus	Orchis saccata
,, ,, albus	,, pallens
,, longiflorus	Leucojum hiemale
,, minimus	Anemone fulgens
Hyacinthus amethystinus albus	,, stellata purpurea
Scilla italica	,, pavonina
	Orobus varius

ALPINES.

Campanula Raineri	Pulsatilla vernalis
Silene Elizabethæ	Primula nivalis
Dianthus neglectus	

ASIA MINOR, CAUCASUS, PERSIA.

Eremurus robustus	Tulipa Greigii
Tulipa bœotica	Geranum Armenum

H. Harpur-Crewe, Rectory, Drayton-Beauchamp, Tring.

Floral and Fruit Committees.—As we are about to be numbered among the things of the past, and before this is in print we (the Committees) shall be politically dead, it may not be out of place to offer a few remarks upon these bodies. I do not question the position assumed in your paper of the 21st, but I entirely dissent from that of the 28th. I do not think the committees are too large; on the contrary, there is still room, and the only conditions on which members should be removed, in my opinion, are seniority of election and non-attendance. You say the ornamental might be cut down; others say we do not want so much of the trade element (nurserymen); others again that we should have less garden element. I would suggest we want all and every shade of taste—the amateur as being mostly a man of means and education, therefore almost necessarily of refinement; a lover of plants from an innate taste for and love of the beautiful; the *raison d'être* of the other two classes is more difficult. The gardener sees from a different point of view to the nurseryman—he has not to earn his living by the cultivation of any particular class of plants as a general rule, but the nurseryman has his eye and his taste moulded by a plant that will sell. A man whose soul would leap within him at the sight of a yellow Pink, a black Carnation, or a double Daisy with a flower as large as a cheese-plate, might not be the best judge of a Dendrobium or a Palm, but because he had no taste for the latter it does not follow that he would not be very valuable in judging the former. Of course, in reality, the line of demarcation between the three types is not so strongly marked, but I have thus distinguished it to prove that each is valuable in its own particular way, and that neither can safely be dispensed with. Any one who has sat at the committee table will bear me out that when a really good plant is shown its merits are recognised in a few moments; where the time has been squandered it is over some hairsplitting distinction without a difference. I am of opinion that the moment the members of the committees are reduced in that moment the influence of and confidence in their awards will begin to wane. The present Floral Committee consists of thirty-seven members; I maintain that the decisions of the moiety of those who attend are infinitely more valuable than those of a moiety of, say, a committee of twelve. It would certainly be a graceful compliment to the country nurserymen and gardeners to offer them a seat at the board, but in order to do this, I would submit that it is by no means necessary to reduce the present number. *Also a Committee Man.*

Trochetia melanoxylon.—In a recent number of the *Gardeners' Chronicle* there is a note respecting Trochetia (Dombeya) melanoxylon and T. erythroxylon, in which it is stated that the latter is probably not a distinct species but a young state of the former. I think there is little doubt that there are two distinct species: that figured in Andrew's *Botanical Repository*, plate 389, appears to be the true melanoxylon, and that in the *Botanical Magazine*, plate 1000, the true erythroxylon. A comparison with the dried specimens at Kew supports this view, though what an analytical examination might disclose I cannot say. *W. B. H.*

Solanum Capsicastrum.—This plant cannot be too extensively grown for winter decoration. With its lovely coral-like berries, compact and bushy habit, it calls forth (particularly when well grown) the admiration of all who see it. It propagates freely from seeds and cuttings, but we give the preference to the former mode of raising it, because we find that plants thus raised are more vigorous than those raised from cuttings—the latter may produce more berries the first year, but we look to the second year for real perfection. We sow the seeds about the end of February in a pot or pan—according to the number of plants required—and place them in an early vinery or Pine-stove, where they will germinate quickly and be fit for potting off in a fortnight or three weeks hence. We use about two parts of loam, one of decomposed cow-dung and leaf-soil, and one of sand. They are potted into good sized 60's, and plunged in bottom-heat. We find an early Cucumber or Melon-frame answer admirably, as the plants can be placed near the glass. We stop them as they require it, our object being to obtain nice bushy plants. When they have partly filled these pots (60's) with roots we shift them into 32-sized pots, exercising care in the application of water until they have got well established in their new "quarters." About the end of May we commence to harden them off, and about the middle of June we plunge them in a south border (better still a pit, if not in use), not allowing them to suffer for want of water. We apply liquid manure two or three times a week. We take them indoors before frost sets in (cleaning off the surface and well washing the pots before doing so) and place them in heat. Their berries soon begin to colour, and, contrasting beautifully with the dark green lanceolate foliage, render the plants very desirable objects for table decoration during the winter months. In the following May we cut back the plants into nice shapes, turn them out of the pots (giving them a thorough watering before doing so), and plant 3 feet apart in a south (if to spare) border, and place a good admixture of loam and dung around the base of each plant, which helps to confine the roots. We ring them with the spade once or twice in the season. We lift them about the end of August, and repot them

in pots suitable to the size of the base and head, and place them in a pit where they can be shaded, when requisite, for a week or a fortnight, when soon after they can be removed to the greenhouse, where, with their thousands of charming berries, they hold their place against all comers. Can the Solanum Capsicastrum be grown to a good sized bush? *H. W. Ward, Longford Castle Gardens, Salisbury.*

Fruit of Hibiscus rosa-sinensis.—Mr. W. Williamson, of Belair, Dulwich, obligingly informs me that he has young plants raised from Devonshire seed of this species. I am now, therefore, not without hopes that I may some day hear of the capsules. *W. T. Thiselton Dyer, Kew.* [We learn from a most competent authority (Dr. Cleghorn) that the fruit of this plant is rarely or never produced in India. EDS.]

The Best Season for Planting Evergreens.—Most gardeners are agreed that the best season for planting deciduous trees is in the autumn, immediately after the fall of the leaf; but the season best adapted for transplanting evergreens is still a disputed point, some maintaining the autumn and others the spring as preferable. I have planted evergreens largely at both seasons, and, after many years' experience, I consider the autumn in every respect the best season. In places undergoing alterations evergreens may with safety be transplanted from one part of the grounds to another at any time from the beginning of autumn until late in spring, provided they are moved with good balls of earth; but even then the autumn is preferable. Success in spring planting greatly depends on matters over which we have no control. If the planting be done in a damp state of the atmosphere, and abundant rains prevail for some time after, then success is certain; but if, on the other hand, the weather be dry when the planting is being done, and a period of drought prevails for some time after, with frost at night and bright sunshine during the day, with drying winds, then the loss is often serious. Not only has the sun great power in spring, but the drying winds, which often then prevail, have a tendency to drain the young branches of a tree of their moisture, and are very injurious to newly-planted evergreens. The dampness of the atmosphere which prevails during the autumn and winter is highly favourable to the planting of evergreens, the reason being that the process of perspiration continues to go on in winter, excepting, perhaps, in the most severe weather, and that when the atmosphere is saturated with moisture the perspiration is reduced to a minimum, and the demand made on the roots to supply the waste is consequently diminished. From October to February, inclusive, the atmosphere in Britain is nearly saturated with moisture, and, in the absence of frost, there is no better season in the year to plant evergreens. Late last spring I transplanted a quantity, and among them were some good sized Hollies and Yews, which I was able to move with good balls of earth; being near the lake I had them well soaked with water when they were being planted. Notwithstanding the cold dry weather which prevailed so long after, these trees have done very well, as might be expected. Among other things planted about the same time was a quantity of small plants of Berberis Darwinii which had little or no soil to the roots: these suffered considerably. Unless evergreens have good balls of earth spring planting is very haphazard work. Some years ago I transplanted some large Hollies with good balls during a severe frost, which greatly facilitated the work. The trees had to be carried some distance over very uneven ground; this, owing to the size and weight of the balls, would have been heavy work, had it not been for the frozen state of the ground. By putting one tree at a time on a low truck one horse was able to draw them to the place where they were wanted with more ease and in much less time than two horses could have done it in the absence of frost. The lifting, carriage, and planting were done in much less time than if the weather had been mild. No transplanted Hollies could have succeeded better than these have done. I also transplanted some large Hollies some years ago during very hot weather in the middle of June; those that were moved with good balls of earth did very well, those that had not much of a ball of earth did not do so well. Success in transplanting evergreens depends a good deal on moving them properly with large balls of earth. Evergreens that can be moved with good balls may be transplanted at any season, but they will always do best when planted in the autumn, any time from September to the end of December, in the absence of frost. When quantities of small evergreens are got in from the nurseries they should, if possible, be planted in the autumn; any that can be got with good balls will do very well planted in spring, but any plants that have little or no ball when planted in spring suffer considerably unless wet weather prevails some time after. It is well known that nurserymen have cuttings of most evergreens put in in September or October, and in general such cuttings are rooted in spring and ready to commence growth. If any person will take up in April evergreens that were planted in the autumn he will find a quantity of young roots formed and ready to meet the demands of the plant. There can be no question as to evergreens in this state being better able to withstand the hot weather and drying winds of May and June than spring planted ones. But apart altogether from the autumn being the best season for planting, there are other considerations of some weight why the planting should be done in the autumn. Men are better to get after harvest than in spring, indeed, in some places it is exceedingly difficult to get men in spring. Then, again, spring is always a busy season in gardens, and though there may be plenty of extra men got to do the planting, there will still be many of the trees, especially valuable specimens, that will for months afterwards require attention in watering, syringing, &c. I would never defer the planting of evergreens or any other trees till spring when I could do it in the autumn. *M. Saul, Stourton.*

Reports of Societies.

Royal Horticultural: *Dec.* 2.—W. A. Lindsay, Esq., in the chair. Professor Thiselton Dyer, in addressing the Fellows, said that since the last meeting some new information of an interesting kind had been published with respect to the Potato disease. In order to make it intelligible how the matter stood he briefly described the known history of the disease. As early as 1846 the main facts about it had been made out by the Rev. M. J. Berkeley in this country and by Montagne in France. The paper published by the former of these botanists clearly established that the disease was due to a fungus which penetrated, by means of its fine mycelial filaments, the tissues of the plant, and eventually reaching the tubers involved the whole in a common destruction. When it reached the surface of the leaves it protruded branches through the stomata, and these branches bore spores of two kinds, one of which set free a number of locomotive and extremely agile little bodies, capable of propelling themselves through water by means of their whip-lash-like filaments with considerable rapidity. These bodies were called zoospores, and there was reason to believe that in showery weather they readily found their way from one moisture-covered leaf to another, and so became extremely active agents in propagating the disease. The Rev. M. J. Berkeley had observed these zoospores, but had not detected their cilia, and had not, therefore, apprehended their full significance. This had been first pointed out by Professor De Bary.

At this point our knowledge of the life history of Peronospora infestans had stood stationary for many years. Other species of Peronospora had been investigated with more success, and it had been found that they possessed another mode of reproduction within the tissue of the plant attacked. This was a sexual mode, comparable quite strictly with the mode in which flowering plants produced seed. The product of this sexual mode of reproduction was a spore possessing greater powers of remaining in a dormant or resting state than the other kinds of spores. No such "resting spores," however, had been found in Peronospora infestans, although Montagne had met with some bodies which he described under the name of Artotrogus, and which it was quite possible might turn out to be the missing organs.

The Royal Agricultural Society had attempted to elicit some further information by offering a prize for an essay, but though nearly one hundred competitors had competed, none of their productions seemed to justify an award. The Council then determined to offer premiums for Potatos which should really prove to be disease-proof. From a recent monthly report of the Council it appeared that in every case the trials, made under widely different circumstances in all the three kingdoms, had failed. The same report gave some account of the measure of success which had hitherto attended the investigations undertaken by Prof. De Bary, at the instance of the Council. It was rather difficult to gather the precise meaning of the statements. Prof. De Bary, however, appeared to think that the disease did not start, so to say, from a sexual resting spore left in a diseased "set," and which in process of time developed zoospores by which adjacent plants were infected. On the contrary, he appeared to have satisfied himself that when mycelium was developed in the stalks of plants raised from diseased tubers, it did not produce spores or zoospores at all. The inference from this would be, therefore, that as far as planting diseased "sets" was concerned no great mischief could arise—the fungus had apparently all but exhausted itself, and at any rate could not extend to adjacent plants. On the other hand, it must be remembered that Mr. Worthington Smith had all but demonstrated that infected tubers could communicate the disease to others which were sound, and this seemed quite likely to any one who had seen the rapidity with which the disease spread through Potato pits or "clamps." Certainly also it was a matter of experience in England that the disease frequently progressed from below upwards. If, however, this was not the mode in which it made its appearance, it was quite clear that there must be an external source. Professor De Bary seemed to think that the fungus found some resting-place external to and independent of the Potato plant. This arrangement, by which a parasite attached itself to two "hosts," was not uncommon amongst fungi. Practical men had been of opinion that it was a bad thing to have Berberry bushes in the hedges of cornfields long before scientific men had made out the relationship of the corn mildew to the Berberry rust. But it was not very probable that the same kind of thing would hold true of Peronospora infestans. It was more likely that its sexual reproduction would be discovered in the tissues of the Potato plant itself, and that its life history would be completed in that way. The group to which Peronospora belonged seemed as a whole to have a simpler life-history than that of many other kinds of fungi.

It is only right to say that the recent Part of the *Journal of the Royal Agricultural Society* contained a paper by the Secretary in which it is suggested that "the Potato fungus has two stages of existence, one which it passes on the Potato plant and the other on Clover or straw." Mr. Jenkins thinks that this "would justify the prevailing opinion that farmyard manure encourages the ravages of the Potato disease, especially when applied in spring, because the spores of the fungus would be in the manure which had been used for litter" (p. 510). The opinion that Clover is one of the hosts of the Potato disease appeared, however, to have been first suggested by Mouillefert, a translation of whose paper has also been published by the Royal Agricultural Society in the recent number of its Journal. The fungus (indeterminate in the absence of fruit) is not improbably the same as that which produces "root-falling" in Wheat.

Mr. Carruthers supposes that it is a normal peculiarity of these fungi to attack the lowest internodes of plants; but it is quite possible that they may be simply mycelium, which has happened to be in the soil, and which it is well-known frequently proves fatal even to trees when it attacks their roots.

It seemed desirable to state the matter so far in some detail; but without further facts it could not be said that our present new information gave us, on the whole, any very satisfactory standing ground from which to prosecute fresh inquiries.

Dr. Masters considered that the Fellows were greatly indebted to Professor Dyer for the clear and perspicuous manner in which he had put before them the present state of our knowledge of the Potato disease, but he thought the Professor might with propriety have gone further in vindication of his colleague, the Rev. M. J. Berkeley, and stated that to him and to their Society was due the credit of discovering and publishing the origin and cause of the Potato disease, and that it did not seem a courteous act on the part of the sister Society to entirely ignore both Mr. Berkeley and the Society.

SCIENTIFIC COMMITTEE.—A. Murray, Esq., in the chair. The Chairman reported that the leaves exhibited by Mr. A. Bennett at a previous meeting were disfigured by a leaf-mining caterpillar of a moth named Lyonettia Clerckella.

The Chairman exhibited a model of the fruit of Stephanotis floribunda, executed by Miss Ormerod.

Dr. Masters showed a leaf of a Vanda with two forms of spot on it—one of the ordinary character, the other consisting of concentric rings, as described by Mr. Berkeley in the *Journal* of the Society for 1866, p. 28, fig. 5.

Mr. Murray then exhibited specimens illustrative of the Larch disease in various stages, and made a brief comment on them. He considered it probable that the increased dryness of the climate of Scotland from drainage might account for the prevalence of the disease, which was also beginning to attack the Spruce and the Pinus excelsa.

Dr. Denny alluded to the adventitious roots sent down from a height of 14 feet through the centre of an old Mulberry tree, and already mentioned in our columns.

Prof. Dyer exhibited, on the part of Dr. Hooker, a portion of the stem of a Calamus, from Sikkim, and in which the sheath of the leaf had apparently been injured, and produced at the point of injury a stout adventitious bud.

Dr. Denny called attention to the subject of Superfœtation, as alluded to by Mr. Grieve in our last issue, and cited Dr. Duncan's opinion that a second pollen tube might furnish nutriment to the embryo after it had been fertilised by a previous pollen grain, and that in this way seminal variations might occur.

Mr. A. Smee stated that he had in full operation the production of honey-dew by aphides on Crocuses, and on which he promised to report more fully on another occasion.

With this meeting terminated the present session. For the ensuing year a new committee will have to be elected.

FLORAL COMMITTEE.—W. B. Kellock, Esq., in the chair. The labours of the committee were very light on this occasion, but as it was the last time the

members would meet this season, there was a good attendance. E. G. Wrigley, Esq., Broadoaks, Bury, Lancashire, sent a flowering specimen of Odontoglossum maxillare, a pretty form with sepals and petals pure white, and blotched with purple at the base, and a cordate lip with a blotch of lemon-yellow on the disc. A First-class Certificate had been awarded to the Rev. J. B. Norman, Whitchurch Rectory, Edgware, for this plant in September last. Mr. C. Green, Reigate, showed Physianthus albens variegatus, a dull-looking yellow variegated cool greenhouse plant, in the style of Cobæa scandens. Messrs. E. G. Henderson & Sons were accorded a vote of thanks for a nice group of Tree Carnations. The same firm also exhibited Dracæna Duffii, a stiff bushy looking plant with broad coppery spreading leaves longitudinally banded with crimson. Votes of thanks were also given to Messrs. Standish & Co. for a group of Poinsettias, and to Mr. Smith, nurseryman, Ealing Dean, for a large collection of a good strain of Cyclamens. Mr. G. Brush, gr. to Lady Hume Campbell, High Grove, Pinner, again sent specimens of the Continental variety of the Neapolitan Violet, cut flowers of which, coming from Nice, are now very plentiful in the florists' shops. The members of the committee were thanked on behalf of the Council for the services they had rendered during the year; and a cordial vote of thanks to the Chairman concluded the operations of the committee for 1874.

Fruit Committee.—A. Smee, Esq., F.R.S., in the chair. There was a good attendance at this meeting, being the last for 1874, though very few subjects came before them for adjudication. Mr. Barron again sent up from the Society's garden at Chiswick a collection of Celeries, and from Mr. John Robson, nurseryman, Bowden, Cheshire, came specimens of a Celery under the name of Durham Red, which was considered identical with the Leicester Red. Mr. Woodbridge, gr. to the Duke of Northumberland, Syon House, Isleworth, showed some ripe fruits of Musa Champa, for which he was accorded a vote of thanks. Mr. Bennett, gr. to the Marquis of Salisbury, Hatfield, exhibited several fruits of Suttons' Improved Syon House Cucumber, which was considered by many to be similar to Masters' Prolific. From Messrs. Carter & Co. and Messrs. Cutbush & Sons came samples of several varieties of Onions; and Messrs. Veitch & Sons showed their Self-protecting Broccoli. The prizes offered by the Chairman of the committee for the best new fruit and new vegetable respectively, shown during the year, were awarded to Mr. Pearson's handsome new white Grape, Mrs. Pearson; and Messrs. Villmorin's Seville Longpod Bean, a very early variety with wonderfully long pods, and a great acquisition. The death of Mr. Daniel Nash, a much-respected Vice-Chairman of the committee, which took place on Saturday last, was announced, and the committee recommended to the Council that a letter of condolence be sent to the family of the deceased gentleman. Votes of thanks were accorded to the Chairman and Pomological Director, and the meeting broke up.

Horticultural Show at Pomona Gardens, Manchester: *Dec.* 1—3.—A show of flowers, plants, and fruit, that has taken everybody by surprise, came off on Tuesday, and two following days, at the place of public entertainment known in Manchester for many years past under the name of the Pomona Gardens. A very questionable reputation having appertained to these gardens in days gone by, it is but common justice to say that since March, 1868, when they came into the possession of the present proprietor, Mr. James Reilly, the character of the establishment has been thoroughly changed. As a place for social recreation among the lower middle-class, especially in the evenings, no doubt it is as popular as ever; but the quality of the recreation has been greatly amended, and convincing proof of the sincere and *bonâ fide* desire and endeavour of Mr. Reilly to see everything recast as regards reputation and moral agency, is to be found in the fact of his having instituted various shows, at great personal expense, quite independently of the old-accustomed recreations, and calculated to elevate the tastes, not only of his own particular patrons, but of the public in general. Though termed Gardens, this name is inappropriate. There never were any gardens, properly so called, at Pomona, nor is it probable, or perhaps possible, that there ever can be. The distance is only 1¼ mile from the Manchester Exchange, and the soil and atmosphere concur in the protest—No horticulture admitted here. The area of the grounds is over 20 acres, and within this space Mr. Reilly has erected, entirely out of his own pocket, and at a cost considerably over £100,000, a vast Agricultural Hall, in which last May there was a magnificent Horse Show—the finest, perhaps, ever seen in the North of England, or anywhere else; and again in which, only last week, there was an immense fat cattle and implement show, so astonishing in its quality and in the abundance of its contents, as to be second only to the periodical shows of the great agricultural societies. The gates have scarcely seen the egress of the last fat cow, when in another enormous building we have this startling exhibition of plants, flowers, and fruit.

Lest there should be any lingering idea amongst readers of the *Gardeners' Chronicle* that the Pomona Garden is as it formerly was, it may be well to say that last Sunday week Divine Service was conducted in the great dining-hall (a third immense apartment), and that the Dean of Manchester preached there to a congregation of 1600 people. Moral leverage is clearly an aim of Mr. Reilly's, whether fat cattle and flowers have reference to it or the reverse. A Dean may not redeem a place all at once from old defects, but the circumstance is at all events one not lightly to be passed over.

The first announcement of this grand horticultural exhibition came out about two months ago. Many deemed it visionary, others asked what Pomona could want with flower shows, forgetting that it is never too late to mend. The fulfilment of the promise that a show should be held has not only been complete, but as regards exhibiting and contributions there has positively been quite a triumph. The schedule consisted of fifty-eight classes, covering all the accustomed descriptions of ornamental, flowering, and foliage plants; evergreens also, berried plants, Ferns, bouquets, skeletonised leaves, hanging baskets, parlour flower-stands, &c.; also every kind of fruit which it was likely could be sent in good condition. The response was liberal, and from all parts of the country more than one hundred exhibitors came up, including Mr. B. S. Williams, of Holloway; Messrs. Lucombe, Pince & Co., of Exeter; several others from the South, and many of the leading local growers—the aggregate number of entries considerably exceeding 2000. The hall in which the various objects were displayed to view consists of no less than 45,800 square feet of flooring. It is divided by pillars into five great longitudinal avenues, the middle one constituting a kind of nave, while on either hand are a couple of aisles. The length of the avenues is 72 yards each, the width varies from 9 yards to 18 yards, and the height is about 60 feet. These figures will supply some idea of the accommodation offered to the Dracænas, the Tree Ferns, the Conifers, and other tall and imposing evergreens, the latter of which came flocking in like another Birnam Wood, and of course had their fine proportions set off to consummate advantage. Immense stages, some circular, and of many steps, others of the ordinary patterns, held the ornamental foliage plants of smaller stature, and the innumerable flowering and berried plants, conspicuous among which were Crotons in great variety, dwarf Palms (*et hoc genus omne*), Ericas, Boronias, Bouvardias (both white and pink), splendid scarlet Ixoras, plenty of Eucharis and of Sarracenia Drummondii, Amaryllis, Epiphyllum, &c., with no mean display of high-class Orchids, including a beautiful Dendrobium nobile, an Angræcum sesquipedale, Cypripedium insigne in abundance, Calanthe Veitchii, and a most lovely and very well-flowered specimen of Vanda cœrulea. There were many besides these, and, in addition, upon a table by themselves, many guineas' worth of cut Orchid blooms, quite a ravishing spectacle in themselves. All this would of course be simple and straightforward enough in the month of May, and at all seasons perhaps in the metropolis, but to have it, as it were, improvised in December, and in the provinces, is at all events something absolutely new, and if not actually seen would have been incredible. What would our forefathers of only a century ago have imagined, could they have but seen, in a sort of spiritual perspective, the displays that are possible to the florists of the year of grace 1874! As for the bouquets, the wedding bouquets most particularly, the palmiest and brightest flower show that Manchester has ever known, even at midsummer, has never held the like, nor even an approximation. Over seventy were exhibited, and in no single instance was there anything in them to call for expressions other than of approval. The epergnes and other dinner pieces were also admirable.

Then came the fruit, which occupied a suite of tables in the centre. Competent judges said the Apples had never been excelled in quality, and as for quantity, they were past the counting. The same was the case with the Pears, handsome contributions of which were sent from Guernsey. Commendation was deserved also by the Grapes, while the Pines, of which there were thirty or forty, were massive and well-ripened as any we have ever seen. Being held in the winter, or what is virtually winter as regards the early closing in of the day, this splendid exhibition would not have been half seen where gas-light could not have been thrown upon it. This the Pomona palace well provides, giving the Manchester people quite a new idea as regards an illuminated flower-show. The burners at the same time are so far above the heads of the plants that no injury can accrue to them. The temperature of the hall is also well kept up, and the ventilation is excellent, so that there is little or nothing to be feared from the exposure of the plants to what might elsewhere prove a destructive December atmosphere. Exhibitors who may be disposed to show at Pomona another time should take note of this. The general management of the exhibition was entrusted to Mr. J. F. Johnson, of the Belfast Botanic Garden, whose skill as a landscape gardener is well known, and in his hands, as would be expected, the *coup-d'œil* was most picturesque. The judges of this immense store of vegetation and gathered fruit were Mr. Thos. Baines, Mr. B. S. Williams, Mr. Harrison, gr. to the Earl of Derby, and Mr. Selwood, gr. to the Duke of Westminster, Eaton Hall.

It remains only here to say that this extraordinary exhibition, set on foot by a private individual, for purely philanthropic purposes—he himself running all the risk, paying all the charges, and giving £500 in prizes besides, all out of his own pocket—deserves to rank, and does rank unquestionably, amongst the greatest horticultural events of the year. It is all very well for societies and bodies of shareholders, with the aid of outside subscribers, to arrange for such things; but these single-handed achievements are far more commendable. Mr. Reilly is not a professional gardener either. He is by business a chair-maker, and makes more chairs, of particular kinds, than any other man in the world. Happy for the Manchester people was the day when the Pomona Gardens became the scene of his labours.

As will be easily understood from the extent of the exhibition, it is impossible to do more than note the principal features and productions shown.

Chrysanthemums, as might be supposed, were getting past their best. For eight large-flowered varieties, Mr. J. Liester, gr. to S. A. Mayor, Esq., was 1st, with a good even lot, grown in a natural way, without more training than necessary to support them. The flowers were not much thinned, but had a free and natural effect. For four large-flowered varieties, Mr. W. Copeland was 1st. The best single large-flowered Chrysanthemum came from Mr. H. Corfield, gr. to E. Bowden, Esq. For eight Pompons Mr. W. Copeland was again 1st, and for four Pompons Mr. J. Liester took the coveted award.

Cut blooms of Chrysanthemums were well shown. For twenty-four Mr. D. Norrie, gr. to D. James, Esq., Liverpool, was 1st with a very good stand; 2d, Mr. Rowe, with a lot little inferior to the last; 3d, Mr. T. Cash, gr. to C. S. Agnew, Esq.

For ten miscellaneous plants, Mr. Thornber, gr. to T. M. Shuttleworth, Esq., Howick House, Preston, was 1st, with a collection in every way well deserving of the prize. His most noticeable plant was a marvellous Gleichenia rupestris, 6 feet by 6 inches, in the finest possible health; his G. Speluncæ, 8 feet through by 6 feet in height, was a worthy companion to the last, fresh and green, and as dense as a Gorse bush; Adiantum farleyense, 5 feet by 3 feet in height, was also remarkably good. His best flowering subjects was a large and fine Anthurium Scherzerianum, with a dozen splendid spathes on it; he had also a good Eucharis amazonica and Boronia pinnata in fine flower for the season. Mr. Stevenson, Lark Hill, Timperley, was 2d, with a smaller lot, fresh and very even; he had in fine condition Sarracenia Drummondii alba, in its fresh autumn garb. This species throws up an autumn as well as a spring lot of pitchers when strong. S. purpurea was in equally good condition, as also Anthurium Scherzerianum, and Cypripedium insigne; Palms and Ferns made up the lot.

Twelve hardy Coniferous plants: There were several fine lots shown, the best being staged by Messrs. Lucombe, Pince & Co., Exeter, who had a splendid lot of plants, some of which were from 18 to 20 feet in height; the Thujopsis dolabrata, Picea bracteata, and P. lasiocarpa were beautiful. Messrs. Caldwell, Knutsford, were 2d.

Pair of greenhouse Palms: Equal 1st, Mr. B. S. Williams, Victoria Nursery, and Mr. R. S. Yates, Sale, Cheshire.

Two Tree Ferns: Mr. B. S. Williams was 1st, with a noble pair of Dicksonia antarctica; 2d, Mrs. Cole & Sons, The Nurseries, Withington, Manchester.

For the best collection of flowering and foliage plants Mrs. Cole & Sons were 1st with a very good and extensive lot, consisting of fine Palms, Pandanus, Phormium tenax variegatum, Crotons, various Ixoras, and the telling Clerodendron Balfourianum, showing the adaptability of the plant for flowering at all times of the year. These were margined with a beautiful lot of small flowering and foliage plants, altogether forming a very effective group. Messrs. G. & W. Yates, The Nurseries, Heaton Mersey, near Stockport, were a very good 2d; intermixed with foliage plants they had in very good condition the fine autumn flowering Crowea saligna major; numerous Orchids, including a couple of examples of Dendrobium nobile, Cypripedium insigne, Calanthe vestita, several Oncids, and quantities of other subjects.

Two standard Bays: 1st, Mr. B. S. Williams; 2d, Messrs. Lucombe, Pince & Co. These large plants, standing in different positions in the hall, had a good effect.

Fifteen pans of Roman Hyacinths: These were finely shown. Messrs. Dickson & Robinson were 1st, with a beautifully finished lot, splendidly flowered; Messrs. Dickson, Brown & Tate were 2d. Others were shown in grand style by Mr. Collins.

Eight Celosias: Mr. R. S. Yates was 1st, with a beautiful well-flowered lot, than which for decorative purposes at this season nothing can be more effective.

Boxes of cut flowers, in twelves: These were well shown, Mrs. Cole & Sons, as usual, being at the fore, with a beautiful collection.

Bouquets in themselves filled a large table, they were some fifty in number, and not an inferior one amongst them.

Fruit was produced in large quantities, and, for the time of the year, good condition.

For six dishes: 1st, Mr. Upjohn, gr. to the Earl of Ellesmere, Worsley Hall, whose Gros Colman and Muscat Grapes were fine in berry and compact in bunch, &c. Mr. Coleman, gr. to Earl Somers, Eastnor Castle, was a very close 2d.

For ten bunches of Grapes, Mr. Upjohn was also 1st; his Black Alicante, Lady Downe's, and Gros Colman, were beautiful examples of good Grape growing, fine in all points; Mr. Hunter, gr. to the Earl of Durham, Lambton Castle, was 2d, with larger bunches, but several of them wanting in condition. Messrs. Coleman, Roberts, Stevenson, J. Smith, and Wildsmith, were among the principal prize-takers in other classes.

Six Pines: Here again there was a close competition—Mr. R. Fairburn, Manchester, being 1st; Messrs. Copeland & Doran, Stretford, 2d. Messrs. Jamieson, Miles, Copeland, and Doran, were also among the prize-takers.

Apples and pears were largely shown by Messrs. Thomas, Gardiner, Smith, Miles, Pluck, and others.

Messrs. Dickson & Robinson showed a varied and good collection of miscellaneous stove and greenhouse plants, as also did Mr. S. Studd, Grange Nursery, Heaton Mersey. Mr. Williams had a beautiful collection of Cyclamens, in fine bloom; and from Messrs. Lucombe, Pince & Co. came some noble standard Hollies.

Royal Jersey Agricultural and Horticultural: *Nov.* 11.—The annual Chrysanthemum exhibition held under the auspices of the horticultural department of this Society at the Albert Hall, Grove Place, proved a great success, the attendance during the afternoon and evening being very good indeed. The plants exhibited were not so numerous as on former occasions, but some of them were models of successful cultivation, and would have held their own at any show in the kingdom. The principal prize was a silver cup, value £5, with 2d and 3d money prizes, offered for competition by the Chrysanthemum growers of the island. The cup was awarded to Mrs. Helleur for twelve plants of unusual excellence in 12-inch pots. There were only two exhibitors in this class, the 2d prize lot being far behind the others. The other classes for plants were but moderately filled, and call for no special remark, with the exception of the following. In the class for a single specimen, large flowered, the 1st prize was awarded to Mr. G. Ereaut, gr. to J. Thorne, for a splendid specimen of Guernsey Nugget (a photograph of which is herewith enclosed). An extra prize was awarded for a gigantic specimen, something like 6 feet in height and as much through, of that beautiful Japanese variety, Fair Maid of Guernsey. The cut blooms, more especially the large flowers, were far below the average, being evidently past their best. *L.*

Obituary.

AT Mentone, France, on November 24, JOHN TRAHERNE MOGGRIDGE—younger son of Matthew Moggridge, of Woodfield, Monmouthshire, and of Fanny, his wife—aged 32.

The decease of the above talented and amiable naturalist, though it cannot be said to have been unexpected, will, nevertheless, be felt as a severe loss by his friends and by the scientific public. Mr. Moggridge had been an invalid for some years, and passed the winter at Mentone. There, in spite of great physical impediments, partly by his own exertion and partly by enlisting the services of friends, who were stirred by his enthusiasm and touched by sympathy for his sufferings, he managed to accumulate a mass of observations on various branches of natural history. Mr. Moggridge was, however, no mere *dilettante* naturalist. He did not confine himself merely to unintelligent admiration of the works of the Creator; he set himself to work to understand them as far as possible, and to make them clear to others. In this manner a pursuit originally undertaken, perhaps, for the sake of occupation and amusement only, became subservient to the progress of science. Two charming books—the work of his pen and pencil—for he was equally expert with either—bear testimony to this. The contributions to the Flora of Mentone show how mere weeds, as people call them, may be not only replete with beauty, as is indeed acknowledged by most people, but are sure to be full of significance and interest for those who have eyes to see. Moggridge was blest with scientific insight, and the consequence is that he produced a series of plates, not only valuable from an æsthetic point of view, but which were botanically correct and scientifically useful. The text that accompanies these plates is full of observations which some people would call "curious"—which are so indeed, but which are also of high importance as showing the plan on which particular plants are constructed, and the special purposes filled by their varying and intricate mechanism. Mr. Moggridge's work on *Harvesting Ants and Trap-Door Spiders* is another signal exemplification, not only of the author's acuteness and accuracy of observation, but of the exceeding interest attaching to the study of what we somewhat arrogantly style the humblest creatures. We cannot enlarge on these works here, nor is it necessary to do so, as they were duly noticed at the time of publication. We allude to them simply as evidences of good work reverently done under most discouraging circumstances. Can we doubt, however, that such work brought its own peculiar reward to this keen-witted yet gentle, loving spirit?

> "He prayeth best who loveth best
> All things both great and small."

Much as we may lament the loss of a friend—much as we may regret that his life was not spared to make further research into the nature and meaning of God's works—we yet cannot but admit that, as he has done his work well and truly, so his memory and his example will be cherished and followed by those whom he leaves behind. Mr. Moggridge was an occasional correspondent of these columns, and a supplement to his work on Ants and Spiders has been placed on our table since these lines were written.

—— We regret to have to record the death of the father of the London seed trade, Mr. DANIEL NASH, the senior partner of the old-established firm of Minier, Nash & Nash, of 60, Strand, which event took place at his residence, 4, York Gate, Regent's Park, after a short illness, on Saturday last. Mr. Nash, who was in his sixty-eighth year, was one of the Vice-Chairmen of the Fruit Committee, and for thirty years was Chairman of the London Wholesale Seed Trade Society, and was held in the greatest respect by those with whom he was brought into contact.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DECEMBER 2, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
	In.	In.	°	°	°	°	°	°			In.
Nov. 26	29.71	+0.02	34.5	29.3	5.2	30.8	−10.1	21.1	66	S.E.	0.00
27	29.51	−0.19	36.4	25.0	11.4	31.0	−10.1	25.1	78	S.E.	0.00
28	29.33	−0.37	43.3	30.6	12.7	35.9	− 5.4	32.3	87	S.E	0.15
29	28.61	−1.10	50.0	42.5	7.5	45.0	+ 3.4	40.5	85	S.W.: W.	0.56
30	28.81	−0.92	44.4	40.8	3.6	42.2	+ 0.3	41.0	96	variable	0.60
Dec. 1	29.26	−0.47	43.2	33.0	10.2	38.4	− 3.7	35.4	89	N.N.E.	0.32
2	29.72	−0.02	36.0	26.4	9.6	31.0	−11.2	25.4	79	N.N.E.	0.00

Nov. 26.—Generally overcast.
— 27.—A very fine day. Cloudless in the morning; light clouds prevailed during the afternoon and evening; overcast at night.
— 28.—Overcast. Rain commenced falling at 8 P.M., and was still falling at midnight.
— 29.—The amount of cloud was large, and heavy rain fell frequently. Lightning at night.
— 30.—Overcast generally. Rain fell heavily between 3 A.M. and 6 A.M., and again between 7 P.M. and midnight.
Dec. 1.—Rain fell till about 6 A.M.; generally cloudy, but fine afterwards. During the night following the temperature on grass descended to 19°.
— 2.—A fine day; partially cloudy till evening. A little granular snow fell in the afternoon. Cloudless at night. The lowest reading of thermometer on grass during the night common to the 2d and 3d was 12°.

—— In the neighbourhood of London the reading of the barometer at the level of the sea decreased from 30.15 inches at the beginning of the week to 30.07 inches by the evening of the 22d, increased to 30.42 inches by the morning of the 24th, and then decreased steadily, but slowly at first, and rapidly towards the end of the week, the value at this time being 29.13 inches. The mean reading for the week was 29.93 inches, being 0.06 inches higher than that of the preceding week. The mean daily readings were above their averages from the 22d to the 26th to the mean amount of 0.19 inch, and below on the 27th and 28th to the mean amount of 0.28 inch.

The highest temperatures of the air at 4 feet above the ground ranged from 34½° on the 26th to 43¼° on the 28th, the mean for the week being 39°. The lowest temperatures at night varied from 25° on the 27th and 25½° on the 23d, to 32¼° on the 25th; the mean of the seven minimum values was 28°. The mean daily range of temperature was 11°, the greatest range being 16° on the 23d, and the least, 5¼°, on the 26th.

The mean daily temperatures of the air were all much below their averages, the values being as follows:—22d, 30°.5; 23d, 32°.3; 24th, 32°.8; 25th, 36°.5; 26th, 30°.8; 27th, 31°; 28th, 35°.9; and the departures in defect of their respective averages, 10°.7, 8°.8, 8°.2, 4°.4, 10°.1, 10°.1, 5°.4. The mean temperature of the air for the week was 32°.8, being 8°.2 below the average of the corresponding week, as deduced from fifty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 68° and 81°, on the 23d and 27th respectively; on the 22d it read 56° and on the other days its maximum readings were below 50°. The lowest readings at night of a thermometer on grass, with its bulb fully exposed to the sky were 20° on the 22d, 18¼° on the 23d, 21° on the 24th, and 22¾° on the 27th.

The direction of the wind was variable, and its strength gentle, the atmosphere on the 22d and 23d being almost calm, the respective velocities of the wind on these two days were 74 miles and 93 miles.

On the 25th and 28th the sky was entirely overcast, and at other times the amount of cloud was very variable. Dense fog prevailed throughout the 22d and portions of the 23d. Hoar frost was observed on the 23d and 24th. The weather was generally fine but cold.

Rain fell on two days, and the amount collected was 0.20 inch.

In England the extreme high day temperatures ranged from 52° at Sunderland to 39° at Nottingham, Sheffield, and Hull, the general average over the country being 42½°. The extreme low night temperatures varied from 30° at Bristol to 21° at Hull, the general average being 26¼°. The mean range of temperature in the week from all stations was 16¼°. The mean high temperatures observed by day ranged between 43¼° at Sunderland and 35¼° at Sheffield, with an average value of 38¼°. The mean low night temperatures observed by night varied from 32½° at Bristol to 26° at Nottingham, with a general average of 29¼°. The mean daily range of temperature in the week was 9°, the greatest range being at Sunderland and Blackheath, 11° nearly, and the least at Leeds, 6½°. The mean temperature for the week was 33½°, being 13½° lower than the value for the corresponding week in 1873, and 12° lower than in 1872; the highest occurred at Sunderland, 37½°, and the lowest at Nottingham, 30¾°. The amounts of rain which were measured at the different stations varied from 2 inches at Sheffield and Wolverhampton, 1¾ inch at Eccles, to five-hundredths of an inch at Norwich; the average fall over the country was 1 inch.

The weather during the week was cold, cloudy, and showery.

Snow fell generally over the midland counties to a depth varying from 2 to 7 inches.

In Scotland the highest temperatures ranged from 49° at Paisley to 44° at Glasgow, Greenock, and Leith. The lowest temperatures varied from 32° at Greenock to 25° at Paisley, their averages being 45¼° and 28¼° respectively. The mean range of temperature for the week was 17°. The mean temperature for the week was 37¼°, being 8° lower than the value for the corresponding week in 1873, the highest being recorded at Aberdeen, 38¾°, and the lowest at Leith, 36⅓°. Rain was measured at each of these stations, the amounts varying from 1¾ inch at Greenock to half an inch at Leith, the average fall over the country being 1¼ inch nearly.

At Dublin the highest temperature was 55°, the lowest 32¼°, the mean 45°, and the rainfall 1.84 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—The treatment of plants now at rest will for some weeks be of a routine character, in a great measure regulated by the nature of the plants, and the temperature that can be maintained; this latter especially should influence the amount of moisture used both in the atmosphere and at the roots, remembering that when a plant is submitted to a lower temperature than is natural for it to undergo, the greatest care is necessary in keeping the soil as dry as can be done without endangering its existence.

These remarks are prompted by the numbers of plant stoves to be met with that, when severe weather comes, cannot possibly be kept at a temperature within many degrees of what the plants require—in many cases completely upsetting the whole previous care and attention, either destroying them outright, or so far injuring them that the growing season is half over before those recover that want, even when at rest, a high temperature. Where such a state of matters exists something may be done by lowering and removing such plants as far as possible from the roof and sides of the house, where it is naturally much colder on a severe frosty night than nearer to the pipes; and much as I advocate every ray of light possible for the plants, even when at rest, it is better to deprive them in some measure of this most essential element during severe weather, than run the risk of greater injury. It appears somewhat strange after the much lauded improvements that have taken place in perfecting the heating of horticultural erections within the last quarter of a century, that such should yet be the condition in which many gardeners are placed, and this often where the vaunted one-boiler system has been introduced to heat a village of glass, and yet where there is not a single house that can be kept through a hard winter at a temperature within a dozen degrees of what are the requirements of plants from hot countries. However powerful and well arranged the heating apparatus of a place may be, such houses as are devoted to *Winter Cucumbers, Fruiting Pines*, and hot-region stove plants should always have a separate boiler with plenty of piping; it is immeasurably more economical, to say nothing of the results being much more satisfactory. Potting soils of all descriptions are much the best fully exposed to the open air until sufficiently long before they are required, to give time for drying to the condition necessary for use. To secure this dryness sufficient peat, loam, and sand for potting the earliest started stove plants after the advent of the New Year, should at once be got cover before they get too much saturated with under the winter rains; place them in an open shed where, if necessary, they can be turned, so as to receive the full effects of the wind to dry them. Take advantage of wet days to get all empty pots washed clean and put away for use, as also the making and painting of a stock of plant-sticks, in different lengths, for the whole season's use. If this work is not done in the winter, it rarely happens that there is time in the more busy season of summer. The result is, that these indispensable supports are too often used without paint, which completely destroys the appearance of the plants.

A sufficient stock of labels of various sizes should also be prepared, large enough to admit of the name of all plants being written in full. In private establishments numbers should never be used; an absence of the name to a plant destroys half the interest attached to it, so far as regards those who take an interest in gardening matters, yet who have not an intimate acquaintance with them. Where *Sphagnum* is required for potting purposes—and there are many stove subjects whose natural habitat is in the swamps of hot countries, such as *Alocasias, Anthuriums, Nepenthes*, and similar things, that cannot be well grown without a considerable admixture of this moss in the soil—a sufficient stock should at once be laid in before severe weather. In long and protracted frosts it is sometimes killed, so as to make it difficult to procure. We are just now going through the season when fogs generally are experienced. Where the stereotyped injunctions are followed of giving air on all favourable occasions, it is not uncommonly concluded that it ought to be given on all days when the temperature is not too low by the occurrence of frost; and where such is acted upon serious mischief will occur. The admission of air laden with dense fog is as destructive of the flowers of most things in bloom as if they were under the influence of poisonous gases. During the fog that occurred in some parts of the kingdom twelve months ago scarcely a flower was left unscathed. If its effects were so unmistakable on the flowers, which are only in some degree more tender than the leaves of the plants that produce them, its influence on the plants must be pernicious, even when out of bloom, although they may not show it to such an extent at the time. When dense fogs occur the internal atmosphere of plant stoves should be kept drier, and the temperature should not be raised so high as to require the admission of air. Plants of every description, even if hardy, that are ultimately intended to be forced, should at once be got inside out of the way of frost, as the reverse of any advantage is risked by subjecting them to be frozen: this in particular applies to anything that has been potted out of the open borders, such as flowering shrubs in the shape of *Deutzias, Kalmias, Rhododendrons, Ghent Azaleas, Prunus*, &c. The roots of such plants in particular suffer if the soil with which they are surrounded is allowed to become frozen; a pit where sufficient heat can be turned on to exclude frost, is the most suitable place for them; and from this they can be removed as required to be brought on for flowering. *T. Baines.*

HARDY FRUIT GARDEN.

The pruning and nailing or tying of *Pear, Plum*, and *Cherry Trees*, trained to walls or espaliers, should now be proceeded with whenever the weather will permit, in order to reduce as much as possible the amount of this description of work during the busy season of spring. The pruning of the *Apricot* and the *Peach* should, however, be deferred until spring, or until all danger of very severe frost is past; but if not already done, the branches of such trees should now be unnailed, and should be merely secured loosely to the wall until the time arrives when they may with safety be pruned and nailed. The *Apple* and other orchard trees should now have whatever attention they may require in the way of pruning and thinning out superfluous branches and spurs, removing dead wood, &c. *Moss* or *Lichen* may also be removed from the stems and branches of large or aged trees by dressing the same with strong lime-wash, which gives, however, a somewhat unsightly aspect to the trees, but the effect of which may be very considerably modified by adding to the wash a portion of soot. *Raspberry* canes may now be thinned out to not exceeding four or five to each stool, selecting the strongest and best placed. They should then be tied to their stakes, and cut to the desired length, or this latter operation may be deferred until spring, where danger from severe frost may no longer be apprehended.

The *Raspberry*, one of the most useful of cultivated fruits, is variously treated. Most growers, however, plant it in deeply trenched and highly manured soil in lines some 6 feet apart and 4 feet from plant to plant, securing the bearing canes to stout stakes some 5 feet in height, and cutting them back so as to correspond with the same; while others tie the selected canes together, dispensing with stakes. Some, again, tie the ends of one set of canes to that of the next plant or stool in the same line, so that each two plants or stools form an arch of bearing canes; and other growers, after thinning out and shortening the selected canes, leave them perfectly loose, with the exception of surrounding the plantations with a light rail or strong wire to support the outside canes. All the above systems may, under certain circumstances, have their respective advantages, and good crops of this delicious fruit may be produced by all. As soon as the pruning, &c., has been completed the ground should be manured and dug or forked over.

The same may be done with *Currants* of all sorts, as well as the *Gooseberry*, although a dread of the ravages of the bullfinch induces many cultivators to defer this operation, as far as the latter fruit is concerned, until spring, knowing well that a few buds can be better spared while the bushes remain unpruned than after that operation has been performed. In all cases where pruning is finished the soil should be well manured if necessary and immediately dug, but before doing this it is advisable to give a good dusting of quick or gas lime to the soil under *Gooseberry* bushes, with a view to check or prevent the attacks of caterpillars. And in addition to this another similar dressing should be given about the time the leaves are beginning to unfold. If wall-fruit trees have already been unnailed, a considerable quantity of nails and shreds will be set at liberty, and this will furnish profitable employment during inclement weather. All nails should be pointed, so as to be again ready for use, while shreds which have been in use for the last twelve months may generally be rejected, retaining only those which may have been used in securing the young shoots during the summer. But in case they may in any instance contain the ova of injurious insects, it is advisable to subject them to ten or more minutes' boiling in water. *P. Grieve, Culford, Bury St. Edmunds.*

FRUIT HOUSES.

THE ORCHARD HOUSE.—This structure will require but little attention at the present time. The ventilators must, however, be opened during the early part of fine days, and should be closed somewhat early in the afternoons; but if the weather should be very cold or windy they may remain closed by day as well as by night. All root-pruning of planted-out trees should have been performed before this time, and the soil around such trees should be well mulched with littery manure, in order to keep it moist, as well as to exclude severe frost. Trees in pots will already have been surface-dressed, as has been formerly directed, and the shoots and branches should be dressed or painted with a solution of Gishurst Compound, of the strength of about 8 oz. to a gallon of water, or with strong tobacco-water thickened to the consistence of paint by equal parts of flowers of sulphur, gas-lime and soot, put on with a painter's brush, avoiding injury to the spurs and buds during the application of the composition. The pots should afterwards be placed tolerably close together in the central part of the house, and the spaces between them should be filled up with soft rye-straw, hay, or dry litter of any kind, which should also cover the surface of the pots to the depth of 6 or more inches; and this will have the effect of keeping the soil and the roots of the trees in a healthy, moist, and equable condition, and will also prevent the roots from being injured by very severe frost should this occur. With the view of rendering this structure somewhat enjoyable, even during the depth of winter, *Chrysanthemums* and a few other late-flowering or hardy ornamental-foliaged plants in pots, might be effectively grouped in the spaces set at liberty by the closer-placed fruit trees. Such plants should be kept in their pots, and plunged during summer in some convenient situation in the open air until again required for the winter embellishment of the orchard-house. Plants suited to this purpose might consist of neatly-formed specimens of the common *Laurustinus* or *Viburnum Tinus, Variegated Hollies, Aucubas, Daphnes*, some of the variegated forms of Japanese *Euonymus, Retinosporas*, and other ornamental Conifers; together with *Chimonanthus fragrans, Jasminum nudiflorum*, such berry-bearing plants as the *Cratægus Pyracantha, Cotoneasters, Skimmia japonica*, &c., and large pans or pots of the *Christmas Rose* in its several varieties, *Primroses, Violets, Aubrietias, Forget-me-Nots*, and *Snowdrops*, &c. *P. Grieve, Culford, Bury St. Edmunds.*

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

25. FORCING THE COMMON WHITE LILY AND THE DOUBLE WHITE NARCISSUS.—Can any of your readers inform me if these plants can be made available for forcing, and the mode which should be adopted to ensure success by potting up now? *Narcissus.*

26. CLEMATIS.—How, and at what time, should I strike Clematis Jackmanni, also Ligustrum japonicum? *J. T. S.*

27. THERMOMETERS.—*J. F.*, who has several thermometers, some from one, others from another well known firm of opticians, wishes to know why, when those of one maker are at freezing point, the others register 4° above it. Which are correct?

Answers to Correspondents.

AMERICAN BLIGHT: *A. B.* Paraffin oil is, we believe, a safe and effectual remedy; so is machine oil. We have known the latter used with complete success.

CARPET-BEDDING: *Mrs. Ameott.* This name is applied to beds formed of dwarf coloured-leaved plants arranged in paterns, such as Alternantheras, Iresines, Pyrethrums, &c. See an article in the preceding pages.

CHRYSANTHEMUM: *H. Cannell.* Your perpetuated sport from Golden Cedo Nulli, of a fine bronze crimson, partakes of all the good qualities of that well known variety, and adds a striking and distinctive colour to the already numerous variations which have sprung from it. The smaller sport of the same was too far gone when it reached us. The former, at least, should make a useful variety for general cultivation.

DIGGING SNOW INTO THE GROUND: *J. C. N.* There would be no advantage, but very great disadvantage, in doing what you suggest.

DOUBLE CINERARIA: *B. M.* The samples sent are certainly not double; perhaps, as they come more fully into bloom they may become so. That there are double varieties there can be no doubt whatever. Probably the double form is not yet fixed.

HOLLYHOCK DISEASE: *P. R.* Apply Gishurst Compound and sulphur.

LIVERPOOL HORTICULTURAL SHOW: I find you have stated in your paper of November 28 that Mr. Norrie had the 1st prize for two bunches of Black Alicante Grapes. Mr. Norrie did not compete in the same class. The prize was awarded to me. *Samuel Wright, Gr. to John Williamson, Esq., Claughton Grange, Birkenhead.*

NAMES OF FRUITS: *Charles Dillon. Apples:* 4, Rymer; 3, King of the Pippins; 7, Mère de Ménage; 10, 13, Ribston Pippin. *Pears:* 11, Passe Colmar; 12, 14, Beurré d'Aremberg. *M. and K.* Your Pear is, we believe, Nouveau Poiteau.

NAMES OF PLANTS: *G. P.* 1, Asplenium fontanum; 2, Selaginella serpens; 3, Selaginella cæsia.—*M. J.* Asplenium flabellifolium; the other appears to be Pleroma heteromallum.—*Mrs. C. M.* Garrya elliptica, Erica vagans.—*S. H., Worcester.* Erica vagans.—*Henricus.* Brassavola venosa.—*W. T. C.* 1, Heeria rosea; 2, Lygodium japonicum; 3, Pellæa hastata; 4, Selaginella Martensii (?); 5, Nephrolepis exaltata; 6, send a better specimen, with flowers.—*L. H. G.* Jatropha australis is a garden name not hitherto identified with any described species; it is quoted in De Candolle's *Prodromus*, at p. 1103. Will you kindly send a specimen for herbarium.—*Will W. Young*, whose plant we named ast week, please to send another flower of the Oncidium, with leaf and pseudo bulb, if possible, or to describe the habit of it. It does

not quite agree with anything we have in the herbarium.—*A. Falconer.* Plumieria alba.

PATENTING A MACHINE: *J. Sinclair.* Put yourself in communication with any respectable patent agent. It is a costly business.

PLANTING EVERGREENS: *C. A.* See an article at p. 721. Very few Ferns like chalk. You had better, therefore, make up a good surfacing to your chalk bank with roots, brick burrs, or masses of sandstone, filling in with loam,—at least in the hollows which receive the plants. Work up the stones or roots so as to support a good bed of earth. You must also provide a good supply of water for use in dry weather, and if the spot is at all exposed, build up your materials so as to furnish a shady side for such of the Ferns as require shade.

POTATOS: *C. Osman* writes that Messrs. Sutton & Sons stipulate in our advertising columns that for their Potato prizes to be competed for at South Kensington next November, a dish must consist of 18 tubers, whereas in the Royal Horticultural Society's schedule, p. 22, it is stated, "12 specimens to comprise a dish." Which is right we cannot say. Our correspondent should call the attention of Messrs. Sutton and the Secretary of the Society to the discrepancy.

RED SPIDER: *E. S. D.* The best mode of exterminating red spider infesting a conservatory having a glass door communicating with a drawing-room, would be to dip the plants in a solution of Abyssinian mixture, Fowler's Insecticide, or some of the many insect-killing compositions now in use.

SUGGESTIONS TO MESSRS. SUTTON & SONS: *N. K.* should send his suggestions to Messrs. Sutton & Sons direct. There are already plenty of prizes offered for the subjects which *N. K.* mentions.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers who send Post Office Orders, to be good enough to write to the Publisher at the same time, stating that they have done so.

CATALOGUES RECEIVED. — James Cocker & Sons (Sunnypark and Froghall Nurseries, Aberdeen), Descriptive Catalogue of Forest Trees, Ornamental Trees, Evergreen and Deciduous Shrubs, Coniferæ, Roses, Fruit Trees, Vines, &c. — James Holder (Crown Nursery, Reading), Retail Catalogue of New and Choice Pelargoniums.—Little & Ballantyne (Carlisle), Catalogue of Forest Trees, Deciduous and Evergreen Shrubs, &c.—Robertson & Galloway (157, Ingram Street, Glasgow), Catalogue of Roses, Gladioli, and General Nursery Stock.—James Dickson & Sons (108, Eastgate Street, Chester), Catalogue of Forest Trees, Shrubs, Evergreens, &c.—Thomas Kennedy & Co. (Dumfries), Catalogue of Forest, Fruit, and Ornamental Trees, &c.—Dippe Brothers (Quedlinburgh, Prussia), Wholesale Catalogue of Flower Seeds.—Ant. Roozen & Son (Overveen, near Haarlem, Holland), Autumn List of New Gladioli; also Autumn List of Bulbous Begonias.

COMMUNICATIONS RECEIVED.—W. T. C.—S. H., Worcester.—Mrs. Marshall.—Nemo.—J. F.—W. M.—E. S. D.—C P.—W. T. P.—A. M. C. J. C.—W. F. B.—J. L.—A Young Amateur.—W. B. H.—J. R. J.—A. D.—G. J. (next week).

BIRTH—November 23, at No. 3, St. Ann's Place, Streatham Hill, the wife of N. N. SHERWOOD of a son.

DIED—November 28, DANIEL NASH (of No. 60, Strand), at his residence, No. 4, York Gate, Regent's Park, aged 67. Deeply regretted.

Markets.

COVENT GARDEN, *December* 3.

A very quiet week, and very little business doing. The supply of home-grown fruit is still ample for the season, and importations are well kept up. The latest arrivals of St. Michael Pines are in fine condition, and the largest number yet received in a consignment, sold under the hammer, realised from 10*s.* to 15*s.* each, and weighing 2¼ lb. to 5 lb. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Melons, each ..	.. 1 0– 3 0
Filberts, per lb.	.. 1 0– 1 6	Nuts, Cob, p. lb.	.. 1 0– 1 6
Grapes, English, p. lb.	2 0– 6 0	Oranges, p. 100	.. 8 0–12 0
— Muscats, do.	.. 4 0– 8 0	Pears, p. doz.	.. 2 0– 3 6
Lemons, per 100	.. 8 0–12 0	Pine-apples, p lb.	.. 3 0– 6 0
Medlars, per doz.	.. 0 6– 1 0	Walnuts, p. bush.	..16 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Beet, per doz.	.. 1 0– 2 0	Mushrooms, per pott.	1 0– 2 6
Broccoli, p. bundle	.. 0 9– 1 6	Onions, young, bun.	0 4– 0 6
Brus. Sprts., p. bush.	5 0– ..	Parsley, per bunch	.. 0 4– 0 6
Cabbages, per doz.	.. 1 0– 2 0	Parsnips, p. doz.	.. 0 9– 1 0
Carrots, p. bundle	.. 0 4– 0 6	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	— black, Turnip, do.	.. – 0 6
Celery, per bundle	. 1 6– 2 0	Seakale, per bundle	1 6– 2 6
Cucumbers, each	.. 2 0– 2 6	Shallots, per lb.	.. 0 3– ..
Endive, per doz.	.. 1 0– 2 0	Salsify, per bundle	.. 1 6– ..
Herbs, per bunch	.. 0 2– 0 4	Spinach, per bush.	.. 2 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Tomatos, per doz.	.. 1 0– 3 0
Leeks, per bunch	.. 0 2– 0 4	Turnips, per bundle	. 0 3– 0 4
Lettuces, per doz.	.. 1 6– ..		

Potatos:—Round, 60*s.* to 90*s.* per ton; Kidneys, 90*s.* to 120*s.* per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Azaleas, p. 12 sprays	1 6– 3 0	Mignonette, 12 bun.	4 0– 6 0
Camellias, 12 blooms	4 0–12 0	Pelargoniums, 12 spr.	1 0– 2 0
Carnations, 12 blooms	2 0– 4 0	— Zonal, 12 spr.	0 6– 1 0
Chrysanthem., 12 bl.	0 3– 0 6	Roman Hyacinths, per 12 spikes	.. 2 0– 4 0
— 12 bunches	.. 6 0–12 0	Roses, indoor, p. doz.	2 0– 6 0
Cyclamen, 12 blooms	0 3– 0 6	— Outdoor, do.	.. 1 0– 1 6
Epiphyllums, 12 bl.	1 0– 2 0	Stephanotis, 12 sprays	9 0–15 0
Eucharis, per doz.	.. 6 0– 9 0	Tuberoses, p. doz.	.. 1 0– 2 0
French Lilac, p. bun.	10 0–15 0	Violets, per 12 bun.	1 6– 3 0
Heliotropes, 12 sprays	0 6– ..		

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Begonias, per doz.	.. 6 0–12 0	Fuchsia, per dozen	4 0–12 0
Bouvardias do.	.. 9 0–18 0	Heaths, in var., do.	12 0–30 0
Coleus, do.	.. 3 0– 9 0	Mignonette, do.	.. 4 0– 6 0
Chrysanthemums, do.	4 0– 9 0	Myrtles .. do.	3 0– 9 0
Cyperus, do.	.. 6 0–12 0	Pelargoniums, dble., per doz.	.. 6 0–12 0
Dracæna terminalis	12 0–30 0	— Scarlet, do.	.. 3 0– 9 0
— viridis, per doz.	12 0–24 0	Primula sinensis, do.	4 0– 8 0
Epiphyllums, each	.. 1 6– 3 6	Solanums, do.	.. 6 0–18 0
Ficus elastica	.. 1 6– 7 6		

SEEDS.

LONDON: *Dec.* 3.—More inquiry for Red Clover seed is now seen on our market, and prices of all descriptions are, in consequence, exceedingly firm. Fine bold purple samples, especially those of French growth, are held for more money. Our advices from New York report the Clover trade there as characterised by great steadiness. Of home-grown seed very little is yet offering. In Alsike a fair business has lately been passing at enhanced rates. Trefoils and White Clovers are still neglected. Higher quotations for Foreign Italian reach us from France. In both Mustard and Rape seed transactions have been too limited to affect currencies. Canary seed has not yet received any check in its remarkable run upwards; prices being now so exorbitant, people buy only the smallest quantities possible. Hemp seed continues at a moderate figure. The colder weather has improved the demand for boiling Peas. The low rates now ruling for feeding Linseed have caused a good demand for the article. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, London, E.C.*

CORN.

At Mark Lane on Monday English Wheat sold at the full prices of the previous week. In foreign there was a fair demand at 1*s.* per quarter more for red descriptions. Flour of good quality sold readily at full rates, but secondary sorts were heavy. Barley, both malting and grinding, brought good prices. Maize was 1*s.* per quarter dearer, Oats 3*d.* per quarter cheaper. Beans showed an advance of 1*s.* on the week, and Peas tended upward in value.—On Wednesday the market opened with a firm tone for all kinds of grain, owing to the frosty weather. The supplies of home-grown grain were light; of foreign Wheat and Barley fair; and of Oats rather larger; but all articles were well sustained in value. The *Gazette* average prices show a small advance. The average price of Barley has risen 5*d.* per quarter.

CATTLE.

The supplies of English stock on Monday were light of beasts and moderate of sheep. The Tonning season closed with a good show of stock. The change in the weather and the arrivals and increased supplies in the dead meat market checked the trade, and in every department the tendency of prices was against the producer. Among the British fed cattle there were some very prime Scots, which realised 6*s.* 6*d.* The prices for calves are difficult to quote, and for pigs there was little inquiry. Quotations:—Beasts, 4*s.* to 4*s.* 8*d.*, and 5*s.* 10*d.* to 6*s.* 4*d.*; sheep, 5*s.* to 5*s.* 4*d.*, and 5*s.* 6*d.* to 6*s.* 2*d.*; calves, 4*s.* 4*d.* to 4*s.* 8*d.*, and 5*s.* 2*d.* to 5*s.* 6*d.*; pigs, 4*s.* 4*d.* to 4*s.* 8*d.*, and 4*s.* 10*d.* to 5*s.* 2*d.*—Trade in beasts on Thursday was excessively dull, and prices remained as on Monday. Of sheep there were more than sufficient for the demand, but there was no reduction in price for the few choicest qualities on offer. Calves were plentiful, but trade was bad for them. For milch cows trade is reported as very dull indeed.

HAY.

The wet weather checked demand at Whitechapel, and trade was dull, but without appreciable change in prices. Quotations:—Clover, best, 115*s.* to 120*s.*; inferior, 70*s.* to 90*s.*; hay, best, 105*s.* to 110*s.*; inferior, 60*s.* to 70*s.*; and straw, 33*s.* to 40*s.* per load. Cumberland Market quotations:—Superior meadow hay, 108*s.* to 116*s.*; inferior, 90*s.* to 96*s.*: superior Clover, 120*s.* to 130*s.*; inferior, 100*s.* to 112*s.*; and straw, 38*s.* to 43*s.* per load.

POTATOS.

At the Borough and Spitalfields markets the arrivals of Potatos have been on a moderate scale and trade steady, at the following currency:—Regents, 75*s.* to 100*s.*; Victorias, 95*s.* to 110*s.*; flukes, 105*s.* to 130*s.*; rocks, 60*s.* to 75*s.* per ton.—The imports of foreign Potatos into London last week amounted to 20,060 bags from Antwerp, 1301 tons and 1711 bags from Dunkirk, 113 bags from Rotterdam, 35 from Dordt, 109 from Calais, 200 from Brussels, 274 tons from St. Malo, 9 bags from Bremen, 150 tons from Le Vivien, 7 bags from Hamburg, and 18 barrels from New York.

COALS.

Only a moderate demand prevailed on Monday, the weather checking the market; on Wednesday, however, house coals recovered 1*s.* per ton—from the same influence. Quotations:—Bebside West Hartley, 22*s.* 3*d.*; Holywell Main, 22*s.*; Walls End—Hartlepool, 27*s.* 6*d.*; Kelloe, 26*s.* 6*d.*; East Hartlepool, 28*s.* 3d.

Twelve Camellias, budded, 21s.

JOHN H. LEY, Royal Nursery, Croydon, can now supply beautiful young bushy plants, 12 to 18 inches high, full of buds, and choicest distinct sorts, at 21*s.*, 30*s.*, and 42*s.* per dozen. Package and delivery to any Railway in London, for cash with order included.

N.B.—A few fine half-specimens, in 8-inch pots, finest sorts, and full of buds, 84*s.* per dozen, 10*s.* 6*d.* each.

THORN QUICKS (2-yr.) by the million—6 to 12 inches, stout, £10 10*s.* per 100,000. Also a large stock of the following trees:—

LARCH FIR, 3-yr. transplanted, splendid stuff, 1½ to 2½ ft.
,, 2-yr. transplanted, splendid stuff, 1 to 1½ foot.
SCOTCH, 3-yr. transplanted, splendid stuff, true native var., 1 to 1½ foot.
SPRUCE, 3-yr. transplanted, splendid stuff, 1½ to 2 feet.
OAK, 3-yr. transplanted, splendid stuff, 2 to 3 feet.
PRIVET, POPLAR, BEECH, ELM, ASH, BIRCH Common RHODODENDRONS, &c.
HAWS by the bushel, hundredweight, or ton.

Samples and Prices of the above on application. All are fine healthy, and well-rooted.

GEO. R. DAVIDSON, Nurseryman, Newry, Ireland.

EVERGREEN SHRUBS for WINTER BEDDING.

	Per doz.—s. d.		Per doz.—s. d.
Aucuba japonica, 12 to 15 inches	.. .. 8 0	Laurel, rotundifolia, 12 to 15 inches	.. .. 6 0
Biota elegantissima, 9 to 10 inches	.. .. 12 0	Mahonia Aquifolia, 12 to 15 inches	.. .. 2 0
Double Gorse, 12 to 15 in.	6 0	Menziesia, dwarf purple	6 0
Erica carnea, dwarf	.. 6 0	,, ,, white	.. .. 6 0
,, multiflora rubra	.. 6 0	Pernettya angustifolia, dwarf	.. .. .. 8 0
,, vagans rubra	.. 6 0	Tree Ivy, 12 to 15 inches	10 0
Golden Yews, 12 to 15 in.	12 0	,, ,, Rœgneriana, 12 to 15 inches	12 0
,, Vinca, dwarf	.. 3 0	,, ,, yellow berried, 9 to 12 inches	12 0
Hartogia capensis, 12 to 15 inches	.. .. 8 0	,, ,, silver striped, new, 9 to 10 in.	12 0
Japan Privet, 12 to 15 in.	6 0	,, tricolor, 9 to 10 in.	12 0
,, Yews, 12 to 15 in.	9 0	Yucca filamentosa, 12 to 15 inches	.. 12 0
Laurel, willow-leaved, 12 to 15 inches	6 0	,, gloriosa pendula, 12 to 15 inches	.. .. 12 0
,, Portugal, 12 to 15 inches	.. .. .. 4 0		
Laurel, Caucasian, 12 to 15 inches	.. .. 4 0		

RICHARD SMITH, Nurseryman, Worcester.

ROSES.

Twelve Acres of Standard and Dwarf Roses, all clean, strong, healthy, fully ripened and well rooted.
Eighty thousand choicest Tea-scented and Noisette Roses, in pots for Conservatories, walls, and sheltered situations out-of-doors.
Extra strong Hybrid Perpetual Roses of best sorts, in pots, for forcing.
Climbing Roses in great variety, for quickly covering Rockwork, Pillars, Trellises, &c.
Descriptive Price LIST on application.
R. S. will be happy to give a special quotation for large quantities.
RICHARD SMITH, Nurseryman, Worcester.

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.

JACKMAN'S LIST of FRUIT TREES.

JACKMAN'S LIST of ROSES.

JACKMAN'S LIST of AMERICAN PLANTS.

JACKMAN'S LIST of CONIFERS.

JACKMAN'S LIST of HARDY SHRUBS.

JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.

JACKMAN'S LIST of CLEMATIS (Special Catalogue).

JACKMAN'S LIST of TRANSPLANTED FOREST TREES.

JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.

GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality:—

MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 ft.
CHESTNUTS, Common Horse and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.

Woking Nursery, Surrey, S.W.

LANDSCAPE GARDENING. — Parks and Pleasure Grounds laid out, Croquet Lawns and Cricket Grounds made, Ferneries built. Personal superintendence given to all works. Plans designed, and Estimates for Contracts given.

G. B. SIMPSON, Landscape Gardener, Nightingale Lane, Clapham, S.E.

EVERGREEN HEDGES.
AMERICAN ARBOR-VITÆ, 6 to 7 feet, 60s. per 100.
SIBERIAN ARBOR-VITÆ, 5 to 6 feet, 100s. per 100.
CHINESE JUNIPER, 5 to 6 feet, 150s. per 100.
COLCHIC LAUREL, 6 to 7 feet, 100s. per 100.
ENGLISH YEW, 3 to 3½ feet, 120s. per 100.
THUJA LOBBII, 4 to 5 feet, 90s. per 100.
RICHARD SMITH, Nurseryman, Worcester.

Australian Seeds and Plants.

SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.
SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

JOSEPH BAUMANN, NURSERYMAN, Ghent, Belgium, begs to offer 10,000 HARDY RHODODENDRONS, best English varieties, named, with flower-buds.
100 RHODODENDRONS, at £7, £8, and £12.
100 ,, Joseph Whitworth, with flower-buds, £10, £12, and £16.
100 ,, Prince Camille de Rohan, with flower-buds, £7, £8, and £12.
100 ,, Alexandre Adée, with flower-buds, £12 and £16.
100 ,, Vesuvius, with flower-buds, £8 and £12.
1 ,, Président Joseph Napoléon Baumann (J. Baumann), with flower-buds, £1.
1 ,, Président Joseph Napoléon Baumann (L. Longcrock), without flower-buds, £1.
ARAUCARIA, Joseph Napoléon Baumann, £4 to £40.
,, Charles Napoléon Baumann, £2 to £6.
,, Baron Tkint de Roodenbeke, £2 to £12.
,, Roi Léopold II., £2 to £8.
,, Empereur Napoléon IV., for next year.
PÆONIA MOUTON, Gloria Belgarum, £1.
,, Souvenir de Gand, £1.
100 CAMELLIAS, best sorts, without flower-buds, £5 to £8.
100 ,, alba plena, without flower-buds, £5 to £8.
100 AZALEA INDICA, best sorts, without flower-buds, £3.
100 METROSIDEROS SEMPERFLORENS, with flower-buds, £4.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

GISHURST COMPOUND. — Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 3s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

CANTHARIKOPHO.
COCKROACH AND BEETLE POISON.
Destroys Rats and Mice.
Sold everywhere in Tin Boxes. By post, 1s. 3d. and 1s. 10d. each.

TRADE MARK.

F. STEVENSON'S ABYSSINIAN MIXTURE, Warranted to Destroy Mealy Bug, and all Insects infesting Plants. Unequalled as a Winter Dressing for Vines and Fruit Trees.
Sold by all Nurserymen and Seed Merchants, in Bottles, 1s. 6d., 3s., 4s. 6d. & 5s. 6d. each.
Inventor and Sole Manufacturer,
F. STEVENSON,
STAMFORD ST., ALTRINCHAM, CHESHIRE.
Entered at Stationers' Hall. (Late of Lark Hill, Timperley.)

MILDEW
May be entirely prevented as well as cured by
EWING'S INFALLIBLE COMPOSITION.
Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1s. 6d. p. bottle, with full directions for use.

TEN THOUSAND ARCHANGEL BEST MATS, and 10,000 ST. PETERSBURG MATS, just arrived. Prices, &c., on application to
WM. PETERS, 44, Tenter Street South, Goodman's Fields, near Minories, E.

Protection from Frost.

TRELOAR AND SONS' COCOA-NUT PALM-LEAF GARDEN MATS will keep out many degrees of frost. Price 30s. per dozen.
TRELOAR AND SONS, 69, Ludgate Hill, London, E.C.

Russia Mat Merchants.

MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., have a large Stock of Archangel, Heavy and Close-woven ST. PETERSBURG MATS, and all kinds of DUNNAGE MATS, RAFIA FIBRE, &c.
N.B.—The best Heavy St. Petersburg Mats are most suitable for covering purposes.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of Archangel and Petersburg, for Covering and Packing, Second sized Archangel, 100s.; Petersburg, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; packing Mats, 20s., 30s., and 35s. per 100; and every other description of Mats at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT. — Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

Labels—Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3s. 6d. per 1000, or 30s. per 10,000; if eyeleted, 4s. per 1000. Vellum Cartridge, 4 inches long, 3s. per 1000 for 10,000. Sample Labels sent on receipt of Postage Stamp. Orders delivered free in London.
JOHN FISHER AND CO., Label Works, Boston.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1d. for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS's Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,
THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

The Royal Pottery, Weston-super-Mare.

UNDER ROYAL PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7d. each.
JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.
For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.
For Particulars, and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of
CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton, and the late Professor Lindley, &c., &c.
MADE OF PREPARED HAIR AND WOOL.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.
PROTECTION FROM COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1s. 4d. per yard.
"FRIGI DOMO" CANVAS.

Two yards wide	1s. 10d. per yard run.
Three yards wide	3s. per yard.
Four yards wide	3s. 10d. per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.
NOTICE.—REMOVED from 3, CANNON STREET, CITY.

J. G. SMEATON & CO.,
Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.
HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of Designs.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

SEVEN INTERNATIONAL MEDALS AWARDED TO
JAMES GIBBS AND COMPANY,
SOLE MANUFACTURERS OF THE
PATENT AMMONIA-FIXED GUANO.
The Cheapest and Best Manure in use. Consumers are warned that none is genuine unless the Bags bear the TRADE MARK, and are secured with a Leaden Seal.
ALSO BONE AND SPECIAL MANURES,
OF THE BEST QUALITY, AND IN THE HIGHEST CONDITION.

PARTICULARS OF
JAMES GIBBS AND COMPANY,
Works—Victoria Docks, London, E., and Cattedown, Plymouth. Offices—16, Mark Lane, London, E.C.

Conservatory erected at Mr. Ley's Nursery, Croydon.

LASCELLES' PATENT CURVED STRUCTURES

Are constructed entirely of Wood, Bent on his Patent Principle, whereby each Bar forms a complete truss. They are strong, light, cheap and durable.

DRAWINGS AND ESTIMATES, WITHOUT CHARGE, ON APPLICATION TO THE PATENTEE,

W. H. LASCELLES, 121, BUNHILL ROW, FINSBURY, LONDON, E.C.

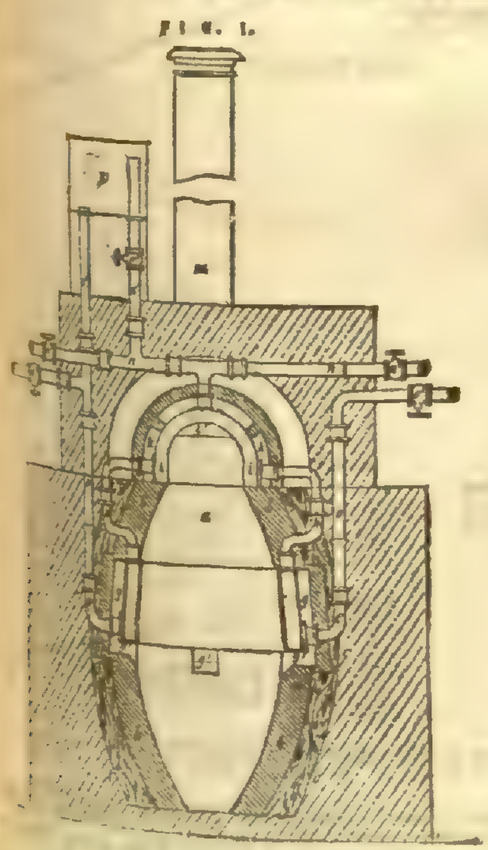
THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company, having purchased from the Dromore Patent Heating Company Mr. Cowan's valuable Patents for the United Kingdom, is now prepared to undertake the Erection of Apparatus on that System in all parts of the Country.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

THE SUCCESS OF EVERY APPARATUS ERECTED BY THE COMPANY IS GUARANTEED.



Full Particulars of this System, Testimonials, and Opinions of the Press, can be seen in the Company's Illustrated Pamphlet, which can be obtained, post free, on application.

The Company has an Efficient Staff of Engineers, and sends at any time to inspect places where the idea is entertained of Erecting the Apparatus.

The System has lately been adopted at Hazelwood, Herts, the seat of Lord Rokeby; Stackpole Court, the seat of the Earl of Cawdor; Ripley Castle, Yorkshire, the seat of Sir H. D. Inglby, Bart.; Langleybury House, Herts, the seat of Jones Lloyds, Esq.; and at many other places. Also Mr. E. Bennett, of Hatfield, says:—

"I now most cordially beg to congratulate you on the glorious success of your Heating Apparatus (now in use at Hatfield), which is working most satisfactorily, and which has exceeded my expectations. It is a decided success, and more cannot be said in its favour. Should it continue to work in the manner it now does, it will prove a great boon here, and start a new era in the heating of horticultural buildings generally. By your Compensating System we have for every barrow of coals thrown into the kiln some substantial return; by the old system the returns were ashes, and the trouble of clearing them away. I find our chalk is of an inferior quality to some I have seen in the neighbourhood, but we have plenty of heat."

The Company also undertakes the Erection of all other kinds of Heating Apparatus, and of Horticultural Buildings.

PLANS AND ESTIMATES FURNISHED ON APPLICATION.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

Office: 4, LOTHBURY, BANK, LONDON, E.C.

SPECIAL NOTICE.

F. K. BELL'S
IMPERISHABLE METAL LABELS
FOR
HORTICULTURE, WINE BINS, ARBORICULTURE AND MACHINERY.

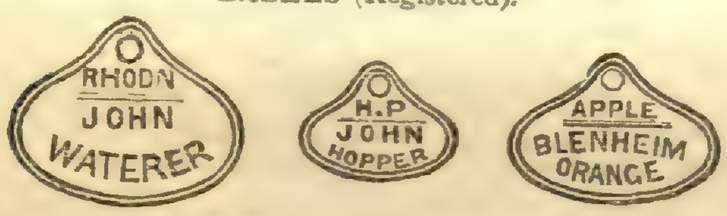
THE ORIGINAL MANUFACTORY
of these Labels (which have given such general satisfaction throughout the United Kingdom) has been removed ENTIRELY from Stratford-on-Avon to

EASTBOURNE, SUSSEX,
where all Orders should be addressed, and shall receive prompt attention. Catalogues and samples on application.

F. K. BELL,
LABEL FACTORY, EASTBOURNE.

By Appointment to, and Under the Distinguished PATRONAGE of, HER MAJESTY.

J. SMITH'S IMPROVED METALLIC
LABELS (Registered).



The above Labels are made of a white metal, with RAISED BLACK-FACED LETTERS, and are of various shapes and sizes.
For illustration of the different shapes see the *Gardeners' Chronicle*, Nov. 28.
Samples and Price List free.
Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

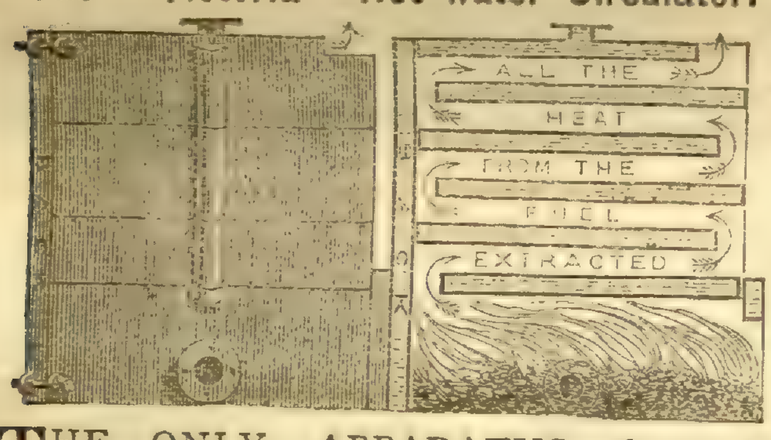
The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	3*s.* 4½*d.*
3-inch Pipe, per yard	2*s.* 8½*d.*
2-inch Pipe, per yard	1*s.* 8*d.*

Connections at proportionate prices.
Illustrated Price List free on application to
T. G. MESSENGER, Hot-water Engineer, Loughborough.

The "Victoria" Hot-water Circulator.



THE ONLY APPARATUS thoroughly adapted for its purpose. No other possesses half the merits and advantages. Warranted for ten years. Also guaranteed to far surpass and give much more satisfaction than the common Boilers. A break-down never yet known. See Illustrated Prospectus and Testimonials from most eminent men, sent post free.

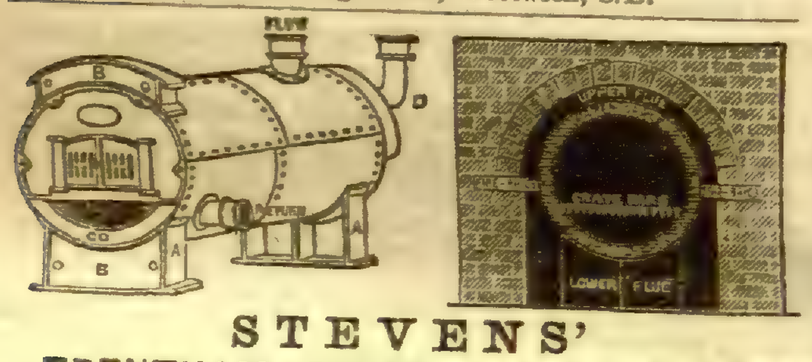
Patronised by H.R.H. the Prince of Wales.

Hill Side, Clapham Park, S.E.,
Messrs. CANNELL & Co. November 11, 1874.

GENTLEMEN,—After a year's trial, I have much pleasure to inform you that your large-size Hot-Water Circulator has given me the fullest satisfaction; and, although I have not yet completed the three-quarters of a mile of piping, I feel sure that it will accomplish all that you have said respecting it. I may also add that I find the consumption of fuel much less than you prepared me for. You are quite at liberty to make use of this letter as a recommendation.

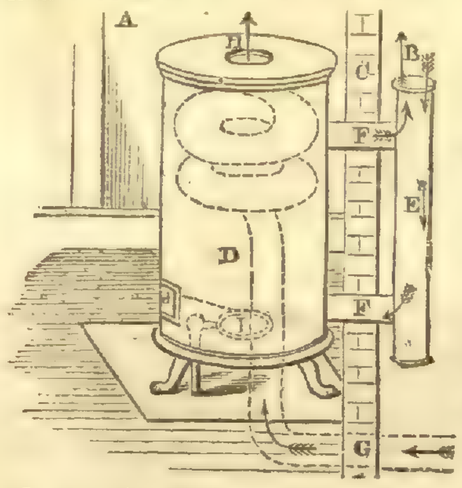
I remain, Gentlemen, your obedient Servant,
THOMAS FOSTER.

HOT-WATER CIRCULATOR COMPANY,
48 and 49, King Street, Woolwich, S.E.



STEVENS'
TRENTHAM GREENHOUSE BOILER,
After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

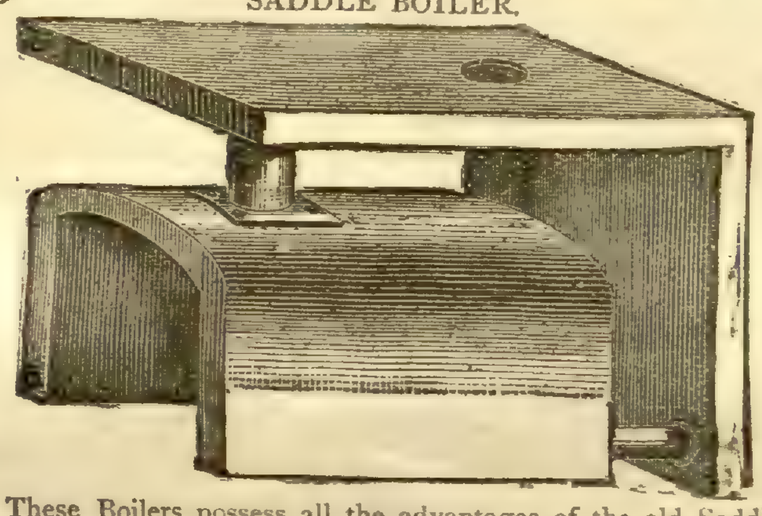
GEORGE'S PATENT CALORIGEN,
FOR WARMING AND VENTILATING.



COAL CALORIGEN,
£6 6*s.*
Height, 36 inches; diameter, 21 inches.
GAS CALORIGEN,
£3 3*s.*
Height, 28 inches; diameter, 14 inches.

The only Gas Stove which retains the whole of the heat given off by the gas without vitiating the atmosphere. The "Coal Stove" consumes the smallest amount of Fuel—2*d.* per diem being the average cost. It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).
Illustrated Prospectuses and Testimonials on application.
J. F. FARWIG AND CO., 36, Queen Street, Cheapside, E.C.
This Stove introduces a strong current of warmed (not burnt) fresh air.

JONES'S PATENT "DOUBLE L"
SADDLE BOILER.



These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements, viz., the water-space at back and over top of saddle increases the heating surface to such an extent that a "Patent Double L Saddle Boiler" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and, being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.		
High.	Wide.	Long.	Feet.	£	s.	d.
20 in.	18 in.	18 in.	300	7	0	0
20 ,,	18 ,,	24 ,,	400	8	0	0
20 ,,	18 ,,	30 ,,	500	9	0	0
24 ,,	24 ,,	24 ,,	700	12	0	0
24 ,,	24 ,,	30 ,,	850	14	0	0
24 ,,	24 ,,	36 ,,	1,000	16	0	0
24 ,,	24 ,,	48 ,,	1,400	20	0	0
28 ,,	28 ,,	60 ,,	1,800	25	0	0
30 ,,	30 ,,	72 ,,	2,600	35	0	0
36 ,,	36 ,,	96 ,,	4,500	50	0	0
48 ,,	48 ,,	108 ,,	7,000	75	0	0
48 ,,	48 ,,	144 ,,	10,000	100	0	0

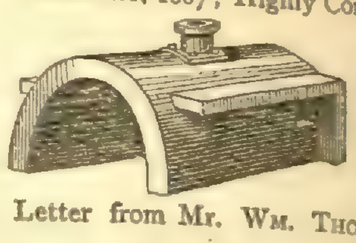
And are kept in Stock and sold only by the Inventors and Patentees, J. JONES & SONS.

Price Lists of HOT-WATER PIPES and Connections, with Boilers of all sizes and shapes; or ESTIMATES for HOT-WATER APPARATUS, erected complete, will be sent on application.

J. JONES AND SONS, Iron Merchants, 6, Bankside, Southwark, London, S.E.

Silver Medal, 1874.

THE TERMINAL SADDLE BOILER.
First-class Certificate, 1867; Highly Commended, 1873.



The following Letter from Mr. WM. THOMPSON needs no comment:—

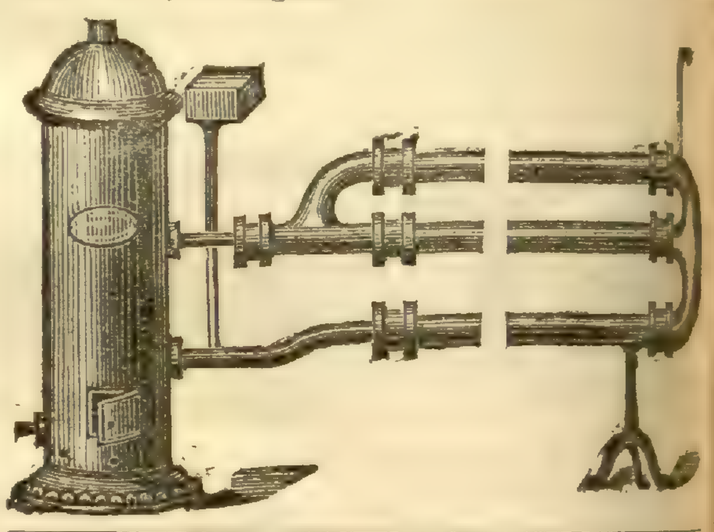
"Tweed Vineyard, March 21, 1874.

"Dear Sir,—I have now had your Terminal Saddle Boiler heating two large Span-houses, 21 feet wide and 15 feet high, containing 1484 feet of 4-inch pipe, and it does its work to my entire satisfaction. In fact I know of no Boiler of the same size and cost that will do the same amount of work with the same quantity of fuel. It is an excellent Boiler. You should advertise more than you do, for it deserves to be better known than it is.—Yours truly, WM. THOMPSON."

Illustrated Circulars, post free.
THOMAS JONES, Temple Street, Manchester.

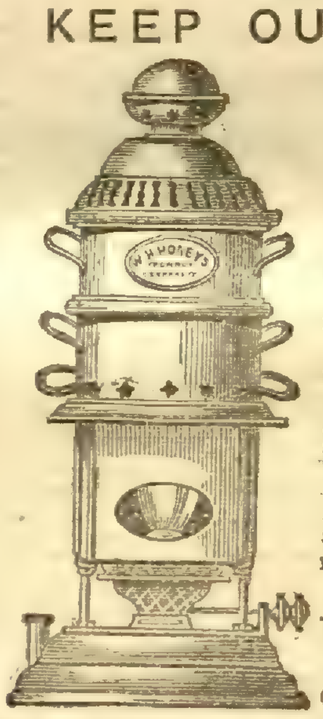
HOT-WATER APPARATUS
(Heated by Gas)
FOR SMALL CONSERVATORIES, GREENHOUSES, &c.

Price from £3 3*s.* To be had of
JOHN GILL AND CO., 299, Oxford Street, London, W., and of all Ironmongers.
Wholesale only of JOHN WRIGHT AND CO., Essex Works, Broad Street, Birmingham.



ESTABLISHED 1856.

KEEP OUT THE FROST.

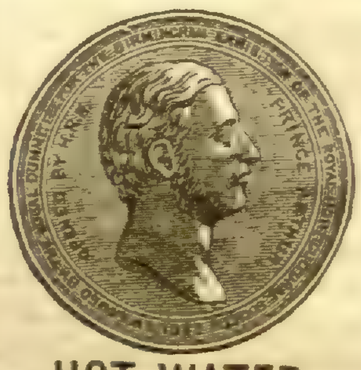


WILLIAM H. HONEY'S
PORTABLE
VAPORISING STOVES.
To Burn Kerosene or any mineral oil.

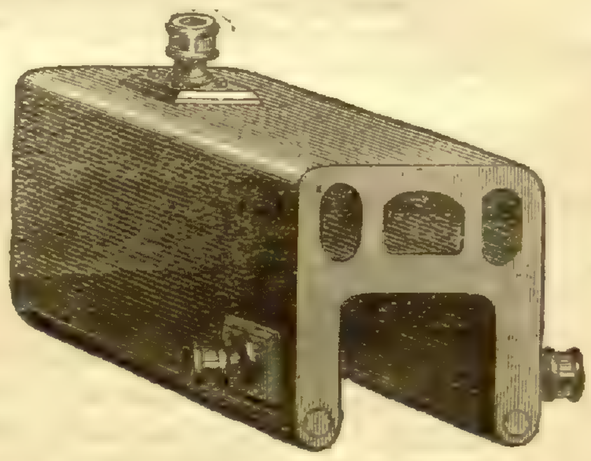
They will burn for twenty-four hours at a cost of one penny for three hours.
They require no attention beyond replenishing the oil.
Suitable for greenhouses, conservatories, halls, bed-rooms, &c.
They will not injure the most tender exotics, nor are they in any way injurious to the health.
Prices, in block tin, 30*s.*; in copper, 50*s.* Copper, with glass, to give light and heat, 55*s.* Either will be sent on receipt of Post-office Order.

To be seen in operation at
WILLIAM H. HONEY,
263, REGENT STREET, W.
Catalogue free. No agents appointed.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,
SURREY SIDE, BLACKFRIARS BRIDGE,
Have the largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.



HOT-WATER BOILERS,



("GOLD MEDAL" BOILER.)

PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

NEW PATENT "CLIMAX" BOILER (1874).
See p. 666, *Gardeners' Chronicle.*
"GOLD MEDAL" BOILER (Birmingham, 1872).
PATENT "EXCELSIOR" BOILER (1871).
"WITLEY COURT" BOILER (Silver Medal, 1872).
"TRENTHAM IMPROVED" BOILER, with Waterway End and Smoke Consumer.
"TUBULAR," and every other Boiler of known merit or excellence.

HOT-WATER APPARATUS ERECTED COMPLETE.
PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

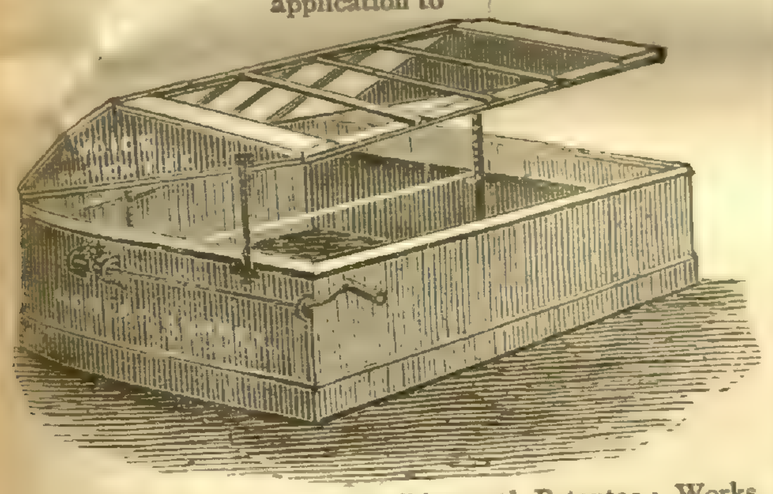
THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

AGRICULTURAL LOCOMOTIVES,
STEAM PLOUGHING MACHINERY,
ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES,
STEAM ROAD ROLLERS.
For Prices, Description, and Reports of Working, apply to the Manufacturers,
AVELING & PORTER,
ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.
AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.
PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.
References to the Nobility, Gentry, and Trade in most of the Counties in England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



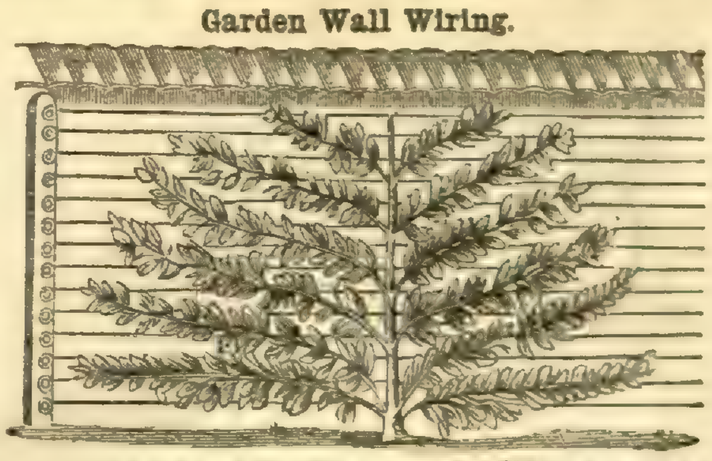
N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.
N.B.—AGENTS WANTED.

HORTICULTURAL BUILDINGS
Designed, Built, and efficiently Ventilated and Heated.
Estimates given to Architects' Plans, or to Rough Sketches, with Sizes, &c.

A PAMPHLET with Illustrations, Testimonials, &c., and PRICE LISTS of Sir J. Paxton's Hothouses, for 3*d*. post free.
A HANDBOOK of Vine and Fruit Tree Cultivation, with Plans of Glass Houses, Heating, &c., post free, 13*d*.

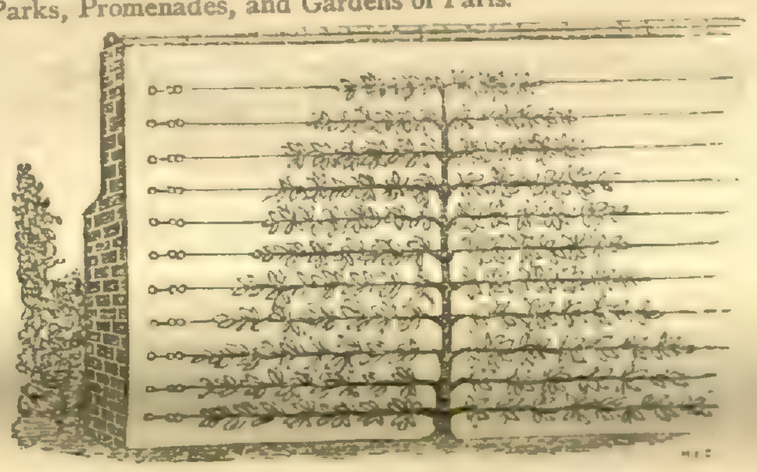
HEREMAN & MORTON,
HORTICULTURAL ENGINEERS,
14 TICHBORNE STREET, REGENT QUADRANT, LONDON, W.

Garden Wall Wiring.



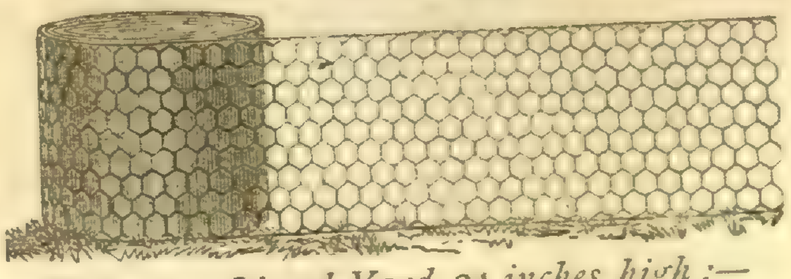
R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.
For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.
For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.
For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.
The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.
Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

THOMAS'S
GALVANIZED
WROUGHT-IRON FITTINGS
FOR WIRING WALLS, FOR THE PURPOSE OF TRAINING FRUIT TREES
On the French system, and as recommended by Mr. W. Robinson, F.L.S., editor of *The Garden*, and author of "The Parks, Promenades, and Gardens of Paris."



Prices of Materials. Per doz.—s. d.
GALVANISED RAIDISSEURS 4 0
GALVANISED TERMINATING HOLDFASTS .. 2 0
(Two required for each line of wire.)
GALVANISED WALL EYES 0 6
GALVANISED WIRE, 2*s*., 2*s*. 6*d*., and 3*s*. per 100 yards.
Illustrated Lists, with full particulars of the above, and Fittings for Espalier Trainers, on very economical principles, free on application.
Five per cent. discount allowed for prompt cash on orders amounting to 20*s*. and upwards. Special quotations for larger quantities.
J. J. THOMAS & CO.,
PADDINGTON WIREWORKS, 285 and 362, EDGWARE ROAD, LONDON, W.
Illustrated and Priced Catalogues of every description of Horticultural Wirework on application.

Messrs. J. B. Brown & Co.'s
VIENNA PRIZE WIRE NETTING.
THE MEDAL FOR MERIT
At the Vienna Universal Exhibition, 1873,
Was awarded to Messrs. J. B. Brown & Co., for "excellence and perfection in material and workmanship, large extent of production, and cheapness of produce."



Prices per Lineal Yard, 24 inches high:—

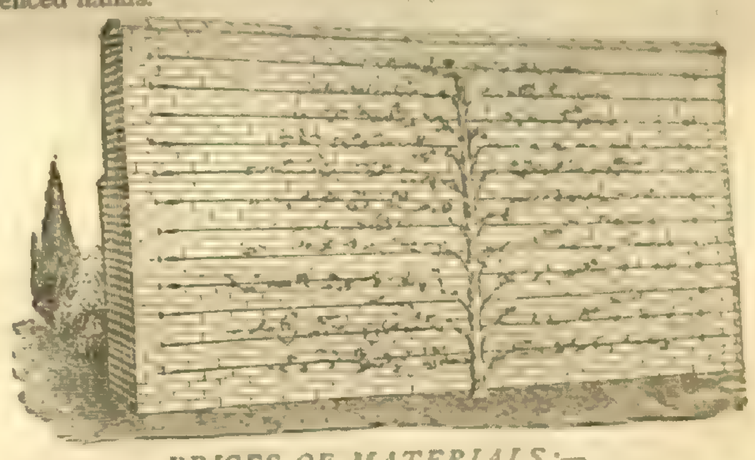
Size of Mesh.	Mostly used for	Gauge.	Or Light Quality.	Gauge.	Or Medium Quality.	Gauge.	Or Strong Quality.
2 in.	Dogs or Poultry .	19	3¾*d*.	18	4½*d*.	17	5¼*d*.
1¾ in.	Small Rabbits, &c.	19	4¼*d*.	18	5¼*d*.	17	6¼*d*.
1½ in.	Smallest Rabbits	19	5¼*d*.	18	6¼*d*.	17	8*d*.

*** Circulars with prices and further particulars of Wire Netting, also of Iron Fencing, Espalier and other materials for Wiring Garden Walls for Fruit Trees on the French System, on application.
Messrs. J. B. BROWN & CO.,
Offices—90 CANNON STREET, LONDON.

THE FRENCH SYSTEM
OF WIRING GARDEN WALLS, &c., FOR
TRAINING FRUIT TREES.

Prices on application to
J. B. BROWN AND CO., 90, Cannon Street, E.C.

GALVANISED WROUGHT IRON
FITTINGS for WIRING WALLS,
For the Purpose of Training Fruit Trees
ON THE FRENCH SYSTEM,
and as recommended by Mr. W. ROBINSON, F.L.S., in his new work, "The Parks, Promenades, and Gardens of Paris."
By this system nails and shreds are entirely dispensed with, the walls are not injured, and no harbour is afforded to small insects. The Tying of the Fruit Trees is effected in one-fifth of the time required by the old system. The arrangement is so simple, that it can easily be applied to any Walls by inexperienced hands.



PRICES OF MATERIALS:—
GALVANISED RAIDISSEURS for Tightening the Wires.
One of these required for each Line of Wire.
No. 900. 4*s*. per doz.
GALVANISED WALL EYES, 6*d*. per dozen.
GALVANISED TERMINATING HOLDFASTS, 2*s*. per doz.
GALVANISED WIRE, 2*s*. 6*d*. and 3*s*. per 100 yards.
ILLUSTRATED LISTS, with full particulars of the above, and of FITTINGS for ESPALIER TRAINERS, on very economical principles, free on application to
BARNARD, BISHOP & BARNARDS,
NORFOLK IRONWORKS, NORWICH.

KINAHAN'S . LL . WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.
EPPS'S COCOA.
BREAKFAST.
"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast-tables with a delicately flavoured beverage, which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us, ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame." See article in the *Civil Service Gazette*.
Made simply with boiling water or milk.
Sold in packets (in tins for abroad) labelled:—
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS,
48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, London, N.W.
Makers of Epps's Glycerine Jujubes for Throat Irritation.

Lea & Perrins' Sauce,
THE "WORCESTERSHIRE,"
pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.
ASK FOR LEA AND PERRINS' SAUCE.
BEWARE OF IMITATIONS,
and see the names of LEA AND PERRINS on all Bottles and Labels.
Agents—CROSSE AND BLACKWELL, London; and sold by all Dealers in Sauces throughout the World.

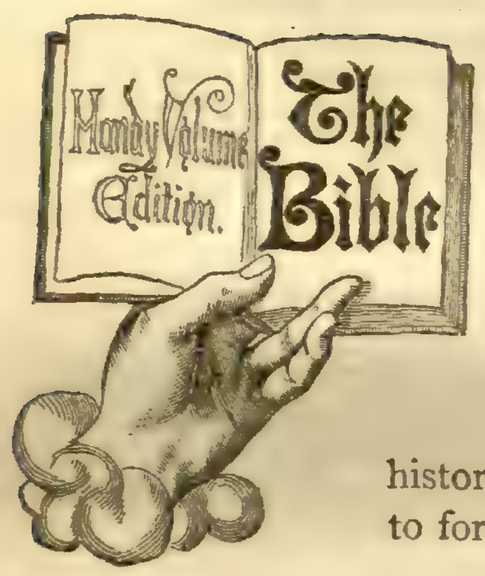
DINNEFORD'S FLUID MAGNESIA.
The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

HANDY-VOLUME EDITION

OF THE

Holy Bible

WITH MARGINAL READINGS, REFERENCES, AND INTRODUCTIONS.



IT is believed that the opportunity now for the first time given to possess the Holy Scriptures in a light and handy form, printed in a type, large, clear, and easy to be read—capable of being used by the weakest without fatigue, by the aged with comfort, and by all readers with pleasure—will be welcomed.

The references in this edition, which exceed 50,000 in number, have been for the greater part carefully selected from those at present existing, the remaining portion being original; and their use will, it is hoped, be greatly facilitated through their being placed in every instance *exactly opposite the passage to which they refer.*

The "Introductions" which accompany each volume aim at giving a short account, descriptive of the history of the different Books, and showing the relation in which they stand to each other. They are also intended to form a concise analysis of the Biblical narrative which may be useful and suggestive to ordinary readers.

GENERAL CONTENTS.

VOL. I.
GENESIS. | EXODUS.

VOL. II.
LEVITICUS. | NUMBERS.
DEUTERONOMY.

VOL. III.
JOSHUA. | RUTH.
JUDGES. | I. SAMUEL.
II. SAMUEL.

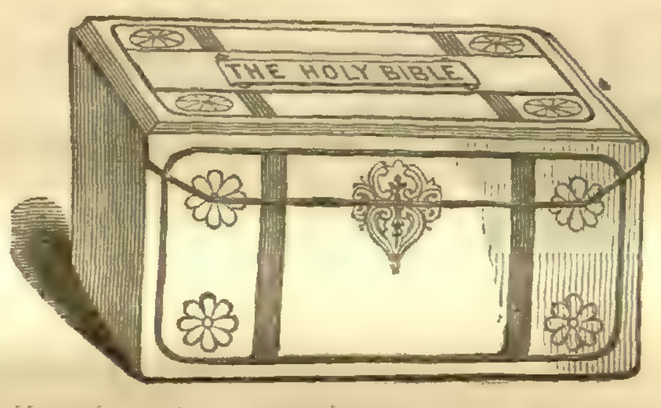
VOL. IV.
I. KINGS. | II. KINGS.
I. CHRONICLES.

VOL. V.
II. CHRONICLES. | NEHEMIAH.
EZRA. | ESTHER.
JOB.

VOL. VI.
PSALMS. | ECCLESIASTES.
PROVERBS. | SONG OF SOLOMON.

VOL. VII.
ISAIAH. | JEREMIAH.
LAMENTATIONS.

Bindings and Prices.



IN EXTRA CLOTH,

Limp, red edges, in a specially designed case.

Price One Guinea.

IN FRENCH MOROCCO,

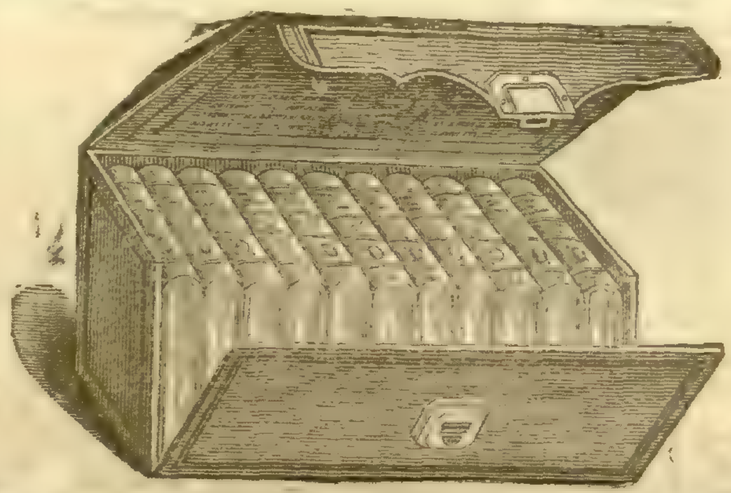
Limp, gilt edges, in an elegant leather case.

Price One Guinea and a Half.

IN BEST TURKEY MOROCCO, OR CALF,

Highly finished, limp, gilt edges (circuit), and tooled sides, in an uniform case.

Price Four Guineas.



GENERAL CONTENTS.

VOL. VIII.
EZEKIEL. | MICAH.
DANIEL. | NAHUM.
HOSEA. | HABAKKUK.
JOEL. | ZEPHANIAH.
AMOS. | HAGGAI.
OBADIAH. | ZECHARIAH.
JONAH. | MALACHI.

VOL. IX.
MATTHEW. | LUKE.
MARK. | JOHN.

VOL. X.
ACTS. | I. CORINTHIANS.
ROMANS. | II. CORINTHIANS.

VOL. XI.
GALATIANS. | PHILEMON.
EPHESIANS. | HEBREWS.
PHILIPPIANS. | JAMES.
COLOSSIANS. | I. PETER.
I. THESSALONIANS | II. PETER.
II. THESSALONIANS | I. JOHN.
I. TIMOTHY. | II. JOHN.
II. TIMOTHY. | III. JOHN.
TITUS. | JUDE.
REVELATION.

EXTRACT FROM "PUBLISHERS' CIRCULAR."

"THE BEST OF PRESENTS—THE BIBLE.—We cordially recommend our country subscribers to lay in a stock of the very elegant edition of the Holy Bible prepared by Messrs. Bradbury, Agnew, & Co., under the title of 'The Handy-Volume Edition.' It is issued in eleven volumes, in a case, in cloth, for one guinea, and also in every variety of binding."—*Nov.* 16, 1874.

LONDON: BRADBURY, AGNEW, & CO., 8, 9, 10, BOUVERIE STREET.

THE AGRICULTURAL GAZETTE, SATURDAY, DECEMBER 5, 1874, Contains—

A Full and Illustrated Report of the Midland Counties

FAT CATTLE SHOW

AT

BINGLEY HALL, BIRMINGHAM.

ORIGINAL ARTICLES on the Fatting of Cattle — Poultry at Birmingham—Agricultural Machinery (Illustrated)—Landlords, Tenants, and Labourers—Dogs at Birmingham—Boyle's Incubator (Illustrated)—Agricultural Education—Common Law for Farmers—Shorthorns in County Cork—The West Highland Breed (Illustrated)—Recent Investigations in Agricultural Chemistry — Welsh Farming (Cottages), &c.

HOME AND FOREIGN CORRESPONDENCE on Choice of a Steam Cultivator—Deep Cultivation—Liebig's Theories—Advice to Farmers—The Labourers' Movement—Mangel Wurzel—The Value of Whey in Pig Feeding—Concerning Agricultural Leases—Canadian Farming—An Allan Canadian Emigration and Mail Steamer, &c.

FARM NOTES AND MEMORANDA from a large number of Counties in Great Britain and Ireland.

REPORTS OF SOCIETIES, FARMERS' CLUBS, CATTLE AND ROOT SHOWS, &c.

ALSO—

The Poultry Yard—The Garden of the Farm—The Weather—Reports of Markets—Miscellaneous, &c.

Price 4d.; post free, 4½d. Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

New Volume Commences in January.

THE FLORIST and POMOLOGIST: a Pictorial Magazine of Gardening. Monthly, 1s.; yearly, 12s.; or free by post, 13s. Two finely-coloured Plates issued with each Number. Established as the "Florist" in 1848.

The FLORIST AND POMOLOGIST for December contains:—

PLATES:—

Rhododendron Vauban
Prince Engelbert Plum } With descriptive letterpress.

ARTICLES:—

Spring Treatment of Wall-fruit Trees. By Mr. James Barnes.
Drymonia Turialvæ. By Mr. J. Taplin.
Development of Lily Bulbs.
Amaryllis formosissima. By Mr. M. Saul.
Vines and Vine Culture. By Mr. A. F. Barron. (Woodcuts.)
Grapes, their Peculiar Defects. By T. C. W.
Notable New Plants, Fruits, &c.
Fruit-culture *versus* Cremation. By Mr. A. Forsyth.
Pink Lord Lyons. By Mr. R. Dean.
Root-pruning of Fruit Trees. By M. T.
Cotoneaster Simonsii. By Mr. M. Saul.
Campsidium filicifolium. (Woodcut.)
Fruit Notes. By Mr. A. Henderson.
Cydonia Maulei. By Mr. W. Earley.
Garden Gossip—Garden Work.

London: 171, Fleet Street, E.C.

New Works now Ready.

BOTANICAL MAGAZINE. Figures and Descriptions of New and Rare Plants. By Dr. HOOKER, F.R.S. Vol. for 1874, Seventy-two Coloured Plates, 42s.; Monthly, with Six Coloured Plates, 3s. 6d.; Annual Subscription, 42s.

REISSUE of the THIRD SERIES in Monthly Vols. 42s.; to Subscribers for the entire series, 36s. each.

FLORAL MAGAZINE. New Series, enlarged to royal 4to. Figures and Descriptions of the choicest New Flowers for the Garden, Stove, or Conservatory. By W. G. SMITH, F.L.S. Vol. for 1874, Forty-eight beautifully coloured Plates, 42s.; Monthly, with Four Coloured Plates, 3s. 6d.; Annual Subscription, 42s. Handsome cloth cases, gilt and black-blocked, for binding the vols., 2s. 6d. each.

ORCHIDS; and How to Grow them in India, and other Tropical Climates. By SAMUEL JENNINGS, F.L.S., late Vice-President of the Agri.-Horticultural Society of India. Royal 4to, Part X., with Four Beautifully Coloured Plates, 5s. To be completed in Twelve Parts.

L. REEVE AND CO., 5, Henrietta Street, Covent Garden, W.C.

This Month will be Published a new and greatly enlarged Edition of

GORDON'S PINETUM: being a Synopsis of all the Coniferous Plants at present known, with Descriptions, History, and Synonyms, and comprising a considerable number of new and undescribed kinds. With elaborate Indexes of both Scientific and Popular Names. In one volume, 8vo, cloth, price 18s.

** The former edition, now extremely scarce, was published at 16s., the Supplement at 6s., both of which are included in the present with considerable additions.

London: HENRY G. BOHN, 18, Henrietta Street, Covent Garden, W.C.

The Greville Memoirs.

Second Edition, in 3 vols. 8vo, price 36s. cloth,

A JOURNAL of the REIGNS of KING GEORGE IV. and KING WILLIAM IV. By the late CHARLES C. F. GREVILLE, Esq., Clerk of the Council to those Sovereigns. Edited by HENRY REEVE, Registrar of the Privy Council. London: LONGMANS AND CO.

HOOKER'S SYNOPSIS FILICUM. Second Edition. Now ready, demy 8vo, price £1 2s. 6d. plain, £1 8s. coloured.

Also, price 1s.,

AN ALPHABETICAL INDEX OF ALL KNOWN FERNS: a reprint of the Index to the Second Edition of "Hooker and Baker's Synopsis Filicum."

London: ROBERT HARDWICKE, 192, Piccadilly, W.

HORTICULTURE.—The following Works (by THOMAS RIVERS) may be had by post at the prices quoted:—

THE ORCHARD HOUSE; or the Cultivation of Trees in Pots. Fifteenth Edition. 3s. 6d.

THE MINIATURE FRUIT GARDEN; containing Directions for Root Pruning, &c. Seventeenth Edition. 3s.

THE ROSE AMATEUR'S GUIDE; containing the History and Culture of Roses. Tenth Edition. 4s.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

Belgian.

BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAICHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid 10s. per annum.

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

New Works by the Rev. J. G. Wood, M.A.

Author of "Homes without Hands," &c.

OUT of DOORS; a Selection of Original Articles on Practical Natural History, uniform with "Strange Dwellings" by the same Author; with Six Illustrations from Original Designs engraved on Wood by G. PEARSON. Crown 8vo. Price 7s. 6d. cloth.

INSECTS ABROAD; a Popular Account of Foreign Insects, their Structure, Habits, and Transformations. With 600 Figures by E. A. SMITH and J. B. ZWECKER, engraved on Wood by G. PEARSON. Forming a Sequel or Companion Volume to "Insects at Home" by the same Author. 8vo. Price 21s. cloth.

London: LONGMANS AND CO.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8d. per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

One Pound Reward.

MR. W. HASSALL, of Hartwell, near Dresden, Stoke-upon-Trent, wishes to DISCOVER his late Gardener, JOHN ARCHER, who is supposed to have gone to Cheltenham, or its neighbourhood. Any person who will give such information to Mr. HASSALL, or to Superintendent CRISP, Police Station, Stone, Staffordshire, as will lead to John Archer's discovery and apprehension, shall receive the above reward.

PARTNERSHIP.—A GENTLEMAN desires a Share in a Business in which his knowledge of the Nursery and Seed Trade will be available. Money to be invested, from £200 to £300.—R. T. S., 36, Upper Bedford Place, Russell Square, London, W.C.

WANTED, a PLANT COLLECTOR.—Mr. WILLIAM BULL is desirous of engaging a single Man to proceed to South America in the above capacity.—Personal application only at Mr. William Bull's Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

WANTED, a HEAD GARDENER, not under thirty-six years of age. Also, a married Man who understands Outdoor Pruning and Tying. Liberal wages will be given to competent Men.—Apply by letter, stating full particulars of experience, to A. B., Messrs. Swinnerton & Brown, Chestergate, Macclesfield.

WANTED, a GARDENER, in a single-handed place; must be active, well up in General Work, and have some knowledge of Greenhouse Floriculture. Age, about thirty. Good character required. Full wages given.—W. M. LOWOOD, Dulwich Wood Park, London, S.E.

WANTED, MAN and WIFE, age about 30—Man to be a good Knifesman and well acquainted with Flower and Kitchen Gardens, Planting, &c.; Wife to attend to Men's Rooms, &c. Wages 25s. per week, with house. Good references required. — Apply to S. KIPPS, Gardener, High Trees, Red Hill, Surrey.

WANTED, a MANAGER and SALESMAN. He must be thoroughly acquainted with the Retail Seed Business, and have some knowledge of the Value of General Nursery Stock, Soft-wooded Plants, and Ground Work. A good Salesman indispensable. Liberal wages given to a competent Man.—Address, by letter only, to A. HENDERSON, Sion Nursery, Thornton Heath, Surrey, S.

WANTED, a GROUND FOREMAN (principally for Roses); with some knowledge of Exhibiting preferred. Good character indispensable. — Mr. GEO PRINCE, 14, Market Street, Oxford.

Nursery Foreman.

WANTED, a steady, active, WORKING FOREMAN, who thoroughly understands Hardy Outdoor Work, general routine of Cropping, and who can take the Charge and Management of Work People. Must have unexceptionable references as to character and ability.—RALPH ROBSON, Nurseries, Hexham.

WANTED, an ASSISTANT OUTDOOR FOREMAN for a large Nursery.—State how long in the business, where, and wages required, B. WHITHAM, The Nurseries, Reddish, near Stockport.

WANTED, as PROPAGATOR, a single Man, who has been in that capacity in a Nursery Garden, and who has a good reference for efficiency and conduct. Good wages given.—L. M. N., Post Office, Tunbridge, Kent.

WANTED, TWO active young MEN for the Houses.—Apply personally, H. HERBST, Kew Nursery, Richmond, Surrey.

WANTED, a HEAD SHOPMAN, for a large Seed Establishment in the South of Ireland. He must be a first-class Man, of thorough business habits, with good address, and be possessed of general experience in the Trade.—Apply, stating age, expectations of salary, and other particulars, to M. L., *Gardeners' Chronicle* Office, W.C.

WANTED, a SHOPMAN. — Apply, by letter, stating age, experience, and salary required, to SEEDSMAN, 28, Bellevue Road, Southampton.

WANTED, a JUNIOR SHOPMAN, one accustomed to the Retail Trade, good Counterman, and fair knowledge of Book-keeping, and good Penman.—Apply by letter only, to W., Howcroft & Watkins, Seedsmen, 14, Tavistock Row, Covent Garden, W.C.

WANTED, an active young MAN, in a Florist's Shop: one used to the Cut Flower and Furnishing preferred.—Apply, by letter, to J. Z., 196, High Street, Notting Hill, W.

JOHN CARTER, Nurseryman, Keighley, Yorkshire, is in WANT of TWO or THREE MEN, who have been accustomed to Jobbing and Nursery Work. Also, a steady, respectable MAN, competent to take the Management of Jobbing Work.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

Christmas Engagements.

EMPLOYERS REQUIRING BAILIFFS, FORESTERS, GARDENERS, WORKING FOREMEN, &c., for the Estate, Farm, or Garden, are respectfully invited to apply to Mr. T. BOWICK, Bedford, who has a list of eligible Men. Careful attention is given to this department of business, and none are received as candidates whose character, abilities, and antecedents have not been investigated.

GARDENER (HEAD).—Age 34, married, three children; understands Grape-house and Flower Houses. Has had four men under him. Eleven years in present place.—Mr. CHAPMAN, Littleton, Chertsey.

GARDENER (HEAD).—JAMES FREEMAN, who was Gardener to the late and present Lord Derby at Knowsley for eleven years, is now open to an engagement. References permitted to late employer and Dowager Countess of Derby.—31, Green Lane, Stoneycroft, Liverpool.

GARDENER (HEAD).—J. SPAVEN, four and a half years Manager to Messrs. T. Jackson & Son, Royal Kitchen Gardens, Hampton Court, S.W., is open to engage with any Nobleman or Gentleman requiring the services of a competent Man. Can also undertake the Management of Cattle and Land.

GARDENER (HEAD).—Age 36, married, one child (age 10); well up in all branches of the profession; has had upwards of twenty years' practical experience in good places—seven years as Head Gardener.—References, unexceptionable, from present and previous employers.—R. R., Mr. Cherry, Leinster Place, Cleveland Square, London, W.

GARDENER (HEAD, or SINGLE-HANDED). —Age 25, married; understands Vines, Peaches, Cucumbers, Melons, and Flower and Kitchen Gardening. Eleven years' experience.—B. C., Post Office, Churton Street, Pimlico, S.W.

FOREMAN, in a Gentleman's Garden.—Age 26, married. Four years' good character from last place. —J. W., The Gardens, Caversham Park, Reading.

FOREMAN.—Age 28; experienced in the Forcing of Flowers, Fruits, and Vegetables, also the Cultivation of Orchids and Ferns. Good references.—ALPHA, Handsworth, Sheffield.

TO NURSERYMEN and SEEDSMEN.—A young Man (age 32, single) of long experience in the above business, who can produce first-class testimonials, is anxious to procure a situation, at a moderate salary, where he might have an opportunity of getting to the Nursery to benefit his health. Advertiser thoroughly understands the business, and could assist at Book-keeping. — R. CALDWELL, 28, Anavilla, Cullenswood, Dublin.

Seed Trade.

FRANCIS & ARTHUR DICKSON & SONS, 106, Eastgate Street, Chester, have a VACANCY for a young Man, of good address, and experience in the Vegetable Seed Department, as SHOPMAN.—State salary expected, experience, references as to character, &c.

SHOPMAN and TRAVELLER, or MANAGER of a Branch Establishment in the Seed and Nursery Trades.—Has had seventeen years' experience. Good references.—E. S., 2, East Street, Plymouth.

SHOPMAN, or SHOPMAN and CLERK.—Married; 11 years' experience in all branches of the trade. Good knowledge of Plants.—W. T., Mr. Scotney's, Albert Place, Peterborough.

TO THE SEED TRADE.—A young Man, with a thorough knowledge of the Trade, and who understands Book-keeping and Accounts, is open for engagement.—A. L., *Gardeners' Chronicle* Office, W.C.

BAILIFF (WORKING).—Age 29, single.—Address, stating wages and particulars, to G. R., 1, Priory Cottages, Salisbury, Wilts.

JOHN CARTER, NURSERYMAN, Keighley, Yorkshire, has to offer ASH, 3 to 5 feet; HORSE CHESTNUT, 7 to 9 feet; ELM, 6 to 8 feet; POPLAR, sorts, 3 to 6 feet; THORNS, 5 to 6 feet; AMERICAN and KILMARNOCK WEEPING WILLOW. All good well-rooted plants. Prices on application.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

FOR SALE.—10,000 strong, true, 4-yr. old BLACK CURRANT TREES, 6s. per 100; 6000 strong Raby Castle RED CURRANT TREES, 5s. per 100; and 20,000 strong Fastolf RASPBERRY CANES, warranted true, 30s. per 1000. Apply to
W. SELBY, Jun., Oldbury, Ightham, Sevenoaks, Kent.

Twelve Splendid Heaths for One Guinea.
JOHN H. LEY can now supply above, in fine bushy plants, full of flower-buds, for winter (and immediate) decoration. Package gratis for cash, and delivered free to London.
N.B.—CATALOGUE free on application.
Royal Nursery, London Road, Croydon.

PLANTS for WINTER FORCING.—Any one desirous of Successfully Forcing Flowering Plants during the coming Winter Months, should apply at once to JOHN STANDISH AND CO. for a LIST of their PLANTS specially prepared and adapted for this purpose.
Royal Nurseries, Ascot, Berks.

Nursery Stock.
JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, **Chester.**

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS and CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.
Wandsworth Common Nursery, Surrey, S.W.
The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

Eltham Nursery, Kent, S.E.
One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.
THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c. Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

VINES, VINES, VINES—EPIPHYLLUMS, PERESKIA STOCKS.
VINES.—Fruiting and Planting Canes, strong, well ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Buckland Sweetwater, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2s. 6d. to 5s. each; a few extra strong canes, 6s. 6d.
EPIPHYLLUMS.—Good Standards, with nice heads, in twelve best sorts, 9s. and 12s. per dozen.
PERESKIA STOCKS, out of pots, 15s. per 100.
CINERARIA HYBRIDA, fl.-pl., 6s. per dozen.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Catalogues! Catalogues!!
EWING AND CO.'S PRICED, DESCRIPTIVE, and ILLUSTRATED CATALOGUES are now ready. Rose Catalogue, and Fruit Tree and General Nursery Catalogue—both are forwarded gratis and post-free to applicants.

New Apple—Lady Henniker.
EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now sending out strong maiden plants of this splendid novelty, which obtained a First-class Certificate from the Royal Horticultural Society, November 12, 1873. Circulars, with testimonials and full description, will be forwarded, gratis and post free, to applicants. Price 7s. 6d. each, or three for 20s. The usual Discount to the Trade.

J. SCOTT'S TREE and SHRUB CATALOGUE is replete with information about Trees, &c. It enumerates the names and gives descriptive notes of one of the best and well-grown Collections in the West of England. Parties intending to Plant should send for a copy, supplied gratis, as are also the SEED and BULB CATALOGUES; and SCOTT'S ORCHARDIST, at 5s. 6d., free by post.
The Nurseries, Merriott, Somerset.

J. SCOTT'S FRUIT TREES cover many Acres, and form the most complete Collection in the World, consisting of 2200 sorts of Pears, 1400 sorts of Apples, and other kinds in proportion, amounting in the whole to over 5000 sorts. CATALOGUES, gratis, sent to all applications; or SCOTT'S ORCHARDIST, post free, for 5s. 6d., the most complete work upon Fruit Trees in the English Language.
Merriott Nurseries, Somerset.

FIBROUS PEAT.—Brown Fibrous Peat, best quality, for Orchids, Stove Plants, and Potting, £6 6s. per 6-ton truck load. Black Fibrous Peat, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5s. per 6-ton truck load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

SPHAGNUM or PEAT MOSS.—Fresh Sphagnum Moss, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

MR. LAXTON'S NEW PEAS FOR 1875.

UNIQUE.

DR. HOGG.

SUPPLANTER.

HURST & SON

Have pleasure in offering the following four varieties of MR. LAXTON'S NEW PEAS, all of which have been selected for their high quality, flavour and distinctness, three of them having received First-class Certificates from the Royal Horticultural Society after the great Chiswick trial in 1872:—

UNIQUE.

This is a very handsome and prolific Dwarf Early Pea with long, deep-green coloured pods, of the same habit and coming into use at the same time as Little Gem, and may be briefly described as a Dwarf William the First. Received a First-class Certificate.

Price 7s. 6d. per sealed quarter-pint packet.

DR. HOGG.

"A very handsome Pea. The earliest green wrinkled Marrow, very sweet and of excellent quality, pods being very well filled and of a beautiful deep green colour like the Ne Plus Ultra."—*Vide Proceedings of the Royal Horticultural Society for* 1872.

"No higher recommendation could be given to it than to introduce it as a competitor of Ne Plus Ultra. "To sum up the whole it is a fine Ne Plus Ultra, coming in one week after Dillestone's."—*Hogg's Gardener's Year Book for* 1873.

Height 3 feet, habit and type of Sangster's No. 1. Awarded a First-class Certificate and received its name at the instance of the Fruit Committee of the Royal Horticultural Society.

Price 7s. 6d. per sealed quarter-pint packet.

SUPPLANTER.

"A cross between Veitch's Perfection and Little Gem—the earliest of the Veitch's Perfection type; plant very robust and vigorous, producing very large broad pods in pairs. A large, handsome, and very prolific Pea, which received a First-Class Certificate."—*Proceedings of the Royal Horticultural Society for* 1872.

"Appropriately named, for it is a large, handsome, and very prolific Pea, and will take the place of many others."—*Hogg's Year Book*, 1873.

This Pea is of fine quality, and is also first-rate for exhibition, having been shown by Mr. R. Gilbert during the past season, in three of his Prize Collections of Peas. Height 3 feet.

Price 5s. per sealed quarter-pint packet.

CONNOISSEUR.

A remarkably distinct and very late wrinkled, bright green seeded Pea, raised from Ne Plus Ultra, pronounced by the Royal Horticultural Society to be of very excellent quality. Height 6 feet.

Price 5s. per sealed quarter-pint packet.

HURST AND SON can also supply:

FILLBASKET.—Unquestionably the most prolific and best Market Pea yet introduced. First-class Certificate Royal Horticultural Society.

Price 2s. 6d. per sealed half-pint packet.

LAXTON'S No. 1.—The earliest blue wrinkled Marrow.

Price 2s. 6d. per sealed half-pint packet.

☞ *£10 will be offered in Four Prizes at the Royal Horticultural Society's Show on July 7 next, for Six Varieties of Mr. Laxton's New Peas sent out by us in 1872, 1873, and 1874. 50 pods of each. These Prizes will also be repeated at the Society's Provincial Exhibition in 1875.*

HURST & SON, 6, LEADENHALL STREET, LONDON, E.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, December 5, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 50.—Vol. II. { New Series. } SATURDAY, DECEMBER 12, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Belsfield, Windermere (with cut) 743
Books, notices of 746
Couratari Tattari .. 750
Dog, action by a gardener for the bite of a .. 755
Eupatorium ageratoides . 753
Farm, the.. 754
Flower shows 752
Forecourt Gardens .. 754
Friedrich Barbarossa .. 750
Garden operations .. 755
Ghent, at 739
Grapes, unpopular .. 753
Holly and its varieties (with cuts) 750
Horticultural societies of America 749
Jaubert, M. le Comte, death of.. 755
Kew, the old walls at .. 742
Law notes 754
Libyan Desert, the .. 743
Lindley Medal, the .. 740
Naytsia floribunda .. 753
Obituary 754
Odontoglossum lacerum . 740
Open-air border plants .. 742
Oranges and Lemons .. 740
Paris, the "Bon Jardinier's" novelties .. 745
Parsnip, the 754
Pears on walls, large .. 753
Pears, Williams' Pitmaston Duchesse d'Angoulême 753
Plane trees of the Thames Embankment, the (with cut) 749
Plants, new garden .. 740
Plants, recently published portraits of new .. 747
Poinsettia pulcherrima .. 753
Pomona Palace show, the 753
Primula japonica .. 752
Prize vineries 752
Pyrus (§Cydonia) Maulei (with cut) 740
Raspberry training .. 753
Scitamineous plants .. 753
Smithfield Club show .. 754
Solanum Capsicastrum .. 753
Trees *v.* rabbits 753
Trentham, the Shah's visit to 754
Wallflower, the 752
Wheat, transmutation of 741
Wiring garden walls .. 744

Important Notice to Foreign Subscribers.

FOREIGN SUBSCRIBERS are particularly requested, when sending Post Office Orders through the Post Office, to Advise the Publisher that they have done so. *(Signed)*

W. RICHARDS, Publisher.

Post Office Orders should be made payable at the King Street Office, Covent Garden, London, W.C.

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE, including postage to the United States, is $6.30 gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

To Secretaries of Horticultural Societies.

THE EDITORS of this JOURNAL will be greatly obliged to Secretaries of Horticultural Societies, who have fixed the Dates for their Exhibitions of next year, if they will kindly communicate the same, as soon as possible, FOR PUBLICATION in the GARDENERS' CHRONICLE ALMANAC.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth,* 16*s.*
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

1875. SPALDING HORTICULTURAL SHOW will take place on WEDNESDAY, June 30, and THURSDAY, July 1. Schedules of Prizes shortly.
GEO. F. BARRELL, Hon. Sec.

To the Trade.

CARTER'S LIST of NOVELTIES, containing all the best new Vegetables and Flowers of the season, can now be had on application to
Messrs. JAMES CARTER AND CO., The Royal Seedsmen, 237 and 238, High Holborn, London, W.C.

To the Trade.—Rhododendron Stocks.

PAUL AND SON have a few thousands of their usual quality, at 10*s.* 6*d.* per 100, £5 per 1000.
The Old Nurseries, Cheshunt, N.

GRAPE VINES.—Fine strong, well-ripened, and short-jointed Canes of best leading sorts, in pots, 42*s.* to 60*s.* per dozen. Extra strong Fruiting Canes, 7*s.* 6*d.* to 10*s.* 6*d.* each. Strong Fruiting Canes of Duke of Buccleuch and Waltham Cross at 21*s.* each.
RICHARD SMITH, St. John's Nurseries, Worcester.

Vines.

B. S. WILLIAMS has a large and fine stock of FRUITING and PLANTING CANES, of all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, N.

STRAWBERRY PLANTS (Presidents), in pots, for Sale: best sort for early forcing.
Bedford Nursery, Haverstock Hill, N.W.

Fruits Cultivated in the United Kingdom.

A DESCRIPTIVE LIST, by LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle, free, by post, for twelve stamps.

MR. LAXTON'S NEW PEAS—Unique, Dr. Hogg, Supplanter, and Connoisseur. Three First-class Certificates, Royal Horticultural Society. For descriptions, &c., see large advertisement at p. 732 of last week's *Gardeners' Chronicle.*
HURST AND SON, 6, Leadenhall Street, London, E.C.

YUCCA ANGUSTIFOLIA (Pursh).—For price and description see large advertisement, *Gardeners' Chronicle*, of this day, p. 736.
F. SANDER AND CO., New and Rare Seed Importers and Growers, St. Albans.

Roses! Roses!! Roses!!!

FORTY CHOICE PERPETUAL ROSES, strong plants, best varieties, sent to any address on receipt of Post-office Order for 21*s.*, package included, by
JAMES WALTERS, Mount Radford Nursery, Exeter, Devon.

New Climbing Rose,

JULES MARGOTTIN, 3*s.* each, 30*s.* per dozen. The old favourite Rose in all respects, except in being a free climber.
RICHARD SMITH, Nurseryman, Worcester.

AMATEUR'S BUNDLE of ROSES.—Twenty best kinds of Dwarf Roses, including packing, 20*s.*; twenty ditto, Standards, 30*s.* Selected by purchaser from Catalogue, excepting the new sorts of 1874.
DAVISON AND WHITTEM, White Cross, Hereford.

ROSES.—Fine strong Dwarfs on Manetti, 30*s.* per 100, £12 10*s.* per 1000; Standards, 80*s.* per 100; Half-standards, 60*s.* per 100.
MAURICE YOUNG, Milford Nurseries, Godalming.

QUICKS.—Good strong Quicks, 6*s.* to 8*s.* per 1000, or £25 per 100,000; extra do., 10*s.* 6*d.* to 15*s.* per 1000, or £45 to £55 per 100,000.
MAURICE YOUNG, Milford Nurseries, Godalming.

Pines for Sale.

FOR SALE, cheap, about seventy-five SUCCESSION PLANTS, and a few ROOTED SUCKERS, to clear them out. Apply to
J. W. LAURENCE, Gardener, Farnham Castle, Surrey.

To the Trade.

HURST AND SON beg to say their LIST of NOVELTIES in GARDEN and FLOWER SEEDS is now ready, and can be had on application to
HURST AND SON, 6, Leadenhall Street, London, E.C.

WHOLESALE CATALOGUE of TREES, SHRUBS, CLIMBERS, &c., free on application.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum Tree)—nice plants in pots, 1 to 1½ foot, 12*s.* per dozen; 1½ to 2 feet, 18*s.* per dozen.
JOHN JEFFERIES AND SONS, Royal Nurseries, Cirencester.

LILY of the VALLEY—Giant roots; every crown produces a fine spike of flower. 100 crowns for 10*s.* 6*d.*, package free. Instructions how to force successfully sent with every order. Post-office Orders payable at Croydon.
J. H. LEY, Royal Nursery, Croydon.

GIANT LILY of the VALLEY.—Strong blooming roots, 2*s.* per dozen, 12*s.* 6*d.* per 100, package free. E. COOLING, Mile Ash Nurseries, Derby.

WANTED, SCOTCH RANUNCULUS, named. State price and quantity to
W., "Vulcan," Coatbridge, N.B.

WANTED, LARCH, from 2 to 5 feet. State lowest cash price per 1000 to
ALFRED WINFIELD, Nurseryman, Gloucester.

WANTED, LARCH, 2 to 3 and 3 to 4 feet. State price to
JNO. JEFFERIES AND SONS, Royal Nurseries, Cirencester.

WANTED, Seedling LARCH, 1-yr. and 2-yr.; Seedling ALDER, 1-yr. and 2-yr.; Seedling BEECH, 1-yr. and 2-yr.; HORNBEAM, 1-yr. and 2-yr. State price per 100,000, for cash.
T. THORNTON, Heatherside Nursery, Bagshot.

WANTED, strong ASH, 3 to 4 feet; LARCH, and ALDER.
CRANSTON AND MAYOS, King's Acre, near Hereford.

WANTED, 10,000 yards of BOX EDGING. Sample and Price to
R. NEAL, Nurseryman, Wandsworth Common, S.W.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

To the Trade.

EAST LOTHIAN INTERMEDIATE STOCK, warranted pure. Lowest price on application.
THOMAS METHVEN AND SONS, 15, Princes Street, Edinburgh.

Christmas Trees.

SPRUCE FIRS of all sizes, from 6 to 14 feet in height. For prices apply to
THOMAS CRIPPS AND SON, Tunbridge Wells.

SPRUCE FIRS, suitable for Christmas trees, 5 to 8 feet; prices on application.
HY. MINCHIN, The Nurseries, Hook Norton, Oxon.

Christmas Trees.

W. P. HUME offers the above in quantity; fine grown well-feathered stuff of different sizes, from 3 to 7 feet. Samples sent. Priced LIST on application. An inspection invited.
Asylum Lane Nurseries, Gloucester.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

BEECH, 3 feet, very fine and well rooted, 7*s.* 6*d.* per 1000.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

SPANISH CHESTNUT, 100,000, 12 to 18 inches; ASH, 100,000, 2 to 3 feet, stout, well rooted, transplanted, for Sale. Apply to
Mr. GEORGE CHORLEY, Midhurst, Sussex.

No Reasonable Offer Refused.

HORSE CHESTNUTS (1000), 5 to 6 feet. ENGLISH OAK (1000), 4 to 5 feet, all well rooted.
WILKIN, Tiptree, Kelvedon.

Fifty Tall Trees for £1.

CHESTNUT, SYCAMORE, MAPLE, &c., 7 to 9 feet—for cash.
WILKIN, Tiptree, Kelvedon.

APPLE, PEAR, and WALNUT TREES for Sale; transplanted, strong, choice sorts, for Gardens or Orchards, especially Orchards. Height 5 to 11 feet, butts 2 to 8 inches round. Apply to Mr. TASWELL, Lichfield.

RED and BLACK CURRANTS, strong 2-yr., at low prices, to clear the ground. Price per 100 or 1000 on application.
WM. POTTEN, The Nursery, Sissinghurst, Staplehurst, Kent.

Black Currants.

WM. WOOD AND SON has a fine stock of the above to offer.
Woodlands Nursery, Maresfield, Uckfield, Sussex.

STANDARD TRAINED PEACHES, NECTARINES, and APRICOTS, fine Trees of the hardiest and best sorts, with all other forms of Fruit Trees in great variety. Descriptive Price Lists gratis.
RICHARD SMITH, Nurseryman, Worcester.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three, and four years old.
Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

LEAMINGTON BROCCOLI.—A quantity of PERKINS' LEAMINGTON BROCCOLI, Seed saved from selected heads. Price per ¼ lb., ½ lb., or more, on application to
T. WALMESLY, Bore Street, Lichfield.

SPECIAL OFFER.—Must be cleared: 10,000 ANTWERP and FILLBASKET RASPBERRIES, strong Canes; 20,000 ENGLISH ELMS, 5 to 6 feet; and 10,000 COMMON LAURELS, 2 to 3 feet, very bushy. Prices on application to
JOSEPH GREEN, The Nurseries, Garforth, near Leeds.

EARLY SEED POTATOS—Royal Ashleaf, Mona's Pride, Erin's Queen, Gloucestershire Kidney, Myatt's Prolific, Veitchs' Improved Ashleaf, Sandringham Kidney, Extra Early Vermont, &c. Prices on application to
G. RUMLEY, Alma Terrace, Fulford Road, York.

COCOA-NUT FIBRE REFUSE—3000 bushels. Used by all Gardeners. Twenty and fifty bushels at 4*d.* per bushel. Free on to rails to any part. Sample free.
H. WRIGHT, Fibre Merchant, 4, Peterborough Terrace, King's Road, Fulham, S.W.

Hyacinths, Tulips, Crocus, &c.

The best material in which to grow the above is COCOA-NUT FIBRE REFUSE.—Price 1*s.* per bushel, or 6*d.* per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE, invaluable for Forcing, Plunging, and Resisting Frost and Cold. Price 9*d.* per bushel; 20 bushels, 5*d.*; 100, 4*d.* per bushel.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

Eltham Nursery, Kent, S.E.

One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.

THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c.

Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

APPLES WANTED.—Half-standard, 3 to 4 feet stems, or 2-yr. to 3-yr. unpruned Trees of the following sorts:—Lord Suffield, Hawthornden (new and old), Keswick Codlin, Dumelow's Seedling, Stirling Castle, Northern Greening, Beauty of Kent, Small's Admirable, Red Astrachan, Warner's King and Cellini Pippin. Quote lowest price per 100 or 1000.

RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

NEW CATALOGUES for 1874.

A Descriptive CATALOGUE of ROSES.
A Descriptive CATALOGUE of FRUITS.
A Descriptive CATALOGUE of BULBS.
A General CATALOGUE of GENERAL NURSERY STOCK. Address

WM. WOOD AND SON, The Nurseries, Maresfield, near Uckfield, Sussex.

LAURELS.

COMMON LAUREL, 2 to 3 feet, 16*s.* per 100, £7 per 1000; 3 to 4 feet, 25*s.* per 100, £10 per 1000.
COLCHIC LAUREL, 3 to 4 feet, 30*s.* per 100; 4 to 5 feet, 42*s.* per 100.
PORTUGAL LAUREL, 1½ to 2 feet, 34*s.* per 100.

Good, bushy, well-grown plants.
RICHARD SMITH, Nurseryman, Worcester.

STRONG FOREST TREES.

LARCH, 2 to 3, and 2½ to 3½ feet.
SCOTCH, 2 to 2½, 2½ to 3, and 3 to 3½ feet.
SPRUCE, 2 to 2½, 2½ to 3, and 3 to 4 feet.
OAKS, English, 3 to 4, 4 to 5, and 5 to 6 feet.

The above, with other sorts, are all strong and good, and there is a considerable quantity of each size on offer. Apply to JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

New Grape.—Venn's Black Muscat.

W. DODDS, having sold all his strongest plants of the above splendid GRAPE, begs to thank his friends who have ordered it, and to inform those who have not that he has a few well-ripened Canes, which he can offer at 31*s.* and 25*s.* each, delivered to order on receipt of Cheque or Post-office Order on Bristol, payable to

WILLIAM DODDS, Gladstone Villa, Bishopston, Bristol.

Pelargoniums.

D. S. THOMSON begs to offer strong healthy plants of Show, Spotted, and Fancy PELARGONIUMS, in 60 pots, distinct varieties, at 4*s.* per dozen.

A fine stock of WINTER BLOOMING PLANTS, comprising Ericas, Camellias, Azaleas, Cytisus racemosus, Epiphyllums, Bouvardias, Poinsettias, Cinerarias, Cyclamen, single and double Primulas, Solanums (well set with berries), &c.

A large stock of CROTONS, beautifully coloured.
The Nurseries, Wimbledon, S.W.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum).—SEEDS of the Blue Gum, and other Tasmanian and Australian Forest Trees and Shrubs, can be obtained of

C. F. CRESWELL, Wholesale and Retail Seed Merchant, Hobart Town, Tasmania; or at his Branch Establishments, 478, George Street, Sydney, New South Wales; and 37, Swanton Street, Melbourne, Victoria.

Price LISTS sent gratis to any part of the World on application.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—

DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,

CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

LAURUSTINUS, 2 to 3 feet, 6*s.*; 3 to 4 feet, 9*s.* per dozen, fine, in bloom, planted last Spring.

LAURELS, 2 to 3 feet, 12*s.* 6*d.*; 4 to 5 feet, 25*s.* per 100.
LARCH, 2 to 3 feet, 30*s.*; 3 to 4 feet, 40*s.* per 1000.
PINUS INSIGNIS, 3 to 4 feet, 9*s.* per dozen.
,, AUSTRIACA, 3 to 4 feet, 25*s.* per 100.
DEODARA, 2½ to 3 feet, 18*s.* per dozen.
ARAUCARIA IMBRICATA, 1½ to 2 feet, 18*s.* per dozen.

DAVISON AND WHITTEM, Hereford.

Standard Oaks, &c.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers several thousand well-grown transplanted Standard OAKS, from 12 to 14 feet, at 1*s.* 3*d.* each, franco Rotterdam and Harlingen.

ROSA MULTIFLORA DE LA GRIFFERAIE, stocks, 20*s.* per 1000.

ROSA MANETTI, stocks, 20*s.* per 1000.

Samples can be seen at Mr. T. S. WARE'S, Hale Farm Nurseries, Tottenham, near London.

The Nurseries, Dumfries, N.B.

FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, ROSES, GREENHOUSE PLANTS, &c.

Our Stock of the above is one of the largest in Scotland. The Trees and Shrubs are of all ages and sizes, and are well adapted for extensive Planting, or giving immediate effect in the Formation and Improving of Ornamental Parks, Pleasure Grounds, &c.

Priced CATALOGUES free on application.

THOMAS KENNEDY AND CO., Seed and Nursery Establishment, Dumfries.

Grape Vines.

THOMAS METHVEN AND SONS have at present a large and very fine Stock of GRAPE VINES, thoroughly ripened, which they beg to offer at the following prices:—1st size, 7*s.* 6*d.*; 2d size, 5*s.* each.

T. M. & SONS had the honour of supplying to the Gardens at Glamis Castle the Vines which have succeeded so admirably under the management of Mr. Johnston; and their present Stock is raised from eyes taken from these famous Vines.

Leith Walk Nurseries, Edinburgh.—December 1.

Violet.

LEE'S VICTORIA REGINA.—It gives me great pleasure to offer again the above magnificent and exquisitely sweet-scented Violet, which last season gave such remarkable satisfaction, at greatly reduced prices. For LIST of the Trade see the *Gardeners' Year Book* and the *Garden Oracle* for 1875. Extra strong plants, 12*s.* per dozen, 6*s.* 6*d.* per half dozen; smaller, 6*s.* to 9*s.* per dozen, 3*s.* 6*d.* to 5*s.* per half dozen.

Several persons having written for seed of the Victoria Regina, and although a very shy seeder, G. LEE has succeeded in harvesting a small quantity, which he offers in sealed packets at 2*s.* 6*d.* each, post-free.

N.B.—It should be sown in pans not later than the end of December, and kept in a cold pit or frame till well up.

GEORGE LEE, Market Gardener, Clevedon, Somerset.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.

PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.

All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.

POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

JAPAN LILIES.

Our first consignment has arrived in excellent condition, comprising:—

LILIUM AURATUM,
,, COCCINEUM,
,, JAPONICUM (new),
,, TIGRINUM SPLENDENS (very large),
,, THUNBERGIANUM WILSONI,
LILIUM THUNB. MARMORATUM,
,, THUNB. flore-pleno,
,, SPECIOSUM JAPONICUM and KRÆTZERI,
,, KRAMERI,
CYPRIPEDIUM JAPONICUM, &c., &c.

Catalogues free on application.

THE NEW PLANT and BULB COMPANY, COLCHESTER.

COTTINGHAM POMOLOGICAL NURSERIES (Established 1788).

THUJA OCCIDENTALIS, 5 to 6 feet, 50*s.* per 100.
,, (Libocedrus) GIGANTEA, 3 to 4 feet, 30*s.* per dozen.
JUNIPERUS SINENSIS, 3 to 4 feet, 18*s.* per dozen.
,, DRUPACEA, 1½ to 2 feet, 30*s.* per dozen.
LIGUSTRUM SINENSIS, 2 to 3 feet, 30*s.* per 100.
,, JAPONICA, 1½ to 2 feet, 50*s.* per dozen.
BEECH, 2 to 3 feet, 30*s.* per 1000.
PINE, Austrian, 2 to 3 feet, 50*s.* per 1000.
FIR, Scotch, 2 to 3 feet, 20*s.* per 1000.
LAUREL, bushy, 1 to 1½ foot, 8*s.* per 100; 1½ to 2 feet, 10*s.* per 100; 2 to 3 feet, 14*s.* per 100.
,, caucasica, 1½ to 2 feet, 25*s.* per 100.
,, Colchic, 1½ to 2 feet, 15*s.* per 100.

See our General Nursery CATALOGUE.

Martin & Son

Seed Growers, Merchants, and Nurserymen, Cottingham, and 61, Market Place, Hull.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT,

QUEEN VICTORIA STREET,

CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to

THOMAS THORNTON,
Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

TREE FERNS.

THE LARGEST STOCK IN EUROPE, and at Half the Prices usually charged.

Mr. WILLIAM BULL'S ESTABLISHMENT for NEW and RARE PLANTS,
King's Road, Chelsea, London, S.W.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

NEW HYBRID BEGONIAS.

THE following NEW BEGONIAS belong to the handsome-flowered, bulbous-rooted section, and are most desirable acquisitions, as they succeed and bloom well in an ordinary Greenhouse. The Bulbs being similar to those of Gloxinias, and now dormant, can be sent by Post:—

ANACREON, deep crimson, a beautiful flower, very long petals, 7*s.* 6*d.*
BRILLIANT, very rich bright orange, a fine showy flower, 7*s.* 6*d.*
CARDINAL, magnificent variety, fine large flowers of a rich deep magenta-rose, 7*s.* 6*d.*
CAROLINE, deep rosy pink, with broad petals, 5*s.*
CLIMAX, deep rich rosy carmine, broad outer petals, 5*s.*
CORSAIR, rosy salmon, profuse bloomer, 5*s.*
ENSIGN, bright pink, a very elegant variety, 5*s.*
GEM, cream colour, the reverse of the petals pink, 5*s.*
GLITTER, vivid orange-scarlet, extremely showy, 7*s.* 6*d.*
HERMINE, bright orange-cinnamon, very distinct, 5*s.*
LOTHAIR, deep rose, a fine flower, with short broad petals, 7*s.* 6*d.*
LUCINDA, fine flowers with long petals, of a deep rose colour, 7*s.* 6*d.*
MAGNET, light pink, the reverse of the petals deep pink, 5*s.*
MAZEPPA, light cream colour, tinted with orange-pink, 5*s.*
PHYLLIS, delicate sulphur colour tinted with pink, 5*s.*
SERAPH, soft pink suffused with rose, 5*s.*
SURPRISE, bright pink, a very pretty colour, 5*s.*
TROJAN, light rosy pink, very distinct, 5*s.*

The entire Collection of the above Eighteen Varieties for Four Guineas.

Seed of the above New Begonias, separate kinds, 2*s.* 6*d.* per packet; mixed, 3*s.* 6*d.* per packet,

WILLIAM BULL, F.L.S.,
ESTABLISHMENT FOR NEW AND RARE PLANTS.
KING'S ROAD, CHELSEA, LONDON, S.W.

PLANTING SEASON.

RHODODENDRONS

WILL BE SUPPLIED,

In Fifty of the most Popular and finest known Hardy Kinds,

Sturdy, Bushy Plants, 1½ to 2 feet high, at

£10 per 100,

Carriage Free to any Railway Station in England.

Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.

A Descriptive Catalogue free on application to

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

MAURICE YOUNG'S
NEW DESCRIPTIVE CATALOGUE

Is now ready, and may be had on application.

IT COMPRISES:—

HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

NEW CONIFERS.

PICEA CONCOLOR, Engelmann.
PICEA CONCOLOR, var. VIOLACEA, Roezl.
PICEA BIFOLIA, Murray.
PICEA DOUGLASII, var. GLAUCA, Roezl.
PINUS (PSEUDO-STROBUS) ARISTATA, Engelmann.
PINUS CEMBRA FLEXILIS, James.
PINUS (TÆDA) DEFLEXA, Torrey.
ABIES MENZIESII, Dougl., var. ARGENTA, Roezl.

We beg, with particular pleasure, to announce that the Editors of the *Gardeners' Chronicle* have kindly permitted us to deposit at their Office Specimens of Cones and Branches of these MAGNIFICENT NEW SPECIES of CONIFERÆ. They may be inspected by Gentlemen interested. Any information required we shall be happy to communicate. As the value of these Species may thus be easily tested, we hope that Nurserymen will avail themselves of this rare opportunity.

F. SANDER & CO.,
NEW AND RARE SEED IMPORTERS AND GROWERS, ST. ALBANS.

THE LAWSON NURSERIES,
EDINBURGH.

The Extensive Stock of
Seedling and Transplanted Forest Trees, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, &c.,
Is this Season in Splendid Health, and will be Sold at Moderate Prices.

Catalogues on Application, and Special Offers will be made for Large Contracts.

THE LAWSON SEED AND NURSERY COMPANY, LIMITED,
EDINBURGH AND LONDON.
LONDON ADDRESS: 106, SOUTHWARK STREET, S.E.

ESTABLISHED AND IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 14, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED ORCHIDS, including twenty fine strong plants of Odontoglossum Alexandræ, a dozen strong plants of the Dove-Flower (Peristeria elata), and comprising many choice and rare kinds, amongst them the following:—

ODONTOGLOSSUM SCEPTRUM
" ANGUSTATUM
" ODORATUM
" ROEZLII
" CORONARIUM
" GLORIOSUM
" VEXILLARIUM
PESCATOREA CERINA
DENDROBIUM LASIOGLOSSUM
" RHODOCENTRUM
ANGULOA RUCKERI
ERIOPSIS BILOBA
MASDEVALLIA LINDENI
" VEITCHII
" NYCTERINE
" POLYSTICTA
CYPRIPEDIUM NIVEUM
" PARDINUM
" HARRISIANUM
" SCHLIMII
ONCIDIUM MACRANTHUM
" MACRANTHUM HASTIFERUM
" CHEIROPHORUM

—and an importation, from New Grenada, of Odontoglossum Alexandræ and others, Oncidium superbiens, O. Kramerianum, and three new Oncidiums, viz., O. Balderramæ, O. tetracopis, and O. plagianthum. At the same time Mr. J. C. STEVENS will Sell an Importation, ex steamer *Severn*, from La Guayra, of huge and splendid masses of CATTLEYA MOSSIÆ—some of the masses have from forty to fifty bulbs each.

On view the morning of Sale, and Catalogues had.

BEAUTIFUL NEW MASDEVALLIA and ONCIDIUM,

Both Offered for the First Time.

Established Plants of ODONTOGLOSSUM ALEXANDRÆ, ROEZLII, MAXILLARE, and VEXILLARIUM; Good Plants of CATTLEYA GIGAS and DOWIANA, SOPHRONITES GRANDIFLORA, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 21, at half-past 12 o'Clock precisely, by order of Messrs. Veitch & Sons, of Chelsea, a splendid NEW MASDEVALLIA—M. DAVISII. This species has been named and described by Professor Reichenbach as coming near the M. Veitchiana and Harryana section; the flowers are about the size of those of M. Harryana, and of a bright orange-scarlet. Dried flowers will be exhibited at the Sale, and the Plants are in excellent condition. Also a very distinct and fine ONCIDIUM named AUREUM. See dried specimens. The ODONTOGLOSSUM ALEXANDRÆ are Established Plants, and from the same importation which produced the fine O. Andersonianum and other beautiful varieties, and the other Plants offered are all in good health.

On view the morning of Sale, and Catalogues had.

Bouvardias—Vreelandii, jasminiflora, &c.

MESSRS. JOHN STANDISH AND CO.'S Stock of the above beautiful Winter-flowering Plant is exceptionally fine this season. 15s. to 18s. per dozen, fine plants. They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24s. to 36s. per dozen.
Royal Nurseries, Ascot, Berks.

Rhododendrons.

HENRY FARNSWORTH, Matlock Bank, Derbyshire, has to offer a fine stock of the following sizes, and at a very reasonable rate:—
3-yr. Seedling (fine).
3-yr. Seedling and 2 yr. transplanted
3-yr. Seedling and 3 yr. transplanted.
4 to 8 inches, very bushy.
For prices and samples apply as above.

Extra Fine Transplanted Pinus austriaca.

WILLIAM WOOD AND SON have to offer—
PINUS AUSTRIACA, transplanted, 1½ to 2 feet, 20s. per 100; 2 to 3 feet, 30s. per 100.
" " quartered, and three times transplanted, 3 to 4 feet, 75s. per 100; 4 to 5 feet, 100s. to 150s. per 100.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

PEACHES and NECTARINES, in pots, for Forcing; strong pyramids and bushes, in fine fruiting condition.
ROSES (a choice selection) for Forcing or Greenhouse, strong plants, in 6 and 8-inch pots.
STANDARD ROSES, very fine.
Descriptive CATALOGUES sent post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.—(Great Eastern Railway.)

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, **Chester.**

ORCHARD PLANTING.—Stong Standard APPLES, strong Standard Table and Perry PEARS, Pyramid and Dwarf-trained PEARS. A choice Collection of ROSES; strong Common, Colchic, and Portugal LAURELS; LAURUSTINUS, BOX, YEW, and other Evergreens; Evergreen and Deciduous Flowering SHRUBS; Scotch and Spruce FIRS; CHESTNUT, LIMES, and other Forest Trees, up to 12 feet. Prices on application.
CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

Lilies.

MR. WILLIAM BULL, being the largest Importer of LILIES direct from their native habitats, can offer them on special terms by the 100 or 1000 for planting in large groups.
LILIUM AURATUM, small sound English-grown bulbs, 18s. and 24s. per dozen; fine bulbs, on arrival of the annual importations from Japan, 36s. and 42s. per dozen.
" AURATUM RUBRO-VITTATUM, the most handsome of the "auratum" group, 15s., 21s., and 31s. 6d. each.
" BLOOMERIANUM OSCELLATUM (Kellogg), new; first time imported from Santa Rosa Island. Mr. W. B. has imported all and the only bulbs of this Lily that could be found in the Island. 42s. and 63s. each.
" BROWNII, 10s. 6d. each.
" CALIFORNICUM, 5s., 7s. 6d., and 10s. 6d. each.
" CALLOSUM, very rare, 7s. 6d. each.
" CANADENSE RUBRUM, very rare, 5s. and 7s. 6d. each.
" DALMATICUM, exceedingly handsome, 10s. 6d. each.
" HUMBOLDTII, 5s., 7s. 6d., and 10s. 6d. each.
" " PUNCTATUM, 5s., 7s. 6d., and 10s. 6d. each.
" KAMTSCHATCENSE, the Black Lily, 3s. 6d. each.
" MONADELPHUM, one of the most handsome of Lilies, 3s. 6d. each.
" PARDALINUM, 5s., 7s. 6d., and 10s. 6d. each.
" PARVUM, 7s. 6d. each.
" PULCHELLUM, 5s. and 7s. 6d. each.
" ROSEUM, 2s. 6d. and 3s. 6d. each.
" SPECIOSUM ATRO-SANGUINEUM, the most handsome of the whole section; 7s. 6d. each.
" SPECIOSUM KRŒTZERI, flowers of snowy whiteness and symmetrical form, 5s. and 7s. 6d. each.
" TENUIFOLIUM, 3s. 6d. each.
" THUNBERGIANUM SPLENDENS, one of the best of the Thunbergianum group, 3s. 6d. and 5s. each.
" TIGRINUM FLORE-PLENO, the most handsome of the double-flowering Lilies, 5s., 7s. 6d., and 10s. 6d. each.
" TIGRINUM SPLENDENS, 3s. 6d. and 5s. each.
" WASHINGTONIANUM, 3s. 6d., 5s., and 7s. 6d. each.
" WASHINGTONIANUM PURPUREUM.—This Lily is well figured in *Florist* for November; no more of it can be found in its native habitat. 7s. 6d. and 10s. 6d. each.

The above are a few choice Lilies, of which Mr. B. holds a large stock.

GOOD and VARIED SELECTIONS of LILIES made, at 12s., 18s., 30s., and 42s. per dozen.

Where the selection is left to Mr. W. B. the Catalogue Prices are not strictly adhered to, the Purchaser being given a considerable advantage.

Mr. WILLIAM BULL'S Annual Importations from California of CALOCHORTUS of sorts, CYCLOBOTHRAS, BLOOMERIA, and BRODIÆAS, have now been received.

ESTABLISHMENT FOR NEW AND RARE PLANTS,
KING'S ROAD, CHELSEA, LONDON, S.W.

To the Trade and Others.—Cheap Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the following various plants, of which he has a good stock :—

AZALEAS, Ghent, fine named varieties, 9*s.* per dozen.
RHODODENDRONS, hardy hybrid, choice named varieties, [12*s.* per doz.
MAGNOLIA GRANDIFLORA, 9*s.* per doz.
,, PURPUREA, bushy, 9*s.* per dozen.
,, EXONIENSIS, strong, in tubs, 21*s.* each.
,, MACROPHYLLA, strong, 7*s.* 6*d.* each.
MENZIESIA POLIFOLIA, alba and rosea, 6*s.* per dozen.
PÆONIES, Tree, fine, named, 15*s.* per dozen.
SKIMMIA JAPONICA, 6*s.* per dozen.
ARALIA SIEBOLDII, strong plants, 12*s.* per dozen.
ROSES, Standard Perpetual, £4 per 100.
,, Dwarf, 50*s.* per 100.
,, Tea, choice, 18*s.* per dozen.
,, Climbing, choice, 9*s.* per dozen.
LILIUM LANCIFOLIUM RUBRUM, 9*s.* per dozen.
,, ,, ALBUM, 12*s.* per dozen.
,, ,, PUNCTATUM, 9*s.* per dozen.
,, ,, RUBRUM, extra, 18*s.* per dozen.
,, SUPERBUM, 9*s.* per dozen.
,, TESTACEUM, 12*s.* per dozen.
,, POMPONICUM, 6*s.* per dozen.
TRITOMA UVARIA GRANDIFLORA, 25*s.* per 100.
ASCLEPIAS TUBEROSA, flowering roots, 25*s.* per 100.
IRIS HISPANICA, in fine varieties, 12*s.* per fifty roots.
CYPRIPEDIUM PUBESCENS, 18*s.* per dozen.
SARRACENIA PURPUREA, 24*s.* per dozen.
YUCCA FLEXILIS, 6*s.* per dozen.
,, RECURVATA, fine, 12*s.* per dozen.
,, ALOIFOLIA, fine, 12*s.* per dozen.
FUNKIA UNDULATA, fol. elegantissimus var., 50*s.* per 100.
HEMEROCALLIS FULVA, flore-pleno, 9*s.* per dozen.
HELLEBORUS ABSCHASICUS, flore-rubro, 40*s.* per 100.
,, ,, flore-albo, 40*s.* per 100.
CONVALLARIA MAJALIS, flore-rosea, 6*s.* per dozen.
,, ,, flore-pleno, 6*s.* per dozen.
,, ,, foliis striatis, 6*s.* per dozen.
ANEMONE HEPATICA, roseo-pleno, 6*s.* per dozen.
,, PULSATILLA, 6*s* per dozen.
ADONIS VERNALIS, 4*s.* per dozen.
SPIRÆA JAPONICA, strong clumps, 21*s.* per 100.
PHORMIUM TENAX, 18*s.* to 24*s.* per dozen.
,, VEITCHII, fol. var., 10*s.* 6*d.* each.
,, COLENSOI, fol. var., fine plants, 21*s.* each.
OTAHEITE ORANGES, 12*s.* to 18*s.* per dozen.
ORANGE TREES, fine, 21*s.* per pair.
AZALEAS, Indian, with flower-buds, £4, £6, to £8 per 100.
CAMELLIAS, with flower-buds, £6 to £8 per 100.
,, without buds, £5 per 100.
,, Double White, without buds, 24*s.* to 36*s.* per dozen.
,, strong plants, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
FUCHSIA SUNRAY, fol. var., 6*s.* per dozen.
PETUNIA ERMENEA REVEIL, fol. var., 6*s.* per dozen.
CYCAS REVOLUTA, 60*s.* per dozen.
,, ,, very strong and fine specimens, 105*s.*
,, MEDIA, 48*s.* per dozen.
,, CIRCINALIS, 60*s.* per dozen.
AGAVE, twelve fine varieties for 24*s.*
ECHEVERIA ATROPURPUREA, 6*s.* per dozen.
,, CALOCEPHANE, 6*s.* per dozen.
BROMELIACEOUS PLANTS, of sorts, 24*s.* per dozen.
MUSA ENSETE, 21*s.* each.
,, SUPERBA, 60*s.* per dozen.
,, ROSACEA, 18*s.* per dozen.
FICUS ELASTICA, 12*s.* to 24*s.* per dozen.
GARDENIA RADICANS and FLORIDA, 6*s.* per dozen.
JASMINUM GRANDIFLORUM, 9*s.* per dozen.
DIOSMA PURPUREA, 6*s.* per dozen.
GREVILLEA ROBUSTA, 12*s.* per dozen.
CYPRIPEDIUM INSIGNE, 24*s.* per dozen.
,, MAULEI, 48*s.* per dozen.
,, BARBATUM, 18*s.* per dozen.
PASSIFLORA, of sorts, 12*s.* per dozen.
COFFEA ARABICA, 18*s.* per dozen. [per dozen.
AMARYLLIS RETICULATA STRIATIFOLIA, 12*s.* to 18*s.*
GLOXINIAS, strong bulbs, fine mixed, 25*s.* per 100.
,, in named varieties, 6*s.* per dozen.
ACHIMENES, in sorts, 15*s.* per 100.
CALADIUMS, twelve fine varieties for 15*s.*
BEGONIAS, fine foliaged varieties, 6*s.* per dozen.
,, bulbous varieties, fine mixed varieties, 18*s.* per dozen.
MARANTAS, in fine varieties, 18*s.* per dozen.
CROTON, in fine varieties, 18*s.* per dozen.
CAMPYLOBOTRIS, in fine varieties, 18*s.* per dozen.

FERNS.

LOMARIA ZAMIOIDES, fine plants, 24*s.* per dozen.
,, GIBBA, 6*s.* to 9*s.* per dozen.
,, FALCATA, 6*s.* to 9*s.* per dozen.
BALANTIUM ANTARCTICUM, 40*s.* to 60*s.* per 100.
DARÆA DIVERSIFOLIA, 6*s.* to 12*s.* per dozen.
ALSOPHYLLA AUSTRALIS, fine, 9*s.* per dozen.
GYMNOGRAMMA, of sorts, 9*s.* per dozen.
PTERIS CRETICA, albo lineata, 42*s.* per 100.
SELAGINELLA, of sorts, 6*s.* per dozen.
ADIANTUM, of sorts, 42*s.* per 100.

PALMS.

PHŒNIX RECLINATA, fine young plants, 18*s.* per dozen
,, ,, in store pots, 2-yr. old, 25*s.* per 100.
CHAMÆROPS FORTUNEI, fine plants, 18*s.* per dozen.
,, HUMILIS, 2-yr. seedlings, 63*s.* per 100.
,, ,, fine plants, 24*s.* to 36*s.* per dozen.
CORYPHA AUSTRALIS, fine, 18*s.* to 24*s.* per dozen.
ARECA LUTESCENS, fine plants, 5*s.* each.
,, VERSCHAFFELTII, fine plants, 5*s.* to 7*s.* 6*d.* each.
,, SAPIDA, fine plants, 15*s.* each.
LATANIA BORBONICA, 18*s.*, 24*s.*, and 36*s.* per dozen.
,, ,, young specimen plants, 6*s.* to 8*s.* each.
PTYCHOSPERMA ALEXANDRÆ, fine plants, 36*s.* per doz.
KENTIA BOLMOREANA and FORSTERIANA, fine
SABAL ADANSONII, 24*s.* per dozen. [plants, 21*s.* each.
EUTERPE EDULIS, 18*s.* per dozen.
MAXIMILIANA REGIA, 18*s.* per dozen.
COCOS CORONATA, 30*s.* per dozen.

CONIFERS.

ARAUCARIA IMBRICATA, 1 foot, 63*s.* per 100.
WELLINGTONIA GIGANTEA, 6 to 9 inches, 50*s.* per 100.
CUPRESSUS MACROCARPA, 25*s.* per 100.
PINUS EXCELSA, 3-yr. seedlings, 21*s.* per 100.
,, DENSIFLORA, 1½ to 2 feet high, 18*s.* per dozen.
THUJA ELEGANTISSIMA, 42*s.* per 100.
,, VERVÆNEANA, strong, 18*s.* per dozen.
LARIX KÆMPFERII, seedlings, 30*s.* per dozen.
THUJOPSIS DOLABRATA, 1 foot, 9*s.* per dozen.
,, BOREALIS, fine plants, 9*s.* per dozen. [per 100.
CEDRUS DEODARA, fine stuff, 4-yr. transplanted, 63*s.*
ABIES NORDMANNIANA, 1½ foot high, fine plants, 30*s.* doz.

Reference from unknown Correspondents.

Agents: Messrs. R. SILBERRAD AND SON, 5, Harp Lane, London, E.C.

MR. LAXTON'S

NEW PEAS, 1875.

UNIQUE (Dwarf).—First-class Certificate.

DR. HOGG.—First-class Certificate.

SUPPLANTER.—First-class Certificate.

☞ *For particulars of these, with* Connoisseur, *see previous Advertisement.*

HURST & SON,
6, LEADENHALL STREET, LONDON, E.C.

TO THE TRADE.

RARE CONIFERÆ SEEDS,

FROM THE ROCKY MOUNTAINS, COLORADO,
Collected by Mr. B. ROEZL.

It affords us much pleasure to inform the Trade that we have been entrusted with the Sale, in Great Britain, of the following rare and thoroughly reliable Seeds, most of them quite new and not imported before :—

PICEA CONCOLOR, Engelmann.—In Mr. Roezl's opinion this is by far the most beautiful of all Piceas, even surpassing lasiocarpa, with which it is nearly related though perfectly distinct. It is easily distinguished from the latter by the strongly glaucous, almost bluish white colour of the leaves, which extends to both the under and the upper surface of the leaves—a fact quite unique in Piceas, adding to the value of this noble species. The leaves are closer together, more crowded than those of lasiocarpa, and turned upwards; there is a vast difference between the two, concolor being by far the most superior and beautiful. The tree is of medium size, not above 100 feet high. The horizontal spreading branches imitate the elegant habit of Araucaria excelsa. The quality of the seed we offer is very good, 35 per cent. of perfect seeds being a fair average. Price 2*s.* 6*d.* per 100, £1 per 1000, £4 per 5000, £7 per 10,000 seeds.

PICEA CONCOLOR, var. violacea, Roezl.—A distinct variety of the former, the cones being of a deep violet colour instead of greenish grey. The quality of the seed attains the very maximum of Picea seeds; 40 per cent. is quite perfect. Price 2*s.* 6*d.* per 100, £1 per 1000, £4 per 5000, £7 per 10,000 seeds.

PICEA BIFOLIA, Murray.—The seeds now offered are the first ever imported of this fine species, which is nearly related to P. magnifica, resembling it in its short, thick, and all upward-turned leaves; there are botanical differences between the two, the principal one being the distinction in size and colour of the cones—the latter are, in bifolia, much smaller, and dark blue. Seed of excellent quality: 40 per cent. good. Price 1*s.* 6*d.* per 100, 12*s.* per 1000, £2 10*s.* per 5000, £4 per 10,000 seeds.

PICEA (TSUGA) DOUGLASII, Lindley.—Well known as a very fine, distinct, and free-growing species. Seeds of best quality; 80 per cent. good. Price 6*d.* per 100, 4*s.* per 1000, 15*s.* per 5000, £1 5*s.* per 10,000 seeds.

PICEA (TSUGA) DOUGLASII. var. glauca, Roezl.—A very distinct and pretty variety; the under side of the leaves quite glaucous; 80 per cent. good seeds. Price 1*s.* per 100, 8*s.* per 1000, £1 10*s.* per 5000, £2 10*s.* per 10,000 seeds.

ABIES MENZIESII, Dougl., var. argentea, Roezl.—If any of the Fir tribe deserves the name of Silver Fir it is, according to Mr. Roezl, this variety of Menziesii; the leaves shine and glitter like silver. This variety, so he informs us, cannot be recommended too highly. Seed most excellent; 90 per cent. perfect. Price 6*d.* per 100, 4*s.* per 1000, 15*s.* per 5000, £1 5*s.* per 10,000 seeds.

PINUS (PSEUDO-STROBUS) ARISTATA, Engelmann.—A very distinct and pretty species, quite new to our gardens and very different from any other of its tribe. A very compact, dwarf tree, the branches closely covered by its leaves, of a bright green colour. Cones almost black, easily recognised by the very thread-like awn on each scale. It is to be regretted that Mr. Roezl could only gather a very small quantity of seed. It is the first, however, that has reached Europe of this interesting kind. Quality excellent, 90 per cent. good. Price 6*s.* per 100 seeds.

PINUS (CEMBRA) FLEXILIS, James.—A real sub-alpine species, ascending the mountains higher than any other Conifer. It is of very compact growth, growing to a very dwarf, low tree in those high regions, though it forms in lower, more favourable localities, fine trees from 30 to 40 feet high. Seed wingless and edible. Quality first-rate, 90 per cent. perfect. Price 1*s.* 6*d.* per 100, 12*s* per 1000, £2 10*s.* per 5000 seeds.

PINUS (TÆDA) DEFLEXA, Torrey.—A quite new species, not been previously introduced into Europe. Related to P. muricata, forming a stately tree; leaves very long and thick. Seed of best quality, 80 per cent. good. Price 1*s.* per 100, 8*s.* per 1000, £1 10*s.* per 5000, £2 10*s.* per 10,000 seeds.

PICEA LASIOCARPA VERA.—The true long-leaved species. Price 2*s.* per 100, 16*s.* per 1000, £3 per 5000, and £5 per 10,000 seeds.

PICEA MAGNIFICA, Murray.—Rare and little known. Price 2*s.* per 100, 10*s.* per 1000, £3 per 5000, and £5 per 10,000 seeds.

PICEA MAGNIFICA MACROCARPA.—Price 1*s.* 6*d.* per 100, 12*s.* per 1000, £2 10*s.* per 5000, and £4 per 10,000 seeds.

PICEA (STROBUS) LAMBERTIANA.—The gigantic Sugar Pine. Price 1*s.* per 100, 7*s.* 6*d.* per 1000 seeds.

For description of above varieties see large advertisement in *Gardeners' Chronicle* of December 5, p. 702.

We have deposited at the *Gardeners' Chronicle* Office branches, cones, and seeds of some of the new species of above Conifers, where they may be seen and inspected by gentlemen interested in this beautiful tribe of plants. We received with the invoice of above some seeds of—

YUCCA ANGUSTIFOLIA, Pursh.—This beautiful Yucca is one of the very best of Mr. Roezl's introductions, discovered by him about two years ago. Mr. Roezl describes it as not only the most beautiful, but the hardiest of all known Yuccas, growing in very poor, strong, and dry soil, exposed to the bright sun, and standing the severe winters of its native country. Price 1*s.* 6*d.* per 100, 12*s.* per 1000, £2 10*s.* per 5000, and £4 per 10,000 seeds.

Our TRADE CATALOGUE of CONIFERÆ, TREE and SHRUB SEEDS is now ready, and will be forwarded, gratis, on application to

F. SANDER & CO.,
NEW and RARE SEED IMPORTERS and GROWERS,
ST. ALBANS.

MONRO'S
DUKE OF EDINBURGH CUCUMBER.

First-Class Certificate, Royal Horticultural Society, 1873.

For Photograph of House and Certificates see "Gardeners' Chronicle," October 31, 1874.

TO THE TRADE ONLY.

SEEDS OF THE ABOVE CUCUMBER

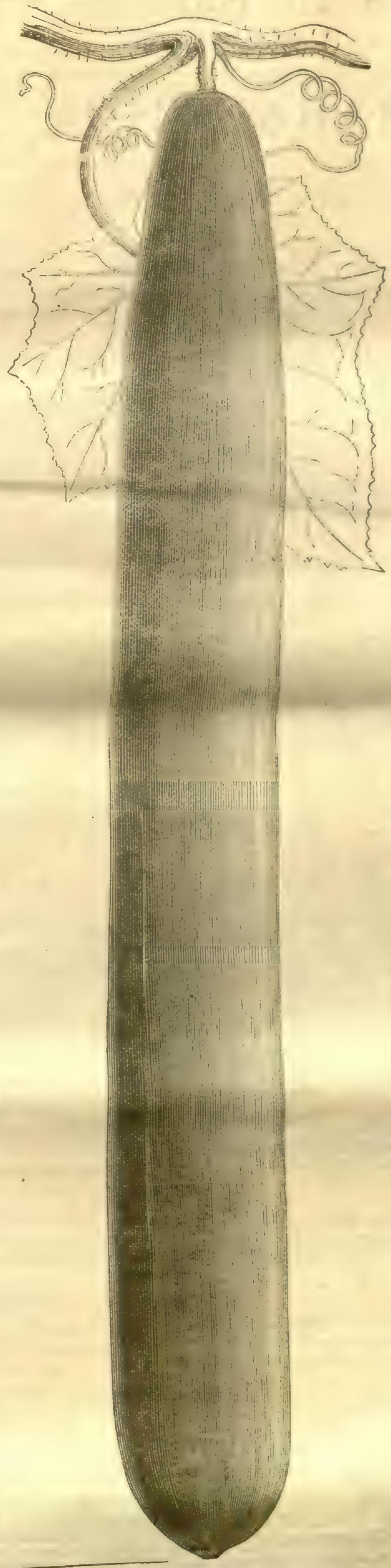
will be sent out to the Trade by

J. MONRO himself.

Orders sent off same day as received till Stock is exhausted, Carriage paid.

Post Office Orders at Potter's Bar, N.

Price per 100 Seeds, £1; 500, £4 10s.; 1000, £9.



PRIZES OFFERED.

To Show that the above Cucumber is all that it is represented to be, J. MONRO will,

AT THE

Great Provincial Exhibition

OF THE

ROYAL HORTICULTURAL SOCIETY,

IN 1875,

GIVE THE FOLLOWING PRIZES:—

£3 for the best brace; £2 for the second best; and £1 for the third.

ALSO, AT THE

Great International Exhibition at Edinburgh, 1875,

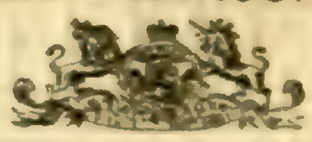
£3 for the best brace; £2 for the second best; and £1 for the third.

LIST of FIRMS PURCHASING SEED will be Published in the last Number of the *Gardener's Chronicle* for 1874.

Electros of large block (see *Gardeners' Chronicle* for October 31, *p.* 545), 9*s.* each, must be ordered one week before wanted, as first stock is exhausted.

J. MONRO, POTTER'S BAR, N.

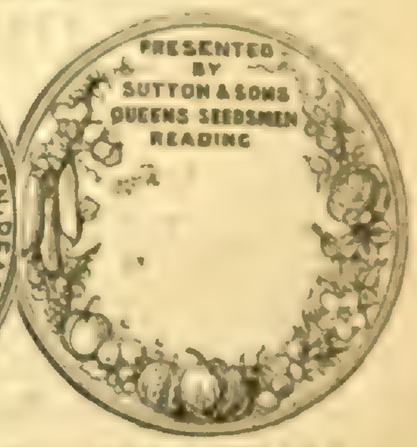
IMPORTANT ANNOUNCEMENT.



SUTTON & SONS

Will have the pleasure of offering through the medium of the Royal Horticultural Society during the ensuing season,

SIXTEEN



GOLD, SILVER, and BRONZE MEDALS,

AND VALUABLE MONEY PRIZES,

FOR THE BEST

Collections of Vegetables, Flowers, FRUITS, AND POTATOS,

As see the following particulars:—

Date of Meeting, 1875.

June 2. — For the best six dishes of PEAS (½ peck of each to comprise a dish), to include Suttons' Emerald Gem, Suttons' Ringleader, and Suttons' New Early Dwarf Wrinkled Pea, Bijou	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
For the best four sorts of MELONS and four sorts of CUCUMBERS, one brace of each, to include Suttons' New Scarlet-flesh Hero of Bath, Read's Hybrid Scarlet-flesh, and Suttons' Royal Horticultural Prize Melons, and Suttons' Duke of Connaught and Marquis of Lorne Cucumbers ..	Gold	1st Prize, Medal and	£3	3	0
	Silver	2d Prize, Medal and	£2	2	0
	Bronze	3d Prize, Medal and	£1	1	0
July 7. — For the best six dishes of PEAS (½ peck of each to comprise a dish), to include Suttons' Duchess of Edinburgh, Suttons' Giant Emerald Marrow, Suttons' Duke of Edinburgh, and Maclean's Best of All	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
Sept. 1.—For the best collection of twenty-four ASTERS, twelve varieties, consisting of the varieties offered in Suttons' *Spring Catalogue and Amateur's Guide for* 1875	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
Nov. 10. — For the best twelve "Suttons' Improved" Reading ONIONS	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0
For the best collection of POTATOS, twelve dishes, twelve tubers to comprise a dish, distinct kinds, half Kidney and half Round, to include Suttons' Hundredfold Fluke and Suttons' Red-skin Flourball	Gold	1st Prize, Medal and	£3	3	0
	Silver	2d Prize, Medal and	£2	2	0
	Bronze	3d Prize, Medal and	£1	1	0
For the best six CAULIFLOWERS (Suttons' King) ..	Silver	1st Prize, Medal and	£2	2	0
	Bronze	2d Prize, Medal and	£1	1	0

CONDITIONS OF COMPETITION.

These Prizes are confined to Noblemen's or Gentlemen's Gardeners and Gentlemen Amateurs, and (excepting Fruits) must be grown without forcing and in the open ground.

Full particulars of several Novelties will appear in

SUTTONS' SPRING CATALOGUE

And AMATEUR'S GUIDE for 1875,

Gratis to any Member of the Royal Horticultural Society, or intending competitors for the above prizes.

Sutton & Sons

THE QUEEN'S SEEDSMEN, READING.

SPECIALITIES IN CHOICE FLOWER SEEDS

FOR 1874-5, OFFERED BY

HURST & SON, 6, LEADENHALL STREET, LONDON, E.C.

PRICE TO THE TRADE AND FURTHER

LISTS OF NOVELTIES IN GARDEN AND FLOWER SEEDS

ON APPLICATION.

HYBRID AMARANTHUS "HENDERI."

This splendid variety of Amaranthus is acknowledged by all who have seen it to be the best Amaranthus ever offered. The plants naturally grow perfect pyramids, and if grown on for specimens they would attain the height of from 3 to 5 feet, with about 30 to 40 side-shoots branching close to the ground, the plant measuring at the base from 2 to 3 feet; but if required for table decoration they can be grown in smaller pots for that purpose.

When young, the colours of the leaves are brown madder and bronze; as they grow larger each plant assumes its distinctive colours.

Seed—Retail, 2s. 6d. per Packet.

The leaves vary in length to 12 inches, all gracefully bending.

This strain of Amaranthus differs from all others ever sent out; being a cross between Amaranthus elegantissimus, A. tricolor, and A. salicifolius, it has produced a range of colours never before seen in any class of plant. From its graceful habit and brilliant colours it produces a striking effect, either for Table Decoration, Conservatory, or Sub-tropical Gardening.

Seed—Retail, 2s. 6d. per Packet.

ACACIA RICEANA (New).

This new variety is said to be the most graceful and beautiful of all Acacias. Figured and described in the *Botanical Magazine* for May, 1870. Stock limited.

1s. 6d. per packet.

BEAUCARNEA TUBERCULATA (Pincenectitia tuberculata).

We have received from Mexico a Seed Importation of this rare and exceedingly beautiful Greenhouse Plant; well adapted alike for table, basket, and pedestal decoration.

2s. 6d. per packet.

MIGNONETTE, THE NEW PRIZETAKER (Latest Novelty).

This variety has taken Prizes at all the Exhibitions on the Continent, and excels all other varieties in beauty of colour and size of flower, and can really be recommended.

2s. 6d. per 250 seeds.

MARIGOLD (French).

Brotherton's extra choice strain, the best in cultivation, having been carefully saved for a number of years. It has taken numbers of First-class Prizes in Leeds and the neighbourhood; from the shape and size of the flower they might be termed Camellia-flowered. The stock is very limited.

1s. per packet.

RHODANTHE MANGLESII, fl.-pl. (Prince Bismarck).

This new double variety is undoubtedly a great acquisition, and well worthy of extensive cultivation. The flowers are very large and double.

First quality, 2s. 6d. per packet; second quality, 1s. 6d. per packet.

CRUSSELL'S INTERNATIONAL PRIZE AFRICAN and FRENCH MARIGOLDS.

Seed of this celebrated strain, which is the result of fifteen years careful selection, is now offered for the first time. Every seed sold guaranteed to be saved from flowers of equal merit to those shown at the International Exhibition, Manchester, September 3, 1873—of which Bruce Findlay, Esq., writing to Mr. Crussell, says: "I am sorry to say your glorious flowers did not arrive until ten o'clock on the 3d, after the judging was over. They were, however, awarded an Extra Prize, equal to First."

1873.

Sept. 3.—International Exhibition, Manchester .....12 African, 1st prize.

Sept. 3.—Saffron Walden { 6 African, 1st prize. 6 French, 1st prize.

Sept. 18.—Cambridge .. { 6 French, 1st prize. 6 African, 1st prize.

1874.

Sept. 7.—Brighton, 24 African, not for Competition, Extra prize.

Sept. 7.—Saffron Walden { 6 African, 1st prize. 6 French, 1st prize.

Sept. 15.—Cambridge .. { 6 African, 1st prize. 6 French, 1st prize.

Not for Competition, 24 French, Extra prize.

Oct. 7.—Royal Horticultural .. { 24 African, 24 French } Vote of thanks.

1s. per packet.

NEW AUTUMN and WINTER-FLOWERING WALLFLOWER, HARBINGER.

This extremely early-flowering variety of this popular flower will be found one of the greatest acquisitions yet introduced. Seeds sown in March have produced flowers as early as October. It continues in bloom through the winter months (unless very cold), and thereby insures cut blooms of this favourite sweet-scented flower, either for market or private use, when no other outdoor flowers, and very few greenhouse flowers can be had. It is very hardy. The flowers are a good rich lively red.

1s. per packet.

THE MOST IMPORTANT PRIZE

OFFERED TO

GARDENERS, GENTLEMEN, AMATEURS, and OTHERS,

During the year 1875, is

THE CARTER CUP,

VALUE FIFTY GUINEAS,

Which is to become the absolute Property of the Winner, and will be awarded at the *Provincial Show of the Royal Horticultural Society, under the following Conditions :—*

FIRST PRIZE—The "CARTER CUP," Value FIFTY GUINEAS, to become the absolute property of the Employer to whom the Prize may be awarded, also Ten Guineas for the Gardener.

SECOND PRIZE—Seven Guineas.

THIRD PRIZE—Five Guineas.

FOURTH PRIZE—Three Guineas.

FOR THE

Best Collection of Vegetables, 24 Dishes,

TO INCLUDE

½ peck Carter's Early Premium Gem Pea.
½ ,, James' Prolific Pea.
½ ,, G. F. Wilson Pea.
½ ,, Hardy's Pedigree Windsor Bean.
½ ,, Carter's White Advancer French Bean.
½ ,, Carter's Champion Runner Beans.
½ ,, Blue Peter Pea.
½ ,, Carter's Commander-in-Chief Pea.
½ ,, Carter's New Mammoth Long Pod Bean.
*Carter's New Fern-leaved Parsley, and Little Heath Melon.

* Owing to the difficulty that would be experienced in getting this Parsley to perfection in time for the show any other good curled variety would be eligible.

Conditions, &c.—All vegetables to be grown by *bonâ fide* Gentlemen's Gardeners or Gentlemen Amateurs, and in the open ground, excepting Cucumbers and Melons. The following to comprise dishes :—Of Peas, half peck (unless otherwise stated); Onions, 12; Melons or Cucumbers, 1 brace; Beet, 3; Potatos, 18; Cauliflower, 2; Parsnips, 6; Celery, 3; Broad Beans, 18 pods; French Beans, 24 pods.

Many valuable prizes will also be offered at the London Shows of the Royal Horticultural Society during the year by JAMES CARTER AND CO.

Pretty Flowers in Winter and Spring.

Carter's Popular Guinea Collection of Bulbs

For the OPEN GROUND, contains :—

12 Named Hyacinths, distinct
12 Mixed Hyacinths
6 Polyanthus Narcissus
12 Double White Narcissus
12 Narcissus Poeticus
25 Extra Fine Double Tulips
25 Extra Fine Single Tulips
50 Yellow Crocus
50 White Crocus
50 Blue Crocus
50 Striped Crocus
12 Star of Bethlehem
12 Extra Fine Spanish Iris
50 Winter Aconites
25 Extra Fine Persian Ranunculus
25 Extra Fine Anemones
12 Extra Fine Fritillarias, mixed
12 Blue Scillas

PACKING AND CARRIAGE FREE.

OTHER COLLECTIONS, price 10s. 6d., 42s., 63s., and 84s.

20s. value carriage free.

We allow a Discount of 5 per Cent.

CARTER'S,

The Royal Seedsmen, High Holborn, London, W.C.

SATURDAY, DECEMBER 12, 1874.

AT GHENT.

FIRST, as to the orthography of the name of this celebrated factory of plants, whether flowering or flowerless. *Ainsworth's Latin Dictionary* gives it as Gandavum, Ghent, the metropolis of Flanders, a noble town, and of great antiquity, formerly Ganda and Clarinæa. The French call it Gand, suggesting to Charles V. his punning boast that he could put all Paris into his gand (*gant*, or glove). The town, however, who ought to know best, calls herself Stad Gent, the Town Gent, which might be adopted unchanged, did not the word gent, with the *g* soft, suggest to the mind a variety of the human species differentiated from the normal type by rather vulgar peculiarities. By the insertion, therefore, of an *h*, we make the *g* hard, retain the native pronunciation, and write it Ghent.

On leaving the station of the Chemin de Fer de l'Etat, Stad Gent lies all before you where to choose that first requirement of the traveller, a comfortable hotel. Novels say exceedingly little of the eating, drinking, and sleeping of their personages; but a narrative of facts, which may perhaps induce others to verify them personally, cannot utterly omit points of such primary necessity. A satisfactory inn, the Hôtel de l'Etoile, known to the writer, has been closed more than a twelvemonth, though the name still lingers in guide books and on the front of the house. Now it is a slight annoyance to enter a dwelling where you expect to make yourself at home for a while, and to find that it no longer entertains strangers. It is a serious inconvenience to give a rendezvous in a foreign town to friends intending to join you in a tour, at a hostelry which no longer exists. One or two narrow escapes from this mischance suggest the mention that the Hôtel de l'Etoile is no longer open; but in following to the right the Rue de la Station, leading into the Place d'Artevelde, at least one clean, comfortable, and reasonable hotel may be found, and it is convenient on many accounts to be in close proximity to your railway station, especially here, if only for the reason that you can at once step into a tramway car, or take one of the hackney carriages called *vigilantes*.

In Belgian hotels, wine (mostly French), being an imported article, is naturally dearer than in the wine-producing countries of the Continent, and is considered as an extra; that is, it is rarely included in the price of a repast. Beer, generally bad, is not permitted to appear at table, especially at dinner. Beer-drinkers must gratify their longing by imbibing it at the *café* or the *estaminet*. The writer was once told by a Belgian innkeeper that, as a very great favour, he might have a bottle of beer taken up to his bedroom. In one *restaurant-estaminet* in Ghent (clean bedrooms) you may drink beer (not bad) in the *restaurant* dining-room (good cookery) at supper only, and all day long in the contiguous *café-estaminet* of the same establishment. Lovers of the peculiar aroma of Rhine wines will get them good in Belgium, and less expensive than in other countries out of Germany. Of course, though often with high-sounding names—Johannisberg, Hochheimer, Liebfraumilch, and the like—they are only excellent second or third qualities, very palatable as well as wholesome beverages, which sufficiently nourish the bodily man without bleeding his pocket too freely.

As a rule, at the Ghent hotels, breakfast is taken separately, and independently, at the guest's choice and convenience, the only *table d'hôte* meal being dinner, at twelve, half-past, or one o'clock. If that hour does not suit, you must take your chance and trust to your host's complaisance and culinary resources for a dinner *à la carte* in the evening. Some impertinent person has said that nobody but children and savages dine at 1 o'clock; with whom must be included the active working gardeners, and probably all the business people of Ghent. It is useless to go to gardens between twelve and two, if you wish to see them leisurely and without a sense of inconveniencing their owners. If, therefore, you don't dine when they dine at Ghent, you must fill up the small noontide hours with a biscuit, a native cigar, a nap, or other pastime which unstrings your intellectual bow.

Perhaps you will choose to wander about, to make your remarks and observations. In summer the stranger is struck, at Ghent, with the immense number of swifts that people the air (and which eat the gnats, which are bred in the canals), the young birds wheeling amongst themselves in throngs, and screaming in delight at their new existence. In which habit they are imitated by the juvenile Flemings, who, both boys and girls, run, laugh, and sing together, in distinct and closely-grouped companies, like flocks of frisky lambs of exactly the same age. But a striking point in Flemish popular manners, is the forming themselves into bands and societies. Small corporations or clubs for the cultivation of some special pursuit, archery, music, or gardening, are common, frequently under the protection of some favourite Saint. Ghent itself is well stocked with societies, *cercles*, and clubs; aristocratic, plebeian, and intermediate; splendidly, comfortably, and modestly lodged, besides, perhaps, several not lodged at all. During your lounge you fancy that the town, notwithstanding its large population and its trade, must be half asleep without the chance of ever waking. Business may be transacted there, but it is done in the quietest possible way. That the repose of the place is more apparent than real, and that active life is going on within, is plain from the Belgian fashion of sticking looking-glasses outside the windows, at angles which allow the inmates to catch a glimpse of passers-by without being seen themselves. To enter, say a lace and embroidery warehouse, you may have to ring at the door, as if it were a private house. After waiting awhile, you will be duly admitted to make your purchase, much in the style of a morning call. In the modern quarters you lose yourself between unbroken lines of smooth-faced houses, into which everybody seems literally to have retired on their property.

Starting from your inn to pay your visits, a good plan for a stranger who knows where he wants to go, but does not know the way to get there, is to step into the tramway car (they run through the leading thoroughfares to the most important localities in the town, the cost being two and three sous the ride: the front or balcony, I think, only one), which will carry him to the point nearest to his destination. Still better is it to take one of the much-laughed-at *vigilantes*, by the hour, if you will, which are cheap, roomy (holding four commodiously, unless persons of *ne plus ultra* corpulence), and though slow, are sure, and civil in return for civility.

Ghent is a difficult town to find your way about. Print the plan of a rectangular and rectilinear-streeted city on a square of white calico; set four people of unequal strength to pull it, one at each corner, as awry as they can; then

starch and iron it; and you have an idea of the plan of Ghent. The streets are neither crooked nor straight; they are curved with a most misleading imperceptibility. Long, slightly-warped lines of uniform white-painted houses offer no landmark to the explorer's eye. A few old picturesque gables remain, where they are not wanted as guide-posts, in the market places. There are few streets with brilliant shops or which you can call grand arteries of communication. Numerous canals give to numerous buildings a deceptive appearance of being moated: but, to aggravate the uniformity, the river which runs through Ghent, the Lys, and which here joins the Escaut, flows (when it does flow) with so sluggish a stream, that one feels inclined to give it a push, to compel it to move on more quickly.

Each house being thus own brother to its next-door neighbour on either side, and every street being cousin-german to every street which leads into or out of it, you are frequently either brought to a standstill, or lured on, wandering, into a waste of time and a fruitless expenditure of pedestrian energy. There is no Fleet Street, no Rue St. Honoré, to help you onward along its stream. Parlour windows, here and there, may show a few specimens of greenhouse produce; butchers' shops may be adorned with foliage plants, to contrast with and garnish the fatted calf; but they are only bits of local colouring, samples of the staple manufacture of the town, which afford no indication of your locality. At the end of half-an-hour's perambulation, you are further from your object than when you set off. To thread this provoking labyrinth of linked sameness long drawn out (which makes the town seem much bigger than it is), a *vigilante* is your readiest assistant. Its sober pace rests your weary limbs, and gives you time to read and study as you ride the Flemish inscriptions on the walls and windows. "Huis te huren," you learn, is "House to hire, or let." You approve "The Golden Flower" as the appropriate sign of a public-house whose customers derive their silver and copper, as well as their gold, from floricultural sources.

"Hi! *vigilante*, number one on the row! To the Boulevard de la Byloque, driver, wenn sie wollen." (A German word in season, in Belgium, often smooths a heap of difficulties; they think you are trying to speak Flemish, and take it kindly.) Several horticultural stars of the first magnitude that shine in the firmament of Ghent have already been catalogued in the *Gardeners' Chronicle* (1873, pp. 544, 580, 649, and 682). Let us peep at a few of minor pretensions. After being wheeled to the Boulevard de la Byloke (as it is likewise, perhaps correctly, spelt), we pass through an unpretending door in a wall, and are in the establishment of Messrs. F. Gazelle & Son, a restricted nook, sheltered to the north-west by the immense mass of the Military Hospital, a convent some hundred and sixty years ago, whose modern use seems preferable to persons with modern ideas. Moreover, besides the screen it affords, it renders actual service to horticulture. Its cellars are vast, and being only partially underground, are in parts not wholly devoid of the light of day. In these lighter portions were being stored for the winter the old trained standard Bay and Laurustinus trees, in tubs and boxes, which are one of the specialities of the house, and which hybernate in that situation from November to April. The darker portions are devoted to a purpose to be mentioned hereafter. These standard evergreens, for avenue, terrace, and gallery decoration, are of considerable value when made, because they take a long time in making, especially as the object is to have them in pairs. Unpaired plants are of inferior worth. Nice specimens are to be had here for £8 the couple and upwards; other subjects, bought of the grandees of the trade, fetch many times that sum. The British market is of enormous capacity, but it does not take in—that is, it has not a taste for—everything. Among the articles which escape its swallow, with rare exceptions, are the remarkable standard Bays and Laurustinuses, which are principally called for by Germans, Russians, Swiss, and other nations of central and eastern Europe. At MM. Gazelle's, one wonders to see how much work can be done in so little space. They have quantities of seedling Wood Laurel, Daphne Laureola, for working choicer and tenderer Daphnes upon; charming variegated Hollies, grafted; beds of Rhododendrons, grafted low, and full of buds; houses for Camellia multiplication, besides single plants that strike the eye, such as Yucca aloifolia variegata. Here, also, we first made acquaintance with that pretty little pigmy, Nertera depressa (see *Gardeners' Chronicle*, Oct. 24, 1874), sprinkled with orange-red berries the size of a Pea, which look as if they had been rained or hailed on the plant. It is one of the things the French call *gazons*, turfs, from their mossy, carpet-like, spreading growth, which must become a favourite for rockeries and suchlike. I have planted one in the middle of an earthen pan, which I expect it will convert into a green cushion spotted with bright terra-cotta beads.

Two of a trade seem to agree, at least here, for M. Gazelle has a gate opening out of his garden into that of his next garden neighbour. Invited to pass from one to the other, perhaps we shall find that their trades, though both are *horticulteurs* in style and title, are not exactly the very same.

(To be continued.)

New Garden Plants.

ODONTOGLOSSUM LACERUM, *Lindl. Sert. Orch. sub t.* 25; *Id. Odontoglossum Folia*, No. 54; *Walp. Annal.* vi. 843.*

"Pseudobulbs ovate, or tapering, with a narrow neck, dark green in colour. They are profusely speckled with dark spots in the young home-made growths. Leaves 11 inches long, upwards of 1 inch broad, slightly channelled above, carinate below, shortly acuminate. Spike upwards of a foot long, 6—7 flowered. Through the similarity of colour the flowers resemble those of O. Lindleyanum, but the growth and habit remind one of O. luteopurpureum sceptrum." These are the remarks with which Mr. Gower sends blossoms of this highly interesting plant, which flowered recently in Mr. Williams' well-known Victoria and Paradise Nurseries, Upper Holloway. It is an uncommon pleasure to see a plant previously known in the scientific world only by a single specimen in the Hookerian collection, gathered by Matthews in Peru, 1835, numbered Casapi, 1867. Having been allowed, thanks to Sir William's unrivalled liberality, to prepare a very careful sketch of the rather insignificant specimen, I feel very fortunate in being able to name the plant. The single difference is that the blotches of the petals stand in the centre of the petals in the wild plant, while they stand on the base in Mr. Williams' flowers. Mr. Gower thinks of the probability of a cross breed. It may be so, yet those parents which could have produced it (Lindleyanum and luteopurpureum) are not yet found in Peru, and neither would they have escaped the lynx-eyed Matthews, whose investigations were unfortunately interrupted by his death, which originated from his own wife, it is well known. *H. G. Rchb. f.*

PYRUS (§ CYDONIA) MAULEI.

We are now able to complete our account of this plant, already figured by us at p. 757, vol. i., by an additional illustration (fig. 144) representing the fruit, and which was exhibited at South Kensington recently by the introducers, Messrs. Maule & Sons, of Bristol. The fruit is of a yellowish colour with red streaks and blotches, and has a sharp acid flavour. When made into jam, however, the taste is very agreeable and distinct, and much more so to our palate than the ordinary Quince. The plant is, as our former illustration shows, an extremely ornamental one, it is hardy, and its fruit constitutes a new and agreeable variety among culinary fruits. It is quite distinct from Pyrus (§ Cydonia) japonica, and flowers later. *M. T. M.*

* Pseudobulbis pyriformibus compressis; foliis cuneato-ligulatis acutis; pedunculo subpaniculato distantifloro; sepalis tepalisque cuneato-oblongis acuminatis; labello unguiculato; lamina cuneato-oblonga acuta seu acuminata; antice utrinque lacero-serrata; carinis geminis in laminæ basi antice acutis; apiculo interjecto, apiculo antice utrinque, apiculis geminis extrorsis altius insertis; columna gracili medio angulata, apice alis semioblongis lobatis. Flores illis Odontoglossi Lindleyani, Rchb. f., majores, intense flavi, maculis magnis brunneis intus in sepalis, parvis basi in tepalis.

THE LINDLEY MEDAL.

As a pendent to the remarks on the Lindley Medal, published at p. 676, we print the following authentic list of the awards already made:—

1. Messrs. J. Veitch & Sons—Collection of Orchids, Dec. 19, 1865.
2. Mr. William Bull, F.L.S.—Collection of Plants, Jan. 23, 1866.
3. Messrs. J. Veitch & Sons—Collection of Orchids, April 17, 1866.
4. Mr. P. Parkes, Gr. to G. Cooper, Esq.—Three varieties of Phalænopsis Schilleriana, March 5, 1867.
5. Mr. J. Taplin, Gr. to the Duke of Devonshire—Cœlogne cristata, Feb. 18, 1868. [Now of South Amboy, New Jersey, U.S.A.]
6. Messrs. J. Veitch & Sons—Collection of Orchids, Feb. 18, 1868.
7. Mr. J. Goode, Gr. to Dowager Lady Ashburton—Magnificent specimen of Lilium auratum, with 152 flowers, Aug. 17, 1869. [Since left.]
8. Mr. J. May, Gr. to Louisa Lady Ashburton—Phalænopsis Schilleriana, with 280 flowers, March 15, 1871. [Since left.]
9. Mr. M. Needle, Gr. to H.R.H. The Comte de Paris—Group of Ophrys and Orchis, April 5, 1871.
10. Mr. W. Denning, Gr. to Lord Londesborough—Specimen of Vanda teres, May 17, 1871.
11. Mr. T. Baines, Gr. to H. L. Micholls, Esq.—Fine plant of Nepenthes Rafflesiana, with forty-seven pitchers, Aug. 21, 1872.
12. Mr. W. Denning, Gr. to Lord Londesborough—Utricularia montana, May 21, 1873.

ORANGES AND LEMONS.

THE approach of the great festive season of the year brings with it its customary decoration of the shop windows of our towns and villages; and this decoration attracts in its turn a crowd of eager admirers, whose admiration is, in many cases, hardly lessened by the knowledge that this is almost the only share of Christmas festivities which is likely to fall to their lot. Certainly, the shops in their Christmas array—each adorned after its own fashion—are a pretty sight, quite pretty enough to excuse loitering in the streets to admire them; and among them all there are few prettier than those of the grocers, where the most luscious of Plums, the whitest of Almonds, the gayest of fancy boxes, the most brilliant (and the most injurious?) of preserved fruit, the brightest of Lemons, and the most candied of candied peel, vie with each other in their claims for admiration. The story of a Christmas pudding has more than once formed the subject of a popular lecture, and it would certainly not be wanting in variety and incident. Let us take one item alone—the candied peel, placing beside it the pale yellow Lemons and some Oranges from the neighbouring greengrocer's, and see what we can gather about their history.

The *Forest Flora of British India* recently published by Dr. Brandis has already been noticed in these pages, and to it we are indebted for some interesting details regarding the Citrus medica, under which the Lemon, Lime, and Citron are included. A notable instance this of the variation of a species under cultivation, although one to which it would not be difficult to find many parallels among cultivated plants. Of all these, the Citron is the only one described by the classical writers, and by some commentators it is supposed to have furnished the "Apples of gold" of the authorised version of the Bible. The name Citrus first occurs in the works of Pliny, and he mentions its use in Rome, to which city it was no doubt imported, as it does not appear to have been cultivated in Italy much previous to the third century. The wood of the tree was much esteemed for the making of tables; so much so, that Martial says that a table of citron-wood cost more than one of gold. In Media and Persia it was cultivated before the conquest of Alexander the Great, and it was from the former country that it was first introduced into Europe under the name of Malus medica. It was anciently valued on account of its strong aromatic odour as an antidote against poison, and the Chinese are accustomed to place the cut fruit upon porcelain dishes, and expose it to the air, so that they may enjoy its fragrance.

Oranges and Lemons—which may be considered in some particulars under one head, as they are in the accounts relating to trade and navigation, whence we

learn that the value of those imported during 1873 amounted £1,120,309—appear to have been brought from India to Arabia, Syria, and Egypt, in the ninth or tenth century, and were introduced to Southern Europe by means of the Crusaders and the trade connection between Italy and the East. They were not commonly grown in Italy and the South of France before the fourteenth century. The bitter Orange was the one first introduced, and the sweet Orange did not make its appearance in Europe until much later. Whether it came by way of Syria, or was brought by the Portuguese from India or China, is not certain, although the finding of sweet Oranges in Syria by the Portuguese is especially mentioned in the account of Vasco di Gama's voyage. Dr. Brandis says:—

"A comparison of the European, Sanskrit, and Arabic names of the Citron, Orange, and Lemon, confirms the result of historical research regarding the spread of their cultivation. The Sanskrit name of the Citron, Vijapura, never went far west. At the time of Alexander the Great the fruit was known under the name of Persian and Median Apples, and was afterwards called Citrus, the Latin term for κέδρος, by which the Cedar, Juniper, and other aromatic and resiniferous coniferous woods were designated, which, like the Citron, had the property, or were supposed to possess the property, of keeping away insects. On the other hand, the words Limone, Lime, Lemon, evidently derive their origin from the Arab Limu; and this name probably had a Sanskrit origin. The Sanskrit word Nagaranga, for Orange, is readily traced in the Arab Narang, and the European terms Aranzio, Pomerange, Orange. Again, the word Portogallo, by which the sweet Orange is known in parts of the Mediterranean region—for instance, in Greece and Albania—is quoted in proof of the introduction of the fruit by the Portuguese, in the same way that the German (and Prussian) term Apfelsine, seems to point to its having been brought from China."

It is asserted by some that the first sweet Orange tree brough to Europe was introduced by Jean de Castro, who travelled in Asia in 1520; and it is added that Orange trees are still preserved at Cintra as memorials of this. It is, however, stated on good authority that an Orange tree was planted about 1200 by St. Dominic in the garden of the convent of St. Sabina at Rome; and this tree, or a descendant of it, still exists, or did exist until very recently. It was introduced to England about 1596, having been brought from Italy by Sir Francis Carew, or, as another tradition states, raised by him from the seeds of the first Oranges brought into England by his uncle, Sir Walter Raleigh. The finest trees existing in our country are probably those at Suorgony, in Glamorganshire, which produce abundant fruit, and are said to date from the time of Henry VII. Evelyn mentions having seen those planted by Sir Francis Carew, which were in his time in decay, and "had then been standing 120 years, large and goodly trees." This note is of the year 1700, and would make the date of the introduction of Orange trees to England somewhat earlier than that given above. The trees referred to were killed by the severe frost of 1739-40. The cultivation of Oranges was fashionable in the seventeenth century; Queen Henrietta Maria had an orangery at Wimbledon; and Evelyn says that in 1679 he gathered "China Oranges off his own trees, as good, I think, as ever were eaten." There are some very fine Orange trees near Milis, in Sardinia, which are more than 6 feet in girth, and said to be 700 years old.

The varieties of the Orange are very numerous—so numerous, indeed, that any attempt at a description of them would occupy more space than is at our disposal. A passing note may be made upon the employment of Orange-blossom at weddings, of the origin of which but little is known beyond a vague tradition that the Saracens considered the plant an emblem of fertility. There is, however, a legendary story to the following effect, which if in any way "founded on fact" may account for the favour shown to the Orange-blossom on such occasions. There was a certain Spanish king who had an Orange tree, which he so greatly prized that a special gardener was kept to attend to it, who was forbidden to appropriate to himself any of its blossoms, fruit, or cuttings. The French Ambassador, who had long desired a cutting or a young plant, discovered one day that the gardener's son was enamoured of a certain beautiful damsel, that "the attachment was mutual," and that the want of money wherewith to settle was the only obstacle to their happiness. He therefore bribed the young gardener handsomely to obtain a plant for him, who did so, and at the same time secured a branch of blossoms, with which his betrothed adorned her dark hair at the wedding, which shortly followed. Unfortunately, however, the king, prowling about the town *incognito*, met the happy pair leaving the church; and, his suspicions being aroused at the sight of the flowers, he caused inquiries to be made, which resulted in the discovery of the theft. The beauty of the young bride, however, made so favourable an impression upon the monarch that he graciously consented to pardon the offender, and of course "they all lived happy ever after." *B. M.*

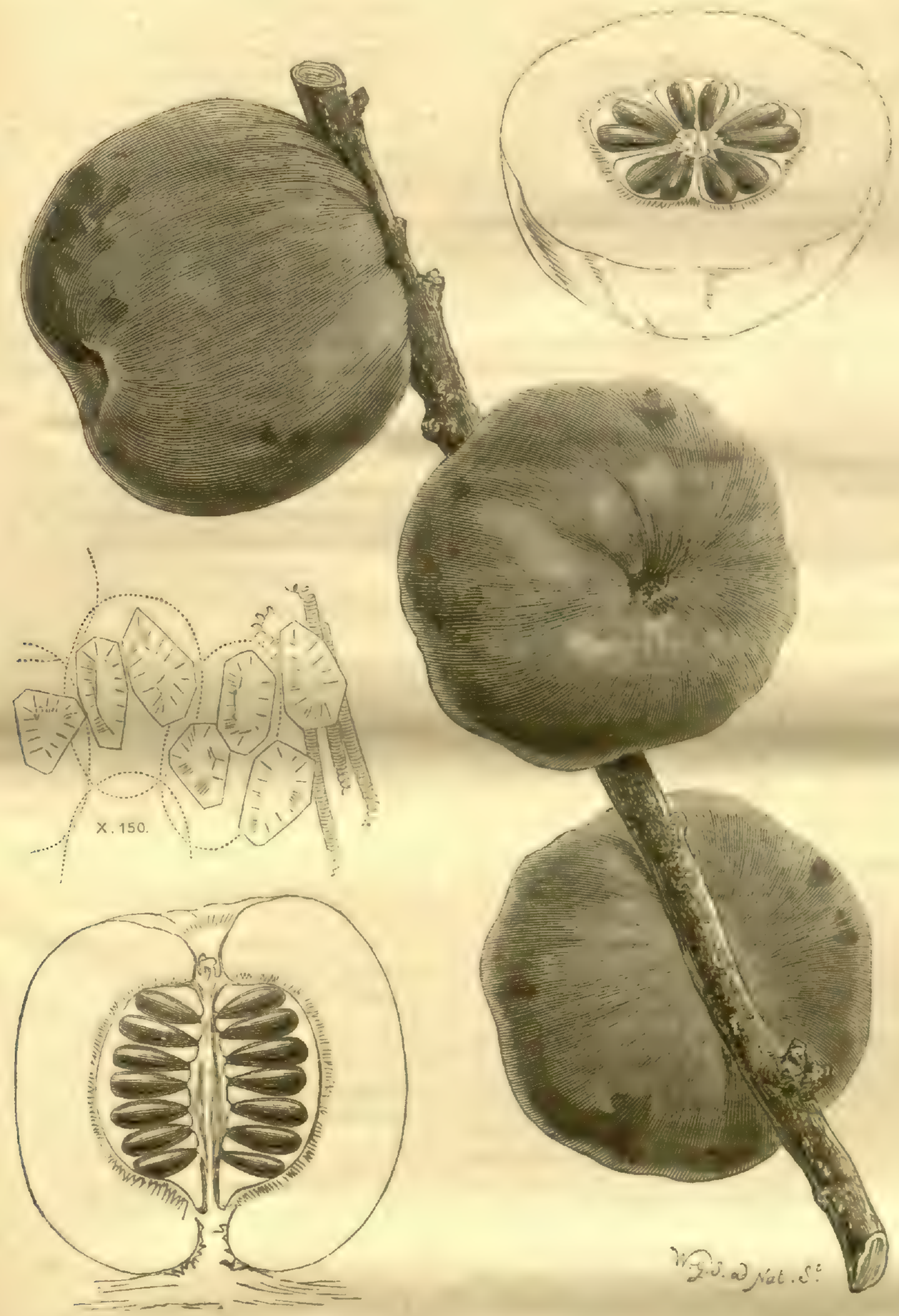


FIG. 144.—PYRUS MAULEI.

Transverse and longitudinal sections, nat. size; wood-cells (grit) and spiral vessels magnified 150 diam.

TRANSMUTATION OF WHEAT.

EVERY zoologist will stand aghast (or smile) at Mr. Thomas Meehan's statement to the Philadelphia Academy of Natural Sciences (p. 654) relative to his experience as to the viviparousness of the toad and the swallowing of her young by the snake; while every botanist will do the same at his assertion that Wheat will turn to Chess (Bromus secalinus, which seems in America to go also by the significant name of Cheat !), and all will remark that the story of the snake has in England its parallel in the case of the viper, and the Wheat-Brome belief is represented with us by the idle tale of the Oat-Barley. As one of your constant readers, I am glad to see your zoological correspondent "R.'s" remarks (p. 714) on the stories of the toad and the snake, while as a botanist I feel the same disposition to resent that of the Wheat-Brome as "R." evidently does those of the toad and snake. The mischief likely to result from such a communication is increased by the fact that as to the toad, the snake, and the Wheat, each statement professes to be based on the personal observations of Mr. Meehan himself, who must be considered a fortunate man indeed if he have been able to speak to three such apparent marvels as having fallen within the limits of his own personal experience. The mischief is further aggravated by the statement of Mr. Meehan's belief that, as to the toad, although the idea was "once derided by intelligent men, most zoologists now admit it to be true," and that as to the snake, it was "on overwhelming evidence before the American Association admitted as scientific truth." Again, with respect to the Wheat-Brome, Mr. Meehan distinctly negatives the possibility of there having been "any accidental union of two culms," because he says "the most careful examination both by himself and friends, aided by pocket glasses, had failed to detect any such union." Now I could tell a story, but it is too long to relate here at length (although I feel disposed to do so some day with your leave), of a spike of Barley having been brought to me, with portions of the panicle of the cultivated Oat apparently growing out of the rachis of the Barley, and exhibited as unmistakable evidence of a case of incomplete transmutation. At first sight I must confess to being somewhat startled at what I had always demanded as evidence of the possibility of the alleged complete transmutation, and which I had never seen before; but with the aid of a common lens or pocket glass I was enabled to see at once that the ear was one of mere Barley, with which, while both ears were in a young state, a portion of the panicle of an Oat had become entangled, but without being severed from its own proper stalk, and in that way the Barley ear and the Oat had grown together side by side till the harvest, but of course without any vital union between them, and at harvest time the Barley ear had been severed from the Oat, but retained a portion of the Oat panicle, apparently but not really forming part of it. The case in question had deceived every farmer to whom it had been shown, and it was thought such a wonder that before I had the privilege of inspecting the ear itself, it had been photographed, and the photographs were on sale in the university town of Cambridge, and if I had only seen the photograph (which was startling enough) and not requested to be allowed to examine the original (which the farmer who showed it to me had carefully placed as a great curiosity in a little slide-box which had been made expressly for it), I might to this day have laboured under an impression that it was a genuine case of incompleted or transitional transmutation. When, however, I ascertained the real truth of the matter, my former disbelief in all such cases was strengthened up to the point of conviction that such transmutation never does take place, and that the popular belief on the subject is a mere delusion without any basis of truth to rest upon. *W. Marshall, Ely, December* 6. [We quite agree with our correspondent, and have no doubt that our good friend Mr. Meehan has been mistaken, although the publi-

cation of his statement in the Philadelphia Academy of Sciences gives it additional claims for consideration. EDS.]

OPEN AIR BORDER PLANTS.

(*Continued from p.* 678.)

VI.—SIBERIA.

Anemone narcissiflora (?)
*Aquilegia glandulosa
,, truncata (?)
Delphinium cheilanthum
*Pæonia tenuifolia fl.-pl.
,, albiflora
Papaver bracteatum
*Corydalis nobilis
Dianthus dentosus
Lychnis fulgens
Silene Schafta
Hypericum elegans (?)
Lathyrus mutabilis
Orobus Fischeri
Thermopsis fabacea
*Spiræa venusta
Sedum Ewersii
,, populifolium
Saxifraga crassifolia
Adenophora coronata
Campanula sarmatica
Gentiana gelida
Dracocephalum speciosum
Pulmonaria dahurica
*Primula cortusoides
Statice eximia
Corydalis bracteata
Polygonatum roseum
Veratrum nigrum
Eremurus spectabilis
Fritillaria kamschatcensis
*Lilium tenuifolium
,, avenaceum
*Tulipa Greigii
,, biflora
Hemerocallis Middendorfii
†Iris lævigata
,, setosa
†Cypripedium macranthum

VII.—HIMALAYA MOUNTAINS.

Anemone vitifolia
Aquilegia fragrans
Anemone obtusiloba
†Meconopsis Wallichii
†Podophyllum Emodi
Hypericum patulum
Geranium Lambertii
Dictamnus himalayensis
Potentilla atrosanguinea
Spiræa bella
Astilbe rubra
†Saxifraga purpurascens
Morine longifolia
Erigeron Roylei
Cyananthus lobatus
Cathcartia villosa
†Androsace lanuginosa
*Primula denticulata
† ,, Munroi
† ,, sikkimensis
†Primula erosa
Polygonum Brunonis
,, vaccinifolium
Glossocomia ovata
Rheum Emodi
Wulfenia Amherstiæ
Campanula Thompsoni
Thermopsis barbata
†Amphicome Emodi
†Paris polyphylla
†Roscoea purpurea
†Polygonatum oppositifolium
†Fritillaria rosea
,, Roylei
Lilium giganteum
† ,, Wallichianum
Tricyrtis macropoda
Tulipa stellata
Iris decora
,, fragrans

VIII.—CHINA AND JAPAN.

Anemone japonica
* ,, ,, alba
Aconitum sinense
Delphinium sinense
Pæonia albiflora Reevesii
Trollius Fortunei
Epimedium macranthum
*Dielytra spectabilis
Lychnis Bungeana (?)
*Spiræa palmata
†Sedum Sieboldii
*Hoteia japonica
Saxifraga Fortunei
Anemonopsis japonica
Campanula nobilis
*Primula japonica
†Plumbago Larpentæ
†Asarum japonicum
*Bocconia japonica
†Rehmannia sinensis
Rosa bracteata
Funkia ovata
* ,, grandiflora
Hemerocallis Dumortieri
* ,, fulva fol. var.
*Lilium tigrinum splendens
,, Thunbergianum
† ,, longiflorum
,, Leichtlinii
†Tricyrtis hirta
Barnardia scilloides
Tulipa edulis
†Iris fimbriata
† ,, tectorum
*† ,, Kæmpferi
Ophiopogon spicatum
†Reineckia carnea
Pardanthus sinensis
Bambusa Fortunei fol. var.

IX.—EASTERN STATES OF NORTH AMERICA.

Anemone Nuttalliana
Aquilegia canadensis
! †*Hepatica angulosa
Thalictrum anemonoides
†Jeffersonia diphylla
†*Sanguinaria canadensis
Corydalis aurea
*Dicentra eximia
Delphinium azureum
†Podophyllum peltatum
†Sarracenia purpurea
Viola pedata
,, cucullata
Silene virginica
Oxalis violacea
Baptisia leucophæa
Waldsteinia trifoliata
Gaura Lindheimeri
Œnothera serrulata
,, macrocarpa
†Rhexia virginica
†Cornus canadensis
Houstonia cœrulea
†Mitchella repens
Aster grandiflorus
* ,, longifolius speciosus
Rudbeckia serotina
Chelone obliqua
Gaillardia grandiflora
Liatris spicata
Monarda didyma
Stokesia cyanea
†*Lobelia cardinalis
† Menziesia empetrifolia
†Epigæa repens
†Gaultheria procumbens
†Pyrola elliptica
†Chimaphila umbellata
Galax aphylla
†Apocynum androsæmifolium
*Asclepias tuberosa
†Spigelia marilandica
*Phlox setacea
,, reptans alba
*Mimulus cardinalis
Dodecatheon Meadia
†Primula pusilla
Allium tricoccum
*Camassia Fraseri
Polygonatum giganteum
Smilacina racemosa
Streptopus roseus
Uvularia grandiflora
Erythronium americanum
†Helonias erythrosperma
†*Lilium superbum
† ,, carolinianum
†*Trillium grandiflorum
† ,, erythrocarpum
Iris cristata
,, versicolor
†*Cypripedium spectabile
† ,, pubescens
†Calopogon pulchellus
†Orchis spectabilis
†Habenaria psychodes
† ,, fimbriata

X.—WESTERN STATES OF NORTH AMERICA.

*Aquilegia cœrulea
* ,, chrysantha
Arabis blepharophylla
Lupinus nutkatensis
,, polyphyllus
Œnothera marginata (?)
*Saxifraga peltata
Silene Hookeri
Helenium Bolanderi
Asclepias Douglasii
Pentstemon speciosus
,, Jeffreyanus
†Dodecatheon integrifolium
* ,, Jeffreyanum
†Primula Parryi
Heuchera micrantha
†Lewisia rediviva
Spragnea umbellata
Ribes speciosus
Rubus deliciosus (?)
†Zauschneria californica
Corethogyne spathulata
Viola pedunculata
Spiræa Douglasii
Allium acuminatum
Brodiæa coccinea
,, grandiflora
†Calochortus Leichtlinii
† ,, venustus
† ,, Gunnisoni
†Cyclobothra pulchella
† ,, alba
*Erythronium giganteum
Fritillaria recurva
,, lanceolata
†*Lilium Humboldtii
† ,, pardalinum
,, Washingtonianum
*Sisyrinchium grandiflorum album
Triteleia laxa
†Iris tenax
,, Douglasii

XI.—OTHER PARTS OF AMERICA, INCLUDING CHILI, PATAGONIA, AND HIGHLANDS OF SOUTH AND CENTRAL AMERICA.

*Aquilegia Skinneri
†Viola pyrolæfolia
Tropæolum speciosum
* ,, polyphyllum
*Oxalis floribunda
,, lasiandra
*Geum coccineum
†Fuchsia corallina
Calandrinia discolor
* ,, umbellata
Francoa ramosa
†Nertera depressa
†Lobelia splendens
†Tupa Feuillei
Mimulus cupreus
Calceolaria Kellyana (hyb.)
Ourisia coccinea (?)
†Primula magellanica
*Begonia Veitchii
† ,, octopetala
†Callixene polyphylla
Gunnera scabra
†Verbena venosa
*Alstrœmeria aurea
,, aurantiaca
,, brasiliensis
†Cypella Herbertii
*Triteleia uniflora
*Zephyranthes candida
† ,, carinata
†Habranthus roseus

XII.—CAPE OF GOOD HOPE. ‖

†Oxalis Bowei
† ,, cernua
*† ,, speciosa
† ,, lobata
†Stobæa purpurea
Anchusa capensis
Hebenstreitia dentata (?)
Anomatheca cruenta
*Kniphofia caulescens
* ,, Uvaria
*Schizostylis coccinea
*Sparaxis pulcherrima
*Tritonia aurea
*Crinum capense
*Amaryllis Belladonna
*Sprekelia formosissima
Gladiolus, Ixia, Babiana, Sparaxis } in variety
†Hyacinthus candicans

H. J. Elwes.

THE OLD WALLS AT KEW.

(*Concluded from p.* 648).

THE season being now so far advanced that the study of plants in the open air is no longer either so pleasant or so profitable an occupation, I purpose bringing my notes on the "Old Walls at Kew" to a conclusion with this paper. I have by no means exhausted my subject; but the interest of such notes must, in a great measure, depend upon the reader being able to follow them, either in his own garden, or some other place as the public garden in question. However, if the Editors approve [Yes] I shall venture on a new series of articles devoted to the consideration of some of the more interesting forms of vegetable life in the various plant-houses at Kew.

Before leaving my favourites for those of warmer climes, I wish to say a few words respecting some of those yet unmentioned. Nearly all those I have selected for mention to-day belong to one or the other of the tribes of the Leguminosæ. I have already alluded to the numbers and the general distribution of this vast family, and shall, therefore, confine myself now more especially to the peculiarities of the species I am passing in review. The evergreen Laburnum, Piptanthus nepalensis, is a handsome yellow-flowered shrub, but it cannot at all compare with the familiar and unsurpassably beautiful Laburnum of our shrubberies. It is a native of the Himalaya Mountains, from the Sutlej valley to Bhotan, hence its specific appellation from Nepal, the name of a large portion of this district. It grows in shady woods at an elevation of 7000 feet to 9000 feet, and is hardy in the south-west of England, but needs the protection of a wall northwards. Even in the vicinity of London it suffers from the cold of severe winters. Like Anagyris fœtida, mentioned in one of my earlier papers, it is an outlier of the tribe Podalyriæ, characterised by having ten free stamens. Thermopsis fabacea from North Asia belongs to the same tribe; and this genus and the handsome white, yellow, or blue-flowered Baptisias from North America include nearly all the scattered members—the great majority inhabit Australia and South Africa. Piptanthus has trifoliolate leaves, strongly resembling those of the common Laburnum, but we find a peculiarity in the stipules worth attention. As in most Leguminosæ, there are two on the base of each leaf, but here they are united by their outer edges, with the appearance of being only one, and that opposite to the leaf. The flowers are large, in erect bracteate racemes; and from a peculiarity in their falling we get the generic name πίπτω (*pipto*), to fall, and ἄνθος (*anthos*), a flower. The unusual feature in the fall of the flower is the abruptly deciduous calyx, leaving the base of the young pod quite bare. The next plant is Lupinus arboreus, a hardy shrubby species of a familiar genus, composed mainly of herbaceous plants. Introduced so long ago as 1793, and figured in the *Botanical Magazine*, plate 682, it is still almost unknown beyond botanic gardens, though it is deserving of a better fate. It has bright clear yellow flowers, and leaves much like those of L. polyphyllus. The native country of this plant was for a long time uncertain, but it is now known to be Mexico, and it appears to be perfectly hardy about London, where it ripens seed in the open air. Lupinus is said to be derived from *lupus*, a wolf, in reference to the soil-exhausting effects of certain species; but the application is not quite clear. It is, however, a curious fact, and worth setting down here, that leguminous plants have baffled all the attempts of experimental agriculturists to grow them successfully on the same land year after year. Mineral manures, including potash in abundance, give the best results; but it still remains to be discovered what constituents should be applied, and in what form, to obtain fair crops year after year on the same land. Another remarkable fact (proved by the extensive experiments of Lawes and Gilbert, at Rothamsted) is the small amount of nitrogenous manures Leguminous plants are capable of appropriating, although, as is well known, they contain a large quantity of nitrogen in their composition. Indeed, where most nitrogen is applied, whether in the form of ammonia salts or nitrate of soda, there is least development of leguminous herbage. But this is a digression. Lupinus belongs to the tribe Genisteæ, which is mainly composed of shrubby plants, and usually has all the stamens united in a sheath—monadelphous. With the exception of a few annual species in the Mediterranean region, this genus is confined to America, and chiefly to North America. At the moment I am writing I have not the means of ascertaining how early true Lupins were known in the Old World, or whether the "Lupinus" of the Romans ("a pulse of most bitter taste") really belongs to the genus; but it seems quite possible that they were originally introduced from America. True, we have genera of trees and shrubs represented in the two regions by different, though very closely allied, species. Take the Plane, Hop Hornbeam, and Liquidambar, for example; nevertheless, the herbaceous vegetation does not offer any striking instances of similarity that I can remember.

The next in order is one of the Broom genus, Genista monosperma, sometimes called Retama monosperma. It is a shrub with long, slender, flexible branches clothed with a few scattered leaves, reduced to a single leaflet, or often quite naked, before the flowers appear in summer. The petals are yellow and the calyx brown. It is not of a highly ornamental character, but well adapted in habit for training up the supports of a verandah, &c., in the milder parts of the kingdom. I have no experience of its hardiness, but should expect that it would need extra protection north of London, as it is a native of the Mediterranean region. The derivation of Genista is variously explained. Some think it is from the Celtic *gen*, a bush; and others from the Latin *genu*, a knee.

The genus Medicago (the Greek name for some species) is familiar to us in the Nonsuch, M. lupulina, and the Lucern, M. sativa. M. arborea, the species I have in view, differs from most of its congeners in being woody, forming a shrub of considerable size in its native country, the South of Europe. It possesses no special attraction, but it belongs to a genus remarkable for the beautiful structure and variety of shape of the pod or seed vessel of its numerous species. This is usually folded spirally, and the spire elegantly reticulated or clothed with its straight or curved bristles. Some of them very much resemble the shell of a Helix. Our native species show this peculiarity, but they are not so beautiful as some of the South European forms.

I have one more species of the sub-order Papilionaceæ to mention, and that is Desmodium podocarpum. It belongs to the tribe Hedysareæ, known by having transversely jointed pods, which usually part at the joints when ripe. This species is a native of the mountains of India, and singular in having its pods generally reduced to one joint. I have not seen it in flower, but from dried specimens I should think they must be small and inconspicuous. D. penduliflorum is a recently introduced Japanese species with purple flowers, and described as hardy; but from what I have seen of it, I doubt its hardiness. D. gyrans is called the Moving Plant, from the remarkable rotatory motion of its leaflets during the day.

In addition to the Papilionaceæ, the Leguminosæ includes two other sub-orders, viz., the Mimoseæ, of which the now familiar Bottle-brush tree, Acacia lophantha, is a good representative, and the Cæsalpinieæ, to which Cercis, Gleditschia, and the genus Cassia belong. The principal distinguishing character between the latter and the Papilionaceæ is in the arrangement of the petals, the upper one being innermost in the Cæsalpinieæ. Cassia is a very large genus, chiefly consisting of shrubs and trees, but C. marilandica is herbaceous, or may be treated as such, like a Fuchsia. It grows about 3 or 4 feet high, and bears showy racemes of yellow flowers. North America is its native country, where it is called Wild Senna. The pinnate leaves of this genus have no odd terminal leaflet.

The Elm genus, Ulmus, is now represented in our gardens not only by the typical Wych and Common Elms, but also by numerous elegant varieties of these and some of the North American species. On the wall there is a pretty Chinese Elm, named Ulmus chinensis, but it has an older name—parvifolia. This has very slender hairy branches, and nearly sessile ovate-lanceolate coarsely crenate leaves, about an inch long. It is said to be tender in the climate of Paris, but it is most likely hardy enough for the south-west of England and Ireland. There is, however, a closely allied tree from the Caucasus, Planera Richardi, or Zelkova crenata, which is perfectly hardy at Kew,

‖ I know very few plants from this country, except bulbs, that can be called hardy, and many of these will do better kept in a frame during winter. This section may therefore be omitted.

where there are some fine large trees of it. In foliage it resembles an Elm, but in its manner of branching it approaches the Beech, though in this respect it has a character peculiarly its own. I have mentioned this ornamental tree here, because it is deserving of general cultivation, like many others that our nurserymen seem to have discontinued to raise, though many less hardy things are recommended. P. aquatica is a distinct species from North America, and not quite so hardy.

Once more I will take my readers to the distant southern country, New Zealand, or rather, introduce another of its vegetable products to them. It is the Muhlenbeckia complexa, a near relation of the weed Persicaria, and formerly called Polygonum complexum. The form in cultivation in this country appears to be a barren one. And here I may remark that probably the flora of no country exhibits so large a proportion of polymorphous species, and species represented by barren forms, as New Zealand. Any one who has had anything to do with the plants of that country will remember the difficulty of discriminating the forms. The form of Muhlenbeckia complexa in cultivation has long, exceedingly slender branches, and rather distant, small cordate leaves; it is of twining or creeping habit, and quite hardy, and its elegant branches would suit admirably for the slender stem of a flower stand, and other decorative purposes.

Calycanthus occidentalis is not a rare shrub, and it is not often seen trained against a wall; but for that reason I mention it here. My experience of it is that it does not flower very freely standing out by itself—but it flowers and fruits most profusely at Kew on the east side of the wall. The late Sir William Hooker makes the same observation in the *Botanical Magazine* when giving a figure of it, plate 4808. It is a native of California, down to the thirty-fifth parallel of latitude.

I have one more plant to notice before concluding. It belongs to a family almost exclusively tropical, I mean the Anonaceæ. An exception to this distribution is the common Papaw of North America, Asimina triloba. The family consists of trees and shrubs with usually alternate simple leaves, trimerous flowers and ruminated albumen, similar to that of the Nutmeg. Our plant is a small tree with deciduous foliage and chocolate-brown flowers, about 2 inches in diameter. It is a native of Pennsylvania and other States, and hardy in England, though it will probably not ripen its fruit from want of sun. The flowers are produced in March, it is reported [May in Italy !] but its fleshy fragrant fruit, which is not ripe till autumn, it is edible, and described as excellent.

I now make my bow, with the hope that I have interested some lovers of plant lore in my notes on the plants of the old walls at Kew. *H.*

THE LIBYAN DESERT.

(*Concluded from p.* 647.)

THE gardens of the oases are all carefully walled or hedged in with fences about the height of a man. Mud walls, surmounted with a fringe of Date Palm leaves, or the formidably armed branches of Acacia nilotica, and occasionally of Balanites ægyptiaca, are commonly employed; but sometimes the intertwined branches of the Acacia and Capparis ægyptiaca and Date leaves are substituted for the wall.

Among all the plants cultivated, the Date Palm is the most important. The fruit forms one of the principal articles in the diet of the inhabitants, and is at the same time the only one of consequence exported. This is especially the case in Sinah, which lies on an important caravan route; but even in Dghakel and Khargeh the Date trade is considerable. In flavour, the Date of the oases far surpasses that grown in the Nile valley.

It is worthy of note, that the variety observed in Sinah has dark brown leaf-ribs. In the oases the Palm stems do not attain the majestic height so much admired in the Palm groves around Cairo. Nevertheless, here, as well as there, they furnish, with the Sunt tree (Acacia nilotica), the only timber used for building purposes. Palm wood is perfectly useless as fuel.

The Doum Palm (Hyphæne thebaica) is frequently seen in the gardens of Khargeh. Its denser wood is much more useful than that of the Date Palm, while the thin rind of its large fruit is only suited to the hard gums of the Egyptian. Only a few isolated stunted specimens of it were observed in Dghakel, though Rohlfs found a seed in the, at that time, completely sanded up temple of Kasr Dghakel, and numbers of them were picked up on the road to Tenida, the most easterly village of the Dghakel oasis. The more probable explanation of this appears to be a wider range of cultivation in former times, rather than present conveyance of this somewhat uninviting fruit. It may here be observed that the travellers found in a tomb near the temple mentioned above, along with the mummies, fragments of the stem of Calotropis procera, and a fruit, recognised as belonging to Balanites ægyptiaca—a tree that was not met with at all in Dghakel, and only as a dwarf bush in Khargeh.

After the Date, the Olive plays the most important part in the gardens of Farafreh, where, considering the careless treatment it suffers, it affords an excellent produce. It is also grown on a considerable scale in Dghakel, but no longer succeeds well in Khargeh and the upper Nile valley. Various members of the Orange tribe are largely cultivated, especially in Khargeh. Besides Oranges of excellent quality, there is the more juicy, aromatic Sweet Citron (Sweet Lime?), and a small green Lemon with extremely acid juice. The Apricot tree is abundant in all the oases, and the following fruit trees occur, in smaller numbers:—Peach, Apple, Plum, Fig, Sycomore Fig, Mulberry, Pomegranate, Carob or St. John's Bread, Indian Fig, Nabak (Zizyphus Spina-Christi), and Mucheet (Cordia Myxa). The Grape Vine is also cultivated, but not for wine making; and the Banana is of rare appearance. The Sunt tree is extensively planted, especially in the Dghakel oasis, on account of its excellent timber; and very large trees of it are always found in the vicinity of the old, often ruined, wells. The dimensions they attain here are probably rarely seen now in the Nile valley. An extraordinary large specimen at Balat, measured 18 feet 6 inches in girth. Dr. Ascherson thinks this is probably the same tree mentioned by the English traveller, Edmonston, who (1819) was the first European to visit the oases, and describes a specimen 17 feet 3 inches in circumference. Ricinus is common in a wild state, and the oil obtained from it is used both for burning and medicinally. Sesbania ægyptiaca, so frequent in the Nile valley, is also cultivated in the oases. An arborescent species of Willow (Salix Safsaf) occurs here and there in gardens and fields.

Amongst useful herbaceous plants cultivated in the gardens are:—Caraway seed, Rapeseed, Radish, Mallow (Malva parviflora), Bamia (Abelmoschus esculentus), Meluchia (Corchorus trilocularis), Lupin, Lucerne (the latter much rarer than the Clover mentioned above), Broad Bean (only eaten in an unripe, and usually in a raw, state; the seeds are always procured from the Nile valley, hence the parasite, Orobanche speciosa, so common there on this plant, is of frequent occurrence here, and is also found on Clover and Safflower). Peas, Lentil, Cucumber, Water Melon, Bottle Gourds, Dill, Carrot (rare), Cummin, Coriander (as a vegetable !), Safflower (the fruit eaten), Tomato, Egg-plant, Cayenne Pepper, Tobacco (only Nicotiana rustica of middling quality), Basil (rare), Hemp (rare, and only as a narcotic luxury, under the name of "Bast"), Colocasia antiquorum (rare, and of inferior quality), Onion, Leek, Aloe vulgaris (employed against burns), and Dohn (Penicillaria spicata).

As vegetables generally form no important part in the cookery of the inhabitants, it is deserving of mention that the young tender leaves of a species of Cichorium, a common weed in Rice fields, are collected as such, as are also those of Urospermum picroides, both under the name of Silus. Ornamental plants are unknown in the oases, with the exception of a few Rose bushes in the gardens of the rich. As a special mark of attention Rohlfs was presented with a Rose by the Scheik el Beled on his departure from Kasr Dghakel.

The number of species growing wild in the oases exceeded Dr. Ascherson's expectations. He collected ninety-two in Farafreh, and 189 in Dghakel, and Dr. Schweinfurth 225 in Khargeh. Continued investigations through the summer months would doubtless have added considerably to these figures. Very few new species were discovered, and none but such as are closely allied to previously described forms.

In the flora of the oases two elements of different origin are easily distingushed. A relatively small number of species may be regarded as indigenous, as they exist, and are capable of continuing their existence, without the intervention of man, even if some sudden catastrophe should put a stop to cultivation. Dr. Ascherson had the opportunity of studying the flora of an almost abandoned oasis, about two hours' journey westward from Farafreh, which was mainly composed of such plants as are usually found on the borders of the desert, with a few common to ditches and ponds, and those affecting a saline soil. Very few forms such as inhabit our marshes are met with, and still fewer pasture plants. The majority of the true desert plants have a pretty wide range of distribution, many of them extending from the Atlantic islands to the Indus. The Colocynth, Citrullus Colocynthis, is a very characteristic type, whose yellow fruit, about the size of an Apple, was often met with in abundance, half-buried in the sand. Another remarkable plant, Calotropis procera, abounds in an acrid milky juice, and was found in quite extraordinary dimensions, namely, 16 feet high, with a stem girth of 30 inches. Dr. Ascherson gives a long list of these desert types, with remarks on their distribution, &c., which we must pass by. His observations and speculations on the evidently introduced plants, although interesting to the student of phyto-geography, are scarcely suitable, and too lengthy, for reproduction here. We may mention, however, that amongst the most striking weeds the following were very abundant:—Calendula arvensis, Erodium malacoides, and Anagallis arvensis.

We will conclude these extracts with some observations on the fall of the leaf of deciduous trees and shrubs, made by Dr. Ascherson in the course of his travels across a great extent of country in a short period. On the outward journey a distance from north to south exceeding 25 degrees was accomplished in four weeks, thus offering an excellent opportunity for recording the retardation of the fall of the leaf of the same species as he advanced southwards. Thus on November 19 many trees, especially Morus alba, still retained their foliage, more or less, in the plain of Lombardy (45° N. lat.), whilst the same species in Germany had long previously shed their leaves. In Lower Egypt (31° N. lat.), in the beginning of December, the Fig trees were still partially, and in Upper Egypt (27° N. lat.) fully, in foliage, whilst in the Apulian plain (41° N. lat.) they were completely bare on Nov. 23. At Sioot (27° N. lat.), December 11, the Pomegranate was still in full, though yellow, foliage, and the Apricot was in full verdure at Farafreh (27° N. lat.) on New Year's Day. It might readily be supposed that as we advance southward to the equator the period of the fall of the leaf would be gradually retarded until the renewal of the leaf overtook it, and thus rendered trees deciduous with us evergreen under different climatal conditions. Nevertheless, this phenomenon was only observed in the case of the Peach tree, which may not be constant, though the same tendency has been remarked in this tree in sheltered localities during mild winters further north. In the oases the old leaves of the Peach were still fresh and capable of exercising their functions when the flowers and new foliage were put forth in early March. All other deciduous trees in Kasr Dghakel (25° 45′ N. lat.), such as the Grape Vine, Apricot, Plum, Apple, Pomegranate, Fig, Mulberry, and Willow, had lost their leaves on our arrival, or shed them in the course of January, so that with few exceptions they were completely bare in the first week of February. However, the fall of the leaf does not proceed with the same regularity here as at home, for quite naked trees were frequently observed side by side with others of the same species in almost full foliage. The influence of water was not to be mistaken, inasmuch as those trees within reach of an ample supply held their leaves later, and put forth their flowers and new foliage earlier than those in drier situations.

By February 20 the Apricot was in full bloom, and by March 10 clothed with fully developed foliage, giving an interval of four to five weeks between the fall of the leaves and their complete renewal. Plum trees and Apple trees exhibited a similar action, whereas the Pomegranate was somewhat later, the Fig still later, and the Mulberry last of all, whilst they lost their leaves in the reversed order.

From the foregoing facts Dr. Ascherson is inclined to consider the fall of the leaf as a vital necessity not altogether dependent upon climatal influences, though the season may be retarded. This seems to be borne out by numerous examples of deciduous and evergreen species of the same genus growing side by side in our gardens, yet we cannot tell what long years of extreme climatal conditions would effect. As a counterpart to the foregoing, Dr. Ascherson cites two interesting examples of tropical species commonly planted in Egypt, which lose their leaves in summer, a period most likely corresponding to the dry season of their native habitats. They are Poinsettia pulcherrima and Albizzia Lebbek. The former is a native of Central America, losing its foliage in Egypt in April, and not renewing it until autumn, whilst the latter comes from India, and is only leafless for a short period in spring.

A noteworthy fact for gardeners in countries similar to Egypt is, that large branches of Albizzia Lebbek as thick as a man's body will strike root; and trees after having been cut down for some time retain sufficient vigour to cover themselves with foliage.

BELSFIELD, WINDERMERE,

THE SEAT OF H. W. SCHNEIDER, ESQ.—Windermere, the Queen of English lakes, by common consent is awarded the palm as standing unequalled in this country for its splendid scenery, combining all the elements essential—hill and dale, wood and water in juxtaposition, so as to afford from every point views of the most lovely description. At short distances in any direction the eye is caught by something new, beautiful, and different from that which a few moments previously riveted the attention. Here we have the broad expanse of placid water, dotted with boats containing fishing parties, others leisurely plying the oar or moving under the gentle pressure of the lightly-filled sail, the land in places clothed with fine trees down to the water's edge, and gently rising as it recedes for a considerable distance; then more abrupt, exposing masses of

almost perpendicular rock, the summits of which are timber-clad, the different tints of the foliage being strikingly beautiful, affording every shade from the deep green of the Scotch Fir to the pale pea-tint of the Lime and Elm. Such beauties as these are no doubt tame and insignificant to the climbers of alpine heights, or even to those who traverse the rugged Heather-clad hills of Scotland or Wales. Those who soar so high in the world frequently throw cold water upon our English lake scenery, yet betwixt such there really is no comparison. In the one we behold the rugged grandeur of Nature's most lofty peaks; on the other we have beauties, adorned may I say, by the hand that has cultivated the landscape, reduced the asperities of Nature, so to speak, and made these once bleak districts more continuously enjoyable.

The rainfall in this part, as is well known to all who take an interest in such matters, is the greatest in the kingdom. This is generally admitted to have the effect of producing rapid growth in even the arborescent division of the vegetable kingdom. Such growth is usually found proportionately tender, and in fact governed by a natural law, which causes even the timber of any particular species of tree that is the produce of rapid growth not only to be more perishable when felled and seasoned, but less calculated to withstand the effects of extreme cold whilst in a growing state. This is correct so far as applies to timber in the former state, and when converted into use; for the Oak produced in this part is said to be not nearly so durable as that grown in a drier locality. Yet this by no means appears to apply to growing trees, more especially the Coniferæ and Taxaceæ; here they grow magnificently in the sheltered situations, attaining proportions equal to anything in the country in a given time, and not apparently suffering in the least in our severest winters, for here may be seen Araucarias and Deodars, with numbers of other trees similar in their powers of resisting cold, perfect in every branch down to the turf on which they rest, that passed unscathed through the winter of 1860-61, when hundreds were either killed outright or injured beyond recovery in localities where the frost was no more severe than in this, and where the atmosphere was a great deal drier. Truly, in our generalisations as to the suitability of particular varieties of trees for certain localities, there are disturbing causes not observed that often upset our calculations.

Belsfield is situated at the end of the lake, the mansion is built on the high ground at some distance from and overlooking it. Nothing of its kind could be finer than the prospect from the south and west on the terrace, where the eye catches a glimpse of Bowness, and stretches far over the lake to the opposite shore, affording every diversity of surface, hill and hollow, for which the district is famed. The turf is of the richest green, contrasting most favourably with the brown, burnt-up surface so painfully apparent on most lawns in the south of the kingdom this summer. The flower garden seen from here is composed of a series of beds, considerable in size, filled with the ordinary summer bedders, well covering the ground and flowering profusely, but not objectionably interfering with, nor distracting the eye from, the views which extend far in the distance.

Running from the house is a corridor 12 feet in width and 55 in length, leading to and connecting it with the conservatory, 55 feet by 35 feet. This latter is a really fine structure, consisting of six spans and a curvilinear centre, sufficiently high for effect, and harmonising with the general architecture of the house. At the back of this corridor is a low sloping stage, very gay with Lilies, Hydrangeas, Fuchsias, some fine plants of Campanula pyramidalis, intermixed with Palms and other foliage plants; on the roof, in fine condition, are Lapageria rosea and Tacsonia Van Volxemii. The centre bed of the conservatory is filled with Camellias, planted out; Brugmansias, Palms, Araucaria excelsa, Aralia Sieboldii, &c., intermixed with the usual summer-flowering plants, which, standing below, and on a level with the eye, produce a good effect. The hanging baskets in this house are neatly furnished, and very much improved its appearance without shading the other plants to an injurious extent. From the roof are several pendent Passifloras, but not overcrowded. The centre bed is surrounded by a broad commodious tiled path, bounded by a low flat table on which stand small flowering and foliage plants intermixed.

Leaving the conservatory, and traversing the terrace we come to the end of the mansion facing the lake, in which direction and at some distance the accompanying view (fig. 145) was taken: the prospect is extremely fine. Again returning to the terrace, from which the ground slopes rapidly towards the lake, irregularly flanking the open vistas of closely shaven turf we see interspersed some splendid examples of coniferous and deciduous trees, Hollies, and flowering shrubs, which grow here with a vigour that can scarcely be surpassed. At the part of the garden most distant from the dwelling, and reached by a circuitous path, is a small flower garden, sheltered and well planted, looking very gay without being gaudy—a condition not everywhere seen. Passing the mansion to the eastward we come to a walled-in garden, a portion of which wall is covered with young Pear and Cherry trees. There is here facing the south a new lean-to Peach-house some 30 feet long, containing such kinds as Late Admirable and Têton de Venus, it being found necessary in this locality to grow all, including these late varieties, under glass from an inability to get the wood ripe in the open air; the dull clouded sky, combined with the humid state of the atmosphere, preventing the necessary solidifying of the wood.

From this we approach a house devoted to Ferns and a few Orchids, the latter consisting principally of Odontoglossums and Lycastes for winter flowering; the large quantities of plants of all descriptions that can be made to bloom through the winter season that are to be seen in the numerous houses at this place give some idea of the demand for cutting and conservatory decoration. Amongst noticeable Ferns were Cyathea Smithii, C. dealbata, Dicksonia antarctica, Gleichenias, Todeas, the beautiful Davallia Mooreana, and Lomaria cycadæfolia, one of the best of dwarf Tree Ferns. The back wall of this house is planted with Ferns, Lycopodiums, and large-leaved Begonias. Next to this stands a span-roofed stove 40 by 15 feet, the roof covered with Stephanotis, under which are some East Indian Aerides, Anthurium Scherzerianum, Ixoras, Clerodendrons, Dracænas, and quantities of Euphorbia jacquiniæflora, well done in small pots. A continuation of this range is filled with two of the best winter flowering plants in cultivation—Poinsettia pulcherrima and Celosia, both well done, the latter plant very little known in the South of the kingdom, yet one of the very finest things for winter cutting grown from seed in six or eight months, its beautiful plumes of crimson, pink, and yellow, being most effective in company with any other flower.

Southwards from these houses is a piece of ground devoted to the growth of early culinary vegetables, sheltered and sloping down nicely to the south.

Leaving these we come to the Camellia-house, span-roofed and lofty. The plants are some turned out in the border and others in pots. It is not overlight, yet, from the condition of the plants, it seems to suit them well.

From this we come to where the principal ranges of fruit and plant-houses are, some eighteen in number, a few of which we may particularise. The first we enter is a Peach-house 60 feet long, with a front trellis and back wall planted. The sorts grown in this house are Early York, Magdalen, and Royal George.

Adjoining is another Peach-house, 45 feet in length, similar to the last, planted with Barrington Peach and Violette Hâtive Nectarine. In continuation is another 45 feet house, planted with Royal George Peaches and Elruge Nectarines. There is a water-tank in each of these houses, insuring without unnecessary labour a sufficient supply for use both overhead and at the roots of this fruit, without which it is useless to look for satisfactory crops. On any part of the front trellis in these houses, where the space was not covered with the trees, Tomatos were grown, which also will not answer out-of-doors here.

Next are the Pine-houses, 45 feet by 15 feet, filled with fruiting and succession plants. The sorts are Queen, Charlotte Rothschild, Black Jamaica, and Smooth Cayenne—succession plants strong and stout, fruit swelling off nicely. Cucumbers are grown in plenty over the back paths. Near this is a house 40 feet long, used for pot Vines, which are cut the last week in April or early in May. They consist of Black Hamburgh and Foster's Seedling. The crop is cleared by the middle of June, and the house then filled with Melons, Manchester Hero and Scarlet Gem.

Next is a vinery, similar in size, containing Black Hamburgh, Mill Hill, and Golden Champion: the crop in this house was good and well-coloured—the Golden Champion fine in colour, with no apparent trace of cracking. The border is covered with 2 feet of litter when the house is started, over which are placed shutters, which are moved as soon as the fruit begins to colour.

Adjoining is a similar vinery for late Grapes: the sorts grown are Lady Downe's, Alicante, and Muscat of Alexandria; they were carrying a good crop, and swelling off well. The border is outside and in, the Vines being planted inside.

Near this are two succession Pine-pits, containing stout, short-leaved plants. Next is the Melon-house, filled with plants for late crop; they are only allowed to carry a couple of fruit each, but the plants are put in thickly.

There are several small houses, each devoted to some special purpose, such as winter Cucumbers, Strawberries, and Figs in pots.

The principal plant-stove is a square house 30 feet by 30 feet, in which are a large number of very fine specimens, clean and in excellent condition, giving evidence here, as in the various other houses, of Mr. Chaplin's abilities as a plant grower. Amongst these were grand plants of Franciscea calycina, Medinilla magnifica, exceptionally fine; Bougainvilleas, Allamandas of sorts, Gardenias, Eucharis amazonica, Ixoras, Palms, Marantas, Crotons, Dracænas, Clerodendrons, and some very large plants of Dendrobium nobile. The span-roofed hard-wooded house adjoining, 36 feet by 18 feet, is well filled with Boronia pinnata, Polygalas, Hedaromas, Chorozemas, Daphne indica, Pimeleas, Epacris, Statices, Dracophyllums, Eriostemons, and Aphelexis.

The Azalea-house is similar in size to the last, is also span-roofed, and is filled with pyramidal trained specimens, and smaller plants of good kinds, such as Chelsoni, Juliana, Iveryana, Duke of Devonshire, &c.

The last is a span-roofed house, 54 feet by 18 feet, principally used for growing plants for conservatory decoration, such as Monochætums, Plumbago capensis, Fuchsias, some hundreds of Vallota purpurea, Tuberoses, flowering well; the Coral-plant (Erythrina Crista-galli), Swainsonia Osbornii, the brilliant autumn-flowering Rochea falcata, and similar stuff. Some pits near are filled with young pot-Vines for next year's forcing.

Standing outside on beds of ashes were such numbers of autumn and winter flowering plants as can only be found room for where there is a very large quantity of glass to accommodate them. They consist of autumn-flowering Lilies, varieties of speciosum, Calla æthiopica, Azalea amœna, Solanums, Chrysanthemums, and similar things, not merely existing, but well done.

Adjoining is a moderate-sized hardy fruit garden, filled with dwarf Apples and Pears, Plums, Strawberries, and bush fruits. The Pears which are found to succeed the best here are Marie Louise, Louise Bonne of Jersey, Williams' Bon Chrétien, and Beurré Diel. Strawberries that do best are President and Keen's Seedling and Sir Harry. The principal kitchen garden lies at a short distance further away, on a slope facing the south, well adapted for the growth of culinary vegetables.

Any one visiting this place, and who has a knowledge of the routine in gardening matters, cannot fail to notice the efficient manner in which the place is managed by Mr. Chaplin, each department being well cared for.

There is another matter that deserves especial notice, and particularly so at a time when we hear so much about better habitations for the people, and yet under the very eye of the owners of many a large establishment are places in which the young men employed in the garden are stowed away, miserable, dark, and tumbledown places, that would not be considered good enough for anything save the lowest of the brute creation; but here Mr. Schneider has built a thoroughly good large house, with ample room to accommodate six of the young men. This is as it ought to be, and the sooner the too numerous pigs called bothies are swept away the better. *T. Baine*

WIRING GARDEN WALLS.

Now that the season has arrived for planting all kinds of deciduous trees, a good opportunity is afforded for repointing and wiring old walls that have had the joints broken or defaced by constant nailing. If the surface of the bricks is damaged or covered with lichen, as is frequently the case where the joints have been broken, so as to let in the wet, they should be well rubbed, and the joints thoroughly and neatly stopped with Portland cement, or good stone-lime mortar, but the former is preferable, as mortar is apt to be injured by frost; and once the trellis is on, the wall cannot be conveniently got at again for repairs. The studs for straining the wires should be driven in before pointing the joints, and sufficiently far into the wall for the eye of the stud to stand out half an inch or so clear of the brick for the convenience of threading and straining the wires. After this is complete, the studs should be driven home to the wall, so that the trellis may lie close to its surface, for on the observance of this success or failure in securing a crop of fruit mainly depends. If the trees are allowed to stand away from the wall, much of the shelter and protection it was intended to afford is lost. This can be easily ascertained by hanging a couple of test thermometers, one placed an inch or so away from the wall, and the other quite close to the bricks, when a difference of several degrees will be found in favour of the latter. Good porous red bricks absorb a deal of heat during the sunny days of spring, and radiate it slowly during the night, and it frequently happens that the blossoms nestling close to the wall escape injury, while others not so favourably situated, or actually in contact with it, are cut off. It is, therefore, of the greatest importance that the trees should be kept as close as possible to the wall, and if the trellis is properly put up as advised there will only be the thickness of the small wire intervening, and as this is little more than the thickness of a cloth shred, the trees are in nearly as favourable a position, so far as the protection of the wall is concerned, as if they were nailed.

For Peaches and Nectarines, and also for Apricots, I much prefer a diamond or square shaped trellis to having wires strained horizontally, as with the latter the side shoots of a fan-shaped tree have to run a considerable length before they cross a wire so as to admit of their being tied, thus necessitating the

temporary use of cross ties to train the young shoots to, involving much loss of time and extra labour. The trellises we have in use here for the purpose of training Peaches and Nectarines are alike neat and serviceable, and can be easily put up by any handy man. The studs used are galvanised iron about a quarter of an inch thick and 3½ long, and can be got at a cheap rate from any ironmonger. These are driven into the top joint of the wall at 8 inches apart, and another row within a foot or so of the ground, and up each end of the wall, and this throws the wires in about 6 inch squares. The wire we use is galvanised, and is about an eighth of an inch thick, and this we cut into suitable lengths for straining in diamond-fashion, and with a pair of strong wire pliers it can be made as tight as a drum. The wire should be cut sufficiently long to have both ends fastened in the bottom row of studs, as it is easier got at there to strain and fasten up. By threading the wires under and over each other alternately the trellis is much stiffened and strengthened, as the wires interlacing in this way form a capital tie and support to each other, and a trellis so put up will last for generations.

It is to be hoped that we have seen nearly the last of nails and shreds, which not only deface and spoil the walls, but make innumerable lurking places for all sorts of insect pests. Many object to the use of unpainted galvanised wire for training fruit trees on, stating that it causes gumming, and otherwise injures the tender bark of the tree wherever they come in contact with it, but I have never found this to be the case unless the branches were tied too tightly, and wherever this occurs gumming is sure to follow, whether the tree is trained to an ordinary painted trellis or to one of galvanised wire. I have seen quite as much of it in the one case as in the other, but always resulting from the same cause—tight tying. For training and tying Pears to walls I find nothing equal to galvanised wire staples driven into the joints, leaving just sufficient room to thread a strong piece of tar yarn through to tie the branches. If it is intended to train the trees horizontally the staples should be driven in about 18 inches apart along every third course, as that will be sufficiently near to train; but for fan-trained trees it is easy to mark out the direction it is intended the branches should take, and put in the staples accordingly. These save labour and expense of wiring, and are far preferable to the old system of nails and shreds. For trees already trained and established a few of these staples suffice to keep the branches secure in their places, and a good tar yarn tie will last for years. *J. S., W.*

Foreign Correspondence.

PARIS: *The "Bon Jardinier's" Novelties.*—The *Bon Jardinier, Almanac Horticole for* 1875, is out, and it is satisfactory to find that not a few of the novelties (more or less new) which it recommends to French growers are of British origin or introduction. For the *grande culture* there is the Australian Wheat, whose principal merit consists in its great vigour and extreme hardiness, which cause it to produce very abundant and almost certain crops in clayey, cold, and wet soils, where ordinary Wheats would be liable to fail. In most of the comparative trials that have been made its yield has proved superior by about one-fourth to the white Wheat of Flanders. The straw is abundant, tall, strong, and half solid. The ear, compact and square, is well filled, heavy, and mostly curved. Its dark grey hue easily distinguishes it from other varieties; it is bearded, but loses it beard more or less completely when ripe. It is extremely probable that this variety of Wheat is Australian only in name, for its hardiness and its power of resisting disease are perfect in the northern departments of France. It is sown in autumn, at the same time as other winter Wheats, and ripens a few days later than Flanders Wheat.

Another grain, though not a cereal, is the Sarrasin-Seigle, or Rye-Buckwheat—an absurd title, by the way—cultivated in the department of the Orne, apparently a very distinct variety of the Tartarian Buckwheat. Instead of branching out horizontally its stem is almost simple, and the few branches put forth, proceeding from the upper portion of the stem, are heavily laden with flowers and afterwards with seed, whose light grey tint and elongated form give it a certain resemblance to Rye, whence, probably, its name. This variety is productive, tolerably early, and has the great advantage of ripening all its seed almost at the same time. The grain is heavy, and is reputed to give a better yield of flour than other Buckwheats, which would render it valuable in climates which necessitate the culture of Buckwheat in place of something better.

The Red-skin Flourball [Which one? EDS.] is described as a very handsome and interesting variety of Potato, of American origin, highly appreciated and much sought after in England as well as in the United States. The tubers are large, round, with few eyes not deeply set; the skin bright red and a little rough, as is the case with the majority of very floury Potatos. The flesh, pale yellow and of good middling quality, improves with the advance of winter. This variety is extremely productive, and thereby suitable to *la grande culture*; it is very robust, has little fear of disease, and keeps late without shooting, which is a great merit.

For the kitchen garden, honourable mention is made of a green-fleshed Melon, brought into notice by the Marquis de Selve, a large landowner in the environs of Paris, who is unable to say how it originated. Sustained by a trellis or other support, it easily reaches the height of 6 or 7 feet, and one single plant will bear eight or ten small Melons of an elongated form. The rind is dark green, the ribs slightly marked, the flesh green, very sweet and melting, without being of remarkable delicacy.

Among Cucumbers, M. le Comte de Lambertye considers Rollisson's Telegraph an excellent and very remarkable long variety, the best for forcing, partly on account of its compact habit. Like other extra-improved Cucumbers, the fruits are so solid that they give scarcely any seeds, which, consequently, remain scarce and dear. The Peas quoted are Emerald Gem, Laxton's Supreme, Alpha, and Omega; Potatos: Early Rose and King of the Flukes. (Signed, H. Vilmorin.)

New varieties of Indian Azaleas are numerous, at present existing only at Van Houtte's, Ghent, to whose catalogue we must refer for their names and descriptions. Another set of Azaleas, called Hardy Ghent Azaleas, because they were obtained in the same establishment, have been raised by crossing A. pontica with sundry American species. All, consequently, are hybrids, which accounts for the great diversity of their habit and of the colours of their flowers. These, also, are too numerous to give even

FIG. 145.—BELSFIELD, WINDERMERE, THE RESIDENCE OF H. W. SCHNEIDER, ESQ.

a selection here. Bambusa sulfurea, a new form of hardy Bamboo, described by M. Carrière, was introduced to the garden of the Société d'Acclimatation several years since. It bears some resemblance to B. viridi-glaucescens of the same author, but can be distinguished from it at first sight, as well as from all other Bamboos at present in cultivation, by the sulphur-yellow tint of its stems and twigs. Its leaves only are green, somewhat glaucous on the under side. But it is very difficult, adds the *Bon Jardinier*, in this group of hardy Bamboos, to distinguish one species from another. There is no certainty about any one of them, and it is possible that the majority of these forms are only varieties, and those not very constant, of one and the same species. The varieties of tuberous Begonias, artifically obtained, come in for their share of praise, in which is included a new species, published in the *Flore des Serres* – Begonia octopetala, from the high mountains of Peru, almost hardy in Belgium, with very handsome foliage and large regular flowers containing eight petals, white within and blood-red without.

Buddleia intermedia, a variety the issue of B. curviflora, differs so widely from its parental type that its obtainer does not hesitate to consider it as distinct as a natural species. The shrub, whose foliage reminds one of B. Lindleyana, but is of a darker green, is quite hardy, flowers freely in long terminal bunches, ashy lilac outside, deep violet within. Campanula Raineri, a new Italian species, is the dwarfest of its genus, with almost sessile leaves, and large, wide-open, scarcely-pedunculated flowers of a violet-blue; it promises to prove an exquisite plant for bedding and bordering, and which only needs to be known to be universally adopted. Clerodendron speciosum, perhaps the handsomest of its genus, is of English origin; as is also Cytisus Everestianus, a charming greenhouse shrub in the North of France, which, perhaps, will stand the winter outdoors in the South. Curmeria picturata, a pleasing Aroid from New Grenada, has recently been introduced to the stoves of M. Linden, of Brussels.

Eryngium bromeliæfolium is a new and remarkable example of the variety of aspects which a genus of plants, even when very natural, may assume, affording an additional proof that the habit and the shape are not indissolubly connected with the essential botanical characters. The Umbellifers now in question have nothing in their appearance in common with ordinary Umbellifers. Gloxinia Lion de Flandre is enthusiastically described by M. Van Houtte as "unique in its way; perhaps the most floribund of all our Gloxinias; peduncles of iron; we count thirty-four extra-large flowers springing at once from the centre of its tubercle. These flowers are of a magnificent deep blue." Idesia polycarpa, a ornamental fruit-bearing tree from the North of Japan, is also known as Polycarpa Maximowiczii. Lonicera fragrantissima is a hardy sweet-scented bush that needs no bush. Weigela excelsa, of unknown origin, has long been cultivated in the Jardin des Plantes, and deserves wider patronage, being exceedingly ornamental and quite as hardy as its elder congener, W. rosea.

Forestry.

The Art of Planting * is a small book, devoted especially to the advocacy of planting on mounds (*buttes*) as a rapid and sure method of planting sterile wastes, largely practised in Germany, Italy, Sweden, and Russia. The demand for wood for constructional purposes has been so large that the Germans have more and more dispensed with the system of natural reproduction of forests, and adopted more and more the practice of planting as more certain. The three rules for successful planting laid down by Baron von Manteuffel are:—1. That the roots must be surrounded by a sufficiency of wholesome food in a fit state for absorption. 2. Care must be taken to place within reach of the roots the watery vapours saturated with nutritive matter. Care must also be taken to prevent the escape of too large a quantity into the air, so that the largest quantity possible may be utilised by the plant. 3. The roots must be placed in such a manner that, without departing from the natural direction, they may have at their disposal the greatest quantity possible of food. No one will question the propriety of the first or third rules. The second is open to doubt, as the author's views seem different to those of most other observers. His notion is that the watery fluids absorbed by the roots are not taken up in a liquid, but in a gaseous form. All water above the freezing-point is subject to evaporation, and it is this vapour which is absorbed by the roots, according to the author. But how, then, do the plants get their earthy food if not in solution?—the quantity absorbed as gas must be very small, and in the case of some elements *nil*. The objections to pit planting are the too deep position of the roots, or rather the difficulty of adapting the depth to varying circumstances of soil, &c., to say nothing of the varying intelligence of the labourer entrusted with the work. In the case of mound-planting, however, the roots are placed immediately on the ground, a little heap of soil is raised around them, and the whole is covered with turves placed with the grass inwards. The mounds retain the heat, and therefore cool down less at night. The loss of water is less, the quantity of carbonic acid gas disengaged from the mounds is greater than from the surrounding soil, thus proving the existence of a more active decomposition. Ammonia escapes in inappreciable quantities. Hence, if our author be right plants on the mounds will find a larger quantity of available food, and will, in consequence, develope more rapidly and vigorously than on the flat. Of this illustrations are given both in the case of coniferous and deciduous-leaved trees. Incidentally some remarks are made as to the increased value of forests when carefully managed. The forests of Saxony in a period of forty-five years have yielded a revenue rising from 1,500,000 francs to 6,375,000, or 39 francs 73 centimes per hectare (say about 13*s*. an acre); at the same time the amount of timber has increased 50 per cent., and this large increase is due to the plantation of barren spots and the more effectual conservation and regulation of existing woods. The author recommends his mode of mound planting, not only for forest trees, but also for fruit trees. The treatise is one which may be read with profit by all planters.

* *L'Art de Planter*, &c. By Baron Manteuffel. (The Art of Planting, &c.) Translated from the German by J. H. Stumper, and revised by C. Gouet. Paris: Rothschild.

Notices of Books.

THE December number of Dr. M. C. Cooke's useful *Grevillea*, which is now issued quarterly, contains Notices of North American Fungi, Descriptive Lists of New British Fungi, and other valuable papers and notes on cryptogamic plants. We see with pleasure an editorial discussion of the nomenclature of the reproductive organs of fungi. The multiplicity and confusion of names applied to various kinds of spores are very embarrassing. Professed cryptogamic botanists, no doubt, have no difficulty in remembering the precise differences and relations between spores, sporidia, stylospores, thecaspores, oospores, macrospores, microspores, zoospores, resting spores, to say nothing of tetraspores, aplospores, choristospores, conidia, and others, but other people are not so fortunate.

—— The *Gardeners' Year-Book and Almanac for 1875* (171, Fleet Street) has recently been issued, and as usual is replete with useful information.

—— We understand that the long-looked-for new edition of *The Fruit Manual* will be ready about the commencement of the new year.

—— In these days of religious controversies Messrs. Cassell have doubtless done well in issuing the *History of Protestantism*, by the Rev. J. A. Wylie, LL.D. It forms no part of our programme to express any opinion on the subject-matter of a book of this description. We can simply say that it is copiously illustrated, and will be sure to commend itself to a large number of readers.

—— The new edition of Yarrell's *British Birds*, revised by Professor Newton (Van Voorst), has now arrived at the conclusion of the first volume. The trustworthiness of the text and the beauty of the illustrations have long rendered this *the* text-book for British ornithology, and Professor Newton may be congratulated on the successful manner in which he has brought the work up to the level of existing knowledge.

—— Messrs. Lockwood & Co. have published a valuable little pamphlet on *The Safe Use of Steam, containing Rules for the Guidance of Unprofessional Steam Users*, by an engineer. We commend it to the notice of all who have occasion to employ a steam-boiler on their premises.

—— An eleventh edition of *The Elements of Botany for Families and Schools*, published under the direction of a committee of the Society for promoting Christian Knowledge, and revised by Mr. Thomas Moore, has just been issued by Messrs. Longmans. It is very unusual for a botanical work to reach an eleventh edition, and the fact may be taken as sufficient evidence of the estimation in which the book is held.

—— Travellers notice that the nations of the civilised world are becoming more and more alike in many particulars. Certain it is that the fancies or fashions of one nation are, in these days of free intercourse, speedily adopted by others. Only the other day we read of the formation of a Club Alpin, and French ladies even have been anxious to show that in physical endurance they are the equals of their British sisters. Horse-racing, and, indeed, "Le Sport" generally, has been long adopted by the French from us, and it is to be hoped that they have not imported with what is legitimate and honest aught that is degrading and bad. Two little volumes before us bear witness to the spread of "horsiness" in France. The title runs thus: "*Le Cheval et son Cavalier*"—the Horse and his Rider (Paris: Rothschild), by Count J. de Lagondie. It does not enter into our programme to attempt a critique of such a book as this, but we may nevertheless thoroughly recommend it to those readers of French who wish to gain in a summary form some knowledge of a subject which has such intense interest for a very large number of people. Much of the information is derived, with due acknowledgment, from well-known English sources; and the comparative absence of horsey slang is a great advantage, or it may be that, garbed in foreign dress, its repulsiveness and vulgarity are concealed from the English reader. The book is thoroughly practical, and contains within small compass a very large and varied amount of information, and may be perused with interest by those whose personal acquaintance with horses does not extend beyond the shafts of a hansom cab.

—— The Rev. Dr. J. C. Brown, late Government Botanist at the Cape of Good Hope, and to whom these columns are indebted for many interesting notes on the vegetation and products of South Africa, as well as on scientific forestry, is about to publish a work on the *Hydrology of South Africa*, the causes of its present aridity, and the appropriate remedies for this state of things. Mr. Crawfurd, of Kirkcaldy, is the publisher, and will transmit copies by post.

—— The nineteenth half-yearly *Report of the Marlborough College Natural History Society* (a society which has always something of interest and value to put on record) has just been issued. The most remarkable paper in the present number is that which contains a record of the weights, measurements, and ages of the members of the school—more than 550 in number, and varying in age from ten to nineteen years. This record will be valued for purposes of comparison.

—— The reissue of *British Wild Flowers*, illustrated by J. E. Sowerby, and described by C. P. Johnson (Van Voorst), has reached its eighth part, with a small figure and brief description of Composites as far as Leontodon Taraxacum.

—— Messrs. Cassell have issued the first part of an *Illustrated History of the United States of America*, illustrated with numerous wood engravings, some appropriate enough, but others which are apparently put in merely for the sake of illustration—such, for instance, as the very stagey and unreal cut representing the last moments of Sir Humphrey Gilbert, or that labelled "Somers runs his ship on shore." When there are so many *bonâ fide* illustrations that might be given, it seems a pity to encumber the text with such "make-ups."

—— The December number of the *Journal of Botany* contains a review of the new species of Ascobolus, by Mr. Renny; a note on Triticum pungens, by the Hon. J. Leicester Warren; descriptions of new species of Liliaceæ, by Mr. J. G. Baker, and various other articles, including a critical review by Dr. McNab of a paper of Mr. Lund's on the pappus of Composites. Mr. Lund maintains that the pappus consists of so many modified leaves, while M. Warming considers the pappus to consist merely of hairs (trichomes), in which view Dr. McNab coincides, stating that the pappus is a series of hairs developed for the purpose of scattering the fruits. It happens, however, very awkwardly, that some of the Composites most widely diffused—*e.g.*, the Daisy—have no pappus; while on the other hand it seems pretty sure in many cases that, whatever function the pappus may have, it does not necessarily favour the dispersion of the seed.

—— The December number of the *Botanical Magazine* contains the following plates, which will be duly classed in our list of plant portraits:—Rheum officinale, already alluded to in these columns, 1874, i. 346; Episcia fulgida, the Cyrtodeira fulgida of Linden's *Catalogue*, a handsome scarlet flowered Gesnerad from New Grenada; Boucerosia maroccana, a Stapelia-like plant, introduced by Messrs. Hooker, Ball and Maw, from Marocco; Oncidium zebrinum (see *Gardeners' Chronicle*, 1872, p. 1355), a handsome species with white flowers, barred with red purple streaks; and a bright yellow lip; and lastly, Fuchsia procumbens, lately figured in our columns, 1874, ii., p. 291. Our figure unfortunately represents the flowers as pendent instead of erect. Dr. Hooker now combines F. Kirkii with this species—F. Kirkii representing the male, F. procumbens the female of the same species. This may well be the case, for at the time the plants in question were originally described the differences attaching to sexual forms of the same species were not so carefully attended to as they are now. The drawing of F. procumbens was made by Mr. J. T. Moggridge, whose death we have lately had occasion to deplore.

RECENTLY PUBLISHED PORTRAITS OF GARDEN PLANTS.

Name and Reference to Figure.	Character and Quality.	Leaves.	Flowers.	Season.	Native Country.
PENTSTEMON PALMERI, *A. Gray* .. .. B. M. t. 6064; G. C. 1873, 1368, fig. 279; F. & P. 1874, 37, tab.; Flore, t. 2094	Hardy perennial, allied to P. Cobæa, 3—5 ft. high, very handsome (Scrophulariaceæ)	Ovate or oblong-ovate sinuate-dentate, stalked, the upper connate	Panicled, pale rosy lilac with dark purple stripe on the deflexed segments of lower lip	August	California *Mr. Thompson*
PESCATOREA CERINA, *Rchb. f.* .. .. Floral Mag., t. 93.—Orchidaceæ.	Stove epiphyte, interesting ..	Ligulate-acute, somewhat wavy (fl. solitary)	Cream-coloured, with convex lip and yellow and red frill	July	Costa Rica ....
PHAIUS BLUMEI BERNAYSII, *Rchb. f.* .. Bot. Mag., t. 6032.—Orchidaceæ.	Stove perennial, handsome, habit of grandifolius	Oblong-lanceolate, plicate, 1½—2 ft. long	Numerous, sulphur-yellow; the stem and spike 3 ft. high	January	Queensland *Messrs. Veitch*
PHILODENDRON MELANOCHRYSUM, *Lind. et And.*—Illust. Hort., 3 ser., t. 149—50.	Stove climbing perennial .. (Araceæ)	Ovate-cordate, sombre green covered with golden varnish	(Young leaves salmony-brown)	....	New Granada *M. Linden*
PHILODENDRON MELINONI, *Brongn.* .. Gartenfl., t. 789.	Stove perennial, with short stout erect stem	Long-stalked, ovate-oblong acuminate, sagittate at base	Spathe cylindrical, rufescent outside, longer than the spadix	....	Trop. America *Petersb. Garden*
PHILODENDRON RUBENS, *Schott* .. .. Bot. Mag., t. 6021.	Stove perennial, robust, handsome, with rooting stems	Cordate-ovate, acuminate, coriaceous (spadix white)	Spathe 6—8 in., crimson, with greenish white exterior	....	Venezuela and Trinidad
PHILYDRUM GLABERRIMUM, *Hook. f.* .. Bot. Mag., t. 6056.—Philydraceæ.	Stove perennial, curious, 3 ft. high	Ensiform, acuminate, equitant, 1 in. broad	Panicled, monandrous, with a white dimerous perianth	May	Pacific Islands (?) *Mr. W. Bull*
PHORMIUM COLENSOI VARIEGATUM, *Hort.* Floral Mag. 1874, t. 112.—Liliaceæ.	Greenhouse perennial, ornamental	Narrow elongate ensiform, erectish, with narrow red edge	(L. green in centre, with cream-coloured marginal stripes)	....	New Zealand *Mr. Bull*
PHYCELLA MACLEANICA, *Baker* .. .. Refug. Bot., t. 332.—Amaryllidaceæ.	Half-hardy bulb, pretty	Suberect, two, fleshy, narrowly ligulate, glaucous	Small, red, in umbels of 4—6 ..	....	Chili *Mr. Sanders*
PILOCEREUS DAUTWITZII, *Hort. Haage* .. Gard. Chron. 1873, 7, fig. 1.—Cactaceæ.	Greenhouse succulent, with oblong or fusiform stems, 5 in.	(Stem 21-ribbed, with close-set tufts of white spines, and long white cottony hairs)	(Same as, or nearly allied to, P. Williamsii)	....	North Peru *M. Haage, jun.*
PILOCEREUS FOSSULATUS, *Hort. Peacock* .. Gard. Chron. 1873, 983, fig. 197.	Greenhouse succulent, with robust, 10—12 angled stem	(Spines pale brown, the centre one of each tuft 1 in. long)	(Hairs white, 2 in. long, strong, tufted at the apex of stem)	....	Mexico *Mr. Peacock*
PITCAIRNIA ANDREANA, *Lind.* .. .. Illust. Hort., 3 ser., t. 139.—Bromeliaceæ.	Stove perennial, free-flowering, showy; fl. in erect racemes.	Linear, undulate, 1 inch wide, mealy	Tubulose-ringent, the lower half orange, the upper yellow	....	New Granada *M. Linden*
PITCAIRNIA LEPIDOTA, *Regel* .. .. Gartenfl., t. 772.	Stove perennial, showy	Linear-lanceolate, undulate, entire, with orbicular scales	In erect racemes, the lower half orange, the upper golden	June and July	Venezuela *Petersb. Garden*
PITCAIRNIA UNDULATA, *Scheidw.* .. .. Gartenfl., t. 781.	Stove perennial, showy, with long-stalked leaves	Lanceolate or ovate-oblong, acuminate, white beneath	Crimson, in elongate racemes; bracts, pedicels, &c., coloured	Summer	Brazil *Petersb. Garden*
PLACEA ORNATA, *Lindl.* .. .. .. Flore des Serres, t. 2047.—Amaryllidaceæ.	Greenhouse bulb, pretty	Two, linear, obtusely-keeled beneath	Spreading, perianth segments white with crimson stripes	May	Chilian Andes ....
PLATYCERIUM ALCICORNE MAJUS, *Moore* . Veitch Cat. 1873, 13, fig.—Polypodiaceæ.	Stove Fern, ornamental	Fronds larger and broader than in the type, the points drooping	(A larger form of the Elkshorn Fern)	....	South Sea Islands *Messrs. Veitch*
PLATYLOMA BELLUM, *Moore* .. .. Florist and Pomologist, 1873, 157, with tab.—Polypodiaceæ.	Greenhouse evergreen Fern, dwarf and pretty	Fronds rigid, narrow linear, bi-tripinnate, bluish green; pinnules 9—13, oblong-linear	(More slender than P. brachypterum, and having more numerous shorter pinnules)	....	California *Messrs. Veitch*
PLATYLOMA BRACHYPTERUM, *Moore* .. Florist and Pomologist, 1873, 157, with tab.	Greenhouse evergreen Fern, neat and pretty	Fronds rigid, erect, linear, bi-pinnate, bluish-green	(Pinnules 7—9, short narrow linear)	....	California *Messrs. Veitch*
PLECTOPOMA MYRIOSTIGMA, *Van Houtte* .. Flore, t. 1969-70, fig. A.—Gesneraceæ.	Stove perennial, showy, free-flowering	Ovate acuminate, serrated ..	Large, white, thickly dotted with bright lavender	Late summer	Garden variety *M. Van Houtte*
PLECTOPOMA RUBAN ROSE, *Van Houtte*.. Flore des Serres, t. 1969-70, fig. B.	Stove perennial, showy, free-flowering	Ovate acuminate, serrated ..	Large, white, thickly dotted with rose, and having a rosy border	Late summer	Garden variety *M. Van Houtte*
PLEOCNEMIA LEUZEANA, *Presl.* .. .. Gard. Chron. 1874, ii. 354, fig. 74.—Polypodiaceæ.	Stove Fern, sub-arborescent, handsome	Fronds deltoid, tripinnate, lower pinnæ bipartite	(Pinnules set on below the upper edge of rachis, giving ridge-and-furrow character to surface)	....	Philippine Islands *Mr. Bull*
POGONIA DISCOLOR, *Blume* .. .. .. Bot. Mag., t. 6125.—Orchidaceæ.	Stove perennial, tuberous, curious	Solitary, orbicular-cordate, dark green, with golden tufous hairs	In pairs, on a solitary scape, grey-green, the lip white	February	Java *Mr. Bull*
POINSETTIA PULCHERRIMA PLENA, *Hort.* Garden, iv. 143, with fig.—Euphorbiaceæ.	Stove shrub, very ornamental ..	As in the type, but with deep purple nerves	Bracts forming a convex head, 10 in. high, or more; crimson	Autumn	Mexico *American Gards.*
POLYGONATUM VULGARE MACRANTHUM, *Hook. f.*—Bot. Mag., t. 6133.—Smilaceæ.	Hardy perennial, with creeping rhizomes = P. japonicum	Broadly-elliptic, obtuse, sub-sessile	1—4 axillary, 1¼ in. long, white, with green spreading lobes	April	Japan *Kew*
RHAMNUS PHILLYREOIDES, *Sieb.* .. Gartenfl., t. 795, fig. 2.—Rhamnaceæ.	Greenhouse evergreen shrub ..	Elliptic-oblong, entire, coriaceous	In crowded corymbs, greenish, inconspicuous	May	New Holland ....
PRIMULA SIEBOLDII LILACINA, *Hort.* .. Belg. Hort. 1873, t. 6.—Primulaceæ.	Half-hardy perennial, very ornamental	Cordate-ovate, duplicato-dentate, hairy	Large, lilac with white centre and edge, obtuse-crenulate	March, April	Japan *Messrs. Veitch*
PRIMULA (SINENSIS) FIMBRIATA PUNICEO-PLENO, *Hort.*—Fl. M. 123; Flore, t. 2145.	Greenhouse perennial, very showy	Lobed, fleshy, hairy	Large double, rich crimson-scarlet, in dense pyramidal trusses	Winter	Garden variety *Mr. Bull*
PRIMULA VERTICILLATA SIMENSIS, *Masters* Bot. Mag., t. 6042.	Half-hardy perennial, interesting	Obovate-spathulate, 6—12 in., petiolate, mealy beneath	Numerous, pale yellow, in successive whorls	March	Abyssinia *Messrs. Veitch*
PRITCHARDIA GRANDIS, *Hort. Bull* .. Gard. Chron. 1874, i. 415, fig. 89.—Palmeæ.	Stove Palm, ornamental, about 3 ft. high (marginal lobes narrow, oblong, notched)	Nearly orbicular, with wedge-shaped truncate base, the margin lobed	(Dark shining green above, surface smooth; leaf-stalks beset with small spines)	....	South Sea Islands *Mr. Bull*
PRITCHARDIA PACIFICA, *Seem. et Wendl.*.. Illust. Hort., n. ser., t. 161.	Stove Palm, ornamental, 30—35 ft. high (drupes fleshy, sloe-like)	Fan-shaped, of about ninety segments, 4 ft. long, on spineless petioles, 3—4 ft. long	Spadix 3 ft. long, bearing numerous hermaphrodite yellowish-brown flowers	....	Fiji Islands, Polynesia
PRUNUS JAPONICA, *Thunb.* .. .. .. Rev. Hort. 1873, 457, fig. 41; Id. 1874, 453, fig. 60.—Drupaceæ.	Hardy deciduous shrub, of dwarf bushy habit	Lanceolate-elliptic, acuminate, regularly dentate (there is a double-flowered variety)	Abundant, bright rose, succeeded by oval nippled fruit	April	Japan ....
PRUNUS SINENSIS, *Carrière* .. .. .. Rev. Hort. 1874, 451, fig. 59.	Hardy deciduous shrub, bushy, often confounded with P. japonica	Lanceolate-elliptic, finely dentate (there is a double-flowered variety)	Numerous, in small clusters, white tipped with rose, succeeded by spherical fruits	April	China *French Gardens*
PSEUDOTSUGA DAVIDIANA, *Bertrand* .. Flor. and Pom. 1874, 124, fig.—Coniferæ.	Hardy evergreen tree, large, ornamental	Linear-obtuse, carinate beneath, revolute, sub-distichous	Cones pendent, 5—6 in. long, the scales persistent, recurved	....	China *French Gardens*
PSYCHOTRIA CYANOCOCCA, *Seem.* .. .. Flore des Serres, t. 1938.—Rubiaceæ.	Stove subshrub, with ornamental berries, 30—36 in a bunch	Oblong-ovate, acuminate, crenate	Insignificant, succeeded by beautiful ultramarine berries	Berries in winter	Nicaragua *Mr. Bull*
PTERIS SERRULATO-TREMULA, *Moore* .. Journ. Roy. Hort. Soc. iv. 38, t. 5.—Polypodiaceæ.	Greenhouse evergreen Fern, ornamental; possibly a hybrid P. tremula × P. serrulata	Fronds tripinnate, 2½—3 ft. long, spreading, elongate deltoid, pale green	(Pinnæ and the more compound of the pinnules caudate at the apex)	....	Garden variety *Roy. Hort. Soc.*
PYROSTEGIA IGNEA, *Presl.* .. .. .. Rev. H. 1873, 438, fig. 39.—Bignoniaceæ.	Stove hardy climber, vigorous = Bignonia venusta	Conjugate, tendrilled, the leaflets ovate-oblong acuminate	Numerous, velvety orange-yellow, in axillary corymbs	September	Brazil ....
PYRUS BACCATA, *Linn.* .. .. .. Bot. Mag., t. 6112.—Pomaceæ.	Hardy small ornamental tree, with grey cracked bark	Elliptic, acuminate, finely serrated, glabrous	In umbels; petals white, concave; fruits globose cherry-like	May	Siberia, &c. *Kew*
PYRUS BACCATA ROSEO-PLENA, *Hort.* .. Flore des Serres, tt. 2037-8.	Hardy ornamental tree. [Very different from the foregoing: perhaps P. spectabilis]	Large, elliptic, acuminate ..	Large, semi-double, rosy-pink, very showy	May	Siberia, &c. ....
PYRUS CRENATA, *D. Don* .. .. .. Gard. Chron. 1874, i. 16, fig. 2.	Hardy deciduous tree, 30 ft. = P. vestita	Obovate-elliptic, green above, fawn-col. downy beneath	White, in branched terminal corymbs	May, June	Nepal ....
PYRUS MAULEI, *Masters* .. .. .. Gard. Chron. 1874, i. 756, fig. 159; Florist and Pomologist, 1875, ined.	Hardy deciduous shrub, exceedingly ornamental both in the flowering and fruiting state	Obovate-spathulate, obtuse, crenate, glabrous	Fascicled, bright orange-red; petals navicular oblong; fruits oblong, yellow, perfumed	April	Japan *Messrs. Maule*
QUERCUS HUMILIS, *Lam.* .. .. .. Gard. Chron. 1874, i. 112, fig. 31.	Hardy evergreen shrub, tufted, spreading (Corylaceæ)	Obovate-oblong, toothed, glabrous, hoary beneath	Female flowers racemose ..	....	Southern Europe *Mr. M. Young*
QUERCUS LAURIFOLIA, *Wild.* .. .. Florist and Pomologist, 1873, 109, with tab.	Hardy deciduous tree, ornamental, 50—60 ft.	Obovate entire, smooth, tapered to the base	(Acorns matured the second year)	....	S. Carolina *Mr. Webb*
QUESNELIA RUFA, *Gaudich.?* .. .. Rev. Hort. 1873, 451, with tab.	Stove perennial, tall, ornamental (Bromeliaceæ)	Channelled, 3 ft. long, glaucescent	Violet-blue, with cherry-coloured bracts, the larger ones rose	....	Guiana *French Gardens*
RAFFLESIA ARNOLDI, *R. Br.* .. .. Gard. Chron. 1874, i. 91, fig. 26.	Stove parasite growing on the roots of Cissus (Rafflesiaceæ)	Leafless (the flowers smell like tainted meat)	Gigantic, 3 ft. across, with five thick petals and central cup	....	Sumatra *Buitenzorg Gard.*
RAPHIDOPHORA LANCIFOLIA, *Schott* .. Gard. Chron. 1874, ii. 611, fig. 124.—Araceæ.	Stove evergreen climbing perennial, with cylindrical rooting stems	Lanceolate, cuspidate, unequal-sided, 9—10 in. long	Spathe ovate acuminate, 3—4 in., apricot coloured outside, salmon coloured within	October	Khaysa, &c. *Messrs. Maule*
RAPHIOLEPIS SALICIFOLIA, *Lindl.* .. .. Rev. Hort. 1874, 271, with tab.—Pomaceæ.	Greenhouse evergreen shrub, pretty	Lanceolate, shining, coriaceous, 2—3 in. long	White, numerous, panicled	Winter	China ....
REGELIA CILIATA, *Schauer* .. .. .. Bot. Mag., t. 6100.—Myrtaceæ.	Greenhouse evergreen shrub, of twiggy habit, pretty	Small, ovate, spreading in five rows	Crowded in globose heads, red-purple, the stamens conspicuous	September	West Australia *Kew*

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

HENRY ORMSON,
HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under 12, £2 15s.
For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

TO BE LET or SOLD, a NURSERY GROUND, with immediate possession, near Sunbury, containing 6½ acres, with extensive Glass Erections and Pits, Three Cottages, Stabling, and Range of Sheds: held on Lease for unexpired term of twenty-five years. Two-thirds of purchase money may remain on Mortgage.
For further particulars apply to Mr. HAND, 5, New Inn, Strand, W.C.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards, Freehold, from 10s. to 25s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to
ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

SALES BY AUCTION.

City Auction Rooms, 38 & 39, Gracechurch Street, E.C.
CONSIGNMENT from GHENT, for ABSOLUTE SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms as above, on TUESDAY, December 15, at 12 o'Clock precisely, a Choice Collection of about 300 DOUBLE CAMELLIAS and AZALEA INDICA, compact Plants, beautifully set with bloom-buds; a superb Assortment of 500 handsome Standard Dwarf and Climbing ROSES of the best varieties; selected hardy CONIFERÆ, SHRUBS, and AMERICAN PLANTS, fine FRUIT TREES, with a Collection of DUTCH BULBS, LILIUM AURATUM, &c.
May be viewed the morning of Sale. Catalogues at the Rooms and of the Auctioneers, Valuers, and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Cattleya Mossiæ.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 14, at half-past 12 o'Clock precisely, an Importation, ex steamer *Severn*, from La Guayra, of huge and splendid masses of CATTLEYA MOSSIÆ. Some of the masses have from forty to fifty bulbs each.
On view the morning of Sale, and Catalogues had.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 14, at half-past 12 o'Clock precisely, a COLLECTION of ESTABLISHED ORCHIDS, including twenty fine strong plants of Odontoglossum Alexandræ; a dozen strong plants of the Dove Flower, Peristeria elata; and comprising many choice and rare kinds, among them the following:—

Odontoglossum sceptrum	Masdevallia Lindeni
,, angustatum	,, Veitchii
,, odoratum	,, nycterine
,, Roezlii	,, polysticta
,, coronarium	Cypripedium niveum
,, gloriosum	,, pardinum
,, vexillarium	,, Harrisianum
Pescatorea cerina	,, Schlimii
Dendrobium lasioglossum	Oncidium macranthum
,, rhodocentrum	,, ,, hastiferum
Anguloa Ruckeri	,, cheirophorum
Eriopsis biloba	

And an Importation from New Grenada of various Odontoglossums, Oncidium superbiens, O. Kramerianum, and three new Oncidiums, viz., O. Balderramæ, O. tetracopis, and O. plagianthum.
On view the morning of Sale, and Catalogues had.

Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, December 16, at half-past 12 o'Clock precisely, a splendid assortment of DECIDUOUS TREES and SHRUBS, Specimen CONIFERS, RHODODENDRONS, AZALEAS, and other AMERICAN PLANTS; Standard and Dwarf ROSES, FRUIT TREES, &c., from a well known Surrey Nursery; Hardy HERBACEOUS PLANTS, and a variety of Choice DOUBLE and SINGLE HYACINTHS, TULIPS, CROCUSES, NARCISSUS, IRIS, ANEMONES, RANUNCULI, LILIUMS, &c., from well known farms in Holland.
On view the morning of Sale, and Catalogues had.

4000 Splendid Bulbs of Lilium auratum.
Just arrived from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 17, at half-past 12 o'Clock precisely, 4000 magnificent Bulbs of LILIUM AURATUM, just arrived from Japan, in the finest possible condition, being quite as firm and plump as English-grown bulbs.
On view the morning of Sale, and Catalogues had.

Rare Lilies and other Bulbous Flowering Roots.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, December 17, at half-past 12 o'Clock precisely, a quantity of CALIFORNIAN LILIES and other BULBOUS FLOWERING ROOTS, including L. Humboldtii, Washingtonianum, pardalinum; Bloomeria aurea, Brodiæa coccinea, Calochortus of various new varieties, Erythronium giganteum; also Bulbous Flowering Plants from Peru, Bolivia, the Cape, and other localities; LAPAGERIA ROSEA SEED, LAPAGERIA ALBA PLANTS, with a variety of other rare SEEDS and BULBS.
On view the morning of Sale, and Catalogues had.

Beautiful New Masdevallia and Oncidium,
Both offered for the first time. Established plants of ODONTOGLOSSUM ALEXANDRÆ, ROEZLII, MAXILLARE, and VEXILLARIUM; good plants of CATTLEYA GIGAS and DOWIANA, SOPHRONITES GRANDIFLORA, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 21, at half-past 12 o'Clock precisely, by order of Messrs. Veitch & Sons, of Chelsea, a splendid NEW MASDEVALLIA—M. DAVISII. This species has been named and described by Professor Reichenbach as coming near the M. Veitchiana and Harryana section; the flowers are about the size of those of M. Harryana, and of a bright orange-scarlet. Dried flowers will be exhibited at the sale, and the plants are in excellent condition. Also a very distinct and fine ONCIDIUM, named AUREUM. See dried specimens. The ODONTOGLOSSUM ALEXANDRÆ are established plants, and from the same importation which produced the fine O. Andersonianum and other beautiful varieties, and the other plants offered are all in good health.
On view the morning of Sale, and Catalogues had.

Jersey.

A GARDEN FARM and THIRTY LOTS of Desirable Landed and other PROPERTY, will be SOLD by AUCTION on MONDAY, the 14th inst., at the Mart, Queen Street, St. Helier.
Particulars forwarded on applying to BERNARD HASTINGS, Auctioneer and Estate Agent, Jersey.

To the Trade.
SURPLUS STOCK of HYACINTHS, TULIPS, CROCUS, &c.

HURST AND SON can offer the above at very low prices. LISTS on application to
6, Leadenhall Street, London, E.C.

Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S stock of ROSES, FRUIT TREES, &c., is unusually fine this season. A visit to the Nurseries would well repay intending purchasers. CATALOGUES post free.
Highgate Nurseries, London, N.

Seed Potatos.

T. THORNTON has a carefully selected and clean-grown stock of the above to offer, in quantities, of about twenty leading varieties, grown on sandy soil. Price per bushel or per ton on application.
Heatherside Nursery, Bagshot, Surrey.

To the Trade.

DUTCH FLOWER ROOTS.—We can still offer Hyacinths, Crocuses, Tulips, Snowdrops, Ixias, Polyanthuses, Narcissus, &c., at very moderate prices. Price LIST on application.
DANIELS BROS., Bulb Merchants, Norwich.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20s. carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Christmas Trees.

VIRGO AND SON have a splendid lot of SPRUCE FIR, in various heights, bushy, and of good colour. Prices and samples per hundred or per dozen can be obtained at
The Nurseries, Wonersh, near Guildford.

TO BE SOLD, a great bargain, in order to clear the ground—

20,000	SILVER FIRS,	1 foot high,	2s per 100.
50,000	,,	,,	1½ foot high, 2s. 6d. per 100.
70,000	,,	,,	2 to 3 feet high, 5s. per 100.
50,000	,,	,,	3 feet high, 7s. per 100.

For particulars apply to The AGENT, Gunton Park, Norwich.

Home Grown Agricultural and Garden Seeds.

H. AND F. SHARPE are now prepared to make special offers to the Trade of their home-grown choice selected stocks of AGRICULTURAL and GARDEN SEEDS of this season's growth. They have been harvested in very fine condition, and are quoted low in price.
Seed Growing Establishment, Wisbech.

Standard Tea Roses from Paris.

LEVÊQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer for next autumn a splendid and large stock of TEA ROSES, comprising all the best sorts, Maréchal Niel, per hundred. The price will be £5 per 100. LIST of sorts on application.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6s., 9s., and 12s. per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40s. cash. Baskets and Packing included.
Crown Nursery, Reading.
N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1s. per packet, post-free.

From Paris.—Gladioli Seedlings,
Per Colour, Mixed Seedlings, and Sorts to name.

LEVÊQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer, for the first time, SEEDLING GLADIOLI, in separate colours, beautiful, of flowers equal to the collection.
Mixed White, 12s. per 100; do. Red, 12s. per 100; do. Yellow, 24s. per 100; do. Rose, 12s. per 100.
Seedlings, mixed, of all colours, 8s. per 100, £3 4s. per 1000.
Their stock of named sorts is splendid and cheap.
See the LIST, sent free on application.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to
CARTERS', The Royal Seedsmen, High Holborn, London.

PLANTS for WINTER FORCING.—Any one desirous of Successfully Forcing Flowering Plants during the coming Winter Months, should apply at once to JOHN STANDISH AND CO. for a LIST of their PLANTS specially prepared and adapted for this purpose.
Royal Nurseries, Ascot, Berks.

FOR SALE.—10,000 strong, true, 4-yr. old BLACK CURRANT TREES, 6s. per 100; 6000 strong Raby Castle RED CURRANT TREES, 5s. per 100; and 20,000 strong Fastolf RASPBERRY CANES, warranted true, 30s. per 1000. Apply to
W. SELBY, Jun., Oldbury, Ightham, Sevenoaks, Kent.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

Catalogues! Catalogues!!

EWING AND CO.'S PRICED, DESCRIPTIVE, and ILLUSTRATED CATALOGUES are now ready. Rose Catalogue, and Fruit Tree and General Nursery Catalogue—both are forwarded gratis and post-free to applicants.

New Apple—Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now sending out strong maiden plants of this splendid novelty, which obtained a First-class Certificate from the Royal Horticultural Society, November 12, 1873. Circulars, with testimonials and full description, will be forwarded, gratis and post free, to applicants. Price 7s. 6d. each, or three for 20s. The usual Discount to the Trade.

FOR SALE—Cucumber, Strawberry, and Cabbage Plants; Dwarf, Moss, and Cabbage Roses; Red and Black Currant Trees, Laurels, Limes, and Chestnut Trees; or will EXCHANGE for Camellias, Azaleas, Eucharis, Tea Roses, Picotees, and Carnation Plants, or any choice Cut Flowers.
G. WALKLING, College Park Nursery, Lewisham, S.E.

Blue Gum Seed.

T. AND B. GULLIVER, AUSTRALIAN SEED COLLECTORS, &c., beg to draw the attention of European Seedsmen and Nurserymen to their extensive Collections of NATIVE SEEDS and PLANTS—Australian and Tasmanian Seeds—collected fresh every season, and forwarded, per Mail Steamer, at most reasonable prices.
Carlton, Tasmania.

EVERGREEN HEDGES
AMERICAN ARBOR-VITÆ, 6 to 7 feet, 60s. per 100
SIBERIAN ARBOR-VITÆ, 5 to 6 feet, 100s. per 100
CHINESE JUNIPER, 5 to 6 feet, 150s. per 100.
COLCHIC LAUREL, 6 to 7 feet, 100s. per 100.
ENGLISH YEW, 3 to 3½ feet, 120s. per 100.
THUJA LOBBII, 4 to 5 feet, 90s. per 100.
RICHARD SMITH, Nurseryman, Worcester.

FIBROUS PEAT.—Brown Fibrous Peat, best quality, for Orchids, Stove Plants, and Potting, £6 6s. per 6-ton truck load. Black Fibrous Peat, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5s. per 6-ton truck load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

SPHAGNUM or PEAT MOSS.—Fresh Sphagnum Moss, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

J. SCOTT'S TREE and SHRUB CATALOGUE is replete with information about Trees, &c. It enumerates the names and gives descriptive notes of one of the best and well-grown Collections in the West of England. Parties intending to Plant should send for a copy, supplied gratis, as are also the SEED and BULB CATALOGUES; and SCOTT'S ORCHARDIST, at 5s. 6d., free by post.
The Nurseries, Merriott, Somerset.

J. SCOTT'S FRUIT TREES cover many Acres, and form the most complete Collection in the World, consisting of 2200 sorts of Pears, 1400 sorts of Apples, and other kinds in proportion, amounting in the whole to over 5000 sorts. CATALOGUES, gratis, sent to all applications; or SCOTT'S ORCHARDIST, post free, for 5s. 6d., the most complete work upon Fruit Trees in the English Language.
Merriott Nurseries, Somerset.

The Planting Season.

LARGE TREES.—Limes, Horse Chestnuts, Giant and English Elms, Sycamores, Norway Maples, Upright and other Poplars, Bedford and Cœrulean Willows, Weeping and Cut-leaved Beech, Turkey Alders, &c. Fine Trees for immediate effect. For particulars and prices apply to
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Seed Potatos.

H. AND F. SHARPE'S Wholesale Special Priced LIST of SEED POTATOS is now ready, and will be forwarded, post free, on application. It includes all the best English and American sorts in cultivation, and the prices will be found very moderate.
Seed Growing Establishment, Wisbech.

New Roses of 1874.

E. COOLING offers nice healthy plants of the above, budded low on Manetti, from open ground, at 2s. each, 21s. per dozen, package free. Also splendid plants of older sorts, Standards, 18s., Dwarfs, 10s. to 12s. per dozen.
New CATALOGUE free.
Mile Ash Nurseries, Derby.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. *for* 12 *months, including postage to*—

AUSTRALIA	CANADA	JAMAICA	WEST INDIES
BELGIUM	FRANCE	NEW ZEALAND	UNITED STATES

£1 10s. 4d. *for* 12 *months, including postage to*—

AUSTRIA	HOLLAND	PORTUGAL	SPAIN
CHINA	INDIA	PRUSSIA	SWITZERLAND

£1 14s. 8d. *for* 12 *months, including postage to*—

RUSSIA	ITALY	DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

To Secretaries of Horticultural Societies.

THE EDITORS of this JOURNAL will be greatly obliged to Secretaries of Horticultural Societies, who have fixed the Dates for their Exhibitions of next year, if they will kindly communicate the same, as soon as possible, FOR PUBLICATION in the GARDENERS' CHRONICLE ALMANAC.

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 12, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY, Dec. 17 { Meeting of the Linnean Society, at 8 P.M. / Sale of the Lease of the Hope Nursery, Lewisham Road.

THE *Proceedings* of the Nineteenth Annual Meeting of the Western New York Horticultural Society, held at Rochester, United States, may serve to give some useful hints to those who think, or act as if they thought, that the principal object of a horticultural society should be the establishment and maintenance of exhibitions. No one would venture to gainsay the value and importance of such exhibitions, but they are not the only objects a society should aim at. Of the very numerous associations scattered over the country, by far the great majority concern themselves wholly and solely with exhibitions. To our thinking, this exclusive devotion to one object is likely to be, even if it be not already, seriously detrimental to the progress of horticulture generally. Without stopping to criticise or even analyse the several reports included in the *Proceedings* before us, let us see what the Western New Yorkers do. First of all we have a report on new varieties of Apples grown in the States, then a report on entomology, devoted principally to the Phylloxera. A report on evergreens (American for Conifers) follows, including a list of the best and most ornamental kinds. To this succeed reports on Pears or ornamental trees and shrubs. After these formal reports we have a record of a series of discussions on such subjects as the following :—

1. The cause or causes of the decline of certain varieties of fruits and vegetables in districts and localities where they formerly had been grown successfully.
2. The treatment of the soil among fruit trees, especially in orchard culture.
3. The winter protection or care of Grape Vines.
4. The winter protection of Raspberries and Blackberries.
5. The most profitable market varieties of Apple, Pear, Peach, Cherry, Plum, Grape, Blackberry, Currant, Raspberry, Strawberry.
6. Planting dwarf among standard Pear trees—can it be recommended?
7. Pruning trees at time of transplanting; to include evergreen trees.
8. The most suitable evergreen trees for hedges, screens and belts for shelter.
9. The best deciduous hedge plant.
10. The best season for planting hardy fruit trees and deciduous ornamental trees and shrubs; also evergreens.
11. Is it likely that the demand for wood suitable for the manufacture of paper will justify landowners in planting their moist waste lands with trees adapted to this purpose?
12. Which are the best six and twelve varieties of hardy Roses for general cultivation?
13. Which are the best twelve deciduous trees? the best twelve flowering shrubs? and the best six evergreens for small lawns?
14. Which are the most appropriate trees for the embellishment of small cemetery lots?
15. Which varieties of Tomatos, Sweet Corn and Peas, are the best for the family garden?

Note.—Members will please prepare their lists in response to questions Nos. 12, 23, 14, and 15, and hand to the Secretary to be read during the session.

We purposely abstain from commenting on the manner in which these subjects are treated in the document before us. Our principal object is to show how practical topics may be dealt with by a society apart from exhibitions, and we think the most careless must admit that a large amount of good must be done by such proceedings even if it be mixed with a good deal that is not deserving of permanent record. In France, in Belgium, in Germany, horticultural societies follow a similar course. To what extent, or in what way the more general adoption of such a plan in this country would be beneficial, is a subject on which we should gladly hear the opinions of our practical readers.

It must be admitted that the attempts that have been made in this direction at the Congresses that have been held at the "provincial shows" have not been encouraging, while the larger and more ambitious Congresses that have been held in connection with the International Exhibitions in London, Brussels, Paris, St. Petersburg, Amsterdam, Florence, and elsewhere, have been decidedly more successful from a botanical than from a purely horticultural point of view. It may be that the number and wide diffusion of the horticultural journals has something to do with this. Gardeners get what information they want more fully, more promptly, and, above all, more regularly and punctually from the gardening periodicals than they would do from Reports of Societies and Congresses. We are glad to believe that this is true, and hope it may remain so, still it must be remembered that the journals are, after all, but newspapers, dealing promptly, summarily, and often of necessity superficially, with results as they present themselves at the moment, and are not collections of essays or statistical details prepared with more deliberation and care than time and other circumstances permit to the journalist. Again, many subjects which from their very nature are adapted specially for the authorised report of a society, would be out of place in a gardening newspaper.

Flattering, therefore, as is the often-expressed opinion that the Horticultural Press to a large extent supersedes the action of the societies, we, from our knowledge of the work to be done, and of the opportunities and means that the Press has for doing it, cannot fail to perceive that in some particular respects the societies could, or should, be able to do the work of promoting horticultural knowledge more efficiently than the periodical Press. It is from this feeling that we reiterate the opinions that a society which devotes its whole energies to the promotion of horticultural exhibitions, promotes one phase only of horticulture, and that those other societies, which, without neglecting any department, do their best according to their means to advance the principles and practice of gardening, are those which should be held up as a model for imitation.

WHO is responsible for the care of the PLANE TREES ON THE THAMES EMBANKMENT? We cannot satisfactorily answer the question ourselves, and consequently are led to call the attention, through these columns, of the powers that be to the radically wrong and positively mischievous plan of supporting the trees which has within the last week or two been commenced on the Charing Cross side of Waterloo Bridge. These trees are fine specimens of their kind, they have cost the public a considerable amount of money, and their future welfare is a question of almost national importance. Since being planted they have made very satisfactory growth, and give promise of developing into handsome and beneficial shade-giving trees. But this promise is not likely to be satisfactorily realised if a greater amount of intelligence is not bestowed on them than has hitherto been vouchsafed. From the very first they have been treated in the matter of support like so many broken reeds, and as if it was the intention that they should continue so, having been from the first tied to their stakes so securely that no amount of wind can give them the necessary oscillation which alone can endow the stems or boles with sufficient strength and stiffness to enable them ultimately to dispense with adventitious aids.

It cannot be too widely known that, in the earlier stages of the existence of such trees as these, they require only to be guarded against any possible contingency of being blown over until the roots have taken a secure hold of the ground; and that anything beyond that which restrains the natural action of the tree in windy weather causes it to cease to rely on its own resources. Its ultimate destruction is only a question of the time which intervenes between the removal of such restraints and the first gale of wind. Our illustration (fig. 146, on the next page) gives an excellent idea of one of the trees treated in the manner we complain of. It will be seen that three stout square stakes are driven into the ground close to the bole of the tree, nailed very closely together at the top, and the tree made firm to them. The sketch explains itself better than any description of ours would do, and we need only add that the stakes in question are about 10 feet high. It will be observed that the Plane trees have a longer clear bole than most of our readers would approve of, giving them already the appearance of being top-heavy; but while that mischievous individual, "the rough," exists, there is a valid excuse for getting the branches out of harm's way, although this renders it more imperative than ever that the trees should be properly educated to take care of themselves, and not, as at present is the case, be actually prevented from so doing. Not only are these stakes injurious to the future welfare of the trees, but they are a sad disfigurement to this splendid thoroughfare. Common sense demands their removal at once, and the substitution of a more rational method of procedure. It is almost too late for this year to make any alterations as regards the pruning of the trees, but we may suggest that another year some one with more skill than that of the ordinary London jobbing gardener should be selected to thin them out.

—— THE Metropolitan Board of Works, who are now the Conservators of CLAPHAM COMMON, in compliance with the wishes of the residents of Clapham, determined to permit the Common to remain intact and as an open space free to the public. According to the *Builder*, no turf, mould, gravel, &c., will be allowed to be dug or taken off the common, but the privilege of ratepayers having rights to pasturage will not be interfered with. Some young trees have recently been planted by the roadside, and the common, already studded with forest trees, will present a park-like appearance. The ponds of stagnant water are to be purified, and the common drained, but the intention of converting it into a pleasure and recreation ground is entirely abandoned.

—— Large tracts of land in the South of France which have not hitherto repaid cultivation, are now

(according to the *Pall Mall Gazette*) being planted with the kind of Oak trees beneath which Truffles are generally found, and it is expected that each acre of this land, which has of late been sold for as little as £5, will yield a crop of Truffles worth £20 every year. The experiment has already been tried in the department of the Vaucluse, and in the course of the last twenty years 150,000 acres which were absolutely unproductive have been planted out, and are now yielding a rich return. The cost of plantation, which is borne by the different communes, does not exceed 20 fr. per acre on hilly ground, and though it is rather greater in the lowlands, the crops are proportionately heavier. Acorns only are planted on the hilly ground, but saplings of five or six years' growth, placed in rows about 40 feet apart, are found to answer best in the lowlands. The ground between each row of trees is planted with Vines, which after five or six years suffice to repay the cost of the whole plantation and its culture. It is urged that this experiment, applied to the large tracts of land in the South of France which have been denuded of forests, would have the double advantage of increasing the supply of Truffles, and of replacing the forests, the want of which is very much felt.

—— M. E. MORREN has issued a second edition of his very useful *Correspondance Botanique*, or list of all the public gardens and botanical establishments of the world, with the names of their curators and other officers, as well as a list of the leading botanists in each country not specially connected with public establishments. The second edition is an improvement on the first, and constitutes the most complete Directory of the kind that we have. It may be obtained from the office of the *Belgique Horticole* at Liège.

—— The Italian Government, in their anxiety to prevent the entrance of the PHYLLOXERA into their territory, have even prohibited the introduction of all fruit trees whatever into the country—a very unnecessary step to take.

—— In a recent number of the *Journal de la Société Centrale d'Horticulture* M. RIVIÈRE gives a hint as to the treatment of newly imported plants of Phœnix pumila, which may profitably be applied to other plants under like circumstances. The plant in question is imported in small pots from Algiers to Paris, where on arrival the common practice is to repot them at once into larger-sized pots and to water them freely. M. RIVIÈRE recommends in lieu of this practice the method of plunging the pot as it is received into a tub of water for a quarter of an hour, and not to repot till after the lapse of a fortnight. The *rationale* of the process is simple. During the journey the plant lives at the expense of the nutriment in the "ball," which becomes very dry, and which in consequence demands much water. If the plant be immediately potted the new soil sucks up all the water, leaving the original ball nearly as dry as before. By M. RIVIÈRE'S plan the ball becomes saturated, the roots gradually resume their activity, and when placed in a larger pot are enabled to avail themselves freely of the fresh supplies of nutriment provided for them.

—— COURATARI TAÜARI [Phœbus, what a name!] is a magnificent tree with a straight trunk, strengthened at its base by strong buttresses, and which affords a valuable hard timber, of a palish colour, used in shipbuilding, yielding logs 65 feet long and 18 inches square. The name Taüari is also given to its laminated inner bark, consisting of many thin, whitish sheets, of the substance of paper, well known in commerce, being extensively used for the covering of cigarettes. (*From* Mr. MIERS' *Monograph on the Lecythidaceæ.*)

—— Mr. M. D. CONWAY, says the *Commonwealth*, has a notion that he found how the legend of FRIEDRICH BARBAROSSA originated, recently. He went into a famous bone cave at Torquay, whose stalagmites he calculated are 120,000 years old, and there observed hanging from the roof what seemed a gigantic reddish brown beard—the roots of a tree that have come through. Hence the story, he infers, of the peasant who found the emperor sleeping in the mountain, with his red beard grown through the table before him.

—— It may interest many horticulturists to know that the grave of the late Mrs. LAWRENCE, and of her husband, the late Sir WILLIAM LAWRENCE, Bart., in the parish churchyard of Ealing, is preserved with much care; the surface of it is now planted with some charming flowers, that in the softening spring days will blossom on the grave of the departed lady, who, for a time, acquired such a high reputation as an exhibitor of stove and greenhouse plants at the great London horticultural exhibitions.

—— Whilst the offering of "cups" as prizes at horticultural exhibitions seems to be on the increase, it is to be regretted that so little ingenuity should be exercised to render them other than objects of stereotyped form, and presenting no special associations with the subjects they are intended to reward. A noteworthy exception to the common rule is the silver cup offered by Mr. GEORGE WISE, at the recent Birmingham cattle and root show, for a collection of six dishes of Potatos, the cup being manufactured from Mr. WISE'S own design. It has the usual flat circular base, on to the edge of which is fastened a spade, digging fork, and hoe; the handles are gathered together half-way up, and tied by a bond of silver wire, but in such a way that the upper parts of the tools spread out and form a triangular rest into which is dropped the bowl of the cup, fashioned to resemble a large Potato, with its upper and smaller ends cut off. The artist has evidently copied from the real tuber, as the form is admirable, and even the eyes are not omitted. The cup was the subject of much admiration at the show, both for its novelty of design and elegance of workmanship; is of the value of five guineas, and was gained by Mr. P. M'KINLAY, of Beckenham.

—— We have received the following note from the Secretary to the NEW HORTICULTURAL CLUB:—

"In answer to numerous enquiries addressed to me privately, and which I may take as an indication that others would like the same information which I have given to them, will you kindly permit me to say, that the

FIG. 146.—AN ILL-USED PLANE. (SEE P. 749.)

only reason why more active steps have not yet been taken in bringing it more prominently before the general body of horticulturists, is that we have so far been completely baffled in our attempt to find a suitable accommodation, and that we are desirous, before issuing any further statement, to be able to say that we offer our friends the full benefit of membership.

"The very cordial manner in which the proposition has been welcomed by representative men in the various branches of horticulture, leads the committee to believe that, when we have completed our arrangements, we shall be enabled to establish the Club on a satisfactory and permanent basis."

—— In some countries, says the *Commonwealth* (Boston, U.S.A.), the custom remains of placing a rosy Apple in the hand of the dead, that they may find it when they enter Paradise. The Greeks use it as a symbol for wealth and large possessions, thus attesting their esteem for the fulness and richness of its qualities. In northern mythology the Apple is said to produce rejuvenating power. Germany, France and Switzerland have numerous legends regarding this fruit. In some it is celebrated as the harbinger of good fortune, causing one's most earnest desires to be fulfilled; in others its beautiful properties are shown forth as bringing death and destruction; others again speak of it as an oracle in love affairs; this is especially the case with the Germans, not only in their numerous tales, but in some surviving customs. In England, as well as in our own country, is known among school-girls the popular use of the Apple-seeds in divining one's sweetheart. The peeling is also used as a test in this delicate matter.

—— The principal shows to be held next year at the CRYSTAL PALACE are:—An exhibition of Clematis, by Mr. G. JACKMAN, on April 24; spring flower show, May 1; great flower show on May 22; Rose show, June 19; autumn fruit and flower show, September 7 to 9; show of bees and their produce, and bee furniture, September 21 to 23.

—— Judging from the extensive preparations made for observing the TRANSIT of VENUS on Wednesday last in various parts of the earth's surface, it would seem as if the nations of the globe were bent on turning Armstrong guns into telescopes, and on entering on a career of rivalry in scientific rather than military matters. British observers are stationed in the Sandwich Islands, Kerguelen's Land, Rodriguez, New Zealand, Egypt, India, and the Mauritius. America occupies a larger number of stations, even more widely dispersed. France has seven stations, including some very remote and relatively inaccessible. Russia has no less than thirty points of observation; Germany has five, and Holland and Italy are also represented. The large expenditure of means and energy, the possible disappointments, the severe hardships and privations that must be undergone—all for the sake of an abstract point of science, are most hopeful signs that the nations and governments are recognising the importance which science has, and will have, in the future. The directly practical results may probably be of little importance, but indirectly there is every reason to expect, even from a practical point of view, results which in value will much transcend the outlay. The *Times* well points out that almost all the great practical benefits that have accrued from chemistry, electricity, and physics in the last half century have originated from the experiments in abstract science made by scientific men for the sake of science only. How wonderful are the results thus obtained may be judged from the fact that on the same day that the transit occurred telegrams were received, and published in the newspapers, from Siberia, Japan, India, Egypt, and China. Our fathers even would have thought of such things as the insane ravings of a madman rather than as actual facts. We shall hope to lay before our readers some illustrations of the scenery and vegetation of some of the stations above alluded to. It is to be hoped that the astronomers will be able to turn their attention to the natural products of some of the little known places visited by them.

—— The HELENSBURGH AND WEST OF SCOTLAND ROSARIANS' SOCIETY has just been formed in Helensburgh, and has for its objects the promotion of a taste for Rose growing, and the improvement of its cultivation. In carrying out these objects it is proposed to hold a great Rose show in Helensburgh during July next; and from the encouragement the directors have already received, they expect to be in a position to offer such prizes as will induce the leading Scotch, English, and Irish Rose growers to take part in the competition. The prize schedule will be ready early in January, and may be had from the secretary, Mr. W. URE WADDELL. The management of the society has been entrusted to a number of efficient office-bearers. It is also proposed to appoint district representatives in any locality where an interest is likely to be taken in the objects of the society. Judging from the enthusiastic manner in which the proposal has been taken up, we believe that the efforts of the society will be eminently successful, and that the Helensburgh Rose show of 1875 will be in every way worthy of the district which produced so many fine specimens of this favourite flower as were shown at the leading flower shows last summer by Major DENNISTOUN of Roselea, and Messrs. ROBERTSON & GALLOWAY, Nurserymen, Helensburgh.

THE COMMON HOLLY AND ITS VARIETIES.—IV.

(*Continued from p. 687.*)

A. LEAVES GREEN (*continued*).

§ Spines marginal, numerous, strongly developed.
** Spines mostly directed upwards.

29. I. A. MONSTROSA, Fisher, Smith, W. Paul; latispina, Lawson (fig. 147).—This is a very marked variety, evidently allied to latispina, with which it is sometimes confounded, and also to trapeziformis, but differing in the constantly numerous spines, which are usually few in the varieties just mentioned. The bark of the young shoots is green or purple, or sometimes greenish purple; and the leaves, which are about 2½ inches long and 1 inch broad (not measuring the spines), are of an oblong outline, much acuminated, of a dark green colour, with numerous strongly developed spines at the margin, most of them being

FIG. 147.—ILEX AQUIFOLIUM MONSTROSA.

directed upwards; the terminal one, however, which tips the long acuminated apex, is pointed downwards. It is a free-growing, fine-looking, and very characteristic Holly. We learn from Messrs. Fisher, Holmes & Co., that this variety was sent out by them.

*** Spines plane, not manifestly divaricate.

† Leaves large, 2—3 inches long, or more.

30. I. A. ATROVIRENS, W. Paul; maderensis atrovirens, Fisher.—A grand Holly, with purplish bark, and great ovate leaves, 3½ inches long and 2½ inches broad, furnished at tolerably regular but rather wide intervals (⅜—⅝ in.) along the whole of the margin, except the very base, with long triangular spiny teeth, which lie nearly or quite in the plane of the leaf; the leaves

FIG. 150.—ILEX AQUIFOLIUM FOXII.

are deep green, and glossy, and of a thick, leathery consistence. This is, no doubt, an improved form of maderensis, a plant which, although sometimes regarded as a distinct species, may, along with balearica, be considered for all practical purposes as a variety of Ilex Aquifolium, which is itself widely spread in Western and Southern Europe, and in Central Asia, and with which indeed it is associated as a variety by some botanists.

31. I. A. MADERENSIS, Waterer, Fisher, W. Paul, Smith, Masters & Kinmont.—In this plant, which we here include as a variety of Aquifolium, the bark of the young shoots is green. The leaves are ovate or ovate-oblong in outline, with a short acuminate point, 3 inches or rather more in length, and about 1¾ inch broad, bright green, furnished throughout the margin

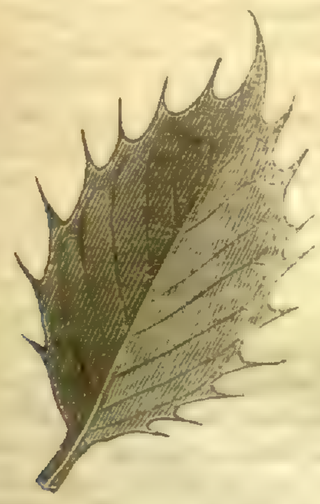


FIG. 153.—ILEX AQUIFOLIUM CILIATA.

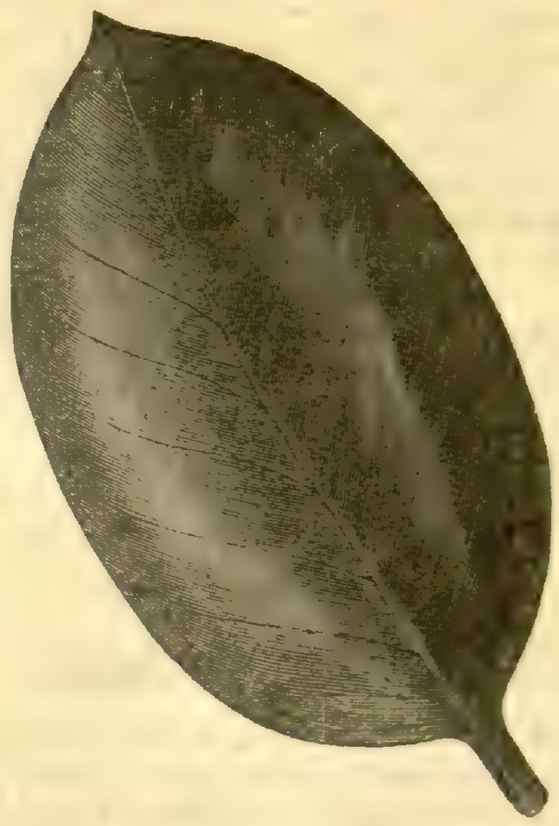


FIG. 148.—ILEX AQUIFOLIUM HENDERSONI.

with tolerably regular spines lying in the plane of the leaf, smaller and less triangular than in the preceding variety, and directed more or less distinctly towards the apex of the leaf. It is a rather fine-looking Holly, when seen under favourable conditions, but appears to be somewhat less hardy than the varieties which come nearer the common type.

It would appear that the crossing of the Madeiran Holly with the common has given rise to a series of varieties bearing different names, but which are

FIG. 151.—ILEX AQUIFOLIUM CILIATA MAJOR.

so similar in their general aspect that any one of them may be taken as a sufficient representative of the whole set, in gardens where the object is not to obtain a collection. We should be glad if any of our readers can furnish the history of any of these cross-bred named varieties.

32. I. A. BALEARICA, Fisher, Waterer, Smith, W. Paul, Masters & Kinmont; Hodginsii, Lawson.—This comes very near to maderensis, and indeed is sometimes regarded as identical with it, but the specimens supplied to us from various sources appear to

FIG. 154.—ILEX AQUIFOLIUM ANGUSTIFOLIA.

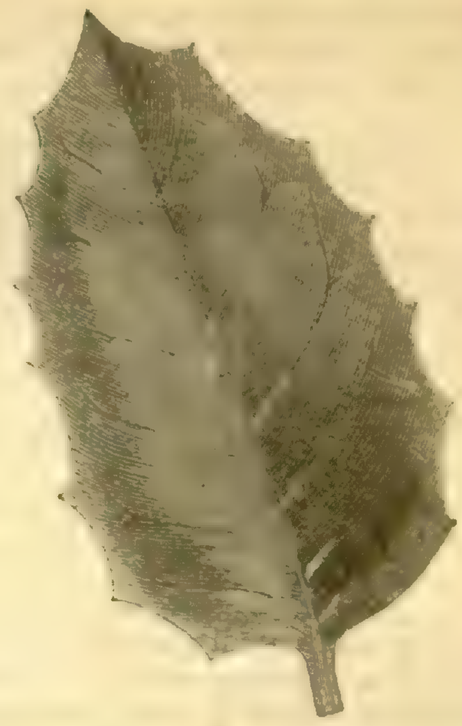


FIG. 149.—ILEX AQUIFOLIUM OVATA.

differ in not having the leaves so constantly and regularly spiny-margined. In balearica, in many instances, and on the same plants, some leaves will be found to be entire, some with a few erratic spines, some moderately furnished with spines in patches, and some spiny throughout; while in the specimens of maderensis which have come to hand we find the margins constantly spiny, or with very slight interruptions. In the plant now under notice the bark is green. The leaves are ovate or ovate-oblong, with a short but distinct acumen, 3—3½ inches long and about 2 inches broad, thick in texture, and of a bright green, sometimes with the margin quite entire, sometimes with a few spines scattered here and there without order, and occasionally furnished along the whole margin, the spines being, however, comparatively small and distinct, and always lying in the

FIG. 152.—ILEX AQUIFOLIUM CRASSIFOLIA.

plane of the leaf. It is a fine Holly, with very much the aspect of Shepherdii, but with weaker less developed spines.

33. I. A. SHEPHERDII, Waterer.—This is a very fine Holly, and one of the best in the group, the plant—a hybrid, we believe, with some of the blood of maderensis or balearica—being hardier and more bushy in habit than the varieties just mentioned, which, as already remarked, closely resemble it in its general features. The bark in this variety is green. The leaves are stout in texture, from 2 inches to 3 inches long, broadly ovate, with a short acumen, rarely quite spineless, occasionally few-spined, or more frequently spiny throughout, with flat or plane rather strongly-developed spines which in rare instances become somewhat wavy or divaricate, indicating that Aquifolium was one of its parents. Like most of the Hollies of this affinity, the colour is a rather bright green, as distinguished from the dark green which some varieties take on—Hodginsii, for example. This Holly, it may also be remarked, seems to be sometimes confounded with Hodginsii, from which it differs widely.

34. I. A. ROTUNDIFOLIA, Fisher.—A dull green variety, with purplish-green bark, roundish ovate

FIG. 155.—ILEX AQUIFOLIUM MICROPHYLLA.

leaves, upwards of 2 inches long, with weak spines, scarcely wavy, sometimes few sometimes more numerous. Our specimens show no very striking character.

35. I. A. NIGRESCENS, Paul.—A green-barked variety, with ovate-oblong leaves, 3 inches long, and 1½ inch broad, of a glossy green, scarcely justifying the name, sometimes entire, sometimes few-spined, and sometimes spiny throughout.

36. I. A. HYBRIDA, Lawson.—A green-barked variety, with leaves broadly ovate or elliptic, bright green, with plane spines at irregular intervals occupying most of the margin.

37. I. A. ALTACLERENSIS, Smith.—A variety with purplish bark, the leaves ovate, convexly recurved, with numerous small short spines lying in the plane of the leaf, which is of a dull green colour. The small evenly placed spines are peculiar. There is, however, but little difference between this and the three preceding, and for all practical purposes the whole of the other preceding varieties in this group may give way to atrovirens (30) and Shepherdii (33).

38. I. A. HENDERSONI, Fisher, Smith, W. Paul (fig. 148).—The specimens sent under this name by Messrs. Fisher, Holmes & Co. are green-barked with oblong-elliptic shouldered leaves, opaque, dark green with sunken veins, the apex acute, the margin entire or with a few short spines near the top, the size of the leaf being about 2¾ inches long by 1⅝ inch broad. In the examples sent by Mr. Smith and Mr. Paul the bark was purplish, and the leaves margined with short rather distant but evenly placed spines.

39. I. A. OVATA, Waterer, Fisher, Smith, W. Paul, Lawson (fig. 149).—A remarkably distinct Holly, having the bark of the young shoots purple, and the leaves of a deep opaque green. They are of moderate size, about 2½ inches long, ovate, very thick in texture, with regular angular scarcely spiny teeth, the sinuses between the teeth being even more regular and pronounced than in the accompanying sketch. It is not a rapid growing variety, but so distinct that it should never be omitted in making a selection of dissimilar forms.

40. I. A. FOXII, Fisher, W. Paul, Smith (fig. 150).—This variety, which is tolerably well-marked, has the bark of the young shoots purple. The leaves are ovate, stoutish in texture, 2 to 2½ inches long, with rather distant regular, plane freely-developed spines, appearing somewhat like ovata, but as if longer spines had been added to its margin. The leaves are of a bright and very glossy green. It is apparently one of the smaller growing sorts.

41. I. A. CILIATA MAJOR, Lawson, W. Paul, Fisher (fig. 151).—A free-growing vigorous variety, the young shoots of which have the bark purple. The leaves are ovate or ovate-oblong, flattish, margined in a ciliate manner with long crowded broad-based plane spines, the basal portion of the leaf usually entire, and the apex more or less prolonged. The colour is a dark glossy green, with here and there an olive tinge, and altogether it is a very distinctly-marked and desirable variety.

42. I. A. ARBUTIFOLIA, W. Paul.—A dissimilar looking form, coming nearest to ciliata major, but having the leaves narrower. It has purple bark, lanceolate glossy leaves, 2⅜ inches long, by 1 inch broad, with numerous rather strongly developed spines lying in the plane of the leaf, which is slightly undulating.

†† Leaves small, under 2 inches long.

43. I. A. CRASSIFOLIA, Waterer, W. Paul, Smith, Lawson, Fisher; serrata, Masters & Kinmont (fig. 152).—This is commonly called the Leather-leaf Holly. It has purple bark to the young shoots, and forms a dense dwarfish bush very thickly set with leaves, which vary from 1¼ inch to 2 inches, seldom exceeding that length. These leaves are lanceolate in outline, very thick in texture, of a dull green colour, the tip recurved as shown in the smaller figure, and the margins furnished with prominent saw-like scarcely spiny teeth, which have a solid-looking appearance, quite different from that of any other variety. It has been sent from the collection at Ochtertyre as crassifolia serrata.

44. I. A. CILIATA, Fisher, Smith, W. Paul; ciliata minor, Lawson (fig. 153).—A neat and pretty variety of small growth. The bark is purple; the leaves ovate or lanceolate, of a shining green often tinged with olive-brown, 1¼ inch, rarely 2 inches long, and from ½ inch to ¾ inch broad, margined with long weak plane regularly-placed spines, which form a kind of fringe to the edge.

45. I. A. ANGUSTIFOLIA, Waterer, Fisher, W. Paul; myrtifolia stricta, Lawson; serratifolia, Smith (fig. 154 A, B).—An elegant growing variety, of narrow pyramidal habit, the bark green or purplish, the leaves lanceolate, or lanceolate-ovate, shining green, with a longish entire point, and narrow weakish regular marginal spines, from about five to seven on each side of the leaf, and lying in the same plane. It comes near myrtifolia and serratifolia, but has narrower spines, and the elongated entire apex, as shown in the figure marked A, is in general well defined.

46. I. A. MICROPHYLLA, Fisher; angustifolia minor, Smith (fig. 155).—A very small-leaved sort, forming a compact diminutive bush. The bark is purple; the leaves lanceolate, flat, of a shining green, furnished along the margin with small distinct spines. The leaves barely exceed an inch in length. Though very distinct, it could only be regarded as a curiosity in a collection of Hollies, being too small to be effective.

47. I. A. LINEATA, Waterer.—This is smaller than the last, and is the smallest-leaved form of the common Holly which we have met with. Like the last it is a mere curiosity, and we learn it is apt to run out into vigorous branches, so that, no doubt, it had originated, as so many varieties have done, in a sporting branch. The bark is green; the leaves narrow lanceolate, ¾ inch long, flat, evenly edged with minute spines. *T. Moore.*

Home Correspondence.

Flower Shows.—Referring to your leading article on the above subject some three weeks ago (I believe the exact date was the 14th ult.), I should like, as a considerable exhibitor, to add my say, believing, as I do, that much reform is needed, which by a vigorous effort may be brought about, and our exhibitions made far better. First of all, then, I submit that to induce men to come forward who show nothing but productions of high-class merit, perfect confidence must exist in their minds that their plants will be independently and thoroughly competently judged. Is this the case at present? I answer boldly, No. It is not so, at any rate, with me, and often enough do I tremble when sending off my plants for fear of bad judging. I have paid close attention during the past season to this all-important point, and I must say I have been shocked and scandalised to see the many flagrant cases, by which, of course, I mean ignorant, judging, resulting in great disappointment and annoyance to the exhibitor, and a resolution not to show again. Square men are put into round holes, and are expected to fit. Societies are not half particular enough in selecting for their judges men thoroughly practical in the particular department assigned to them, and who have shown by what they themselves have done that they are eminently qualified to occupy such a post. Were this done, perfect satisfaction would follow on all sides. Judges are frequently selected because they come from a big place, Lord This or Earl That, the assumption being that what they do must of necessity be right. I saw a man put to judge Ferns during the past season who never, so far as I know, grew one in his life. Another was the son of a nurseryman, and was "put in" on that account. Again, others are chosen because they are friends of So-and-so, and are anxious for the honour—the result, of course, in all such cases being unsatisfactory. I could, if disposed, give particular instances with names, but I forbear to do so. Let us have the evil remedied, and steadily set our faces against anything like jobbery. Let us also disqualify every man who packs his plants, makes them up, I mean, for exhibition. I am tired of seeing fine "specimen" Orchids and Anthuriums—a score of plants carefully put together the day before, the Sphagnum neatly covering the surface and attempting to hide the trick—it is nothing else. Abolish all such impositions, say I, and let every plant be honestly exhibited. So far from made-up specimens reflecting credit on the exhibitor, they are a disgrace to him, and nobody has a fair chance against such an abominable practice. Another evil is that of exhibitors staging their plants, and when they find themselves beaten by another man, pulling their lot down, and either going into another class or not staging at all. Nothing can be more cowardly or unfair. Then comes the grossly dishonest practice of borrowing [or buying] plants for exhibition, and this is simply unbearable. It is, I am sorry to say, too frequently done, but when proved, it should meet with condign punishment and disgrace. Societies, also, should rigidly enforce their rules [This alone would work a great reform, EDS.], and, above all, keep their own engagements. During the past season I have had to have recourse to legal proceedings twice before I could obtain simple justice. When all is fair and aboveboard nobody loves exhibiting more than I do, but I turn away with disgust from anything like favouritism, tricks, dishonesty, and ignorant judging. I hope everybody who reads these lines will accept them in the spirit in which they are written, and that an abler pen than mine will back me up in all I have said, which is dictated solely from a wish to advance horticultural interests, and not merely from the love of indulging in a grumble at somebody else's expense. I have omitted to say that, in my humble opinion, correct judging can only be attained by "points." Going by general appearance, effect, and mere value, are all fallacious tests—judging by points is the sure way of coming to a right conclusion. *T. M. Shuttleworth, F.R.H.S., Howick House, Preston, Dec. 4.*

Primula japonica.—At the risk of horticultural heresy, I venture to inquire of amateur gardeners what they have been able to do with Primula japonica, of which such great expectations were entertained. Of its beauty and desirableness there can be no question; but is it as manageable and hardy as we were promised? I appeal for information, and for help if possible, not so much to horticultural grandees, who have every appliance, besides great skill, at their command, as to window-gardeners and small growers, whose cultural resources are limited. Not long since (June 13) Mr. D. T. Fish hoped, "in another year or two to furnish the pleasure grounds and woods with this new beauty by thousands and tens of thousands;" but is he even likely to succeed in that project? We do not see it yet the pet of window-sills and flower-stands; it is not common in flower-markets, nor has it entered into the usual stock of bouquet makers, although it has had plenty of time to do so. We ought to know the real truth about it. Will it prove as valuable, for instance, as Dielytra, Weigelia, Chrysanthemum, Forsythia, Hydrangea, and numerous other introductions from the East? I ask this, diffidently, because I cannot succeed in growing it as a pot plant indoors. Home-saved seed germinates freely, but the seedlings die off, I know not why, before they are big enough to prick out in the open ground. The fault may be the gardener's and not the plant's, but others, I believe, besides myself, would like to have their minds set at rest whether Primula japonica is, after all, a great acquisition or a slight disappointment. *E. S. D.*

Prize Vineries.—I fear the proposal of "York" as to prize vineries, open to all England, is impracticable, as the adjudicators' expenses would be enormous—they, like Cæsar's wife, must be above suspicion, even if it were possible for any two or more men to carry out such a task. The suggestion of Mr. Wildsmith, to confine it to one county at a time, appears a good one, and may be workable, but I doubt if it could be carried out satisfactorily, as last impressions are, as a rule, the most favourable, and those last inspected would stand the best chance of winning, especially if there was at all a close run. It is seldom judging can be done satisfactorily, unless the articles are side by side, and can be judged by comparison. Any one who has had to adjudicate on plants or fruits placed in different tents, apart from other collections in competitions, has experienced how difficult it is to make satisfactory awards; and it would be more difficult, if not impossible to do so with vineries miles asunder. At shows the judging is always open to criticism and comment, but in this case the unsuccessful would have no means of judging whether they were fairly beaten or not, and this is always unsatisfactory. If it were a question of measure, or weight, the thing would be easy, but there are so many points to be considered in coming to a decision as to the best house of grapes that I do not at all see how it can be carried out. *J. Sheppard.*

—— I thought ere this to have seen a host of correspondence advocating the establishment of a Prize Vinery Society, but, except Mr. W. Wildsmith, no one has come to the front. I am glad to see from his remarks, p. 698, that in a conversation with some of his horticultural friends at the South Kensington Show on Nov. 11th, the subject was thought worthy of discussion. I am likewise pleased to see the spirited offer of Mr. W. E. Rendle of ten guineas towards a prize fund, if the scheme can be managed. But, as Mr. Wildsmith suggests, if the Council of the Royal Horticultural Society could be induced to take the matter up, and draw up a code of rules that would meet with the approval of practical men, for the judges to go by, I think the Royal prize vinery project would soon become a reality. No doubt funds would soon be obtained for carrying it out, as it would undoubtedly be to the interest of noblemen and gentlemen to subscribe to a fund having for its object the development of these fruit-producing structures, both as regards quantity and quality. *W. F. Bowman, Leybourne Grange, Kent.*

The Wallflower.—The season has again come when all tender bedding plants must be in snug quarters, and when we look round to find substitutes to cover the bare spaces there is no plant that seems to give the same amount of pleasure as the sweet old single Wallflower. This old favourite never fails to delight, whether seen in the bed, on garden wall or mouldering ruins; in the latter situation, where Ivy does well, the Wallflower is sure to be at home and be a telling addition, indeed, for such purposes it has no equal. It also commends itself for its easy culture. My practice, though simple, has been fairly successful. I sow early in spring, in poor soil, in which a little lime rubbish has been previously mixed, transplant twice during the summer, and by the time the plants are wanted in autumn, they lift with nice balls with very little check, and such as are wanted for old walls are tied in moss, when they are ready to do duty in almost any situation. The great point seems to be to keep them from getting too gross during

summer, therefore a rather poor soil keeps them more compact and woody, consequently better fitted to withstand frost and exposure in high situations. The double variety is perhaps more suitable for pot culture and will stand longer in bloom, but to my mind it is not so sweet and never seems to give the same amount of pleasure as the single. Our old friend also commends itself as a cut flower, as it stands so well, independently of its sweetness; and here also it outshines the double, for however good it may be when set up, it always has a heavy stiff appearance, which the single has not. A handy way to get a handful of spikes now and then during the winter, in all weathers, is to treat as above and cover with a common garden frame very much in the same way as we do our August sown Cauliflowers. *J. Taylor, Isel.*

Williams' Pitmaston Duchesse d'Angouleme Pear.—As the trees of this grand variety of Pear attain to a bearing condition the high quality of the fruit will become more generally known and appreciated; whether as an exhibition Pear or for the dessert it is equally indispensable, and it certainly will attain the foremost rank amongst what may be termed newly introduced varieties of this useful and valuable winter kind of fruit. Its characteristics bear no comparison with the sorts which already possess that name, but are nearly identical with that old sterling sort, Marie Louise, though far superior in size to that kind. We have gathered during this and the preceding season from a tree on a wall having a western aspect some fine specimens of great excellence, which ripen about the beginning of November. It is a most desirable variety, and should be included in every collection. *Geo. Thos. Miles, Wycombe Abbey.*

Nuytsia floribunda. — In Professor Harvey's memoirs (1869), p. 266, there is the following account of this plant, in a letter from King George's Sound:—"One rarely gets ripe seed here. Some plants seem seldom to ripen any seeds, and others are attacked by troops of maggots, which are deposited in the young pod and eat the seed as it matures. This is especially the case with leguminous plants. The Cabbage tree (Nuytsia floribunda), one of the commonest and most showy of the flowering trees, and which produces annually sheets of golden-orange flowers thicker than the leaves, so that the bush looks a blaze of gold, has never been known to produce a single seed from all this display. How many centuries since the present stock was sown we cannot tell, but the only increase is by underground suckers from the roots of old trees. These spread to a great distance, and then form a new stock for themselves. Probably this tree has some underground parasitic attachment, as it belongs to the same natural order as the Mistleto." That Nuytsia floribunda does not produce seeds seems, however, to be quite a myth. Baron von Mueller in his Supplementary Report for 1868 mentions, "that the first Flame-tree in producing fruit last year gave the means of raising nearly one thousand seedlings" (*Journal of Botany*, 1869, p. 195). Professor Oliver also describes the embryo as having 3—4 unequal cotyledons (*Journal of the Linnean Society*, vii., p. 96). It is worth while, however, recalling attention to Professor Harvey's remarks, because if the Nuytsia is only impertfectly parasitic it might possibly be propagated from the suckers that seem to come from the roots. *W. T. Thiselton Dyer.*

Large Pears on Walls.—We have growing on a south-west wall trees of Williams' Bon Chrétien, Marie Louise, Beurré Diel, and Glou Morceau, all giving us crops of splendid fruit. The Williams' this year was the finest I ever saw, with a splendid pink colour on the sunny side, and a beautiful amber colour on the shaded side, combined with *recherché* flavour, which made this Pear here last summer quite a favourite with regard to size, colour, and flavour; while on a standard tree about 20 yards off the fruit was quite third-class in every respect, so much so that my employer could not think it was the same kind. The Marie Louise on the wall is all that could be wished for, while on standards the fruit are small, rusty-looking, and of a very poor flavour compared with fruit from the wall. Beurré Diel on the wall was grand this year; the fruit was large, of a clear amber colour, with small green specks which gave the fruit a grand appearance on the table, and with an excellent flavour, which caused this to be much spoken of as a grand Pear by many who saw it both on the wall and on the table; but the fruit of this from standard trees was smaller, rough in appearance, with black specks and cracks, and only second-rate in flavour. Glou Morceau proves to be a good Pear here on the wall, and gives us a fine crop of splendid fruit, both in size and flavour, while on standards they are second in size—in fact, one would scarcely think it was the same kind of Pear. Beurré Bosc, Beurré Gris d'Hiver, Passe Colmar, Summer Franc Réal and Beurré Sterckmans, all give us good crops on the wall; and Autumn Colmar, Beurre d'Amanlis, Beurré Giffard, Joséphine de Malines, Duchesse de Mars, Beurré Hardy, Beurré Easter, give us good crops of grand fruit on bush trees in the open garden. Duchesse d'Angoulême gives us good crops of fair-sized fruit, but of a very poor flavour, as a bush tree. Louise Bonne of Jersey, Van Mons Léon le Clerc, and Vicar of Winkfield, three good Pears, do very badly as bush trees, therefore we mean to work them on the wall in the spring, as we find a dozen good fruit better than a bushel of indifferent ones, such as we get from these in the open garden. *Joseph Lane, The Gardens, Pyrgo Park, Essex.*

Eupatorium ageratoides.—This plant, noticed by you at p. 654 as being in bloom in the Chiswick Gardens, is not, I think, so well known as it deserves to be, especially when we take into consideration its usefulness either for conservatory decoration or bouquets at a time when sweet-scented flowers are comparatively scarce. Cuttings struck early in spring, and grown in 60-pots, make nice little plants by September. Others might be shifted into 48-pots, and, if stopped once or twice, will form a succession. Being gross feeders they require plenty of water while growing. The supply, however, should be gradually diminished toward August; this will induce flower-buds. When showing flower they should have manure-water alternately with pure water till the blooms open. I generally plunge the pots in ashes in the open air as soon as all danger from frost is over. If taken proper care of I find they bloom more freely the second season. In spring they should be shortened down to third or fourth eyes, and shifted into pots one size larger. If over-potted they will not bloom so well. I have a two-year-old plant in a 48-pot with over 100 blooms on it. *Edward Holliday, Preshute House, Marlborough.* [Probably E. adenophorum *alias* glandulosum is here intended. EDS.]

Scitamineous Plants.—I shall be much obliged if any of your readers can give me practical information on the best means of cultivating Scitamineous plants. They are mostly natives of the hottest parts of the East Indies, though some of them are found at an elevation of 4000 to 6000 feet in the Himalayas and western ghâts. They flower in India either before the rains, at the hottest time of the year, or soon after the foliage has appeared in the rainy season. Judging from our experience of Cannas, and of some other tropical plants, I do not see why they should not be grown out-of-doors in a rich bed of soil with some bottom-heat, and the protection of a frame until all danger of frost was over, and as they are mostly true herbaceous plants the roots might be taken up and stored away in a warm place for the winter. I should also be glad to know if I can procure either in England or on the Continent any of the following, which I think would include some of the most beautiful of the Scitamineæ:—

Hedychium coronarium	Curcuma Zerumbet
,, elatum	,, comosa
,, Gardnerianum	,, reclinata
Alpinia malaccensis	,, æruginosa
,, magnifica	Zingiber capitatum
,, nutans	,, roseum
Costus nepalensis	,, Cassumunar
,, speciosus	Kæmpferia rotunda
Canna iridifolia	,, Galanga
Globba radicalis	Renealmia fasciculata
,, saltatoria	Roscoea purpurea
Amomum angustifolium	

H. J. Elwes, Miserden House, Cirencester.

Unpopular Grapes.—There are not a few good varieties of Grapes which have been rendered very unpopular, and in some cases have, "under adverse treatment," been deemed quite worthless. Conspicuous amongst these are the White Nice and Raisin de Calabre, both varieties partaking very much of the same habit and quality, very robust in their growth, giving large bunches very often of inferior quality and finish, yet, when well grown, they are very excellent Grapes. The writer knows a proprietor who has been prejudiced against these Grapes by his friends, who wondered that he would allow his gardener to grow such very unpopular sorts. The consequence was, that he (the gardener) got orders to root out all the Nices and Calabrians, and fill their places with something more worthy, which he promised to do; but, instead of uprooting all at once, he adopted the better plan of grafting, &c., and the following season he ventured to allow the old Vines to carry their usual quantum all unknown to his employer, and ventured on a special occasion, when his employer had several distinguished guests, to table a very handsome Raisin, but not without some feelings of remorse. To his great delight, however, the tables had turned the contrary way, for each and all pronounced the Grape of so very excellent a quality that the gardener had to be called for to tell all about it, as the proprietor did not know it, and was certain it would be a new Grape, for he was sure he never saw it before. When the mystery was unveiled, the gardener got orders to retain every one of the old Vines. The same proprietor got the same Grapes on many previous occasions, quite as well done in every sense, but thought the Nices and Calabrians had been done away with, and that it must be some grand new Grape. So much, then, for prejudice. Owing to the very robust habit of these Vines, and the large bunches they bear, to have them mature their crops and wood well they must have the full benefit of a long summer by being forced early, and subjected to a tropical atmosphere. All other circumstances being favourable, they will take on a finish equal to a Buckland Sweetwater, and infinitely better in quality; for, by having the advantage of being excellent keepers, both varieties deserve a place in every collection of moderate extent. The Earl of Strathmore, who is a perfect connoisseur in Grapes, pronounced the White Nice to be excellent here this season, where we have had bunches weighing 14 lb. and 17 lb. respectively, coloured like gold. *George Johnston, Glamis Castle.*

Poinsettia pulcherrima.—I send you herewith some bracts of Poinsettia pulcherrima, which I grow here largely for decorative purposes, having at the present time over one hundred of them from 2 to 4 feet high, with fine developed heads from 14 to 20 inches across, which are so freely produced for mid-winter. I do not know of anything to equal them at this season of the year. *F. Clarke, Barleythorpe Gardens, Oakham.* [Very fine samples. EDS.]

Solanum Capsicastrum.—In answer to Mr. Ward's inquiry in the *Gardeners' Chronicle* at p. 720, as to whether this plant can be grown to a good-sized bush, allow me to say that on a visit to the Birmingham Botanic Gardens in September last I saw standing in the frame ground a number of large bushes, I should think from 4 to 6 feet in height, and all well furnished to the pot both with growth and berries. I have no doubt it can be grown either as a pyramid, bush, or standard. I grow it, and have seen it grown more generally as Mr. Ward describes; but what would be more useful than a dozen or so plants grown as pyramids or bushes to help to furnish a large conservatory in the dull days, arranged with Camellias, &c.—a grand help to a gardener between the time the Chrysanthemums go out and forced flowers come in? If Mr. Latham, the able Curator at the gardens above mentioned, would give through the pages of the *Gardeners' Chronicle* the details of his treatment of such plants, I have no doubt he will oblige others, as he certainly will *W. R.*

Raspberry Training (p. 724).—Mr. Grieve has referred to various ways of training the Raspberry. He has referred to every mode which I have hitherto seen practised in England, Ireland, and Scotland, except the one practised here, and which is both simple and neat. The canes are planted in rows 4 feet apart. At the end of each row a pile is driven into the ground, and between these others, 10 yards apart, through which two galvanised wires are passed—the bottom one 18 inches from the ground, and the top one 9 inches from the top of the post, to which the canes are tied at 4 inches apart, singly, and cut off to correspond with the posts. In the summer two pieces of tar-string are run along each side of the row, and tied together at each post to keep the young canes in their places (not too close together, which would prevent the wood getting thoroughly ripened), thus allowing a clear passage in the centre of each row, in which Borecole is planted without interfering with the process of gathering the fruits. *H. W. Ward, Longford Castle, Salisbury, December* 8.

The Pomona Palace Show.—Amongst the surprises at the above show was the withholding of the 1st prize for ten dishes of fruit. Surely the prize was well contested; there were good collections staged from various parts of the country. I exhibited a collection consisting of one Queen Pine, 4 lb.; one Jamaica Pine, 5 lb.; two excellent bunches of Muscat of Alexandria, two good Mrs. Pince's Muscat, two pretty Alicantes, two fair Barbarossas, two fine-flavoured Melons, one dish Glou Morceau Pears, nine fruit, weighing 5 lb.; one handsome dish of Pearmain Apples. Now let me ask the judges what more could be expected for the first week in December? I am aware of the difficulty judges have to contend with, but at no other show have I heard such a general dissatisfaction amongst exhibitors. *J. H. Goodacre, Elvaston.*

Trees versus Rabbits.—I notice at p. 714 your correspondent, "Young Woodman," giving his experience of those troublesome creatures—rabbits. For years past I have battled with them, trying almost everything to keep them from barking fresh-planted trees. In small patches I have found wire netting succeed, but when you come to acres the plan is not only expensive, but of no possible use. I therefore write to thank "Young Woodman" heartily for such a valuable recipe. I hope to give his plan a fair and impartial trial this winter, having a deal of planting to do. If I find the plan answer, as I believe it will, I shall be indeed delighted. Such practical information deserves not only a Lindley Medal but a king's ransom. *R. Gilbert, Gr. to the Marquis of Exeter, Burghley.*

THE FARM.

SMITHFIELD CLUB SHOW.—The seventy-seventh annual show of fat cattle, held under the direction of the Smithfield Club, opened on Monday last for the usual five days. As regards the cattle it may be said that of common-looking animals there are very few, and even those overloaded with fat are not often to be seen, so that the show really is one of primest butcher's meat. Devons take the lead with thirty-three entries, and the Sussex cattle send thirty-one specimens. Herefords have only twenty entries, in five classes—the class for heifers and that for cows having but two entries each. Shorthorns (pure) have but twenty-nine entries in five classes; and crosses (all of which were of Shorthorn blood on one side), have fourteen entries in two classes. Highlanders and other horned Scotch breeds have ten entries, and the polled Scotch have six. Irish cattle have but two entries, and these are Shorthorn crosses. The East Anglian red polled cattle have six specimens. Ten animals, five of either sex, appear in two classes for "extra stock." The Devon, and its cognate variety the Sussex, are the characteristic feature of the show.

The Shorthorns, though not numerous, are of excellent quality; from Mr. Wortley's big 5-year-old ox (which is probably the grandest specimen since Mr. John Day's famous Durham ox, bred by C. Colling) down to Mr. R. Stratton's Nectarine Bud (the youngest female in the show of any breed), and winner of the cup for best female, in spite of her age or want of age)—all stages of this most serviceable breed are admirably shown.

The Sussex cattle were as uniform as the Devon classes, and hardly inferior in quality of flesh, though with harsher hair, and they were decidedly superior in size; there were but a dozen true polled cattle altogether, and these were spread over five classes, with nine prizes between them. The Champion Plate, a piece of plate value £100, to the exhibitor of the best beast in the show (extra stock included), was won by H.R.H. the Prince of Wales, of Sandringham, King's Lynn, Norfolk, with a very handsome white Shorthorn heifer.

Silver Cups.—A cup, value £50, to the exhibitor of the best steer or ox in the classes.—Mr. James S. Bult, of Dodhill House, Kingston, Taunton, Somerset.

A cup, value £50, to the exhibitor of the best heifer or cow in the classes, Mr. Richard Stratton, of the Duffryn, Newport, Monmouth.

A cup, value £40, to the exhibitor of the best Devon.—Mr. Trevor Lee Senior, of Broughton House, Aylesbury, Bucks.

A cup, value £40, to the exhibitor of the best Hereford.—Mr. Richard Hill, of Orleton Court, Ludlow, Herefordshire.

A cup, value £40, to the exhibitor of the best Shorthorn.—Mr. James S. Bult, of Dodhill House, Kingston, Taunton, Somerset.

As usual, the space allotted for implements is full, and the display is of necessity of a very mixed character.

The stands occupied by the seedsmen are, as usual, one of the most interesting parts of the exhibition in the gallery. Messrs. T. Gibbs have their great wall of Wheats and grasses in ear above a bank of Cabbages, Turnips, and Mangel Wurzels—the last of remarkably fine quality, and not of monstrous size. Mr. E. Webb, of Wordsley, Stourbridge, shows a comparatively small stand, containing grasses, Swedes, Long Red Mangels of considerable size, along with small (too small) Yellow Tankard Mangels. Messrs. G. Gibbs & Co. show a great wall of Turnips and Kohl Rabi and Swedes, and at the top of a magnificent bank of Long Red Mangels, very fine Golden Tankard, admirable Long Red Carrots, capital Drumhead Cabbages, and Globe Mangels of first-rate habit. Messrs. Raynbird & Caldecott exhibit 10 yards of an excellent show of Wheats, Barleys, Oats in ear, capital Swedes and Turnips, very large Mangels, with grasses and grain of all kinds in bags. Their "Perfection" Green Globe Turnip is very beautifully formed, and appears to justify its name. Messrs. Little & Ballantyne, of Carlisle, show good Long Red Mangel, grasses in seed and ear, the latter very well arranged, Potatos, Carrots, &c. The Agricultural Co-operative Association show roots, and manure, and cattle foods—the first grown on the second enriched by the third.

On the other side of the gallery Messrs. Carter show really enormous Mammoth Mangels, great Swedes, and Kohl Rabi, very remarkable Yellow Globe Mangels, and the largest Long Yellow Mangels we have seen. Their stand is in the very front rank of all that is surprising and praiseworthy in this department of the show, and their great Mangels, grown by Mr. Beamish, of Cork, seem to be the largest of the year.

Messrs. Sutton, with the grand architectural proclivities, as we may call them, which seem to characterise their arrangements, exhibit in successive columnar panels against the wall, successive areas of Champion Swedes, Golden Tankard, Berkshire Prize, and Mammoth and Intermediate Mangels, divided and arched over by rows of Kohl Rabi, the vacant space being covered with enormous Potatos. There are also Onions, Carrots, &c.

Mr. King, of Colchester, has a very fine stand of very neat Orange Globe and Long Red Mangels, and there is a wall of very capital Turnips and Swedes. Messrs. Harrison, of Leicester, show great Globe Mangels, capital Swedes, and Kohl Rabi, Onions, grasses, &c. Messrs. Alfred Hall & Co., of Westby, Wilts, exhibit on a comparatively small stand some of the very best roots anywhere in the gallery, a few large Mammoth Mangels, one of which is probably as large as any, and a quantity of Swedes uniting quality and weight as well as any on any of the stands. Here are also some excellent white Carrots and enormous Kohl Rabi.

Obituary.

M. LE COMTE JAUBERT, whose death was announced in the Paris correspondence of the *Times* a few days ago, was better known even to his own countrymen as a politician than as a botanist; indeed, in the *Times* no allusion is made to his career in the latter capacity. He was born in Paris in 1798, was Minister of Public Works under M. Thiers, and remained attached to the Orleans family throughout. His last visit to this country, we believe, was on the occasion of the interment of Queen Marie Amèlie, the widow of Louis Philippe. He had the happy faculty of conciliating and ensuring the respect of all who came in contact with him, and we find that when the President of the Assembly spoke of him "as one of the most distinguished, esteemed, and beloved members of the Chamber," all sections of the Assembly warmly endorsed his words. Count Jaubert was much loved by French botanists, and with reason, for he never missed an opportunity of favouring their scientific interests. As an author M. Jaubert is principally known by his *Illustrations of Oriental Plants*, in five folio volumes and with 500 plates, undertaken in conjunction with the veteran, M. Spach. French science has too few of such Mæcenas-like men not to feel the loss of so accomplished and amiable a man as has just passed away.

Law Notes.

ACTION BY A GARDENER FOR THE BITE OF A DOG (*Bloomsbury County Court, Dec. 4*).—EVANS *v.* LLOYD.—The plaintiff in this action, a gardener, sued his employer, residing at Haverstock Hill, to recover the sum of £25 for injuries he had received from the bite of the defendant's dog. Mr. Williams appeared for the plaintiff, and Mr. Willis for the defendant. It appeared from the evidence of the plaintiff that in August last he was a weekly servant of the defendant, and that on entering upon his duties at seven in the morning, he had occasion to go into the defendant's back premises in search of some tools which he required for his use, when the defendant's dog bit him in the leg, in consequence of which he was for several weeks incapacitated from work and was obliged to endure much suffering and incur considerable expense. A medical man was called, who said the plaintiff was unable to pursue his avocation for several weeks, and might not now be free from ulterior danger. The surgeon's attendances were estimated to be at £3 12*s.*, and the extra damages were asked for on account of the loss of occupation, and the incidental expenses he had incurred. This was the plaintiff's case.—Mr. Lloyd, the defendant, stated that the dog in question was a most docile retriever, with whom his children were in the habit of playing, and would not hurt any one without extreme provocation, and called several witnesses who knew the character of the dog. It was further elicited that the plaintiff brought this action because he had been summarily dismissed from the defendant's employ for incivility and insubordination.—The learned Judge said that this did not appear in evidence, and that therefore he must give judgment in favour of the defendant, unless the plaintiff could prove that he knew the dog had hitherto been a vicious cur and had injured any one else. The plaintiff could not say that such was the case, nor could he adduce evidence to that effect.—Judgment for the defendant entered accordingly.

Variorum.

THE SHAH'S VISIT TO TRENTHAM.—There were lawns, avenues, flowers; and deer of the same kind that we had seen at Windsor were grazing on the lawns. The Duke has erected here and there detached houses for his gardeners, his keepers, and others. He has also built a hotel, and has a small chapel. We arrived and alighted at the door of the Castle, entered the apartments, and went to a private conservatory that was within the house. We there saw varieties of flowers, Palm-trees, and the like, which are found in but few places. In the centre was a small round basin of water, with a fountain over which was the figure, in marble, of a naked woman seated. Beneath this water flowed, extremely clear and pellucid. The perfume of the flowers clung about the place; especially the odour of a species of large white and variegated Lily, of seed from Japan, that was beautiful and fragrant beyond conception. We sat there awhile and smoked a galayan (Persian huqqa, hookah, hubble-bubble, water-pipe), and then went in front of the façade of the building, where is a large garden, but of which the trees are small shrubs of Cypress, Larch, and others like Orange trees, grown in pots, placed out in the flower-beds, and clipped round into globular heads. The flower-beds were very extensive and beautiful, full of bloom, and with all sorts of evergreens permanently planted out. There were avenues, lawns like velvet, numerous fountains playing; and beyond these beds and gardens a natural lake, long, crooked and tortuous, in which were several small islands full of copses, flower-beds, and walks, to which access was had by boats. Around this lake, again, is a rising ridge covered with green and smiling verdure; and beyond all are avenues covered in with trees, flowers, and Grape Vines, for which they have set up trellises of iron wire; and external to these trellises and avenues are the Duke's hothouses, which are extremely neat and handsome, being stocked with all sorts of flowers and plants of variegated foliage from the New World and elsewhere. The Banana was seen there, which is a pretty-looking edible thing, like a small, long, fresh Pumpkin. It has a yellow skin, and, when ripe, has the flavour of Musk Melon; is soft, and in like manner can be taken with the fingers and eaten, though it is somewhat nauseating. It is called Muz in Persian or in Hindustani, and is produced largely in that part of Baluchistan which is held by Persia, and in Makran. There were also Nectarines, Peaches, white and black Grapes, Figs, Plums, Strawberries, Cucumbers, and other things. The whole of these fruits are found in these hothouses in the various stages of unripeness, half-ripeness, and maturity. With the assistance of apparatus and screws, which they have applied, the gardener has only to turn these, and he can open the windows and rooflights, or close them, as required. *The Diary of the Shah* (*Murray*).

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, DECEMBER 9, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
Dec.	In.	In.	°	°	°	°	°	°			In.
3	29.97	+0.22	37.9	23.0	14.9	31.0	−11.3	24.8	77	NNE: WSW	0.00
4	29.88	+0.12	43.7	32.1	11.6	37.7	− 4.5	35.5	92	WSW	0.00
5	29.58	−0.18	50.9	37.0	13.9	45.1	+ 2.9	41.4	87	WSW	0.02
6	29.35	−0.42	53.3	37.0	16.3	45.6	+ 3.5	40.6	83	WSW: N.W.	0.18
7	29.78	+0.01	42.5	35.0	7.5	38.2	− 3.8	30.6	74	WNW: W.	0.00
8	29.23	−0.54	52.6	35.3	17.3	44.6	+ 2.9	42.9	94	S.W.	0.23
9	29.10	−0.68	49.0	32.0	17.0	38.3	− 3.0	32.4	89	SW: N.	0.17

Dec. 3.—Fine; generally cloudy. Lowest reading of thermometer on grass, 12°.
— 4.—A fine day; partially cloudy till evening, then cloudless.
— 5.—Overcast till the afternoon; cloudless from early evening.
— 6.—Overcast till evening; heavy rain between 2 P.M. and 5 P.M.; cloudless at night. Strong wind throughout.
— 7.—A very fine day; small amounts of light cloud were prevalent in the afternoon.
— 8.—Overcast throughout; rain fell frequently. A gale of wind at night.
— 9.—Overcast till 1 P.M., and some rain fell; fine afterwards; cloudless at night.

—— In London and its suburbs the reading of the barometer at the level of the sea at the beginning of the week was 29.13 inches, it decreased to 28.65 inches by 10 A.M. on November 29, increased to 29.05 inches by the evening of the same day, decreased to 28.94 inches by 9 on the following morning, increased to 30.17 inches by the evening of December 3, decreased to 29.74 inches by 3 P.M. on the 5th, and was 29.79 inches at the end of the week. The mean reading for the week was 29.58 inches, being 0.35 inch lower than that of the preceding week, and 0.33 inch below the average of the corresponding week, as deduced from eighteen years' observations. The range of reading in the week amounted to 1.52 inch.

The highest temperatures of the air observed by day ranged from 36° on December 1 to 51° on December 5, the mean for the week being 43.8°. The lowest

temperatures at night varied from 23° on December 3 to 42½° on November 29, with a mean value of 33¼°. The mean daily range of temperature was 10¼°, the greatest being 15° on December 3, and the least 3½° on November 30.

The mean daily temperatures of the air, with departures from their respective averages, were as follows:—November 29th, 45°, +3°.4; 30th, 42°.2, +0°.3; December 1st, 38°.4, −3°.7; 2d, 31°, −11°.2; 3d, 31°, −11°.3; 4th, 37°.7, −4°.5; 5th, 45°.1, −2°.0, showing that on December 2 and 3 the weather was extremely cold.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the full rays of the sun, were 62° on November 29, and 75° on December 4; at other times the maximum readings of this thermometer were about 50°. The lowest readings at night of a thermometer on grass, with its bulb fully exposed to the sky, were 19°, 12°, and 25° on the 2d, 3d, and 4th of December respectively, and the mean of the seven minimum temperatures recorded by this instrument was 27°.

On November 30 the sky was overcast throughout, and on the other days the amount of cloud was very variable.

The most prevalent directions of the wind were W.S.W. and N.N.E. On November 29 a S.W. gale was experienced, the greatest pressure of the wind on the square foot on this day was 15.5 lb.; during the remainder of the week light winds prevailed.

Rain fell heavily on the first three days; the amount collected was 1.49 inch.

In England the extreme high temperatures observed by day ranged between 51¾° at Bristol and Liverpool and 47° at Newcastle-on-Tyne, the general average over the country being 49½°. The extreme low temperatures observed by night varied from 31° at Liverpool to 20° at Nottingham, Eccles, and Hull, with a general average of 23¾°. The mean range of temperature in the week was 25½°. The mean of the seven high day temperatures ranged from 45° at Sunderland to 40½° at Hull, with an average value of 42¾°. The mean of the seven low night temperatures varied from 36¼° at Liverpool to 28° at Nottingham, the general average being 31½°. The mean daily range of temperature in the week was 11¼°, the greatest range being at Nottingham, 14¼°, and the least at Leeds, 8°. The mean temperature of the week was 37°, being 7° less than the value for the corresponding week in 1873, the highest occurring at Liverpool, 40¾°, and the lowest at Hull, 34½°. Rain fell on four or five days of the week at most stations, the amounts varying from 2 inches three-tenths at Portsmouth, 2 inches at Sunderland, to five-tenths of an inch at Wolverhampton and Leicester, the average fall over the country being 1 inch three-tenths.

The weather during the week has been fine, but cloudy at times, with hoar frost on December 2 and 3.

In Scotland, the highest temperatures ranged from 50° at Leith to 47° at Paisley; the lowest temperatures varied from 28½° at Leith to 25° at Dundee, their averages being 48½° and 27° respectively. The mean range of temperature in the week was 21½°, the mean temperature of the week was 37¾°, the highest being at Paisley, 39¾°, and the lowest at Dundee, 37°. The fall of rain in the week varied from 1 inch seven-tenths at Dundee and Leith, to 1 inch five-tenths at Glasgow, Aberdeen, and Paisley, the average fall over the country being 1 inch six-tenths.

At Dublin, the highest temperature was 50°.1, the lowest was 26°, the mean was 38°.7, and the rainfall 1.05 inch. JAMES GLAISHER.

Garden Operations.

FRUIT HOUSES.

PINES.—With but limited means for the purpose, and where the successions of plants are composed of tens instead of fifties, it requires dexterous management to maintain a successional supply of fine ripe Pine-apples throughout the year; it can, however, be accomplished with the greatest degree of success by cultivation in pots, while, with proper management and suitable structures, it is very questionable whether, as a rule, a greater weight of fruit cannot be obtained by these means, if the different varieties which are grown are taken into consideration, than by planting out. Although this latter method is most successfully carried out with certain kinds in many places, and where Pine-apples are cultivated very extensively and large fruit are required, it answers admirably with much much less trouble and risk from inattention to watering than otherwise; but still under ordinary circumstances it is not generally practicable, and where it is so, fruit cannot be obtained more speedily than in pots. Where a supply of ripe Pine-apples is required for the months of May and June, and there is not a sufficient number of plants with fruit up or now showing to meet such requirements, it will be advisable to take as many as will be required from amongst the plants which were started about last March, and which have completed a growth, and are now in a state of rest. Select from amongst these the best developed plants of the Queen, Providence, or Enville varieties, and such as show the likeliest indications of starting into fruit when subjected to the combined influences of a higher condition of temperature both at the roots and surface of the plants. It will not be prudent to start more plants now than are absolutely needed, as the fruit will come up more readily and be much stronger if started a month hence. If the plants which are required to start into fruit speedily cannot have a compartment together, a light position in the house where the fruiters are swelling off will be suitable, and where the treatment before advised should be continued, except during the prevalence of severe or stormy weather, when a fall of a few degrees in the temperature about the plants should be permitted. Under such conditions, in all cases where the structures will admit of a covering being applied, it should be done. *G. T. Miles, Wycombe Abbey Gardens.*

KITCHEN GARDEN.

The rapid fall of the leaf will now allow of ground operations being proceeded with while the present open weather continues. Where the soil is tolerably strong, manure all ground intended for spring crops generally, but where the soil is very light sand or gravelly in its nature, manure is better applied in the early part of the year before the crops are planted, as if put on now its fertilising powers are considerably weakened by being carried downwards below the action of the roots. Before commencing to dig or trench it is requisite to clean the borders or slips adjacent, so that no litter, as leaves, &c., is left to be carried over newly turned ground. Lose no time in taking up late root crops, as *Parsnips*, ground *Artichokes*, &c. The latter are much better in quality when taken up and properly stored at this season; this also prevents the necessity of having to take up the tubers in wet or frosty weather. *Horse Radish* may also be taken up, and after trimming and sorting all fit for use should be plunged in soil in some sheltered corner where it can be found conveniently when required. *Cabbage, Lettuce*, &c., recently planted will require considerable attention, to prevent the ravages of slugs; the same applies to *Peas* sown on the open borders. In the forcing department continue to plant a succession of *French Beans* where convenience exists for growing them at this season. *Peas* of the dwarfer growing kinds, as Little Gem or Carter's Premium Gem, may be sown in pots and placed in a cool house; these are also grown to advantage on the inside borders of orchard-houses, where room can be spared for the purpose. Continue to ferment dung and leaves for forcing purposes; where this has already been done pits or frames may be prepared for a first crop of *Asparagus, Potatos*, &c. *Seakale* and *Rhubarb* should be started in the Mushroom-house or other suitable place where sufficient warmth can be obtained, but where no convenience of this kind is at command a portion of the roots outdoors may be covered, taking great care that the fermenting material does not become over-heated. Give air liberally on all favourable occasions to vegetable crops under glass, as *Lettuce, Cauliflower*, &c., and avoid watering these overhead as much as possible. *W. Cox.*

FORESTRY.

Planting should now receive every attention and, as a rule at this season, take precedence of other work. In distributing the different varieties of forest-trees over the allotted space, whether it be for the object of ornament, by contrasting the various shades and varieties of foliage for perspective effect, or for the purpose of forming a mixed plantation of hard wood as a means of profit as timber. It is best to take one sort at a time and lay them into the pit at the desired distance, and then follow up with other kinds in a similar manner, while the remaining pits should be filled up with Larch, Spruce, and Scotch Fir as nurses. Each planter should have a boy to hold the plant erect and assist in steadying it by treading with his heel during the process of filling in the pits. Planting of smaller sizes may also be proceeded with by inserting the plants into slits made by the planting iron or spade. On bare bleak places or on moorland where heather is not too gross, this is by far the most inexpensive and successful method. Fell timber, lop and cut into lengths for stacking into cordwood; square sides of trunk and faggot all small branches as each tree is thrown. Thin young plantations and foreshorten branches on trees growing out of due proportion. Clear off all trimmings into heaps, faggot and lot all of a useful size remaining on the ground. Attend to culverts and drains, which are likely to get choked up by fallen branches and leaves at this season. Plant hedges of Quicks; where the soil is light and success is doubtful, mix Hornbeam or Beech alternately with the former. Trench, pit, and prepare for planting any allotted ground which may have been unavoidably delayed. Trim off broken branches wherever unsightly, and clear off all wind-blown trees. *J. Webster.*

Enquiries.

He that questioneth much shall learn much.—BACON.

28. ARAUCARIA IMBRICATA.—I wish to have some advice as to the propriety of lopping the brown branches of the Araucaria. If this should be done, must they be cut close to the stem, or only where the green ends and the brown begins? *T. M. G.*

29. COVER FOR WILD FOWL.—Can any of your readers tell me the most suitable evergreen shrubs to plant on the edge of a lake, as a cover for wild fowl? *A. H.*

Answers to Correspondents.

BEGONIA OCTOPETALA: *Frobel & Co.* We do not quite understand your letter. What you send appears to be B. octopetala only,—a very fine species, on which we have already commented.

CORYPHA, NELUMBIUM, &C.: *Fleuriste.* Of Corypha elata we can give no information, except that it is not on the Kew list of cultivated Palms. Nelumbium speciosum is a plant with large peltate leaves borne on long (3—4 feet) petioles, arising from a perennial rhizome; the flowers over-top the leaves, they are of a bright rose colour, and 7—8 inches across, the petioles and peduncles are covered with strong prickles. It should be grown in mud and water. Sophora tomentosa, an erect evergreen tomentose shrub, with dark green shining pinnate leaves, and large panicles of bright yellow pea-shaped flowers. Cæsalpinia Sappan is a small thorny tree, with abruptly pinnate leaves and paniculate yellow flowers.

FUNGUS: *F. Clarke, Barleythorpe.* The name of your Fungus is Zasmidium cellare, sometimes called Racodium cellare. It is not uncommon, and is the same with the "crust" found on old wine bottles in cellars. The London tavern-keepers, knowing this crust to be a certain indication of wine which has long lain in the cellars, concoct a spurious Fungus, which they manufacture out of old dusty cobwebs and rotten sawdust. This, when wrapped round the new bottles, passes for Zasmidium cellare with people who drink bad wine and do not read the *Gardeners' Chronicle. W. G. S.*—*Alex. Scott, Auchendenan.* Received with thanks.

LIGUSTRUM JAPONICUM: *J. T. S.* (Q. 26, p. 724.) Take just now cuttings of this year's wood, and graft them on Syringa persica, and treat them as you would Camellias. In three or four weeks you will have nice plants, with roots and flowers. If you want standards, take in February cuttings of last season's wood and plant them out-of-doors, as you would Willows; they will root and grow high enough until August; bud them; by-and-by you will have beautiful plants with nice heads and fine Ligustrum flowers. *Joseph Napoleon Baumann, fils, Ghent, Belgium.*

NAMES OF FRUITS: *Nemo. Pear:* Ne plus Meuris; *Apple*: Alfriston.—*L. F. N.* 2, Lord Derby; 3, Compôte; others not known.

NAMES OF PLANTS: *J. S. W.* Impossible to name such a scrap.—*W. E. D.* Tacsonia Van Volxemii.—*Nemo.* Eupatorium Weinmannianum.—*W. Smith, Leicester.* Eupatorium glechonophyllum, Chili.

PROPAGATION OF CLEMATIS JACKMANNI: *J. T. S.* (Q. 26, p. 724). This plant is propagated by layers, grafts, and cuttings. Put plants of it now into a propagating house; they will soon produce shoots, which take off, and treat as you would the cuttings of Fuchsias. The cuttings taken off these young rooted plants will strike earlier than those taken from the old plants. The best time for grafting is February and August, on young seedlings of the common Clematis, keeping them in a propagating house, or in a frame covered with lights. *Joseph Napoleon Baumann.*

STEPHANOTIS, HOYA, AND ROSES: *Ignorans.* We cannot say why your Stephanotis trained on a balloon trellis does not flower. It ought to do so. Your gardener is right as regards the exhibition plants, and also in growing the plant close to the glass in a stove, as it flowers much more freely than when permanently trained round a wire balloon. Hoya carnosa is a stove plant, strictly speaking, though it will do well in a warm greenhouse, and should flower freely if grown in an open, porous mixture of peat, loam, and sand, and fully exposed to the sun. Your gardener's ideas on the treatment of Roses at this time of the year are certainly novel, and decidedly objectionable. What he wants them to make wood for now, except as sport for the frost, we are unable to say; but most other growers, we imagine, would like to see their wood well ripened and at rest for a few months. The mulching with manure at this season is quite a matter of opinion, and not so much of necessity as in the summer. The "purely gardeners' word," which is a well-defined one, is spelled "mulched," and pronounced "mŭlcht." It is from the German *mulsch* = rotten.

THE NEW VIOLET: *G. Brush.* You should address your complaint to the Society.

VARIOUS QUESTIONS; *Young Amateur.* Use the following materials for making a good lasting hotbed, viz., fallen tree-leaves—Oak, if procurable—and stable litter (of good wheaten straw), in equal quantities. Well mix them together, let them heat, turn them over about twice, and then make up the bed. 2. Make liquid-manure as follows:—To 20 gallons of water add half a peck of sheep-dung, quarter of a peck of soot, and about a pint of fresh-slaked lime. Stir well; let the whole settle, and use the clear liquid

only. 3. You planted your Strawberry-bed at the right season, and need not anticipate injury from either frost or snow.

VINERY WALL: *J. Smith.* Stone-colour is the most generally adopted for the back walls of vineries, pure white being generally considered too glaring, especially in a new house like yours. If you cannot have the wall painted, get some whitewash, and tone it with yellow ochre to the tint required. If you paint the wall black, thinking that will keep the wall cooler, your neighbours will say—— Well, you must imagine the rest.

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers who send Post Office Orders, to be good enough to write to the Publisher at the same time, stating that they have done so.

COMMUNICATIONS RECEIVED. — A. Scott (many thanks). — J. B. D.—Mobbs.—F. W. W.—J. W.—W. G. S.—E. G.—J. T.—Mrs. C. M.—W. C.—R. B.—H. H.—A. A.—E. S. D.—N. E. B.—J. B.—A. C.

Markets.

COVENT GARDEN, December 10.

There is a slight improvement in the demand, but not sufficient to affect prices; another week, however, may make a short rise, as usual at this season. Importations of rough Apples from the Continent continue large, and make very low prices. Consignments from Paris now include the usual varieties of Lettuce, &c. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Melons, each ..	.. 1 0– 3 0
Chestnuts, per bush.	10 0–20 0	Nuts, Cob, p. lb.	.. 1 0– 1 6
Filberts, per lb.	.. 1 0– 1 6	Oranges, p. 100	.. 8 0–12 0
Grapes, English, p. lb.	2 0– 6 0	Pears, p. doz.	.. 2 0– 5 0
— Muscats, do.	.. 4 0– 8 0	Pine-apples, p lb.	.. 3 0– 6 0
Lemons, per 100	.. 8 0–12 0	Walnuts, p. bush.	..16 0– ..
Medlars, per doz.	.. 0 6– 1 0		

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Beet, per doz.	.. 1 0– 2 0	Mushrooms, per pott.	1 0– 2 6
Broccoli, p. bundle	.. 0 9– 1 6	Onions, young, bun.	0 4– 0 6
Brus. Sprts., p. bush.	5 0– ..	Parsley, per bunch	.. 0 4– 0 6
Cabbages, per doz.	.. 1 0– 2 0	Parsnips, p. doz.	.. 0 9– 1 0
Carrots, p. bundle	.. 0 4– 0 6	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	— black, Turnip, do.	.. – 0 6
Celery, per bundle	.. 1 6– 2 0	Seakale, per bundle	1 6– 2 6
Cucumbers, each	.. 2 0– 2 6	Shallots, per lb.	.. 0 3– ..
Endive, per doz.	.. 1 0– 2 0	Salsify, per bundle	.. 1 6– ..
Herbs, per bunch	.. 0 2– 0 4	Spinach, per bush.	.. 2 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Tomatos, per doz.	.. 1 0– 3 0
Leeks, per bunch	.. 0 2– 0 4	Turnips, per bundle	. 0 3– 0 4
Lettuces, per doz.	.. 1 6– ..		

Potatos:—Early Shaws, 110*s.*; Early Myatt's, 140*s.*; Early Regents, 120*s.*; and Early Dons, 120*s.* per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Azaleas, p. 12 sprays	1 6– 3 0	Mignonette, 12 bun.	4 0– 6 0
Camellias, 12 blooms	4 0–12 0	Pelargoniums, 12 spr.	1 0– 2 0
Carnations, 12 blooms	2 0– 4 0	— Zonal, 12 spr.	0 6– 1 0
Chrysanthem., 12 bl.	3 0– 6 0	Roman Hyacinths,	
— 12 bunches	.. 6 0–12 0	per 12 spikes	.. 2 0– 4 0
Cyclamen, 12 blooms	0 3– 0 6	Roses, indoor, p. doz.	2 0– 6 0
Epiphyllums, 12 bl.	1 0– 2 0	— Outdoor, do...	1 0– 1 6
Eucharis, per doz.	.. 6 0– 9 0	Stephanotis, 12 sprays	9 0–15 0
French Lilac, p. bun.	10 0–15 0	Tuberoses, p. doz.	.. 1 0– 2 0
Heliotropes, 12 sprays	0 6– ..	Violets, per 12 bun.	1 6– 3 0

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Begonias, per doz.	.. 6 0–12 0	Fuchsia, per dozen	4 0–12 0
Bouvardias do.	.. 9 0–18 0	Heaths, in var., do.	12 0–30 0
Coleus, do.	.. 3 0– 9 0	Mignonette, do.	.. 4 0– 6 0
Chrysanthemums, do.	4 0– 9 0	Myrtles .. do.	3 0– 9 0
Cyperus, do...	.. 6 0–12 0	Pelargoniums, dble.,	
Dracæna terminalis	12 0–30 0	per doz.	.. 6 0–12 0
— viridis, per doz.	12 0–24 0	— Scarlet, do.	.. 3 0– 9 0
Epiphyllums, each	.. 1 6– 3 6	Primula sinensis, do.	4 0– 8 0
Ficus elastica	.. 1 6– 7 6	Solanums, do.	.. 6 0–18 0

SEEDS.

LONDON: *Dec.* 10.—Our markets have been well attended during the past week, owing to the presence in London of a large number of agriculturists up for the Cattle Show. For red Clover seed the trade is firm but quiet. The long prices now demanded for fine qualities act as a hindrance to business. To-day's advices from New York show an advance on the last ten days of about 2*s.* per cwt. In Alsike, white Clover, and Trefoil seeds there is very little doing. For French Italian higher quotations reach us from the other side. Canary seed is in limited supply, and must again be noted several shillings per quarter dearer. To what exorbitant rates this article may ultimately be forced up it is hard to say. Hemp seed is easier. There is a fair inquiry for English Linseed; feeding descriptions keep steady in price. Good black Rape seed is scarce. Boiling Peas are rather dearer. For both white and brown Mustard seed the trade is slow. Other articles, at this quiet time of the year, offer no subject for remark. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

POTATOS.

The supplies on sale at the Borough and Spitalfields markets have been fairly extensive, and trade is steady at the following currency:—Regents, 70*s.* to 105*s.*; Victorias, 90*s.* to 105*s.*; Flukes, 130*s.* to 135*s.*; and Rocks, 60*s.* to 70*s.* per ton. Last week's imports into London from abroad were 6 bags from Hamburg, 1378 bags and 148 tons from Dunkirk, 107 bags from Rotterdam, 630 from Boulogne, 80 tons from St. Malo, 26 baskets from Bremen, 83 bags from Brussels, 4638 from Antwerp, and 27 from Amsterdam.

Violets.

LEE'S VICTORIA REGINA, very strong, 6*s.* and 9*s.* per dozen, to the Trade. Extra choice POLYANTHUS SEED, superb strain, 5*s.* per oz. Also, LEICESTER RED CELERY, true, 1*s.* per oz. Cheaper in quantity. Postage extra.
B. R. DAVIS, Seed Warehouse, Yeovil, Somerset.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.
Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

Remarkable Novelties.

AMYGDALUS ALBA AUREA-VARIEGATA, a splendid shrub, with grand foliage marked with broad bands of yellowish white; superior to the Acer Negundo variegata (see *Revue Horticole*, September 1, 1874). Price, strong plants, 28*s.* to 40*s.*
BETULA ALBA FOLIIS PURPUREIS, a magnificent shrub, of the most bewitching aspect. Price 12*s.* to 25*s.*
GLADIOLUS—NEW ROSES.
EUG. VERDIER, FILS AINÉ, Nurseryman, 72, Rue Dunois, Gare d'Ivry, Paris.

ELMS, LIMES, and CHESTNUTS, well-rooted and fine straight stems.
ELM, English, 6 to 8 feet, 60*s.* per 100; 8 to 10 feet, 100*s.* per 100; 10 to 12 feet, 18*s.* per dozen; 12 to 14 feet, 30*s.* per dozen.
ELM, Chichester, 6 to 8 feet, 50*s.* per 100; 8 to 10 feet, 75*s.* per 100; 10 to 12 feet, 18*s.* per dozen.
CHESTNUT, Horse, 6 to 7 feet, 75*s.* per 100; 10 to 12 feet, 120*s.* per 100.
LIMES, 5 to 6 feet, 60*s.* per 100; 6 to 8 feet, 90*s.* per 100; 8 to 10 feet, 15*s.* per dozen; 10 to 12 feet, 24*s.* per doz.
JNO. JEFFERIES AND SONS, Royal Nurseries, Cirencester.

Cheap Sale of Forest Tree Plants.

PINESHAW NURSERIES, Port Elphinstone, Inverurie.
THE remaining stock, as under, which must be cleared before December 26:—
50,000 FIR, Silver, 2-yr., 1*s.* per 1000.
6,000 ,, ,, 2-yr., 2-yr., few topped, 8*s.* per 1000. [1000.
30,000 ,, ,, 2-yr., 4-yr., twice transplanted, topped, 9*s.* per
13,000 ,, Spruce, American White, 2-yr., 2-yr., 3*s.* per 1000.
6,000 ,, ,, ,, ,, 2-yr., 3-yr., 4*s.* per 1000.
50,000 ,, ,, Norway, 3-yr. seedlings, 1*s.* per 1000.
150,000 ,, ,, ,, 2-yr., 2-yr., 2*s.* 6*d.* per 1000.
40,000 ,, ,, ,, 3-yr., 2-yr., 3*s.* per 1000.
70,000 BEECH, 9 to 18 inches, twice transplanted, 9*s.* p. 1000.
9,000 OAKS, 9 to 18 inches, twice transplanted, 9*s.* per 1000.
20,000 PLANES, 9 to 48 inches, transplanted, 9*s.* per 1000.
15,000 ASH, Common, 1-yr., 1*s.* per 1000.
5,000 ,, ,, 12 to 48 inches, transplanted, 9*s.* per 1000.
7,000 ,, Mountain, 1-yr. seedlings, 1*s.* per 1000.
1,000 HAZEL, 12 to 18 inches, transplanted, 9*s.* per 1000.
Apply to Mr. REID, Manager, who will send samples on application.

150,000 Gladiolus.

EUG. VERDIER, FILS AINÉ, NURSERYMAN, 72, Rue Dunois, Paris, having a most complete collection of the above, solicits the favour of orders for the same from Nurserymen, Seedsmen, and Florists—to whom he engages to send only good healthy bulbs, correctly named.
NEW VARIETIES for 1874-75; do. of 1873-74, and of 1872-73. The old varieties, Amabilis, Archimède, Aristote, Berthe Reabourdin, Canari, Clémence, Courantii fulgens, Don Juan, Edith, Eldorado, Fanny Rouget, Fulton, Imperatrice, Le Poussin, Lord Byron, Louis Van Houtte, Madame Coudere, Madame Monneret, Napoleon III., Penelope, Prince Imperial, Princess of Wales, &c., are to be obtained per 1000 of each sort. Mixed, by separate colours, and very varied.

To the Trade.

WITTY AND SON have to offer the following cheap TREES and SHRUBS, which are all first-class, symmetrically-grown stuff:—
ASH, Weeping, Standards, 18*s.* to 24*s.* per dozen.
ARBOR-VITÆ, American, 4 to 5 feet, 50*s.* per 100.
,, Siberian, 3½ to 4½ feet, 65*s.* per 100.
LAUREL, Portugal, 2 to 2½ feet, 40*s.* per 100; 2½ to 3 feet, 50*s.* per 100.
LIGUSTRUM JAPONICUM, 2 feet, 60*s.* per 100.
,, OVALIFOLIUM, 3 to 4 feet, 10*s.* per 100.
THORN, QUICKS, 10*s.* 6*d.* to 25*s.* per 1000.
The Nurseries, Cottingham, Hull.

KNIGHT'S NEW PEA—DUKE of CONNAUGHT.
This is a really useful new Pea, of a branching habit, about 3 feet high, and very prolific—well adapted for second and general crops; also for late sowing, as it is never affected by mildew. It is a fine exhibition and market Pea. Quarts, 5*s.*; pints, 2*s.* 6*d.*
THE OXONION PRIZE ONION.
A very superior white Onion, growing to an immense size, quite surpassing the white Spanish, both in mildness of flavour and quality of bulb. Ripens early. Has obtained 1st prize wherever exhibited. Per packet, 1*s.*
NUTTING AND SONS, Seed Warehouses, 60, Barbican, London, E.C.

JAMES ANDERSON, NURSERYMAN and HORTICULTURAL VALUATOR, Meadowbank, Uddingston, Glasgow, begs to announce to the public generally that he is now offering SELECTIONS of ORCHIDS, either in small or in large lots, suitable either for cool, intermediate, or warm temperatures; and that he is prepared to deal liberally with those who may entrust him with their orders.
Mr. ANDERSON'S stock of AMARYLLIS is the rarest and finest selected in the Kingdom, and he is prepared to offer them singly, in dozens, or hundreds, to suit purchasers. His stock, too, of the beautiful family of NERINE is large, and comprises some seedlings not yet in commerce.
Mr. ANDERSON is also offering SPECIMEN CAMELLIAS and AZALEAS in splendid health and full of buds, as well as a general lot of beautiful-leaved PLANTS, suitable either for indoor decoration or exhibition purposes.
Mr. ANDERSON'S stock of HARDY SHRUBS and TREES, both Deciduous and Evergreen, is a particularly choice one.
Special quotations to buyers on application.
Meadowbank Nurseries, November 11.

FOR AVENUES and ORNAMENTAL PLANTING.
ABIES DOUGLASII, 10 to 12 feet, £3 per dozen.
CEDAR, Mount Atlas, 10 to 12 feet, £8 8*s.* per dozen.
CHINESE JUNIPER, 5 to 6 feet, 30*s.* per dozen, £10 per 100; 6 to 7 feet, 30*s.* per dozen, £12 10*s.* per 100; 7 to 8 feet, 42*s.* per dozen, £15 per 100.
PICEA NORDMANNIANA, 3 to 4 feet, 42*s.* per dozen, £12 10*s.* per 100; 4 to 5 feet, 60*s.* per dozen, £20 per 100.
PICEA PINSAPO, 6 to 7 feet, £6 6*s.* per dozen; 7 to 8 feet, £8 8*s.* per dozen.
THUJA LOBBII, 12 to 15 feet, £4 4*s.* per dozen.
WELLINGTONIA GIGANTEA, 5 to 6 feet, £5 per dozen.
All well grown and recently transplanted. For full descriptions see LIST of the EVERGREEN FIR TRIBE.
RICHARD SMITH, Nurseryman, Worcester.

The Nurseries, Reddish, near Stockport.
SPECIAL OFFER to the TRADE.
B. WHITHAM begs to call attention to the subjoined LIST of TREES and SHRUBS, all fine, bushy plants, many times transplanted:—
AREA THEOPHRASTA, 4 to 6 feet, 20*s.* per 100; 6 to 8 feet, 30*s.* per 100.
ASH, Mountain, 6 to 8 feet, 12*s.* 6*d.* per 100; 8 to 10 feet, 25*s.* per 100.
BEECH, 3 to 4 feet, 8*s.* per 100; 4 to 6 feet, 16*s.* per 100; 6 to 8 feet, 30*s.* per 100; 8 to 10 feet, 50*s.* per 100.
CHESTNUT, Horse, 2 to 3 feet, 6*s.* per 100; 3 to 4 feet, 8*s.* per 100; 6 to 8 feet, 25*s.* per 100; 8 to 10 feet, 50*s.* per 100.
LIMES, 2 to 3 feet, 8*s.* per 100; 3 to 4 feet, 14*s.* per 100; 4 to 5 feet, 20*s.* per 100; 5 to 6 feet, 25*s.* per 100; 6 to 7 feet, 40*s.* per 100; 7 to 9 feet, 60*s.* per 100.
PINUS AUSTRIACA, 2 to 3 feet, 12*s.* 6*d.* per 100; 3 to 4 feet, 25*s.* per 100.
POPLAR, Lombardy, 4 to 6 feet, 8*s.* per 100; 6 to 8 feet, 15*s.* per 100.
POPLAR, Ontario, 4 to 6 feet, 8*s.* per 100; 6 to 8 feet, 15*s.* per 100.
PRIVET, 2 to 3 feet, 15*s.* per 1000.
ARBOR-VITÆ, American, 2 to 3 feet, 20*s.* per 100; 3 to 4 feet, 25*s.* per 100; 4 to 5 feet, 35*s.* per 100; 5 to 6 feet, 50*s.* per 100; 6 to 7 feet, 75*s.* per 100.
ARBOR-VITÆ LOBBII, 2 to 3 feet, 30*s.* per 100; 3 to 4 feet, 50*s.* per 100; 4 to 5 feet, 75*s.* per 100.
BERBERIS AQUIFOLIA, 2 to 15 inches, 5*s.* per 100; 12 to 18 inches, 6*s.* per 100; 1½ to 2 feet, 12*s.* 6*d.* per 100.
BERBERIS DARWINII, 2 to 3 feet, 40*s.* per 100.
DOGWOOD, strong, 4 to 5 feet, 12*s.* 6*d.* per 100.
LAUREL, Common, 4 to 6 feet, 25*s.* per 100.
LAUREL, Portugal, 6 to 12 inches, 10*s.* per 100; 12 to 18 inches, 25*s.* per 100; 18 to 24 inches, 40*s.* per 100.
RHODODENDRONS, 6 to 9 inches, very bushy, 60*s.* per 1000; 9 to 12 inches, 20*s.* per 100; 1 to 1½ foot, 25*s.* per 100; 1½ to 2 feet, 40*s.* per 100; 3½ to 4½ feet, extra strong, £10 per 100. Best named varieties, fine bushy plants, £7 10*s.* per 100.
YEWS, English, fine, 6 to 12 inches, 10*s.* per 100; 12 to 18 inches, 20*s.* per 100; 1½ to 2 feet, 30*s.* per 100; 2 to 3 feet, 60*s.* per 100.
YEWS, Irish, 3 to 4 feet, 18*s.* per dozen.
CHERRIES, extra strong, 5 to 7 feet, 12*s.* per dozen.
CHERRIES, Pyramids, 4 to 6 feet, 50*s.* per 100.
CURRANTS, Red, strong, 7*s.* per 100.
CURRANTS, Black, strong, 10*s.* per 100.
GOOSEBERRIES, best Lancashire show varieties, 20*s.*
STRAWBERRY, Yates' Seedling, 15*s.* per 1000. One of best in cultivation, very prolific; no grower should be without this variety.

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.
JACKMAN'S LIST of FRUIT TREES.
JACKMAN'S LIST of ROSES.
JACKMAN'S LIST of AMERICAN PLANTS.
JACKMAN'S LIST of CONIFERS.
JACKMAN'S LIST of HARDY SHRUBS.
JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.
JACKMAN'S LIST of CLEMATIS (Special Catalogue).
JACKMAN'S LIST of TRANSPLANTED FOREST TREES.
JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality:—
MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 ft.
CHESTNUTS, Common Horse and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.
Woking Nursery, Surrey, S.W.

Picea nobilis.

THOMAS METHVEN AND SONS beg to announce that, having a very large and fine Stock of this, one of the hardiest and most ornamental of the Californian Conifers, raised from SEED saved from the original glaucous-leaved variety, they are in a position to offer it in large quantities, on terms more favourable to purchasers than it has ever been offered since its introduction to this country: 1-yr. Seedlings, 1-yr. transplanted, about 3 inches high, 90*s.* per 1000; 1-yr. Seedlings, 2-yr. transplanted, 4 to 6 inches high, 120*s.* per 1000. Price to the Trade on application.

Leith Walk Nurseries, Edinburgh.—December 1.

To the Trade—Special Offer.

PAUL AND SON, The Old Nurseries, Cheshunt, still hold largely:—

Standard PEARS, Pyramid PLUMS, and Dwarf-trained PEARS and PLUMS; Transplanted well-grown GOOSEBERRIES; extra strong CURRANTS, of sorts; STRAWBERRIES, strong, of best kinds.

WEEPING ORNAMENTAL TREES, as Willows, Ash, Cherries, &c.

Standard LIMES, SYCAMORES, and FOLIAGED TREES. Strong transplanted OAK, 8 to 9 feet.

GREEN HOLLY, extra fine, 1½ to 6 feet; Variegated HOLLIES, gold and silver, 2½ to 6 feet, considered one of the best stocks of any Nursery.

AUCUBAS, 1½ to 2½ feet; LAURELS, 2½ to 6 feet; BOX, 1 to 6 feet; YEWS, 2½ to 4 feet.

CEDRUS DEODARA, 3 to 4 feet; WELLINGTONIAS, 6 to 8 feet; PINUS AUSTRIACA, 3 to 4 feet; PINUS PYRENAICA, 3 to 4 feet.

Prices on application.

4000 Double-flowered Chinese Primrose.

E. G. HENDERSON AND SON can now offer of the above, strong healthy New Plants, of 1874 growth, including Atro-rosea, Blushing Beauty, Exquisite, Empress, Emperior, Lilac Queen, King of Purples, Magenta Queen, Magnifica, Mrs. Eyre Crabbe, Pearl Blossom, Princess of Wales, rubra grandiflora, &c. Twelve varieties, from 30*s.* to 42*s.* and 60*s.*

PRIMULA JAPONICA, mixed varieties, 9*d.* each, 6*s.* per dozen; in six colours, raised from selected varieties, 1*s.* 6*d.* each.

AUBRIETIA HENDERSONI, the finest variety in growth and colour, strong plants, 2*s.* each, 18*s.* per dozen.

DAISY, Flower of Spring, beautiful and effective, pure white, with elegant gold-blotched leaves, 1*s.* each, 9*s.* per dozen.

VIOLETS, White Czar and Victoria Regina, 1*s.* 6*d.* each.

CYCLAMEN PERSICUM (from 3000 plants), mixed colours, 9*s.*, 12*s.*, and 18*s.* per dozen; collection to name 21*s.* and 30*s.* per dozen.

IRIS KÆMPHERI, Edward George Henderson and Andrew Henderson, the most beautiful of all the Iris group.

LEUCOJUM VERNUM, the true Spring Snowflake, with fragrant, large, Snowdrop-like flowers, dwarfer in habit than other species, 1*s.* 6*d.* per dozen, 8*s.* per 100.

MYOSOTIS RUPICOLA, the most beautiful of Forget-me-Nots, 1*s.* 6*d.* each.

The Trade supplied on usual terms for all the above.

For full descriptions see CATALOGUE 155.

Wellington Nursery, St. John's Wood, London, N.W.

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS and CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.

Wandsworth Common Nursery, Surrey, S.W.

The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

FRUIT TREE GARDENS and ORCHARD PLANTATIONS.

PYRAMID PEARS, handsomely grown, bearing trees on Quince stock. Upwards of 100 varieties, and all the choicest kinds: 18*s.* to 24*s.* per dozen, £5 to £10 per 100.

PYRAMID and BUSH APPLES, 15*s.* to 18*s.* per dozen, £5 to £7 per 100.

PYRAMID and BUSH PLUMS, 18*s.* to 30*s.* per dozen, £6 to £10 per 100.

PYRAMID and BUSH CHERRIES, 18*s.* to 24*s.* per dozen, £6 to £7 per 100.

STANDARD APPLES (Dessert, Culinary, and Cider), 18*s.* to 24*s.* per dozen, £7 to £10 per 100.

STANDARD PEARS (Dessert, Baking, and Perry), 18*s.* to 24*s.* per doz., £7 to £10 per 100.

STANDARD PLUMS, 18*s.* to 24*s.* per doz., £7 to £10 p. 100.

DWARF-TRAINED PEARS, PLUMS, CHERRIES, and APPLES, 30*s.* to 42*s.* per dozen.

GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, &c.

Trade prices to Nurserymen and Market Gardeners on application.

Cranston's Nurseries, King's Acre, near Hereford.
Address: CRANSTON AND MAYOS.

HANDSOME SPECIMEN CONIFER TREES.

CUPRESSUS LAWSONIANA, 6, 7, 8, to 10 feet, very handsome.
JUNIPERUS CHINENSIS, 5, 6, to 7 feet.
PICEA LASIOCARPA, 3, 4, to 5 feet.
,, NORDMANNIANA, 4, 5, to 6 feet.
,, PINSAPO, 3 to 4 feet.
,, NOBILIS, 3 to 4 feet.
PINUS AUSTRIACA, 3, 4, 5, to 6 feet.
,, BENTHAMIANA, 3 to 4 feet.
,, CEMBRA, 3, 4, to 5 feet.
,, MACROCARPA, 3 to 4 feet.
,, SABINIANA, 3, 4, to 6 feet.
RETINOSPORAS, 3, 4, to 6 feet.
THUJOPSIS BOREALIS, 3, 4, to 6 feet.
THUJA LOBBII, 5, 6, 8, to 10 feet, splendid specimens.
,, AUREA, 1, 2, 3, to 4 feet, and as much through; superb specimens.
,, GIGANTEA, 4, 5, to 7 feet.
WELLINGTONIA GIGANTEA, 3, 4, 5, to 6 feet.

These Trees are all beautifully furnished and handsomely grown, and, having been repeatedly transplanted, can be lifted with large balls of soil. Prices on application.

Cranston's Nurseries, King's Acre, near Hereford.
Address: CRANSTON AND MAYOS.

VINES, VINES, VINES—EPIPHYLLUMS, PERESKIA STOCKS.

VINES.—Fruiting and Planting Canes, strong, well ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Buckland Sweetwater, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2*s.* 6*d.* to 5*s.* each; a few extra strong canes, 6*s.* 6*d.*

EPIPHYLLUMS.—Good Standards, with nice heads, in twelve best sorts, 9*s.* and 12*s.* per dozen.

PERESKIA STOCKS, out of pots, 15*s.* per 100.

CINERARIA HYBRIDA, fl.-pl., 6*s.* per dozen.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

ORNAMENTAL HEDGES.

THUJA LOBBII, 4 to 5 feet, 90*s.* per 100; 5 to 6 feet, 100*s.* per 100. This tree forms a most beautiful evergreen fence.

THUJOPSIS BOREALIS, 2½ to 3 feet, 75*s.* per 100; 3 to 4 feet, 100*s.* per 100.

ENGLISH YEW, 2½ to 3 feet, 75*s.* per 100; do., very bushy, 3 to 3½ feet, 100*s.* per 100.

AMERICAN ARBOR-VITÆ, 5 to 6 feet, 50*s.* per 100*s.*; 6 to 7 feet, 60*s.* per 100.

LAUREL, Common, 2½ to 3 feet, 20*s.* per 100, £9 per 1000.
,, Portugal, 2 to 2½ feet, 50*s.* per 100.

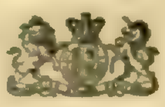
PRIVET OVALIFOLIUM, 2 to 3 feet, 5*s.* per 100.
,, Common Evergreen, 2 to 3 feet, 30*s.* to 40*s.* per 1000.

LAURUSTINUS, transplanted last spring, bushy, 50*s.* per 100.

RHODODENDRON PONNICUM, 1½ to 2 feet, 60*s.* per 100; 2 to 2½ feet, 75*s.* per 100.

BOX, Broad-leaved, 1½ to 2 feet, 21*s.* per 100; 2 to 2½ feet, 25*s.* per 100.

Cranston's Nurseries, King's Acre, near Hereford.
Address: CRANSTON AND MAYOS.



WELLINGTONIA AUREA VARIEGATA.

Planted by H.R.H. the Prince of Wales at Sandringham.
Planted by H.R.H. the Princess of Wales at Blenheim.
Planted by H.R.H. the Duke of Edinburgh at the Vice-Royal Lodge.
Planted by H.E. the Earl Spencer at Althorpe.
And by the leading Noblemen in the United Kingdom.

Splendid plants, finely rooted, 5 feet high, and covered with Golden Variegation, at £5 5*s.*; smaller, £3 3*s.*, £2 2*s.*, and £1 1*s.*

CIRCULARS, with List of Prizes taken, and Testimonials received from the leading Coniferæ Growers of Europe, can be had on application to

R. HARTLAND, The Lough Nurseries, Cork.
November 26.

PLANTING SEASON.

LARCH, SCOTCH FIR, ENGLISH OAK, and all other Forest Trees.
QUICK, and all other Hedge Plants.
COVERT PLANTS in great variety.
FRUIT TREES, including all the best and most esteemed varieties—quarter of a million trees.
ROSES, Standards, Dwarfs, the newest and best varieties—100,000 to select from.
VINES, all the leading varieties in 2000 well ripened canes for fruiting in pots and for planting out.
EVERGREENS in great variety, including large quantities of all the choicest Hollies, &c.
CONIFERS, including Picea Nordmanniana, &c.
ORNAMENTAL TREES and Plants of all sorts.

*** The whole in very great quantity and stout vigorous condition, with fine roots for safe removal.

Priced LIST and all particulars on application.

JAMES DICKSON & SONS, Newton Nurseries, Chester.

☞ The "Newton" Nurseries are within eight minutes' walk, by the new road, from the Chester Railway Station.

TURF of excellent quality can be put in trucks at the Lea Railway Station, on the South-Eastern Dartford Loop Line, at 9*s.* per 100 (33 square yards). Apply to Mr. J. POUND, Burnt Ash Lane, Lee, Kent, S.E.

THE LONDON MANURE COMPANY (ESTABLISHED 1840)

Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA.
Genuine PERUVIAN GUANO, &c.

116, Fenchurch Street. E. PURSER, Secretary.

ODAMS' MANURES, FOR ALL CROPS.

Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 150,000 Acres of Land.

Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C
WESTERN COUNTIES BRANCH—Queen Street, Exeter.

Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

Labels—Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3*s.* 6*d.* per 1000, or 30*s.* per 10,000; if eyeleted, 4*s.* per 1000. Vellum Cartridge, 4 inches long, 3*s.* per 1000 for 10,000. Sample Labels sent on receipt of Postage Stamp. Orders delivered free in London.

JOHN FISHER AND CO., Label Works, Boston.

PHLOX DRUMMONDI GRANDIFLORA,

(F. C. HEINEMANN, 1873.)

A. KERMESINA ALBA OCULATA: dark carmine, with beautiful neat marked white centre.

B. VIOLACEA ALBA OCULATA: dark bluish violet, with splendid neat marked white centre.

These charming Novelties are not yet surpassed by the many New Varieties introduced up to the present Season. In comparison its flowers are as large and cylindrical-shaped as the newest kinds of Phlox decussata.

Trade Price, 100 Seeds, 1s.; 1000 Seeds, 9s.

Those Firms from whom the above named varieties can be obtained, true, will be published in another number.

F. C. HEINEMANN, ERFURT, PRUSSIA.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,

SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.
First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, price 7s. 6d. each.

NEW HYBRID PERPETUAL ROSE,

CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3s. 6d. each; 30s. per dozen.

CLIMBING PERPETUAL ROSE,

CLIMBING JULES MARGOTTIN (Cranston's).

A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3s. 6d. each.

Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

SPANISH COCK STOLEN.
TWENTY POUNDS REWARD.

Whereas, a Spanish Cock was Stolen on the night of Sunday, the 6th inst., from the Lodge of Hindlip Hall, near Worcester, the above reward will be paid on the conviction of the thief. It is supposed that the stolen bird may have been sent away, and, as it can be sworn to, it is requested that any person who may have innocently received it will give immediate information to Mr. PHILLIPS, Deputy Chief Constable, County Police Office, Worcester, by whom the above reward will be paid on conviction of the thief.—County Police Office, Worcester, December 8.

CANTHARIKOPHO.
COCKROACH AND BEETLE POISON.
Destroys Rats and Mice.
Sold everywhere in Tin Boxes. By post, 1*s.* 3*d.* and 1*s.* 10*d.* each.

MILDEW
May be entirely prevented as well as cured by
EWING'S INFALLIBLE COMPOSITION.
Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s.* 6*d.* p. bottle, with full directions for use.

Protection from Frost.
TRELOAR AND SONS' COCOA-NUT PALM-LEAF GARDEN MATS will keep out many degrees of frost. Price 30*s.* per dozen.
TRELOAR AND SONS, 69, Ludgate Hill, London, E.C.

Russia Mat Merchants.
MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., have a large Stock of Archangel, Heavy and Close-woven ST. PETERSBURG MATS, and all kinds of DUNNAGE MATS, RAFIA FIBRE, &c.
N.B.—The best Heavy St. Petersburg Mats are most suitable for covering purposes.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

Russia Mats.
BLACKBURN AND SONS, the only Importers of Mats in London, have, in consequence of the SCARCITY of ARCHANGEL MATS, instructed their Russian friends to send 100,000 best selected PETERSBURG, which they are now offering, to the Trade only, at low prices.
Samples and prices on application, at 4 and 5, Wormwood Street, London, E.C.

RUSSIA MATS.—A large stock of ARCHANGEL and PETERSBURG, for Covering and Packing, Second sized ARCHANGEL, 100*s.*; PETERSBURG, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; PACKING MATS, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of MATS at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

Indestructible Terra-Cotta Plant Markers.
MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

Reduced Prices.
THE CELEBRATED GRANITIC PAINT.
Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.
For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.
For Particulars, and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton, and the late Professor Lindley, &c., &c.
MADE OF PREPARED HAIR AND WOOL.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.
PROTECTION FROM COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.
"FRIGI DOMO" CANVAS.
Two yards wide .. .. 1*s.* 10*d.* per yard run.
Three yards wide .. .. 3*s.* per yard.
Four yards wide .. .. 3*s.* 10*d.* per yard.
ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.
NOTICE.—REMOVED from 3, CANNON STREET, CITY.

Important Announcement.
HEATING HORTICULTURAL BUILDINGS nearly free of cost. Limekiln Heating on the most improved and economical principles.
Mr. Alexander Colles, of Kilkenny, original inventor of this system, has arranged with Messrs. MAGUIRE & SON, Dawson Street, Dublin, Hothouse Builders and Heating Engineers, for undertaking the Erection of combined Limekilns and Hot-water Apparatus for Heating Buildings of every description, and will be happy to furnish Plans and Estimates for such on receiving particulars of requirements.
No person intending to adopt the system should neglect applying to MAGUIRE & SON, as their plan is far superior to any other which has yet been brought before the public.
Apply to Alexander Colles, Esq., Millmount, Kilkenny, where the system may be seen at work, or to
Messrs. MAGUIRE AND SON, 10, Dawson Street, Dublin.

PAUL & SON'S ROSES,
GROWN AT THE "OLD NURSERIES," CHESHUNT,
One of the Traditional Homes of the Rose.

MESSRS. PAUL & SON
RESPECTFULLY SOLICIT EARLY ORDERS FOR
ROSES IN ALL FORMS.

The Stock for Sale is by far the finest ever produced at these long-celebrated Nurseries, and the plants are thoroughly grown, healthy, vigorous, and well ripened. The undernamed prices will be found really reasonable, and comparatively cheap for really good plants.

PAUL & SON'S DESCRIPTIVE ROSE CATALOGUE
Contains a septennial review of the New Roses as sent out in the past seven years, special notes on New Roses of the year, and Cultural Directions for the Rose year. LIST sent post free on application.

PRICES OF ROSES FOR 1874—1875.
STANDARDS, fine stems and heads, of best kinds only, as grown here, 18*s.* per doz., £7 per 100.
STANDARD ROSES, newer kinds, 24*s.* to 30*s.* per dozen, £10 per 100.
DWARF STANDARDS, Hybrid Perpetuals, 12*s.* per dozen, 90*s.* per 100.
DWARFS, Hybrid Perpetuals, older kinds, on Manetti or on Seedling Briar, 10*s.* to 15*s.* per doz., 75*s.* to £6 per 100.
DWARFS, on Manetti, Hybrid Perpetuals, newer sorts, 18*s.* to 30*s.* per dozen, £7 10*s.* per 100.
DWARF TEAS, 18*s.* to 21*s.* per dozen, £7 10*s.* per 100.
Extremely fine and well ripened this season.
DWARFS, new varieties of 1874, 36*s.* per dozen.

SPECIAL ROSES, raised here at Cheshunt.
TEA, or HYBRID TEA, CHESHUNT HYBRID.—Of this deservedly favourite Rose we had at the commencement of the season, 2000 plants, showing our estimate of its value. It is still finely in bloom here, and is valuable in all ways, more especially as a free autumnal climber. Standards, 2*s.* 6*d.*; Dwarfs, 2*s.*
H.P. REYNOLDS HOLE.—The finest dark maroon Rose yet raised, which has a good vigorous habit and free flowering character. Standards, 2*s.* 6*d.*; Dwarfs, 2*s.*
H.P. WILSON SAUNDERS.—A grand novelty. A peculiarly free perpetual crimson Rose. Standards or Dwarfs, 5*s.* each.
H.P. THE SHAH.—The brightest-coloured garden Rose yet obtained. Standards or Dwarfs, 3*s.* 6*d.* each.

ROSES CULTIVATED IN POTS, speciality of the Old Nurseries.
ROSES—Teas and Hybrid Perpetuals, established for forcing or pot culture:—
EXTRA FINE PLANTS, in 8-inch pots, 42*s.* per dozen.
QUARTER SPECIMENS, in 9 to 10-inch pots, 60*s.* to 84*s.* per dozen.
SPECIMEN ROSES, 42*s.* to 105*s.* each.

ROSES ON OWN ROOTS.
SORTS, as Special Lists, in 48's, 12*s.* to 18*s.* per dozen, 100*s.* per 100.

FRUIT TREES.
Of Espalier Palmetti-Trained Fruit Trees for Walls PAUL & SON hold a very large Stock, with from two to six tiers of branches. 3*s.* 6*d.* to 7*s.* 6*d.* each.

HARDY TREES AND SHRUBS, NEW AND OLD.

We will be glad to send, Post Free,
DESCRIPTIVE CATALOGUE of FRUIT TREES and HARDY GROWTHS,
WITH
SPECIAL SUPPLEMENT of NEW HARDY TREES and SHRUBS.

An Inspection of the Stock, which is large and fine, and unimpaired, not having been weakened by frequent Auction Sales, is invited.

Close to London: Cheshunt Station forty minutes from Bishopsgate, one mile from the Nurseries.

ADDRESS IN FULL—
PAUL AND SON, THE "OLD NURSERIES," CHESHUNT.

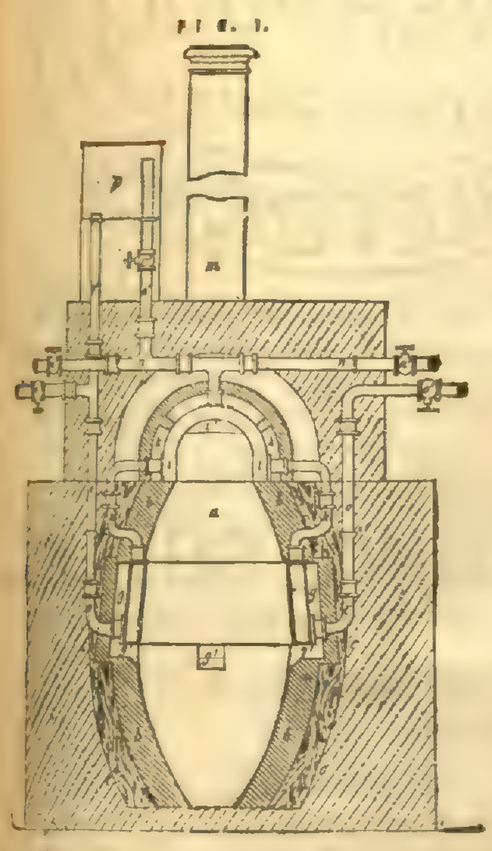
THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company, having purchased from the Dromore Patent Heating Company Mr. Cowan's valuable Patents for the United Kingdom, is now prepared to undertake the Erection of Apparatus on that System in all parts of the Country.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

THE SUCCESS OF EVERY APPARATUS ERECTED BY THE COMPANY IS GUARANTEED.



Full Particulars of this System, Testimonials, and Opinions of the Press, can be seen in the Company's Illustrated Pamphlet, which can be obtained, post free, on application.

The Company has an Efficient Staff of Engineers, and sends at any time to inspect places where the idea is entertained of Erecting the Apparatus.

The System has lately been adopted at Hazelwood, Herts, the seat of Lord Rokeby; Stackpole Court, the seat of the Earl of Cawdor; Ripley Castle, Yorkshire, the seat of Sir H. D. Inglby, Bart.; Langleybury House, Herts, the seat of Jones Lloyds, Esq.; and at many other places. Also Mr. E. Bennett, of Hatfield, says:—

"I now most cordially beg to congratulate you on the glorious success of your Heating Apparatus (now in use at Hatfield), which is working most satisfactorily, and which has exceeded my expectations. It is a decided success, and more cannot be said in its favour. Should it continue to work in the manner it now does, it will prove a great boon here, and start a new era in the heating of horticultural buildings generally. By your Compensating System we have for every barrow of coals thrown into the kiln some substantial return; by the old system the returns were ashes, and the trouble of clearing them away. I find our chalk is of an inferior quality to some I have seen in the neighbourhood, but we have plenty of heat."

The Company also undertakes the Erection of all other kinds of Heating Apparatus, and of Horticultural Buildings.

PLANS AND ESTIMATES FURNISHED ON APPLICATION.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

Office: 4, LOTHBURY, BANK, LONDON, E.C.

WILLIAM PARHAM,

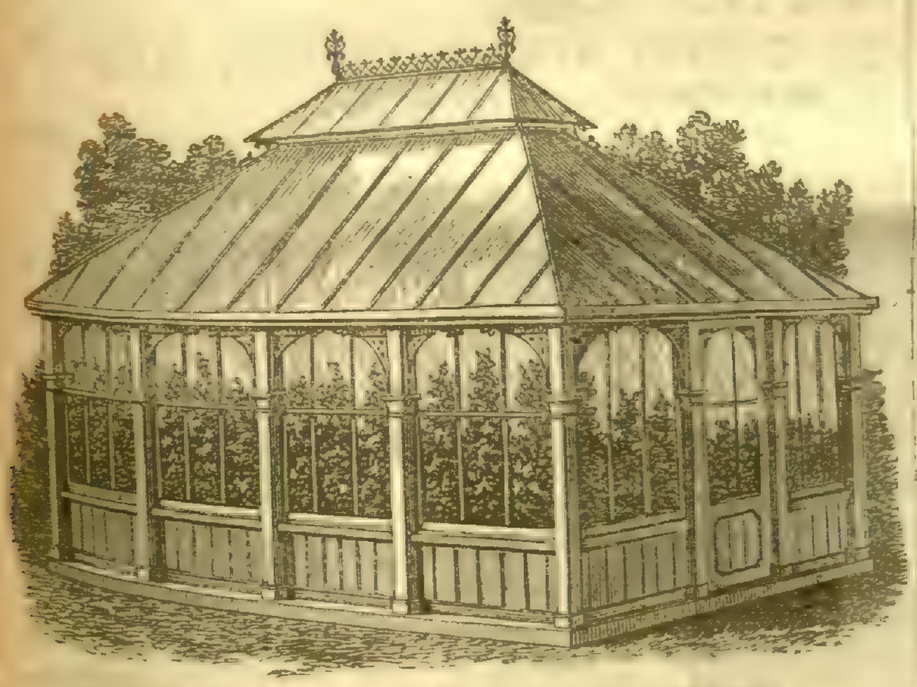
Northgate Works, BATH, and 280, Oxford Street, LONDON,

PATENTEE AND MANUFACTURER OF EVERY DESCRIPTION OF

HORTICULTURAL BUILDINGS

Glazed without Putty on Channelled Rafters, securing almost entire immunity from Breakage of Glass, extreme Facility for Repairs, and absolute Freedom from Drip.

Illustrated CATALOGUES and PRICE LISTS for Four Stamps.



PORTABLE LAWN CONSERVATORY.

With W. P.'s Patent System of Glazing, panelled wood sides in place of Brickwork, open-jointed floor and lattice staging; Cast Iron moulded rain-gutter, down-pipes, Finials and Cresting; opening Lights on each side and Top Ventilators under glazed super-roof. It is removable by a Tenant-at-will.

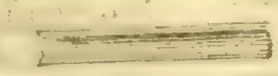
PRICE, with 21-oz. Glass, 18 feet by 12 feet, by 7 feet at eaves, £70.
" with 21-oz. Glass, 24 feet by 14 feet, by 7 feet at eaves, £94.

GALVANIZED WALL WIRING AND ESPALIERS.

Holdfasts. 2s. per dozen.

Raidisseurs. 4s. per dozen.

Eyes. 6d. per dozen.



No. 13 Wire. 2s. 6d. per 100 yards.

A Certain Crop of Fruit, in spite of Frost, is secured by

PARHAM'S

PATENT GLASS COPING

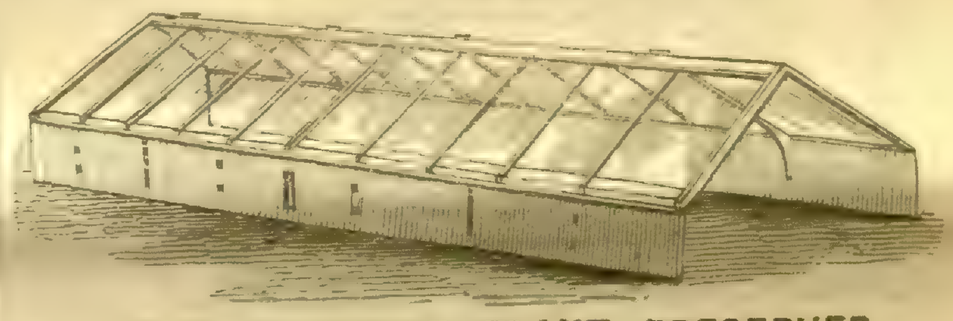
For Sheltering Fruit Trees.

The Patentee has sent out many miles of it during the past three seasons, and additional orders have each year been received from those who have tried it.

PRICE—Per foot run, with 21-oz. glass.
With the iron framework painted, 2 feet, 2s. 6d.; 3 feet wide, 3s. 9d.
With the iron framework galvanised, 2 feet, 3s. 3d.; 3 feet wide, 4s. 9d.

From Mr. F. SAUNDERS, *Gardener to* Sir Wm. Miles, Bart., *Leigh Court, Bristol, October* 23, 1874.

"SIR,—I have much pleasure in saying the Wall Coping you erected here in April, 1872, has given the greatest satisfaction. Many of the Peach trees, at that time apparently worthless, are now in full vigour, and have borne extraordinary crops this season, the fruit being unusually fine, and of excellent flavour. I have recommended it to several gentlemen, who, I believe, will give it a trial."

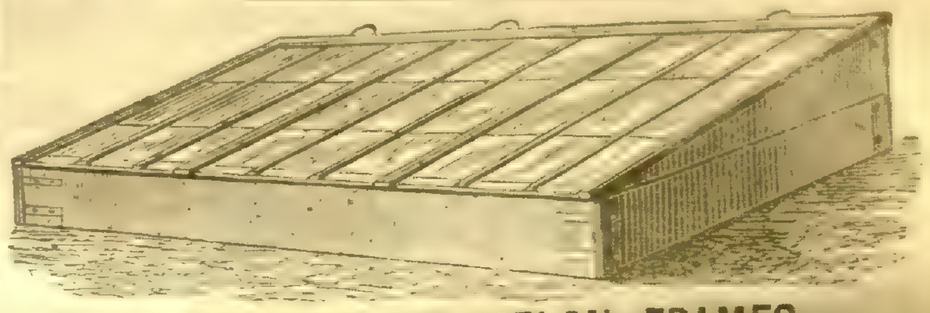


PATENT PORTABLE PLANT PRESERVER.

Glazed with 21-oz. glass (under W. Parham's Patent) without putty, on channelled wood rafters.

PRICE—Including two wood ends to each length.

Long.	Wide.		Long.	Wide.	
6 feet by	2 feet	£1 10 0	12 feet by	3 feet	£3 12 0
12 feet by	2 feet	2 15 0	6 feet by	4 feet	2 14 0
6 feet by	3 feet	2 2 0	12 feet by	4 feet	4 12 6



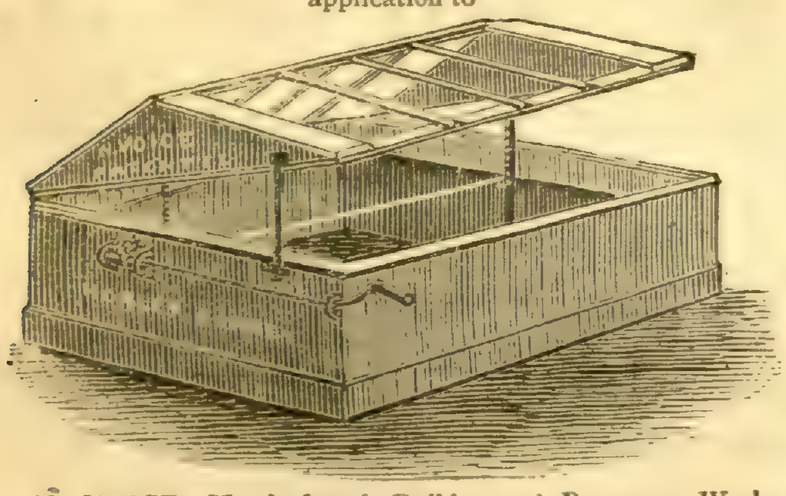
CUCUMBER OR MELON FRAMES.

Glazed with 21 oz. glass (under W. Parham's Patent) without putty.

PRICE—Complete with 1¼-inch red deal sides, and 2-inch lights.

Long.	Wide.		Long.	Wide.	
4 feet by	6 feet, 1 light	£1 17 6	16 feet by	6 feet, 4 lights	£6 7 6
8 feet by	6 feet, 2 lights	3 5 0	20 feet by	6 feet, 5 lights	7 17 0
12 feet by	6 feet, 3 lights	4 17 6			

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



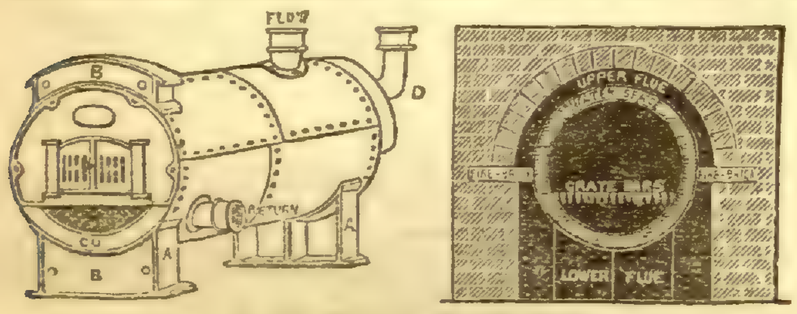
N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.



STEVENS'

TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

ESTABLISHED 1856.

KEEP OUT THE FROST.

WILLIAM H. HONEY'S PORTABLE

VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

Prices, in block tin, 30s.; in copper, 50s. Copper, with glass, to give light and heat, 55s. Either will be sent on receipt of Post-office Order.

To be seen in operation at

WILLIAM H. HONEY,

263, REGENT STREET, W.

Catalogue free. No agents appointed

HOT-WATER APPARATUS

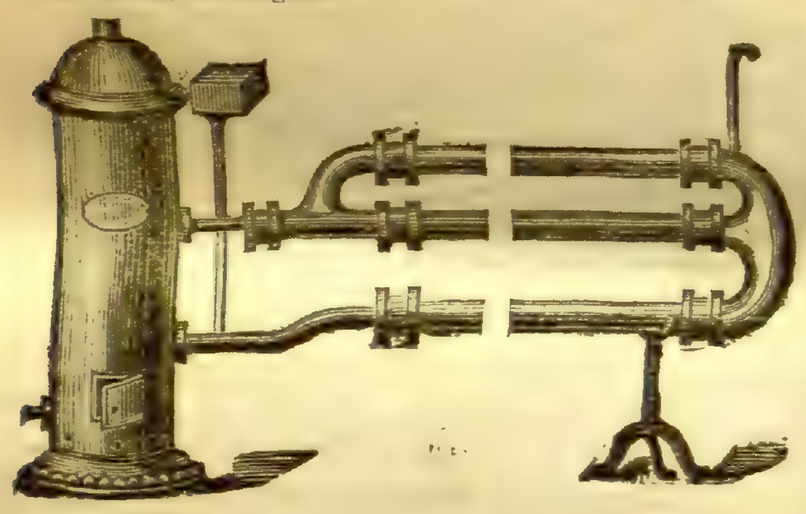
(Heated by Gas)

FOR SMALL CONSERVATORIES, GREENHOUSES, &c.

Price from £3 3s. To be had of

JOHN GILL AND CO., 299, Oxford Street, London, W., and of all Ironmongers.

Wholesale only of JOHN WRIGHT AND CO., Essex Works, Broad Street, Birmingham.



J. G. SMEATON & CO.,

Horticultural Architects and Builders,

HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

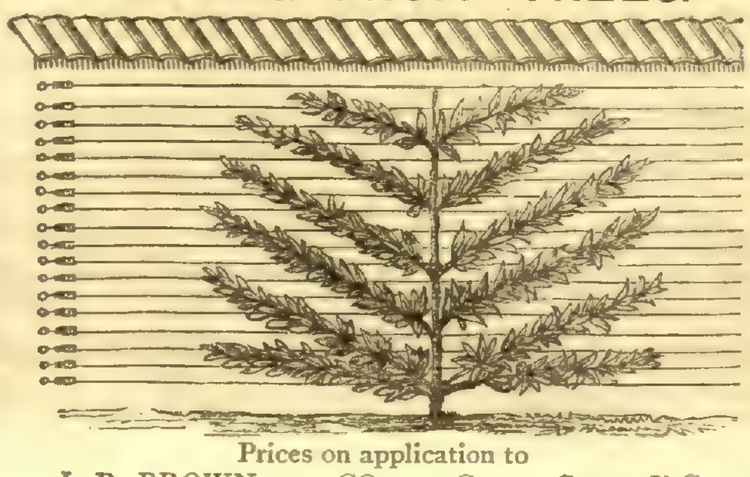
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

THE FRENCH SYSTEM

OF WIRING GARDEN WALLS, &c., FOR

TRAINING FRUIT TREES.



Prices on application to

J. B. BROWN AND CO., 90, Cannon Street, E.C.

Garden Wall Wiring.

R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.

For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.

Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS'S Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,

THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

For Park, Farm, and General Enclosures.

FRANCIS MORTON & Co's (LIMITED) LIVERPOOL NAYLOR STREET CABLE FENCING

Is in use over many thousand miles,

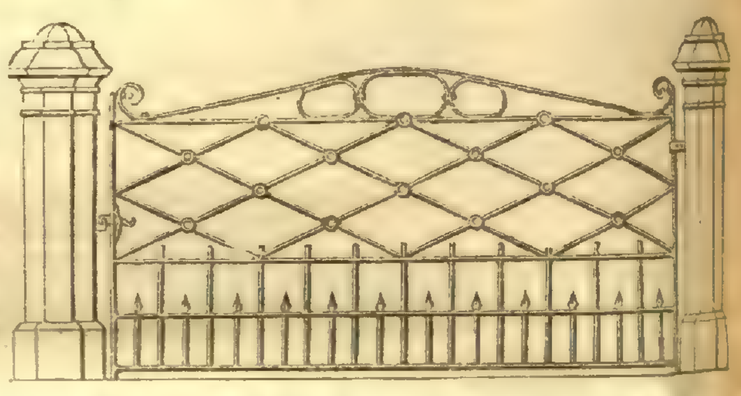
And has been awarded the Silver Medals and Highest Commendations of the leading Agricultural Societies, it forms the most efficient strained iron fence known.

ORNAMENTAL

IRON ENTRANCE GATES, &c.,

IN WROUGHT AND CAST IRON,

Designed for the Mansion, Villa, or Farm.



Field, Wicket, and Garden Gates

In Great Variety of Patterns.

ORNAMENTAL and FIELD HURDLES

With Round or Flat Bars.

Continuous Bar Iron Fencing,

Fitted with F. M. & Co.'s Patent Self-locking Joints which form a continuous rigid brace from end to end of the Fence, and the most perfect system for securing its efficiency.

F. M. & Co.'s New Illustrated CATALOGUE is now ready, and will be forwarded on application.

LONDON OFFICE—

1, DELAHAY ST., WESTMINSTER, S.W.

THE THAMES BANK IRON COMPANY

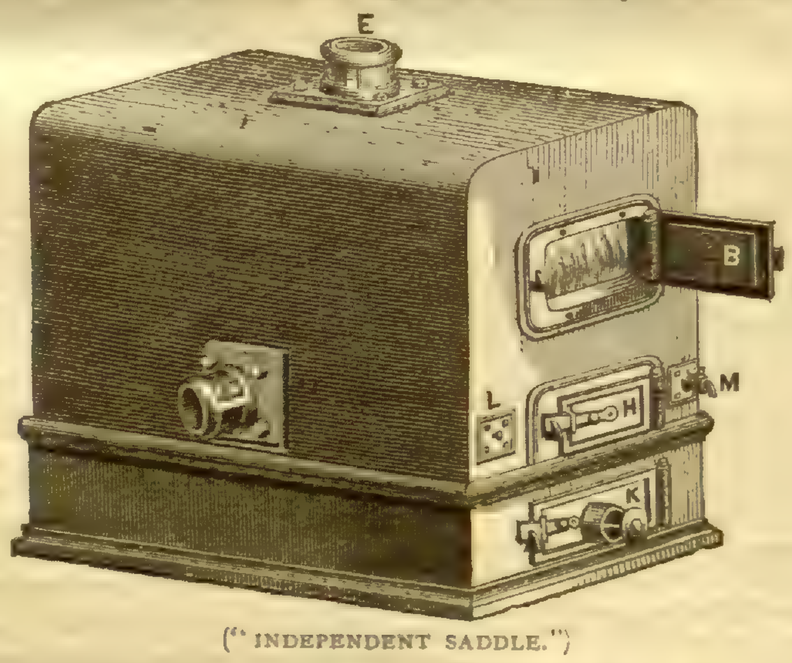
(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

SURREY SIDE, BLACKFRIARS BRIDGE,

Have the largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.

HOT-WATER BOILERS,



("INDEPENDENT SADDLE.")

PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

NEW PATENT "CLIMAX" BOILER (1874). See p. 666, *Gardeners' Chronicle.*

"GOLD MEDAL" BOILER (Birmingham, 1872).

PATENT "EXCELSIOR" BOILER (1871).

"WITLEY COURT" BOILER (Silver Medal, 1872).

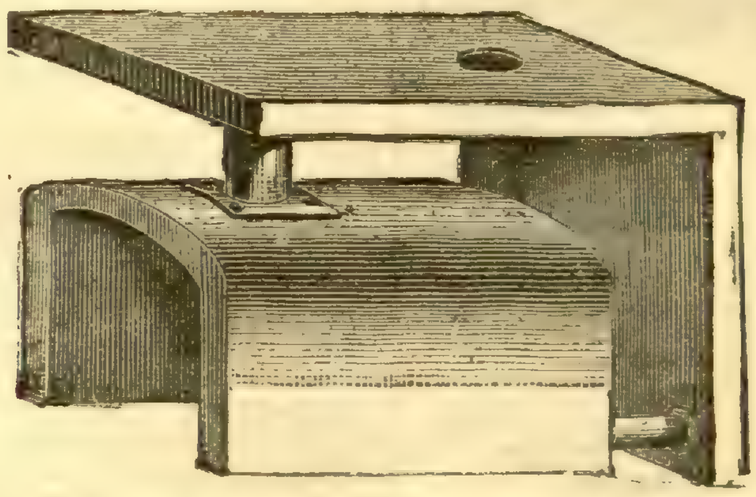
"TRENTHAM IMPROVED" BOILER, with Waterway End and Smoke Consumer.

"TUBULAR," and every other Boiler of known merit or excellence.

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

JONES'S
PATENT
"DOUBLE L" SADDLE BOILER.



This boiler, which has now had a good trial, presents advantages that other boilers do not possess. Instead of a large portion of the heat being absorbed by the brickwork setting, or passing direct up the chimney, before the heated particles emitted from the fuel in process of combustion have properly done their work, as is the case with many other boilers at present in use, this boiler, by its peculiar, yet simple, construction, as well as by a judicious arrangement of flues, obtains the full amount of heat from the fuel before the products of combustion pass into the chimney. Compared with the old Saddle and other boilers, it is computed that it will do nearly twice the amount of work with the same amount of fuel. The cost of setting is less, as is also the space occupied, and the boiler being made in wrought instead of cast iron, thereby avoiding its liability to crack, renders it one of the best boilers yet brought out.

For the rapidity with which heat can be got up in one or any number of houses it is unsurpassed, and the following extracts from Testimonials received from persons accustomed to the use of hot-water apparatus will prove that the expectations raised for this boiler have been fully realised.

J. JONES & SONS beg to state, in conclusion, that they are prepared to send to any part of the country, at a moderate charge, to take particulars and prepare plans and estimates for hot-water work of every description; or they will, on receipt of full particulars by post, send estimates, &c., free of charge.

The Patent "DOUBLE L" SADDLE BOILER is made in sizes to heat from 300 to 10,000 feet of piping, and can only be obtained from the Patentees.

All communications respecting prices of boilers, &c., should be addressed—

J. JONES AND SONS, HOT-WATER ENGINEERS,
6, BANKSIDE, SOUTHWARK, LONDON, S.E.

EXTRACTS FROM A FEW TESTIMONIALS
IN FAVOUR OF
JONES'S PATENT "DOUBLE L" SADDLE BOILER.

From Mr. J. AITKIN, *Gardener to* W. Stuart, Esq.
"ALDENHAM ABBEY, WATFORD, *June* 5, 1873.
"Concerning the working of your Patent 'Double L' Saddle Boiler, I have only to say that it gives entire satisfaction, and, although a small one, it heated the 700 feet of 4-inch piping nearly all the winter. I had seldom to use the other Boiler that is attached to the pipes; it also requires a considerable deal less fuel than the old Saddle, which is of some importance at the present price of coal; it also heats much quicker than any Boiler I ever had to superintend."

From Mr. J. W. ABRAHAMS, *Gardener* to N. M. Forbes, Esq.
"TILBURSTOW LODGE, GODSTONE, *December* 30, 1871.
"I have proved your 'Double L' Saddle Boiler, and find it everything that could be needed. I am of opinion that the Boiler is able to drive as much more Piping as it is now required to do. It is the kind of Boiler I should recommend to all Gardeners for Forcing Houses, as you can get both a quick heat and a regular heat; in fact, I believe it to be the best Boiler I ever had to deal with."

(Extract from Second Testimonial from the above.)
May 29, 1873.
"The 'Double L' Saddle Boilers, as well as the apparatus in the Stove House, answer exceedingly well, and give whatever heat I require—from 80° to 90° day or night—with very little trouble or attention."

From Mr. R. WILLMOTT, *Gardener to* C. Doridante, Esq.
"THE GARDENS, ALDERSHOT PARK, *May* 26, 1873.
"The 'Double L' Saddle Boiler and Apparatus erected by you has given me great satisfaction, as it does its work quickly and economically, and requires very little attention. I consider it a great improvement on the old Saddle Boiler; in fact, I prefer it to any other boiler we have."

From Mr. J. SIMS, *Gardener.*
"BOVINGDON HOUSE, HEMEL HEMPSTEAD, *December* 18, 1871.
"I have given your 'Double L' Saddle Boiler a fair trial during the severe weather we have had, and am well satisfied as to its being a great deal more economical than the old Saddle, and will do the same amount of work with about half the quantity of fuel."

From Mr. D. ROBERTSON, *Gardener to* Rev. Dr. Ainger.
"WHITTON TOWER, ROTHBURY, *June* 3, 1873.
"Your 'Double L" Saddle Boiler is giving great satisfaction. We have had a severe winter, the houses are old, and consequently very open, and yet it has kept them at the proper temperature from 10 P.M. to 8 A.M., which would be very hard on any other boiler that I am acquainted with, considering the size."

From Mr. CHARLES YOUNG.
"NURSERIES, BALHAM HILL, S.W., *May* 29, 1873.
"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

From Mr. R. THOMPSON, *Gardener to* H. Crawshay, Esq.
"LANGLAND BAY, near SWANSEA, *June* 5, 1873.
"Your 'Double L' Saddle Boiler I like very much. I have worked it regularly since it was fixed, and I find it to be a very powerful, and, at the same time, an economical Boiler. I am also pleased with the manner in which the pipes are fixed, and their working throughout. The stops could not possibly be better. This I consider a good point, as it enables the person in charge to regulate the heat as he pleases."

From Mr. I'ANSON, *Gardener to the* Rev. G. H. Devonport.
"FOXLEY, near HEREFORD, *June* 4, 1873.
"I have given your 'Double L' Saddle Boiler a fair trial, and it gives every satisfaction. It is the quickest heating boiler I have had under my charge, and burns the least fuel."

From Mr. H. BROOKS, *Gardener to* J. T. Belk, Esq.
"THE PARK, MIDDLESBORO', *May* 28, 1873.
"I have given your 'Double L' Saddle Boiler a fair trial, and have found it give every satisfaction. It acts admirably with a small amount of fuel, which is a great point at the present price of fuel. I consider it the best I have used, and the most economical."

From Mr. J. MCCULLUM, *Gardener to* J. W. Hallewell, Esq.
"STRATFORD COURT, STROUD, *May* 30, 1873.
"I have thoroughly tested the efficiency of your Patent 'Double L' Boiler, and I am so satisfied with its heating powers that I can recommend it with confidence. When properly managed I find it one of the most economical Boilers I ever used."

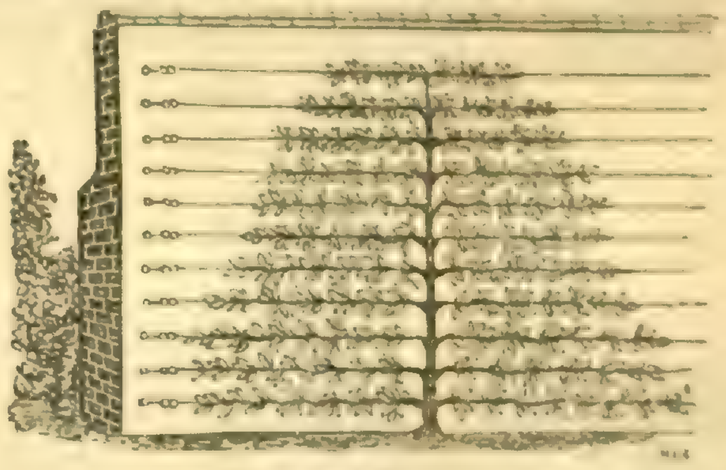
From Mr. W. BEECH, *Gardener to* Sir J. W. Hartopp.
"KINGSWOOD WARREN, EPSOM, *May* 30, 1873.
"The two 'Double L' Saddle Boilers you put in here for the Hot-water Apparatus are working very satisfactorily."

From Mr. S. PETTIT, *Gardener to* F. Sartoris, Esq.
"RUSHDEN HALL, HIGHAM FERRERS, *May* 29, 1873.
"Your 'Double L' Saddle Boiler has had a good trial this last winter, and does its work first-class, with comparatively little fuel, considering the work it has to do."

J. JONES & SONS,
HOT WATER ENGINEERS,
6, BANKSIDE, SOUTHWARK, LONDON, S.E.

THOMAS'S
GALVANIZED
WROUGHT-IRON FITTINGS
FOR WIRING WALLS, FOR THE PURPOSE OF TRAINING FRUIT TREES

On the French system, and as recommended by Mr. W. Robinson, F.L.S., editor of *The Garden*, and author of "The Parks, Promenades, and Gardens of Paris."



Prices of Materials. Per doz.—s. d.

GALVANISED RAIDISSEURS	4 0
GALVANISED TERMINATING HOLDFASTS ..	2 0
(Two required for each line of wire.)	
GALVANISED WALL EYES	0 6

GALVANISED WIRE, 2s., 2s. 6d., and 3s. per 100 yards.

Illustrated Lists, with full particulars of the above, and Fittings for Espalier Trainers, on very economical principles, free on application.

Five per cent. discount allowed for prompt cash on orders amounting to 20s. and upwards. Special quotations for larger quantities

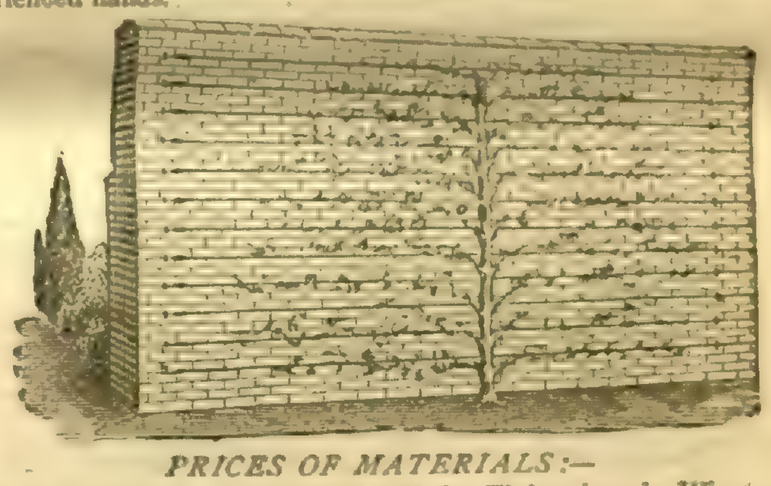
J. J. THOMAS & CO.,
PADDINGTON WIREWORKS, 285 and 362, EDGWARE ROAD, LONDON, W.

Illustrated and Priced Catalogues of every description of Horticultural Wirework on application.

GALVANISED WROUGHT IRON
FITTINGS for WIRING WALLS,
For the Purpose of Training Fruit Trees
ON THE FRENCH SYSTEM,

and as recommended by Mr. W. ROBINSON, F.L.S., in his new work, "The Parks, Promenades, and Gardens of Paris."

By this system nails and shreds are entirely dispensed with, the walls are not injured, and no harbour is afforded to small insects. The Tying of the Fruit Trees is effected in one-fifth of the time required by the old system. The arrangement is so simple, that it can easily be applied to any Walls by inexperienced hands.



PRICES OF MATERIALS:—
GALVANISED RAIDISSEURS for Tightening the Wires.
One of these required for each Line of Wire.

No. 900. 4s. per doz.

GALVANISED WALL EYES, 6d. per dozen.
GALVANISED TERMINATING HOLDFASTS, 2s. per doz.
GALVANISED WIRE, 2s. 6d. and 3s. per 100 yards.

ILLUSTRATED LISTS, with full particulars of the above, and of FITTINGS for ESPALIER TRAINERS, on very economical principles, free on application to

BARNARD, BISHOP & BARNARDS,
NORFOLK IRONWORKS, NORWICH.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.
HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries.
KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

By Appointment to, and Under the Distinguished PATRONAGE of, HER MAJESTY.

J. SMITH'S IMPROVED METALLIC LABELS.

The above Labels are made of a white metal, with RAISED BLACK-FACED LETTERS, and are of various shapes and sizes.
For illustration of the different shapes see the *Gardeners' Chronicle*, Nov. 28.
Samples and Price List free.
Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

DIETZ AND CO.,
ST. PAUL'S BUILDINGS,
CARTER LANE, LONDON, E.C.,
Inventors and Manufacturers of the celebrated
PARAGON LAMPS,
Burning Petroleum or Paraffin. Unequalled
For Simplicity, Economy, and Brilliancy of Light.
SOLD BY ALL IRONMONGERS.

Over 5000 Patterns of TABLE LAMPS, HALL LAMPS, CHANDELIERS, BRACKETS, LANTERNS, STOVES, &c., fitted with our famous

PARAGON BURNERS,

which give a clear white light equal to twenty-five, twenty, fourteen, and eleven candles, at the respective cost of 1-4th, 1-8th, 1-6th, and 1-7th of a penny per hour.

OUR
Paragon Heating Stove
for Warming Greenhouses and Small Rooms, is now a *sine quâ non* in every household.

OUR WINDPROOF
HURRICANE LANTERN
Will be found very useful for outdoor purposes.

This Month will be Published a new and greatly enlarged Edition of
GORDON'S PINETUM: being a Synopsis of all the Coniferous Plants at present known, with Descriptions, History, and Synonyms, and comprising a considerable number of new and undescribed kinds. With elaborate Indexes of both Scientific and Popular Names. In one volume, 8vo, cloth, price 18s.
*** The former edition, now extremely scarce, was published at 16s., the Supplement at 6s., both of which are included in the present with considerable additions.
London: HENRY G. BOHN, 18, Henrietta Street, Covent Garden, W.C.

Belgian.
BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAICHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid 10s. per annum.
H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

New Works by the Rev. J. G. Wood, M.A.
Author of "Homes without Hands," &c.
OUT of DOORS; a Selection of Original Articles on Practical Natural History, uniform with "Strange Dwellings" by the same Author; with Six Illustrations from Original Designs engraved on Wood by G. PEARSON. Crown 8vo. Price 7s. 6d. cloth.
INSECTS ABROAD; a Popular Account of Foreign Insects, their Structure, Habits, and Transformations. With 600 Figures by E. A. SMITH and J. B. ZWECKER, engraved on Wood by G. PEARSON. Forming a Sequel or Companion Volume to "Insects at Home" by the same Author. 8vo. Price 21s. cloth.
London: LONGMANS AND CO.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.
Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.
This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.
Advertising charges, 8d. per square inch, Translation included.
Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.
Address, The Editor of the *Cultivator*, St. Michael's, Azores.

THE SYDNEY MAIL AND NEW SOUTH WALES ADVERTISER.
CONTENTS:—
INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4d.; Stamped, 5d.
Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.
The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices for the use of Advertisers.

A NEW VOLUME COMMENCES IN JANUARY.

THE FLORIST AND POMOLOGIST.
A PICTORIAL MAGAZINE OF GARDENING.
Monthly 1s.; Annual Subscription 12s., or Free by Post, 13s.
Two finely Coloured Plates issued with each Number.
Established as the "Florist" in 1848.
The FLORIST and POMOLOGIST is a Popular Monthly Magazine of Gardening in all its Departments. It supplies the class of information required by GARDEN AMATEURS, as well as by PROFESSIONAL AND COMMERCIAL GARDENERS. It keeps its readers informed as to the NOVELTIES which may interest them, and instructs them as to the best forms of GARDEN PRACTICE.—The subjects for the COLOURED PLATES are selected with the greatest care, and the drawings are made by the leading Floral and Botanical Artists; while as the LETTERPRESS is contributed by some of the most distinguished Practical and Scientific Horticulturists of the day, the sound practical character of the information contained in its pages is assured.
The FLORIST and POMOLOGIST may be obtained through any Bookseller or Newsagent, or direct from the Publisher,
MR. EDWARD H. MAY, 171, FLEET STREET, LONDON, E.C.

Now ready, Price 1s., or Free by Post for 1s. 2d.,
THE
GARDENERS' YEAR-BOOK AND ALMANAC FOR 1875.
By ROBERT HOGG, LL.D., F.L.S., Co-Editor of "THE JOURNAL OF HORTICULTURE."
"THE GARDENERS' YEAR-BOOK" will contain, besides the information usually found in Almanacs, a great mass of valuable information, and numerous useful Tables in connection with Horticulture; a Complete Garden Calendar; Notices of all Horticultural, Floricultural, and Pomological Novelties, and a great mass of miscellaneous matter useful to Horticulturists.
JOURNAL of HORTICULTURE OFFICE, 171, FLEET STREET, LONDON, E.C.

To be ready not later than January 1, 1875, Price 2s., Free by Post, 2s. 3d.,
THE HORTICULTURAL DIRECTORY
For 1875.
ADVERTISEMENTS inserted at the same rate as in the "Year Book." Should space be required, Copy must be sent to this Office as early as possible.
JOURNAL of HORTICULTURE OFFICE, 171, FLEET STREET, LONDON, E.C.

THE AGRICULTURAL GAZETTE,
SATURDAY, DECEMBER 12, 1874,
Contains—
A Full and Illustrated Report of
THE SMITHFIELD CLUB FAT CATTLE SHOW.
Also Reports of the Meetings of
THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND,
THE LONDON FARMERS' CLUB,
AND
THE CENTRAL CHAMBER OF AGRICULTURE.
FARM NOTES AND MEMORANDA.
ALSO—
Home Correspondence — The Garden of the Farm — The Veterinarian—The Weather, &c.
Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

HORTICULTURE.—The following Works (by THOMAS RIVERS) may be had by post at the prices quoted :—
THE ORCHARD HOUSE; or the Cultivation of Trees in Pots. Fifteenth Edition. 3*s.* 6*d.*
THE MINIATURE FRUIT GARDEN; containing Directions for Root Pruning, &c. Seventeenth Edition. 3*s.*
THE ROSE AMATEUR'S GUIDE; containing the History and Culture of Roses. Tenth Edition. 4*s.*
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

REFERENCE BOOKS
OF
UTILITY and INFORMATION.

THE CABINET LAWYER; a Popular Digest of the Laws of England. Twenty-fourth Edition. Fcp. 8vo, 9*s.*
PICTURE LOGIC, or the GRAVE made GAY; on Attempt to Popularise the Science of Reasoning. By ALFRED SWINBORNE, B.A., Queen's Coll., Oxford. With 23 Humourous Woodcut Illustrations. Crown 8vo, 5*s.*
DR ROGET'S THESAURUS of ENGLISH WORDS and PHRASES classified and arranged to facilitate the expression of Ideas and assist in Literary Composition. Crown 8vo, 10*s.* 6*d.*
MAUNDER'S TREASURY of KNOWLEDGE and LIBRARY of REFERENCE; a Popular Compendium of Universal Knowledge. Fcp. 8vo, price 6*s.*
MAUNDER'S TREASURY of GEOGRAPHY, Physical, Historical, Descriptive, and Political. Maps and Plates. Fcp. 8vo, price 6*s.*
MAUNDER'S TREASURY of NATURAL HISTORY; a Popular Dictionary of Animated Nature. With 900 Woodcuts. Fcp. 8vo, price 6*s.*
MAUNDER'S HISTORICAL TREASURY, corrected and extended by the Rev. G. W. COX, M.A. Fcp. 8vo, price 6*s.*
MAUNDER'S BIOGRAPHICAL TREASURY, with about 1,000 additional Memoirs by W. L. R. CATES. Fcp. 8vo, price 6*s.*
MAUNDER'S SCIENTIFIC and LITERARY TREASURY, with above 1,000 New Articles by J. Y. JOHNSON, Fcp. 8vo, price 6*s.*
AYRE'S TREASURY of BIBLE KNOWLEDGE, or Dictionary of Holy Scripture. Maps and Plates. Fcp. 8vo, price 6*s.*
LINDLEY and MOORE'S TREASURY of BOTANY, complete in Two PARTS, with many PLATES and WOODCUTS. Price 12*s.*
BLAINE'S ENCYCLOPÆDIA of RURAL SPORTS; Hunting, Shooting, Fishing, Racing, &c. With above 600 Woodcuts (20 from Designs by John Leech). 8vo, price 21*s.*
YOUATT on the HORSE. Revised and enlarged by W. WATSON, M.R.C.V.S. 8vo, Woodcuts, 12*s.* 6*d.*
YOUATT'S WORK on the DOG, revised and enlarged. 8vo, Woodcuts, 6*s.*
THE DOG in HEALTH and DISEASE. By STONEHENGE. With 73 Wood Engravings. Square crown 8vo, 7*s.* 6*d.*
THE GREYHOUND. By STONEHENGE. Revised Edition, with 24 Portraits of Greyhounds. Square crown 8vo, 10*s.* 6*d.*
DR. BULL'S HINTS to MOTHERS on the MANAGEMENT of their HEALTH during the PERIOD of PREGNANCY, &c. Fcp. 8vo, 5*s.*
DR. BULL on the MATERNAL MANAGEMENT of CHILDREN in HEALTH and DISEASE. Fcp. 8vo, 5*s.*
MISS ACTON'S MODERN COOKERY for PRIVATE FAMILIES, reduced to a System of Easy Practice. With 8 Plates and 150 Woodcuts. Fcp. 8vo, 6*s.*
LONDON: LONGMANS AND CO.

NOTICE to APPLICANTS.—The SITUATION as GARDENER, at Broomfield Lodge, Chelmsford, is FILLED UP.—THOS. SIMPSON, Dec. 9.

WANTED, by a Lady, as GARDENER, a steady, active, single Man, to board and lodge in her house. Must have a good character for steadiness and honesty, and thoroughly understand Kitchen Gardening, Vines, and Fruit Trees. Wages £18 a year, to be raised to £20 at the end of the first year.—A. B., Messrs. Crisp & Son, Booksellers, Lowestoft.

WANTED, a WORKING GARDENER, by the Burial Board for the Parish of St. George, Hanover Square. Wages £1 per week, with residence. A married Man, not over thirty-five years of age, required.—Applications, endorsed "Application for post of Gardener," to be sent in own handwriting, stating age and present employment, not later than January 1, 1875. By order, J. H. SMITH, Clerk to the Board.

WANTED, a Man to act as GARDENER and GROOM: North of London; one used to a little Glass preferred. Rooms over coach-house.—Apply by letter only to N. J., 16, Great Queen Street, W.C.

WANTED, as PROPAGATOR, a single Man, who has been in that capacity in a Nursery Garden, and who has a good reference for efficiency and conduct. Good wages given.—L. M. N., Post Office, Tunbridge, Kent.

WANTED, a steady MAN, with a good knowledge of Laying-out Grounds and Making Plans.—Apply to B. WHITHAM, Nurseries, Reddish, Stockport.

WANTED, near London, in a large Forcing Establishment of Fruits, &c., for the London Markets, TWO active young MEN, as Pupils for three years. Furnished lodgings and fire on the premises free.—For particulars of Premium required, and salary given, apply to G. MONRO, Fruit Salesman, Covent Garden, London, W.C.

WANTED, a MANAGER and SALESMAN. He must be thoroughly acquainted with the Retail Seed Business, and have some knowledge of the Value of General Nursery Stock, Soft-wooded Plants, and Ground Work. A good Salesman indispensable. Liberal wages given to a competent Man.—Address, by letter only, to A. HENDERSON, Sion Nursery, Thornton Heath, Surrey, S.

London Seed Trade.

WANTED, as CORRESPONDENT and TRAVELLER, a young Man, having a good knowledge of the Trade, to do the general Correspondence during the Winter, and to Travel during the Summer.—Apply, by letter only, stating amount of experience and salary required, to B. A., *Gardeners' Chronicle* Office, W.C.

Seed Trade.

WANTED, an UNDER SHOPMAN; must have some knowledge of the trade.—Apply by letter only to MINIER, NASH AND NASH, 60, Strand, W.C.

WANTED, a JUNIOR SHOPMAN for the Wholesale Seed Trade.—Apply, stating age, experience, and salary required, to B. H., *Gardeners' Chronicle* Office, W.C.

To the Seed Trade.

WANTED, a JUNIOR ASSISTANT SHOPMAN.—Apply, stating age, experience, wages required, and references to A.B.C., Messrs. Nutting & Son, 60, Barbican, London, E.C.

WANTED, as INVOICE CLERK, a young Man, in the Retail Seed Trade. Must be a quick and accurate writer. Preference given to one who could assist occasionally at the Counter.—Apply, by letter only, stating experience and salary expected, to RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

MESSRS. JACOB WRENCH AND SONS REQUIRE an INVOICE CLERK, and to Assist in the Office. Age 18 to 20.—Apply in own handwriting to 39, London Bridge, E.C.

Seed Trade.

WANTED, a SHOP PORTER.—Must be well acquainted with the business, and be thoroughly sober and industrious. Wages 30*s.* to commence with. Permanent situation.—L. M., *Gardeners' Chronicle* Office, W.C.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD).—Age 32, no family; thoroughly experienced in the profession. Good reference.—Address, with full particulars, GARDENER, Denham Rectory, Uxbridge, Bucks.

GARDENER (HEAD).—Age 39, married; has a thorough knowledge of the routine of Gardening. Eight and a half years' character.—P. B., Knockholt, near Sevenoaks, Kent.

GARDENER (HEAD).—Married, one child; understands Early and Late Forcing, Hot and Cool Orchids, Pines, &c., also Meadow-land and Stock. Good references from present and former employers.—J. ASKHAM, Joldwynds, Wotton, Dorking, Surrey.

GARDENER (HEAD).—JAMES FREEMAN, who was Gardener to the late and present Lord Derby at Knowsley for eleven years, is now open to an engagement. References permitted to late employer and Dowager Countess of Derby.—31, Green Lane, Stoneycroft, Liverpool.

GARDENER (HEAD).—Mr. WOODFORD, eighteen years at Eastwell Park, under the Earl of Winchelsea and the Duke of Abercorn, is desirous of an engagement in a large Establishment. Leaving in consequence of a change of occupier.—21, May's Buildings, St. Martin's Lane, London, W.C.

GARDENER (HEAD).—Age 36, married, one child (age 10); well up in all branches of the profession; has had upwards of twenty years' practical experience in good places—seven years as Head Gardener.—References, unexceptionable, from present and previous employers.—GARDENER, Hexton Park, Hexton, Ampthill, Beds.

GARDENER (HEAD, or SINGLE-HANDED).—Age 40, married; well versed in every department. Twenty-five years' experience, four years in last situation. Good character.—A. C., W. Franklin, Bexley Heath, Kent.

GARDENER (UNDER).—Age 22; accustomed to a Nobleman's Garden, and the Management of Pines, Stove Plants, Early and Late Vines, &c. Can produce good character from last situation.—STEPHEN KIRKHAM, Spring Fields, Newcastle, Staffordshire.

MANAGER of PLANTATIONS, &c.—Wanted, an engagement by the present Curator of an extensive Public Establishment (who is well known through reports of the various horticultural journals) to proceed abroad to any temperate climate, either as Manager of Plantations, Curator of Botanical Gardens, Plant Collector, Landscape Gardener, or Farm Manager. Advertiser holds a Certificate (advanced stage) in Botany, and will furnish testimonials to show that he is competent, practically, to carry out any of these offices with energy and skill. Advertiser has also had a thorough training and great experience in the Management of Men. Age 33.—B. L., Messrs. F. & A. Dickson & Sons, Seed Merchants and Nurserymen, Chester.

TO NURSERYMEN and SEEDSMEN.—A young Man (age 32, single) of long experience in the above business, who can produce first-class testimonials, is anxious to procure a situation, at a moderate salary, where he might have an opportunity of getting to the Nursery to benefit his health. Advertiser thoroughly understands the business, and could assist at Book-keeping.—R. CALDWELL, 28, Anavilla, Cullenswood, Dublin.

TO the SEED, BULB and PLANT TRADE.—Wanted a situation by a young MAN, who has a thorough practical knowledge of the above; well up in the Working of Dried Flowers, Bouquets, &c.—G. H., East Surrey Seed Warehouse, Croydon, Surrey.

To Market Gardeners.

FOREMAN or SALESMAN.—An experienced Man.—A. W., Post Office, Ealing.

FOREMAN (UNDER), or SOFT-WOODED PROPAGATOR, in a Glass Nursery.—Age 20; understands Market Work; quick and intelligent. Good references.—J. J., The Nurseries, Strood, Kent.

SHOPMAN (ASSISTANT).—C. E. GIBBONS, is open for an engagement as above. Well acquainted with Warehouse duties, and has a knowledge of the Nursery Trade. Reference to present employers, Messrs. Cocks Bros., Donington, near Spalding.

TRAVELLER or WAREHOUSEMAN.—Age 29; fourteen years' experience in Wholesale Seed Trade. Knows West of England, South Wales, Ireland, and Scotland. Has no objection to going abroad. First-class references.—J. S., Maze, near Lisburn, Ireland.

TO THE SEED TRADE.—A young Man, with a thorough knowledge of the Trade, and who understands Book-keeping and Accounts, is open for engagement.—A. L., *Gardeners' Chronicle* Office, W.C.

WATER MEADOW and POND MAKING, &c.—The Advertiser, an industrious single Man, with over twenty years' extensive practice in Laying-out Water Meadows, Making Ponds, Conveying Water for Machinery, or for supplying Villages, Gentlemen's Houses, &c., requires a situation as FOREMAN. References to Noblemen of high standing. High wages not an object.—J. D., Post Office, Brendon, Lynmouth, Devon.

KINAHAN'S . LL . WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.
EPPS'S COCOA.
BREAKFAST.
"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast-tables with a delicately flavoured beverage, which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us, ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame." See article in the *Civil Service Gazette.*
Made simply with boiling water or milk.
Sold in packets (in tins for abroad) labelled :—
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS, 48, Threadneedle Street, and 170, Piccadilly, W.
Works :—Euston Road, and Camden Town, London, N.W.
Makers of Epps's Glycerine Jujubes for Throat Irritation.

DINNEFORD'S FLUID MAGNESIA.
The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

DR. LOCOCK'S PULMONIC WAFERS.—CURES.—From Mr. COOPER, Chemist, Chestergate, Stockport:—"I can with pleasure add my testimony in praise of Dr. Locock's Wafers, having often perceived instances of the great good experienced from them." They instantly relieve Asthma, Consumption, Coughs, Colds, Gout, Rheumatism, and all Nervous Pains. Sold by all Druggists.

WAITE, BURNELL, HUGGINS & CO.'S SPECIALITIES.

CAMPANULA MEDIUM CALYCANTHEMA and CAMPANULA MEDIUM CALYCANTHEMA ALBA.

We have again the pleasure to offer Seed of these splendid Novelties. The blossoms individually are much larger than the old Canterbury Bell, while the calyx forms an elegant cup round the base of the bell, of the same beautiful colour as the corolla.

Per Packet, 1s. 6d.

The fact of it coming true from Seed renders it easy of access, placing it within the reach of all Amateurs and lovers of their Garden.

Per Packet, 1s. 6d.

LEAMINGTON BROCCOLI.

The only Broccoli awarded a First-class Certificate by the Royal Horticultural Society for four years.

We beg to announce that we have arranged with Mr. F. PERKINS for the whole supply of his LEAMINGTON BROCCOLI, saved from PICKED HEADS GROWN IN HIS OWN GROUNDS, which we offer in Sealed Packets only, bearing the Trade Mark.

Owing to the great demand and shyness in seeding our supply this season is very limited.

Sold only in Sealed Packets, 2s. 6d. each.

CAMPANULA MEDIUM CALYCANTHEMA.

CANTELLO'S PRIZE ONION.

The shape of the Old Reading, but double the size, very handsome, and regular in form and colour; distinct from, and superior to all we have proved of this type. Has invariably taken a first prize wherever it has been exhibited for competition.

Packets, 1s. each.

The best form of the most useful of Onions for Spring Sowing.

WESTBURY PRIZE BEAN.

This is considered by all who have grown it to be the best type of Broad Windsor Bean. Of medium height and earliness, the heaviest cropper known, and distinct in the round shape, close eye, and great thickness of the Bean. It is a beautiful pale green when fit for use (which shade it retains in the dry seed), and is very tender eating. Forty-four pods have been grown on one stem; average height, 2½ feet to 3 feet. Should have plenty of room to bring them to perfection.

Crop nearly a failure, can only be sent out this season, in pints and half-pints, for trial.

Pints, 2s. 6d.; Half-Pints, 1s. 6d.

NEW QUEEN ONION.

Remarkable for its keeping qualities and rapidity of its growth.

We beg to inform the Trade that we have procured, in conjunction with one other firm, the entire produce of this season's harvest.

Packets, 1s. 6d.

BURNELL'S ALEXANDRA WHITE COS LETTUCE.

This splendid White Cos still maintains its reputation as being the largest, crispest, and finest flavoured Lettuce grown. It does not run to seed before very late in the season, and, as it turns-in of itself, produces a very compact head without the trouble of tying.

1s. per Packet.

SPECIAL PRICE TO THE TRADE ON APPLICATION.

WAITE, BURNELL, HUGGINS & CO.,
SEED MERCHANTS, 79, SOUTHWARK STREET, LONDON, S.E.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, December 12, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 51.—Vol. II. { New Series. } SATURDAY, DECEMBER 19, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Birds and fruit-buds .. 784
Books, notices of .. 778
Botanical notes 778
Botanical trip to Mont Cenis and the Maritime Alps 774
Brazil Nuts 774
British Gardeners.—VIII. 783
Cabbages in Colorado .. 782
Cornwall, notes on plants grown in 784
Culinary notes 774
Decorations in the household (with cut) .. 772
Desmodium penduliflorum 784
Farm, the 776
Florists' flowers 778
Flower shows 784
Garden operations .. 787
Ghent, at 771
Hyde Park, condition of the trees in 781
Life bitters, Sarracenia .. 782
Limekiln heating .. 782
Lisianthus Russellianus . 782
Lueulia gratissima .. 781
Matico 784
Obituary 789
Ornithidium strumatum . 772
Oxlip, what is an .. 785
Pickerit 784
Parsnip, the 776
Pelargoniums *v.* Geraniums 785
Plants for table decoration 783
Plants, new garden .. 772
Pleurothallis macroblepharis 772
Portraits of garden plants, recently published .. 779
Primula japonica .. 784
Prize vineries 785
Royal Agricultural Society and the Potato disease, the 773
Sabal umbraculifera in the Palm stove at Edinburgh (with cut) .. 776
Salvia splendens 782
Sanitary reforms 784
Snow on short and long grass, the melting of 785
Society:—
Linnean 786
Speed, Mr. Thomas, portrait of 783
Stephanotis floribunda .. 785
Sumbul plant, the .. 781
Tobacco, sheep chewing . 782
Transplanting evergreens 784
Villa garden, the 786
Weather, the 787
Wellingtonia gigantea .. 785

Special Notice to Advertisers.

"THE GARDENERS' CHRONICLE" for December 26 will be published on Thursday, Dec. 24. All Advertisements for that Number must reach the Office by Noon, on Wednesday, Dec. 23.

Important Notice to Foreign Subscribers.

FOREIGN SUBSCRIBERS are particularly requested, when sending Post Office Orders through the Post Office, to Advise the Publisher that they have done so. (Signed)

W. RICHARDS, Publisher.

Post Office Orders should be made payable at the King Street Office, Covent Garden, London, W.C.

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE,

Including postage to the United States, is **$6.30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

Notice.

GARDENERS' CHRONICLE.—*The* VOLUME *for* JANUARY—JUNE, 1874, *is now ready; price, in cloth,* 16*s.*
W. RICHARDS, 41, Wellington Street, Covent Garden, W.C.

GRAND SPRING FLOWER SHOW, MARCH 10 and 11, 1875, in the Large Hall, Leeds Horticultural Gardens Company (Limited). Schedules on application.
JAMES BIRBECK, Secretary and Manager.
Office, 103, Hyde Park Road.

MR. LAXTON'S NEW PEAS—Unique, Dr. Hogg, Supplanter, and Connoisseur. Three First-class Certificates, Royal Horticultural Society. For descriptions, &c., see large advertisement at p. 769 of this week's *Gardeners' Chronicle.*
HURST AND SON, 6, Leadenhall Street, London, E.C.

YOUNG'S NONSUCH PEAS.—A List of Names of all Firms who have ordered a supply will shortly be advertised. For price apply to
CHARLES YOUNG, Seedsman, &c., Balham Hill, S.W.

SEED POTATOS.—All the leading kinds grown specially for seed from carefully selected stocks. Prices on application.
J. AND G. McHATTIE, Seed Merchants, Chester.

THE NEW AMERICAN POTATO, THORBURN'S EARLY PARAGON.
Combining more superior qualities in a higher degree than any of the early sorts of late introduction.
For Sale by all the leading London Seedsmen.

Seed Potatos.

T. THORNTON has a carefully selected and clean-grown stock of the above to offer, in quantities, of about twenty leading varieties, grown on sandy soil. Price per bushel or per ton on application.
Heatherside Nursery, Bagshot, Surrey.

Fifty Tall Trees for £1.

CHESTNUT, SYCAMORE, MAPLE, &c., 7 to 9 feet—for cash.
WILKIN, Tiptree, Kelvedon.

No Reasonable Offer Refused.

HORSE CHESTNUTS (1000), 5 to 6 feet. ENGLISH OAK (1000), 4 to 5 feet, all well rooted.
WILKIN, Tiptree, Kelvedon.

Large Sycamores and Poplars.

THOMAS S. WARE can offer well-grown POPLARS, of sorts, 12 to 20 feet—the Lombardy are handsome, well-weathered trees. SYCAMORE, 12 feet; also Standard LIMES. Price on application.
THOMAS S. WARE, Hale Farm Nursery, Tottenham.

BEECH, 3 feet, very fine and well rooted, 7*s.* 6*d.* per 1000.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

Christmas Trees.

SPRUCE FIRS of all sizes, from 6 to 14 feet in height. For prices apply to
THOMAS CRIPPS AND SON, Tunbridge Wells.

To the Trade.

EAST LOTHIAN INTERMEDIATE STOCK, warranted pure. Lowest price on application.
THOMAS METHVEN AND SONS, 15, Princes Street, Edinburgh.

FOR SALE, 12,000 RASPBERRY CANES, Carter's Prolific (true), at 25*s.* per 1000.
JAMES BURKIN, Cudham, near Chislehurst, Kent.

Black Currants.

WM. WOOD AND SON has a fine stock of the above to offer.
Woodlands Nursery, Maresfield, Uckfield, Sussex.

RED and BLACK CURRANTS, strong 2-yr., at low prices, to clear the ground. Price per 100 or 1000 on application.
WM. POTTEN, The Nursery, Sissinghurst, Staplehurst, Kent.

APPLE, PEAR, and WALNUT TREES for Sale; transplanted, strong, choice sorts, for Gardens or Orchards, especially Orchards. Height 5 to 11 feet, butts 2 to 8 inches round. Apply to Mr. TASWELL, Lichfield.

Fruits.—To the Trade.

THOMAS S. WARE can supply Maiden APPLES, PEARS, and CHERRIES; Standard Pears and Cherries; Dwarf-trained Pears, Apples, PLUMS, and NECTARINES. Prices, low, on application.
Hale Farm Nurseries, Tottenham, London.

COCOA-NUT FIBRE REFUSE, at this season, is invaluable to all gardeners. Reduced price, 4*d.* per bushel; 30*s.* per ton, delivered free to any Railway. Samples free.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

Hyacinths, Tulips, Crocus, &c.

The best material in which to grow the above is COCOA-NUT FIBRE REFUSE.—Price 1*s.* per bushel, or 6*d.* per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE — 3000 bushels, cheapest in the Market. Free on to rails. Price and sample on application. Tenders received for 50 and 100 bushels.
H. WRIGHT, Fibre Merchant, 4, Peterborough Terrace, King's Road, Fulham, S.W.

NURSERYMEN publishing Trade Catalogues or having anything special to offer, would oblige by communicating with
ALFRED WINFIELD, Nurseryman, Gloucester.

WANTED, Seedling LARCH, 1-yr. and 2-yr.; Seedling ALDER, 1-yr. and 2-yr.; Seedling BEECH, 1-yr. and 2-yr.; HORNBEAM, 1-yr. and 2-yr. State price per 100,000, for cash.
T. THORNTON, Heatherside Nursery, Bagshot.

WANTED, 140,000 strong QUICKS. Send sample and price as under.
For SALE, very superior stout transplanted ELMS, 15 to 20 feet; also POPLAR, 15 to 20 feet. Price on application.
C. MACLAIRN, Norfolk Nurseries, East Dereham.

WANTED, 10,000 yards of BOX EDGING. Sample and Price to
R. NEAL, Nurseryman, Wandsworth Common, S.W.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

AMATEUR'S BUNDLE of ROSES.—Twenty best kinds of Dwarf Roses, including packing, 20*s.*; twenty ditto, Standards, 30*s.* Selected by purchaser from Catalogue, excepting the new sorts of 1874.
DAVISON AND WHITTEM, White Cross, Hereford.

Roses! Roses!! Roses!!!

FORTY CHOICE PERPETUAL ROSES, strong plants, best varieties, sent to any address on receipt of Post-office Order for 21*s.*, package included, by
JAMES WALTERS, Mount Radford Nursery, Exeter, Devon.

Roses.—To the Trade.

THOMAS S. WARE can still supply strong well-rooted PLANTS in Standards, Half-standards, and Dwarfs; also Common MOSS and CLIMBERS. Price on application.
Hale Farm Nurseries, Tottenham, London.

To the Trade.

HELLEBORUS NIGER (Christmas Rose), extra fine, 8*s.* per 100, 75*s.* per 1000.
F. SANDER AND CO., Seed Growers, St. Albans.

ROSES.—Fine strong Dwarfs on Manetti, 30*s.* per 100, £12 10*s.* per 1000; Standards, 80*s.* per 100; Half-standards, 60*s.* per 100.
MAURICE YOUNG, Milford Nurseries, Godalming.

QUICKS.—Good strong Quicks, 6*s.* to 8*s.* per 1000, or £25 per 100,000; extra do., 10*s.* 6*d.* to 15*s.* per 1000, or £45 to £55 per 100,000.
MAURICE YOUNG, Milford Nurseries, Godalming.

Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S stock of ROSES, FRUIT TREES, &c., is unusually fine this season. A visit to the Nurseries would well repay intending purchasers. CATALOGUES post free.
Highgate Nurseries, London, N.

Vines.

B. S. WILLIAMS has a large and fine stock of FRUITING and PLANTING CANES, of all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, N.

E. WILSON SERPELL (late PONTEY), NURSERYMAN AND SEED MERCHANT, Plymouth.

Fruits Cultivated in the United Kingdom

A DESCRIPTIVE LIST, by LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle, free, by post, for twelve stamps.

Lilium giganteum.

FRANCIS & ARTHUR DICKSON & SONS can supply a large quantity of SEED of this superb LILY, well ripened, at a very moderate price. Trade supplied. Upton Nurseries, Chester.

GIANT LILY of the VALLEY.—Strong blooming roots, 2*s.* per dozen, 12*s.* 6*d.* per 100, package free. E. COOLING, Mile Ash Nurseries, Derby.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum Tree)—nice plants in pots, 1 to 1½ foot, 12*s.* per dozen; 1½ to 2 feet, 18*s.* per dozen.
JOHN JEFFERIES AND SONS, Royal Nurseries, Cirencester.

Poinsettias.

MESSRS. JOHN STANDISH AND CO. have a large number of the above to offer, with very fine heads, suitable for Christmas Decorations. 24*s.* to 42*s.* per dozen. Royal Nurseries, Ascot, Berks.

WHOLESALE CATALOGUE of TREES, SHRUBS, CLIMBERS, &c., free on application.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey, S.W.

VIOLETS.—LEE'S VICTORIA REGINA, very strong, 6*s.* and 9*s.* per dozen.
TO THE TRADE.—Extra choice POLYANTHUS SEED, superb strain, 5*s.* per oz. Also, LEICESTER RED CELERY, true, 1*s.* per oz. Cheaper in quantity. Postage extra.
B. R. DAVIS, Seed Warehouse, Yeovil, Somerset.

To the Seed Trade.

NUTTING AND SONS' WHOLESALE GARDEN and AGRICULTURAL SEED CATALOGUE will be published this week, and may be had on application.
Seed Warehouses, 60, Barbican, E.C.

SEAKALE, excellent roots for forcing, at 10*s.* per 100, or £4 10*s.* per 1000.
ALFRED ATWOOD, 5, Simpson Street, High Street, Battersea, S.W. Post Office Orders payable at High Street.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three, and four years old.
Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

WHITE SPANISH ONION SEED.—A large quantity of the above, best Bedfordshire seed, nett growth of 1874, now on offer. For price apply, stating quantity required, to
WOOD AND INGRAM, Seed Merchants, &c., Huntingdon.

New Roses of 1874.

E. COOLING offers nice healthy plants of the above, budded low on Manetti, from open ground, at 2s. each, 21s. per dozen, package free. Also splendid plants of older sorts, Standards, 18s., Dwarfs, 10s. to 12s. per dozen.

New CATALOGUE free.

Mile Ash Nurseries, Derby.

THE GAINSBOROUGH SEED ESTABLISHMENT.

Dixon's X L Celery—1s. 6d. per packet.

JOHN ETHERINGTON DIXON, Seed Grower and Merchant, Lord Street, Gainsborough, having grown a quantity of this, one of the finest Red Celeries extant, begs to offer it to those who are particularly fond of this vegetable. It is very crisp and delicious, and a sort that when once tried will be well appreciated, as it is very early and will stand forcing better than any other variety.

The usual discount allowed to the Trade.

On account of the short crop of this Celery early orders are requested.

J. E. DIXON, Seed Merchant, &c., Lord Street, Gainsborough.

To the Trade.

ST. ALBANS ALL HEART COS LETTUCE.—We offer Ten Guineas, in two prizes, to be competed for at the Provincial Show of the Royal Horticultural Society in 1875, for the best Collection of eight varieties of New Vegetables (seed supplied by any firm), including the above sterling novelty.

PHLOX DRUMMONDII GRANDIFLORA SPLENDENS (Benary).—This magnificent variety, introduced by Mr. Ernest Benary, of Erfurt, is by far the most brilliant of all Phlox Drummondii for the flower garden and market purposes. Coloured plates and prices on application.

Our Special Wholesale PALM SEED LIST is now ready, and may be had on application.

F. SANDER AND CO., Seed Growers, St. Albans.

HANDSOME SPECIMEN CONIFER TREES.

CUPRESSUS LAWSONIANA, 6, 7, 8, to 10 feet, very handsome.
JUNIPERUS CHINENSIS, 5, 6, to 7 feet.
PICEA LASIOCARPA, 3, 4, to 5 feet.
,, NORDMANNIANA, 4, 5, to 6 feet.
,, PINSAPO, 3 to 4 feet.
,, NOBILIS, 3 to 4 feet.
PINUS AUSTRIACA, 3, 4, 5, to 6 feet.
,, BENTHAMIANA, 3 to 4 feet.
,, CEMBRA, 3, 4, to 5 feet.
,, MACROCARPA, 3 to 4 feet.
,, SABINIANA, 3, 4, to 6 feet.
RETINOSPORAS, 3, 4, to 6 feet.
THUJOPSIS BOREALIS, 3, 4, to 6 feet.
THUJA LOBBII, 5, 6, 8, to 10 feet, splendid specimens.
,, AUREA, 1, 2, 3, to 4 feet, and as much through; superb specimens.
,, GIGANTEA, 4, 5, to 7 feet.
WELLINGTONIA GIGANTEA, 3, 4, 5, to 6 feet.

These Trees are all beautifully furnished and handsomely grown, and, having been repeatedly transplanted, can be lifted with large balls of soil. Prices on application.

Cranston's Nurseries, King's Acre, near Hereford.

Address: CRANSTON AND MAYOS.

JACKMAN'S PRICED and DESCRIPTIVE CATALOGUE, free on application.

JACKMAN'S LIST of FRUIT TREES.

JACKMAN'S LIST of ROSES.

JACKMAN'S LIST of AMERICAN PLANTS.

JACKMAN'S LIST of CONIFERS.

JACKMAN'S LIST of HARDY SHRUBS.

JACKMAN'S LIST of ORNAMENTAL and FLOWERING TREES.

JACKMAN'S LIST of CLEMATIS (Special Catalogue).

JACKMAN'S LIST of TRANSPLANTED FOREST TREES.

JACKMAN'S ASSORTMENT of TREES and SHRUBS adapted for Planting by the Sea-coast, on Chalk Soils, and in Cities and Towns.

GEORGE JACKMAN AND SON,
Woking Nursery, Surrey, S.W.

Special Notice.

GEORGE JACKMAN AND SON hold a very extensive stock of the undermentioned TRANSPLANTED TREES, and offer them at very low quotations. Where an immediate effect or screen is required these trees are most effective and useful, and suitable both in size and quality:—

MAPLES, English, Norway, Sycamore, &c., 8, 12, 15, to 20 ft.
CHESTNUTS, Common Horse and Scarlet, 6, 9, to 12 feet.
BIRCH, Common Silver, 9, 12, 15, to 20 feet.
CHESTNUT, Spanish, 8, 10, to 12 feet.
THORNS, of sorts, fine Standards and Pyramids.
POPLARS, Silver Abele, Balsam, Lombardy, and Black Italian, 9, 12, to 15 feet.
ASH, Mountain, 8, 10, to 12 feet.
OAK, English, 8, 10, to 12 feet.
ACACIA, Common, 7, 10, 12 to 15 feet.
LIME, or LINDEN, Common, 8, 10, to 12 feet.
ELMS, Scotch or Wych, superba and Siberian, 8, 12, to 15 feet.
YEWS, Common English, very fine, 1, 2, 3, 4, 5, 6, to 8 feet.
CUPRESSUS LAWSONIANA, 2, 3, 5, 6, to 8 feet.
LAURELS, Common, bushy, 1, 2, to 3 feet.
HOLLIES, Common, Green, Golden, and Silver varieties, 1, 2, 3, 5, to 8 feet.
PRIVET, Box-leaved, 1, 2, to 3 feet.

Woking Nursery, Surrey, S.W.

Standard Oaks, &c.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers several thousand well-grown transplanted Standard OAKS, from 12 to 14 feet, at 1s. 3d. each, franco Rotterdam and Harlingen.

ROSA MULTIFLORA DE LA GRIFFERAIE, stocks, 20s. per 1000.

ROSA MANETTI, stocks, 20s. per 1000.

Samples can be seen at Mr. T. S. WARE'S, Hale Farm Nurseries, Tottenham, near London.

JAMES ANDERSON, NURSERYMAN and HORTICULTURAL VALUATOR, Meadowbank, Uddingston, Glasgow, begs to announce to the public generally that he is now offering SELECTIONS of ORCHIDS, either in small or in large lots, suitable either for cool, intermediate, or warm temperatures; and that he is prepared to deal liberally with those who may entrust him with their orders.

Mr. ANDERSON'S stock of AMARYLLIS is the rarest and finest selected in the Kingdom, and he is prepared to offer them singly, in dozens, or hundreds, to suit purchasers. His stock, too, of the beautiful family of NERINE is large, and comprises some seedlings not yet in commerce.

Mr. ANDERSON is also offering SPECIMEN CAMELLIAS and AZALEAS in splendid health and full of buds, as well as a general lot of beautiful-leaved PLANTS, suitable either for indoor decoration or exhibition purposes.

Mr. ANDERSON'S stock of HARDY SHRUBS and TREES, both Deciduous and Evergreen, is a particularly choice one.

Special quotations to buyers on application.

Meadowbank Nurseries, November 11.

FRUIT TREE GARDENS and ORCHARD PLANTATIONS.

PYRAMID PEARS, handsomely grown, bearing trees on Quince stock. Upwards of 100 varieties, and all the choicest kinds: 18s. to 24s. per dozen, £5 to £10 per 100.
PYRAMID and BUSH APPLES, 15s. to 18s. per dozen, £5 to £7 per 100.
PYRAMID and BUSH PLUMS, 18s. to 30s. per dozen, £6 to £10 per 100.
PYRAMID and BUSH CHERRIES, 18s. to 24s. per dozen, £6 to £7 per 100.
STANDARD APPLES (Dessert, Culinary, and Cider), 18s. to 24s. per dozen, £7 to £10 per 100.
STANDARD PEARS (Dessert, Baking, and Perry), 18s. to 24s. per doz., £7 to £10 per 100.
STANDARD PLUMS, 18s. to 24s. per doz., £7 to £10 p. 100.
DWARF-TRAINED PEARS, PLUMS, CHERRIES, and APPLES, 30s. to 42s. per dozen.
GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, &c.

Trade prices to Nurserymen and Market Gardeners on application.

Cranston's Nurseries, King's Acre, near Hereford.
Address: CRANSTON AND MAYOS.

4000 Double-flowered Chinese Primrose.

E. G. HENDERSON AND SON can now offer of the above, strong healthy New Plants, of 1874 growth, including Atro-rosea, Blushing Beauty, Exquisite, Empress, Emperior, Lilac Queen, King of Purples, Magenta Queen, Magnifica, Mrs. Eyre Crabbe, Pearl Blossom, Princess of Wales, rubra grandiflora, &c. Twelve varieties, from 30s. to 42s. and 60s.

PRIMULA JAPONICA, mixed varieties, 9d. each, 6s. per dozen; in six colours, raised from selected varieties, 1s. 6d. each.

AUBRIETIA HENDERSONI, the finest variety in growth and colour, strong plants, 2s. each, 18s. per dozen.

DAISY, Flower of Spring, beautiful and effective, pure white, with elegant gold-blotched leaves, 1s. each, 9s. per dozen.

VIOLETS, White Czar and Victoria Regina, 1s. 6d. each.

CYCLAMEN PERSICUM (from 3000 plants), mixed colours, 9s., 12s., and 18s. per dozen; collection to name 21s. and 30s. per dozen.

IRIS KÆMPHERI, Edward George Henderson and Andrew Henderson, the most beautiful of all the Iris group.

LEUCOJUM VERNUM, the true Spring Snowflake, with fragrant, large, Snowdrop-like flowers, dwarfer in habit than other species, 1s. 6d. per dozen, 8s. per 100.

MYOSOTIS RUPICOLA, the most beautiful of Forget-me-Nots, 1s. 6d. each.

The Trade supplied on usual terms for all the above.
For full descriptions see CATALOGUE 155.

Wellington Nursery, St. John's Wood, London, N.W.

To the Trade.

ERINUS ALPINUS, for Rockwork, Edgings, Sowing on Garden Walls, Ruins, &c.—This beautiful little tufted evergreen perennial, a native of Switzerland and the South of Germany, establishes itself freely when sown in crevices of old ruins, garden walls, rockwork, &c. It produces a mass of purplish mauve bloom during the early summer months, and, if grown on previously prepared mounds of some gritty substance, such as old mortar, &c., the bloom becomes much larger and more durable. It may also be used to advantage as an evergreen permanent edging. ½ oz. packets 2s. 6d., post free.

CAMPANULA TURBINATA HYBRIDA, for Rockwork, Edgings, and small Beds.—This variety has been produced between C. carpatica and C. turbinata, of Backhouse. It is the most compact and floriferous Bellflower yet introduced. New seed, per dozen packets, 3s.; retail, each 6d.

JOSEPH B. HARTLAND, "The Old Established" General Seed Warehouse, 86, Patrick Street, Cork.

ORNAMENTAL HEDGES.

THUJA LOBBII, 4 to 5 feet, 90s. per 100; 5 to 6 feet, 100s. per 100. This tree forms a most beautiful evergreen fence.
THUJOPSIS BOREALIS, 2½ to 3 feet, 75s. per 100; 3 to 4 feet, 100s. per 100.
ENGLISH YEW, 2½ to 3 feet, 75s. per 100; do., very bushy, 3 to 3½ feet, 100s. per 100.
AMERICAN ARBOR-VITÆ, 5 to 6 feet, 50s. per 100s.; 6 to 7 feet, 60s. per 100.
LAUREL, Common, 2½ to 3 feet, 20s. per 100, £9 per 1000.
,, Portugal, 2 to 2½ feet, 50s. per 100.
PRIVET OVALIFOLIUM, 2 to 3 feet, 5s. per 100.
,, Common Evergreen, 2 to 3 feet, 30s. to 40s. per 1000.
LAURUSTINUS, transplanted last spring, bushy, 50s. per 100.
RHODODENDRON PONNICUM, 1½ to 2 feet, 60s. per 100; 2 to 2½ feet, 75s. per 100.
BOX, Broad-leaved, 1½ to 2 feet, 21s. per 100; 2 to 2½ feet, 25s. per 100.

Cranston's Nurseries, King's Acre, near Hereford.
Address: CRANSTON AND MAYOS.

FOREST TREES.

ASH, 2 to 3 feet, 30s. per 1000
BEECH, 3 to 4 feet, 40s. per 1000
BIRCH, 5 to 6 feet, 60s. per 1000
CHESTNUT, Horse, 6 to 7 feet, 20s. per 100
HAZEL, 2 to 3 feet, 30s. per 1000
POPLAR, Black, 2 to 3 feet, 35s. per 1000
,, Lombardy, 7 to 8 feet, 20s. per 100
,, Ontario, 8 to 9 feet, 35s. per 100
FIR, Scotch, 2 to 3 feet, 30s. per 1000; 5 to 6 feet, 8s. per 100
SPRUCE, 2 to 3 feet, 15s. per 100; 3½ to 4½ feet, 40s. per 100
SYCAMORE, 2 to 3 feet, 40s. per 1000; 6 to 7 feet, 12s. per 100
ARBOR-VITÆ, American, 3 to 4 feet, 20s. per 100
CEDRUS DEODARA, 2 to 3 feet, 140s. per 100
ABIES BALSAMEA, 3 to 4 feet, 30s. per 100
BERBERIS AQUIFOLIA, 1½ foot, 15s. per 100
COTONEASTER MICROPHYLLA, 15s. per 100
IVY, Irish, fine for edgings, 8s. per 100
LAUREL, 2 to 3 feet, 15s. per 100; 4 to 5 feet, 25s. per 100
,, Portugal, 1½ to 2 feet, 35s. per 100
LAURUSTINUS, 1½ to 2 feet, 45s. per 100
PICEA NORDMANNIANA, 2½ to 3 feet, £10 per 100
PINUS AUSTRIACA, 2 to 3 feet, 12s. 6d. per 100; 3 to 4 feet 25s. per 100; 4 to 5 ft., 35s. p. 100; 5 to 6 ft., 45s. p. 100
,, INSIGNIS, 3 to 4 feet, 75s. per 100
ROSES, Standard Perpetual, £6 per 100.
,, Dwarfs, £3 per 100
,, Tea, in pots, 15s. per dozen.
THUJA LOBBII, 1½ to 2 feet, 20s. per 100; 2½ to 3 feet, 35s. per 100; 4 to 4½ feet, 50s. per 100
THUJOPSIS BOREALIS, 3 to 4 feet, 90s. per 100

DAVISON AND WHITTEM, White Cross, Hereford.

Garden Seeds.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, beg to intimate that their WHOLESALE CATALOGUE is now ready, and will be forwarded Post Free on application.

Farm Seeds.

CHARLES SHARPE AND CO.'S CATALOGUE of FARM SEEDS is now ready, and will be forwarded Post Free on application.

Seed Potatos.

CHARLES SHARPE AND CO.'S SPECIAL LIST of SEED POTATOS is now ready, and will be forwarded Post Free on application.

Specialities.

PEA—Turner's Emerald,
,, Sutton's Emerald Gem,
,, Maclean's Best of All,
,, Williams' Emperor of the Marrows,
,, The Prince.
BEANS—Minster Giant Long Pod.
CABBAGE—Sharpe's Selected Nonpareil,
,, Wheeler's Cocoa Nut.
CARROT—Sharpe's Selected Altringham.
POTATOS—Sutton's Hundredfold Fluke,
,, Red-skin Flourball.
SWEDE—Sharpe's Improved Large.
MANGEL—Sharpe's Selected Large Yellow Globe,
,, Sharpe's Selected Giant Long Red.

CHARLES SHARPE AND CO. have the above to offer the Trade. Fine pure stocks. Price upon application.

CHARLES SHARPE & CO.,
SEED GROWERS AND MERCHANTS, SLEAFORD.

The Nurseries, Reddish, near Stockport.

SPECIAL OFFER to the TRADE.

B. WHITHAM begs to call attention to the subjoined LIST of TREES and SHRUBS, all fine, bushy plants, many times transplanted:—

AREA THEOPHRASTA, 4 to 6 feet, 20s. per 100; 6 to 8 feet, 30s. per 100.
ASH, Mountain, 6 to 8 feet, 12s. 6d. per 100; 8 to 10 feet, 25s. per 100.
BEECH, 3 to 4 feet, 8s. per 100; 4 to 6 feet, 16s. per 100; 6 to 8 feet, 30s. per 100; 8 to 10 feet, 50s. per 100.
CHESTNUT, Horse, 2 to 3 feet, 6s. per 100; 3 to 4 feet, 8s. per 100; 6 to 8 feet, 25s. per 100; 8 to 10 feet, 50s. per 100.
LIMES, 2 to 3 feet, 8s. per 100; 3 to 4 feet, 14s. per 100; 4 to 5 feet, 20s. per 100; 5 to 6 feet, 25s. per 100; 6 to 7 feet, 40s. per 100; 7 to 9 feet, 60s. per 100.
PINUS AUSTRIACA, 2 to 3 feet, 12s. 6d. per 100; 3 to 4 feet, 25s. per 100.
POPLAR, Lombardy, 4 to 6 feet, 8s. per 100; 6 to 8 feet, 16s. per 100.
POPLAR, Ontario, 4 to 6 feet, 8s. per 100; 6 to 8 feet, 15s. per 100.
PRIVET, 2 to 3 feet, 15s. per 1000.
ARBOR-VITÆ, American, 2 to 3 feet, 20s. per 100; 3 to 4 feet, 25s. per 100; 4 to 5 feet, 35s. per 100; 5 to 6 feet, 50s. per 100; 6 to 7 feet, 75s. per 100.
ARBOR-VITÆ LOBBII, 2 to 3 feet, 30s. per 100; 3 to 4 feet, 50s. per 100; 4 to 5 feet, 75s. per 100.
BERBERIS AQUIFOLIA, 2 to 15 inches, 5s. per 100; 12 to 18 inches, 6s. per 100; 1½ to 2 feet, 12s. 6d. per 100.
BERBERIS DARWINII, 2 to 3 feet, 40s. per 100.
DOGWOOD, strong, 4 to 5 feet, 12s. 6d. per 100.
LAUREL, Common, 4 to 6 feet, 25s. per 100.
LAUREL, Portugal, 6 to 12 inches, 10s. per 100; 12 to 18 inches, 25s. per 100; 18 to 24 inches, 40s. per 100.
RHODODENDRONS, 6 to 9 inches, very bushy, 60s. per 1000; 9 to 12 inches, 20s. per 100; 1 to 1½ foot, 25s. per 100; 1½ to 2 feet, 40s. per 100; 3½ to 4½ feet, extra strong, £10 per 100. Best named varieties, fine bushy plants, £7 10s. per 100.
YEWS, English, fine, 6 to 12 inches, 10s. per 100; 12 to 18 inches, 20s. per 100; 1½ to 2 feet, 30s. per 100; 2 to 3 feet, 60s. per 100.
YEWS, Irish, 3 to 4 feet, 18s. per dozen.
CHERRIES, extra strong, 5 to 7 feet, 12s. per dozen.
CHERRIES, Pyramids, 4 to 6 feet, 50s. per 100.
CURRANTS, Red, strong, 7s. per 100.
CURRANTS, Black, strong, 10s. per 100.
GOOSEBERRIES, best Lancashire show varieties, 20s. per 100.
STRAWBERRY, Yates' Seedling, 15s. per 1000. One of the best in cultivation, very prolific; no grower should be without this variety.

JAPAN LILIES.

Our first consignment has arrived in excellent condition, comprising :—

LILIUM AURATUM,
" EXIMIUM,
" JAPONICUM (new),
" TIGRINUM SPLENDENS (very large),
" THUNBERGIANUM WILSONI,
LILIUM THUNB. MARMORATUM,
" THUNB. flore-pleno,
" SPECIOSUM JAPONICUM and KRÆTZERI,
" KRAMERI,
CYPRIPEDIUM JAPONICUM, &c., &c.

Catalogues free on application.

THE NEW PLANT and BULB COMPANY, COLCHESTER.

NEW HYBRID BEGONIAS.

THE following NEW BEGONIAS belong to the handsome-flowered, bulbous-rooted section, and are most desirable acquisitions, as they succeed and bloom well in an ordinary Greenhouse. The Bulbs being similar to those of Gloxinias, and now dormant, can be sent by Post :—

ANACREON, deep crimson, a beautiful flower, very long petals, 7*s.* 6*d.*
BRILLIANT, very rich bright orange, a fine showy flower, 7*s.* 6*d.*
CARDINAL, magnificent variety, fine large flowers of a rich deep magenta-rose, 7*s.* 6*d.*
CAROLINE, deep rosy pink, with broad petals, 5*s.*
CLIMAX, deep rich rosy carmine, broad outer petals, 5*s.*
CORSAIR, rosy salmon, profuse bloomer, 5*s.*
ENSIGN, bright pink, a very elegant variety, 5*s.*
GEM, cream colour, the reverse of the petals pink, 5*s.*
GLITTER, vivid orange-scarlet, extremely showy, 7*s.* 6*d.*
HERMINE, bright orange-cinnamon, very distinct, 5*s.*
LOTHAIR, deep rose, a fine flower, with short broad petals, 7*s.* 6*d.*
LUCINDA, fine flowers with long petals, of a deep rose colour, 7*s.* 6*d.*
MAGNET, light pink, the reverse of the petals deep pink, 5*s.*
MAZEPPA, light cream colour, tinted with orange-pink, 5*s.*
PHYLLIS, delicate sulphur colour tinted with pink, 5*s.*
SERAPH, soft pink suffused with rose, 5*s.*
SURPRISE, bright pink, a very pretty colour, 5*s.*
TROJAN, light rosy pink, very distinct, 5*s.*

The entire Collection of the above Eighteen Varieties for Four Guineas.

Seed of the above New Begonias, separate kinds, 2*s.* 6*d.* per packet; mixed, 3*s.* 6*d.* per packet,

WILLIAM BULL, F.L.S.,
ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

MAURICE YOUNG'S NEW DESCRIPTIVE CATALOGUE

Is now ready, and may be had on application.

IT COMPRISES:—

HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

WELLINGTONIA AUREA VARIEGATA.

Planted by H.R.H. the Prince of Wales at Sandringham.
Planted by H.R.H. the Princess of Wales at Blenheim.
Planted by H.R.H. the Duke of Edinburgh at the Vice-Royal Lodge.
Planted by H.E. the Earl Spencer at Althorpe.
And by the leading Noblemen in the United Kingdom.

Splendid plants, finely rooted, 5 feet high, and covered with Golden Variegation, at £5 5*s.*; smaller, £3 3*s.*, £2 2*s.*, and £1 1*s.*

CIRCULARS, with List of Prizes taken, and Testimonials received from the leading Coniferæ Growers of Europe, can be had on application to

R. HARTLAND, The Lough Nurseries, Cork.
November 26.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

HARRISON'S "KING KOFFEE" SAVOY.

We have great pleasure in introducing this splendid new variety. It is quite distinct from any kind yet sent out, and is sure to become a general favourite. Its habit is very compact, occupying about the same space as "Suttons' Tom Thumb," and possesses very few outside leaves—being, in fact, nearly all heart. Its colour is deep glossy green; is very curly and finely crimpled. One trial will prove it to be the earliest, handsomest, and best variety for a Gentleman's garden, or Amateur's, ever introduced.

Per packet, 1*s.*

From Mr. A. CRAMB, *Head Gardener to Earl Ducie. October* 22, 1874.

"My experience of your 'King Koffee' Savoy enables me to recommend it strongly. It is certainly very distinct from any other kind. The habit is very dwarf; and the crimpled state of the foliage gives a peculiar appearance."

From Mr. F. WOODFORD, *Gardener to H. R. H. The Duke of Edinburgh, Eastwell Park, October* 20, 1874.

"It is a very superior variety. Its chief feature seems to me an almost complete absence of stem—the leaves resting on the ground; offering perfect resistance to frost."

From Mr. G. BERCH, *Gardener to the Marquis of Northampton.*

"It is now being sent to table for consumption. I consider it the best of all Savoys—being very small, compact, dwarf, and more crisp than any other. Priority will be given to 'King Koffee' when better known."

From Mr. BOGUE, *Gardener to the Earl of Verulam.*

"I have tried your 'King Koffee' Savoy, and think highly of it. It is finely curled, and very distinct from anything I have ever seen."

CELERY "Leicester Red."

Tested this year at the Royal Horticultural Society's Gardens, Chiswick, and proved to be the best of all Red Celeries. An immense number of Testimonials were received to the same effect last season.

Packets, 1*s.*

From Col. CHARLTON, *Braddon, Isle of Man, Feb.* 9, 1874.

"Your Celery, 'Leicester Red,' I have never tasted any to compare to it."

From Mr. A. F. BARRON, *Royal Horticultural Society's Gardens.*

"'Leicester Red' is the best Red Celery."

SPECIAL TERMS TO THE TRADE.

HARRISON & SONS,
SEED GROWERS, LEICESTER.

Vines, Vines, Vines.

VINES.—Fruiting and Planting Canes, strong, well-ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2*s.* 6*d.* to 5*s.* each; a few extra strong canes, 6*s.* 6*d.*

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

COTTINGHAM POMOLOGICAL NURSERIES (Established 1788).

SPECIAL OFFER.

ARBOR-VITÆ, American, 4 to 5 feet, 40*s.* per 100; 5 to 6 feet, 50*s.* per 100.
" LIBOCEDRUS DECURRENS, 1½ to 2 feet, 18*s.* per dozen; 2 to 2½ feet, 20*s.* per dozen; 2½ to 3 feet, 25*s.* per dozen; 3 to 4 feet, 30*s.* per dozen.
" gold variegated Chinese, 1½ to 2 feet, 24*s.* per dozen.
" ELEGANTISSIMA, 1 to 1½ foot, 24*s.* per dozen.
" SEMPER AUREA, 9 to 12 inches, 18*s.* per dozen.
THUJOPSIS BOREALIS, 2 to 3 feet, 18*s.* per dozen.
" " VARIEGATA, 1 to 1½ foot, 24*s.* per dozen.
CEDRUS AFRICANA, 3 to 5 feet, 12*s.* per dozen.
CUPRESSUS LAWSONIANA AUREA VARIEGATA, 1 to 1½ foot, 24*s.* per dozen.
JUNIPERUS SINENSIS, 3 to 4 feet, 12*s.* per dozen.
" VIRGINIANA, 3 to 4 feet, 6*s.* per dozen.
" DRUPACEA, 1½ to 2 feet, 30*s.* per dozen.
PINUS CEMBRA, 3 to 4 feet, 18*s.* per dozen.
YEWS, English, 2 to 3 feet, 60*s.* per 100.
" Irish, 3 to 4 feet, 12*s.* per dozen, 80*s.* per 100.
IVY, gold Tree, 9 to 12 inches, 12*s.* per dozen.
LAUREL, common, 1 to 1½ foot, 6*s.* per 100; 1½ to 2 feet, 8*s.* per 100; 2 to 3 feet, 12*s.* per 100.
" caucasica, 1 to 1½ foot, 16*s.* per 100; 1½ to 2 feet, 20*s.* per 100.
" Colchic, 1 to 1½ ft., 10*s.* per 100; 1½ to 2 ft., 12*s.* p. 100.
LIGUSTRUM SINENSIS, 3 to 4 feet, 30*s.* per 100.
" JAPONICUM, 1½ to 2 feet, 50*s.* per 100.
PRIVET, Evergreen, fine, 3 feet, 30*s.* per 1000.
FIR, Austrian, 2 to 3 feet, 40*s.* p. 1000; 3 to 4 feet, 30*s.* p. 1000.
QUICK, or THORNS, ex. ex., 20*s.* per 1000.
BEECH, 2 to 3 feet, 25*s.* per 1000
OAK, English, 5 to 7 feet, 40*s.* per 100.
SYCAMORE, 6 to 8 feet, 20*s.* per 100.
BEECH, Purple, 5 to 7 feet, 75*s.* per 100.
LABURNUMS, 6 to 8 feet, 20*s.* per 100.
WILLOWS, American Weeping, fine, 12*s.* per dozen.
ACER NEGUNDO VARIEGATA, 1½ to 2 feet, 50*s.* per 100.
BOX, Tree, 2 to 2½ feet, 25*s.* per 100.
DEUTZIA SCABER, 3 to 4 feet, 30*s.* per 100.
SNOW BERRY, 3 to 4 feet, 10*s.* per 100.
ROSES, Climbing, 4 to 6 feet, 40*s.* per 100.
PEARS, Standard, 12*s.* per dozen, 75*s.* per 100.
PLUMS, Standard, fine, 15*s.* per dozen, 100*s.* per 100.
POTATOS:—Myatt's, £8 per ton; Rivers' Ashtop, £8 per ton; Veitch's Kidney, £10 per ton; Beech House Prolific, best round Potato grown, £10 per ton; Mona's Pride Kidney, £16 per ton.

N.B.—Their NURSERY and SEED CATALOGUES may be had on application.

Martin & Son

Seed Growers, Merchants, and Nurserymen, Cottingham, and 61, Market Place, Hull.

KNIGHT'S NEW PEA,

DUKE of CONNAUGHT.

This is a really useful new Pea, of a branching habit, about 3 feet high, and very prolific—well adapted for second and general crops; also for late sowing, as it is never affected by mildew. It is a fine exhibition and market Pea.

Quarts, 5*s.*; *Pints*, 2*s.* 6*d.*

THE OXONIAN PRIZE ONION.

A very superior white Onion, growing to an immense size, quite surpassing the white Spanish, both in mildness of flavour and quality of bulb. Ripens early. Has obtained 1st prize wherever exhibited.

Per Packet, 1*s.*

NUTTING & SONS,
Seed Warehouses, 60, Barbican, London, E.C.

PLANTING SEASON.

RHODODENDRONS

WILL BE SUPPLIED,

In Fifty of the most Popular and finest known Hardy Kinds,

Sturdy, Bushy Plants, 1½ to 2 feet high, at

£10 per 100,

Carriage Free to any Railway Station in England.

Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.

A Descriptive Catalogue free on application to

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

BEAUTIFUL NEW MASDEVALLIA and ONCIDIUM,

Both Offered for the First Time.

Established Plants of ODONTOGLOSSUM ALEXANDRÆ, ROEZLII, MAXILLARE, and VEXILLARIUM; Good Plants of CATTLEYA GIGAS and DOWIANA, SOPHRONITES GRANDIFLORA, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 21, at half-past 12 o'Clock precisely, by order of Messrs. Veitch & Sons, of Chelsea, a splendid NEW MASDEVALLIA—M. DAVISII. This species has been named and described by Professor Reichenbach as coming near the M. Veitchiana and Harryana section; the flowers are about the size of those of M. Harryana, and of a bright orange. Dried flowers will be exhibited at the Sale, and the Plants are in excellent condition. Also a very distinct and fine ONCIDIUM named AUREUM. See dried specimens. The ODONTOGLOSSUM ALEXANDRÆ are Established Plants, and from the same importation which produced the fine O. Andersonianum and other beautiful varieties, and the other Plants offered are all in good health.

On view the morning of Sale, and Catalogues had.

NEW CATALOGUES for 1874.

A Descriptive CATALOGUE of ROSES.
A Descriptive CATALOGUE of FRUITS.
A Descriptive CATALOGUE of BULBS.
A General CATALOGUE of GENERAL NURSERY STOCK. Address
WM. WOOD AND SON, The Nurseries, Maresfield, near Uckfield, Sussex.

Eltham Nursery, Kent, S.E.
One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.
THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c.
Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum).—SEEDS of the Blue Gum, and other Tasmanian and Australian Forest Trees and Shrubs, can be obtained of
C. F. CRESWELL, Wholesale and Retail Seed Merchant, Hobart Town, Tasmania; or at his Branch Establishments, 478, George Street, Sydney, New South Wales; and 37, Swanton Street, Melbourne, Victoria.
Price LISTS sent gratis to any part of the World on application.

Bouvardias—Vreelandii, jasminiflora, &c.
MESSRS. JOHN STANDISH AND CO.'S Stock of the above beautiful Winter-flowering Plant is exceptionally fine this season. 15s. to 18s. per dozen, fine plants.
They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24s. to 36s. per dozen.
Royal Nurseries, Ascot, Berks.

Pelargoniums.
D. S. THOMSON begs to offer strong healthy plants of Show, Spotted, and Fancy PELARGONIUMS, in 60 pots, distinct varieties, at 4s. per dozen.
A fine stock of WINTER BLOOMING PLANTS, comprising Ericas, Camellias, Azaleas, Cytisus racemosus, Epiphyllums, Bouvardias, Poinsettias, Cinerarias, Cyclamen, single and double Primulas, Solanums (well set with berries), &c.
A large stock of CROTONS, beautifully coloured.
The Nurseries, Wimbledon, S.W.

New Grape.—Venn's Black Muscat.
W. DODDS, having sold all his strongest plants of the above splendid GRAPE, begs to thank his friends who have ordered it, and to inform those who have not that he has a few well-ripened Canes, which he can offer at 31s. 6d. and 25s. each, delivered to order on receipt of Cheque or Post-office Order on Bristol, payable to
WILLIAM DODDS, Gladstone Villa, Bishopston, Bristol.

STRONG FOREST TREES.

LARCH, 2 to 3, and 2½ to 3½ feet.
SCOTCH, 2 to 2½, 2½ to 3, and 3 to 3½ feet.
SPRUCE, 2 to 2½, 2½ to 3, and 3 to 4 feet.
OAKS, English, 3 to 4, 4 to 5, and 5 to 6 feet.
The above, with other sorts, are all strong and good, and there is a considerable quantity of each size on offer. Apply to JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

Extra Fine Transplanted Pinus austriaca.
WILLIAM WOOD AND SON have to offer—
PINUS AUSTRIACA, transplanted, 1½ to 2 feet, 20s. per 100; 2 to 3 feet, 30s. per 100.
" " quartered, and three times transplanted, 3 to 4 feet, 75s. per 100; 4 to 5 feet, 100s. to 150s. per 100.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

Rhododendrons.
HENRY FARNSWORTH, Matlock Bank, Derbyshire, has to offer a fine stock of the following sizes, and at a very reasonable rate:—
3-yr. Seedling (fine).
3-yr. Seedling and 2-yr. transplanted.
3-yr. Seedling and 3-yr. transplanted.
4 to 8 inches, very bushy.
For prices and samples apply as above.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

ELMS, LIMES, and CHESTNUTS, well-rooted and fine straight stems.
ELM, English, 6 to 8 feet, 60s. per 100; 8 to 10 feet, 100s. per 100; 10 to 12 feet, 18s. per dozen; 12 to 14 feet, 30s. per dozen.
ELM, Chichester, 6 to 8 feet, 50s. per 100; 8 to 10 feet, 75s. per 100: 10 to 12 feet, 18s. per dozen.
CHESTNUT, Horse, 6 to 7 feet, 75s. per 100; 10 to 12 feet, 120s. per 100.
LIMES, 5 to 6 feet, 60s. per 100; 6 to 8 feet, 90s. per 100; 8 to 10 feet, 15s. per dozen; 10 to 12 feet, 24s. per doz.
JNO. JEFFERIES AND SONS, Royal Nurseries, Cirencester.

SPECIAL OFFER
To the Trade Only.

		s.	d.
RASPBERRIES, Red Antwerp ..	per 1000	30	0
LAURUSTINUS, in pots, very bushy	per 100	25	0
CHESTNUT, Horse, 9 to 10 feet ..	.. ..	35	0
ASH, Mountain, 5 to 6 feet	per 1000	30	0
THORN ACACIA, 6 feet	per 100	18	0
LABURNUM, English, 6 feet	.. ..	20	0
LILACS, very bushy	.. ..	12	0
RIBES SANGUINEA, very bushy ..	.. ..	12	0
MOSS ROSES, very bushy	.. ..	21	0
AUCUBA JAPONICA, very bushy ..	.. ..	30	0
BOX, Handsworth, 2 feet	.. ..	20	0
PRIVET, ovalifolia, 2 feet	.. ..	5	0
VIRGINIAN CREEPERS	.. ..	10	0
DIELYTRA SPECTABILIS, extra	.. ..	25	0
SPIRÆA FILAPENDULA PLENA	.. ..	18	0
DICKSONIA ANTARCTICA, extra	.. ..	84	0

WILLIAM RUSHFORTH, Seed Merchant and Nurseryman—Nurseries, Woodhouse Hill, Hunslet; Seed Establishment, 44, Vicar Lane, Leeds.

MONRO'S
DUKE OF EDINBURGH CUCUMBER.

First-Class Certificate, Royal Horticultural Society, 1873.

For Photograph of House and Certificates see "Gardeners' Chronicle," October 31, 1874.

TO THE TRADE ONLY.

SEEDS OF THE ABOVE CUCUMBER
will be sent out to the Trade by
J. MONRO himself.

Orders sent off same day as received till Stock is exhausted, Carriage paid.

Post Office Orders at Potter's Bar, N.

Price per 100 Seeds, £1; 500, £4 10s.; 1000, £9.

PRIZES OFFERED.

To Show that the above Cucumber is all that it is represented to be, J. MONRO will,

AT THE

Great Provincial Exhibition

OF THE

ROYAL HORTICULTURAL SOCIETY,

IN 1875,

GIVE THE FOLLOWING PRIZES:—

£3 for the best brace; £2 for the second best; and £1 for the third.

ALSO, AT THE

Great International Exhibition at Edinburgh, 1875,

£3 for the best brace; £2 for the second best; and £1 for the third.

LIST of FIRMS PURCHASING SEED will be Published in the last Number of the *Gardeners' Chronicle* for 1874.

Electros of large block (see *Gardeners' Chronicle* for October 31, *p.* 545), 9s. each, must be ordered one week before wanted, as first stock is exhausted.

J. MONRO, POTTER'S BAR, N.

MR. LAXTON'S NEW PEAS FOR 1875.

HURST & SON

Have pleasure in offering the following four varieties of MR. LAXTON'S NEW PEAS, all of which have been selected for their high quality, flavour and distinctness, three of them having received First-class Certificates from the Royal Horticultural Society after the great Chiswick trial in 1872:—

UNIQUE.

This is a very handsome and prolific Dwarf Early Pea, with long, deep-green coloured pods, of the same habit and coming into use at the same time as Little Gem, and may be briefly described as a Dwarf William the First. Received a First-class Certificate.

Price 7s. 6d. per sealed quarter-pint packet.

DR. HOGG.

"A very handsome Pea. The earliest green wrinkled Marrow, very sweet and of excellent quality, pods being very well filled and of a beautiful deep green colour like the Ne Plus Ultra."—*Vide Proceedings of the Royal Horticultural Society for* 1872.

"No higher recommendation could be given to it than to introduce it as a competitor of Ne Plus Ultra." "To sum up the whole it is a fine Ne Plus Ultra, coming in one week after Dillestone's."—*Hogg's Gardener's Year Book for* 1873.

Height 3 feet, habit and type of Sangster's No. 1. Awarded a First-class Certificate and received its name at the instance of the Fruit Committee of the Royal Horticultural Society.

Price 7s. 6d. per sealed quarter-pint packet.

SUPPLANTER.

"A cross between Veitch's Perfection and Little Gem—the earliest of the Veitch's Perfection type; plant very robust and vigorous, producing very large broad pods in pairs. A large, handsome, and very prolific Pea, which received a First-Class Certificate."—*Proceedings of the Royal Horticultural Society for* 1872.

"Appropriately named, for it is a large, handsome, and very prolific Pea, and will take the place of many others."—*Hogg's Year Book*, 1873.

This Pea is of fine quality, and is also first-rate for exhibition, having been shown by Mr. R. Gilbert during the past season, in three of his Prize Collections of Peas. Height 3 feet.

Price 5s. per sealed quarter-pint packet.

CONNOISSEUR.

A remarkably distinct and very late wrinkled, bright green seeded Pea, raised from Ne Plus Ultra, pronounced by the Royal Horticultural Society to be of very excellent quality. Height 6 feet.

Price 5s. per sealed quarter-pint packet.

HURST AND SON can also supply:

FILLBASKET.—Unquestionably the most prolific and best Market Pea yet introduced. First-class Certificate Royal Horticultural Society.

Price 2s. 6d. per sealed half-pint packet.

LAXTON'S No. 1.—The earliest blue wrinkled Marrow.

Price 2s. 6d. per sealed half-pint packet.

☞ *£10 will be offered in Four Prizes at the Royal Horticultural Society's Show on July 7 next, for Six Varieties of Mr. Laxton's New Peas sent out by us in* 1872, 1873, *and* 1874, 50 *pods of each. These Prizes will also be repeated at the Society's Provincial Exhibition in* 1875.

UNIQUE (Dwarf).—First-class Certificate.

DR. HOGG.—First-class Certificate.

SUPPLANTER.—First-class Certificate.

HURST & SON, 6, LEADENHALL STREET, LONDON, E.C.

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS and CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.
Wandsworth Common Nursery, Surrey, S.W.
The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, **Chester.**

PEACHES and NECTARINES, in pots, for Forcing; strong pyramids and bushes, in fine fruiting condition.
ROSES (a choice selection) for Forcing or Greenhouse, strong plants, in 6 and 8-inch pots.
STANDARD ROSES, very fine.
Descriptive CATALOGUES sent post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.—(Great Eastern Railway.)

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.
PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.
All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.
POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

PLANTING SEASON.

LARCH, SCOTCH FIR, ENGLISH OAK, and all other Forest Trees.
QUICK, and all other Hedge Plants.
COVERT PLANTS in great variety.
FRUIT TREES, including all the best and most esteemed varieties—quarter of a million trees.
ROSES, Standards, Dwarfs, the newest and best varieties—100,000 to select from.
VINES, all the leading varieties in 2000 well ripened canes for fruiting in pots and for planting out.
EVERGREENS in great variety, including large quantities of all the choicest Hollies, &c.
CONIFERS, including Picea Nordmanniana, &c.
ORNAMENTAL TREES and Plants of all sorts.
*** The whole in very great quantity and stout vigorous condition, with fine roots for safe removal.
Priced LIST and all particulars on application.
JAMES DICKSON & SONS, Newton Nurseries, **Chester.**
☞ The "Newton" Nurseries are within eight minutes' walk, by the new road, from the Chester Railway Station.

Lilies.

MR. WILLIAM BULL, being the largest Importer of LILIES direct from their native habitats, can offer them on special terms by the 100 or 1000 for planting in large groups.
LILIUM AURATUM, small sound English-grown bulbs, 18s. and 24s. per dozen; fine bulbs, on arrival of the annual importations from Japan, 30s. and 42s. per dozen.
" AURATUM RUBRO-VITTATUM, the most handsome of the "auratum" group, 15s., 21s., and 31s. 6d. each.
" BLOOMERIANUM OSCELLATUM (Kellogg), new; first time imported from Santa Rosa Island. Mr. W. B. has imported all and the only bulbs of this Lily that could be found in the Island. 42s. and 63s. each.
" BROWNII, 10s. 6d. each.
" CALIFORNICUM, 5s., 7s. 6d., and 10s. 6d. each.
" CALLOSUM, very rare, 7s. 6d. each.
" CANADENSE RUBRUM, very rare, 5s. and 7s. 6d. each.
" DALMATICUM, exceedingly handsome, 10s. 6d. each.
" HUMBOLDTII, 5s., 7s. 6d., and 10s. 6d. each.
" " PUNCTATUM, 5s., 7s. 6d., and 10s. 6d. each.
" KAMTSCHATCENSE, the Black Lily, 3s. 6d. each.
" MONADELPHUM, one of the most handsome of Lilies, 3s. 6d. each.
" PARDALINUM, 5s., 7s. 6d., and 10s. 6d. each.
" PARVUM, 7s. 6d. each.
" PULCHELLUM, 5s. and 7s. 6d. each.
" ROSEUM, 2s. 6d. and 3s. 6d. each.
" SPECIOSUM ATRO-SANGUINEUM, the most handsome of the whole section; 7s. 6d. each.
" SPECIOSUM KRŒTZERI, flowers of snowy whiteness and symmetrical form, 5s. and 7s. 6d. each.
" TENUIFOLIUM, 3s. 6d. each.
" THUNBERGIANUM SPLENDENS, one of the best of the Thunbergianum group, 3s. 6d. and 5s. each.
" TIGRINUM FLORE-PLENO, the most handsome of the double-flowering Lilies, 5s., 7s. 6d., and 10s. 6d. each.
" TIGRINUM SPLENDENS, 3s. 6d. and 5s. each.
" WASHINGTONIANUM, 3s. 6d., 5s., and 7s. 6d. each.
" WASHINGTONIANUM PURPUREUM.—This Lily is well figured in *Florist* for November; no more of it can be found in its native habitat. 7s. 6d. and 10s. 6d. each.

The above are a few choice Lilies, of which Mr. B. holds a large stock.

GOOD and VARIED SELECTIONS of LILIES made, at 12s., 18s., 30s., and 42s. per dozen.

Where the selection is left to Mr. W. B. the Catalogue Prices are not strictly adhered to, the Purchaser being given a considerable advantage.

MR. WILLIAM BULL'S Annual Importations from California of CALOCHORTUS of sorts, CYCLOBOTHRAS, BLOOMERIA, and BRODIÆAS, have now been received.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

GARDENERS' CHRONICLE SHEET ALMANAC.

The Gardeners' Chronicle Illustrated Sheet Almanac for 1875 (an entirely new and original design) *will be issued (gratis) with "The Gardeners' Chronicle" for Jan.* 2, 1875.

The Almanac may be had separately, mounted on rollers, price 6d., post free.

PUBLISHED BY W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.

AMARANTHUS HENDERI.

PATRONISED BY H.R.H. THE PRINCE OF WALES.

FORTY-EIGHT of these were the only Plants used for the decoration of the *déjeûner* given to H.R.H. the Prince of Wales on his recent visit to Plymouth, on the occasion of opening the New Guildhall. It also decorated the luncheon given to H.R.H. by A. ROOKER, Esq., the Right Worshipful Mayor of Plymouth, and was greatly admired by H.R.H. The first packet of Seed was sent for H.R.H.'s acceptance. H.R.H. the Prince of Wales, in reply through his private secretary, "conveys to Messrs. Hender & Son his best thanks for the packet of choice seed (Amaranthus Henderi), and also assures them how greatly the Prince appreciates their attention."

"A striking feature of the *déjeûner* was the fifty splendid plants of Amaranthus Henderi, where it was conclusively established to stand in the first rank of plants for table decoration."—*Western Morning News.*

"Amaranthus Henderi stands apart from all the high-coloured Amaranthus in cultivation, and is superior to them all. The stem and branches are of a rich port-wine colour. The prevailing colour of the leaves is intense rosy-carmine; from this central tone the colours vary to orange with carmine stripes, gold, yellow, purple, bronze, ruby-red or claret colour, and have the richness of stained glass when seen against the sun; the leaves all bending gracefully, so as to show over the whole exterior of the plant a rich rippling of its several colours. Outline elegantly pyramidal. It is reasonable to expect that this sumptuous plant will quite supersede Amaranthus salicifolius." SHIRLEY HIBBERD, Esq., F.R.H.S.

"It stands in the first rank of plants for table decoration. It grows from 2 to 4 feet high, with thirty or forty side shoots, forming perfect pyramids."—*The Garden.*

"Presenting great beauty and diversity of colour. Habit, good. When used for table decoration, the contrast against the white tablecloth cannot fail to be effective."—*Journal of Horticulture.*

"Amaranthus Henderi is a handsome plant, well worth growing."—*Gardeners' Chronicle.*

"It will be a splendid thing for table decoration."—W. PATTERSON, Gr. to Her Majesty the Queen, Balmoral.

"I like your Amaranthus Henderi very much."—J. PENNY, Gr. to H.R.H. the Prince of Wales, Sandringham.

"One of the most splendid plants in cultivation, and should be grown by all lovers of the beautiful. It is a gem of the vegetable kingdom."—E. CORNELIUS, Gr. to the Duke of Bedford, Endsleigh.

"The beauty of the leaves and graceful habit of the plant is all that can be desired, being furnished with leaves and shoots from the bottom to the top of the plant."—W. J. VEITCH.

Highly Commended by the Royal Horticultural Society, and First-class Certificate Western Horticultural Society. Testimonials and Engraving of Plant will be sent, Post Free, on application.

Packets, 2s. 6d. each, sealed with the Raisers' Name—Hender & Son.

W. HENDER & SON, BEDFORD NURSERY, PLYMOUTH.

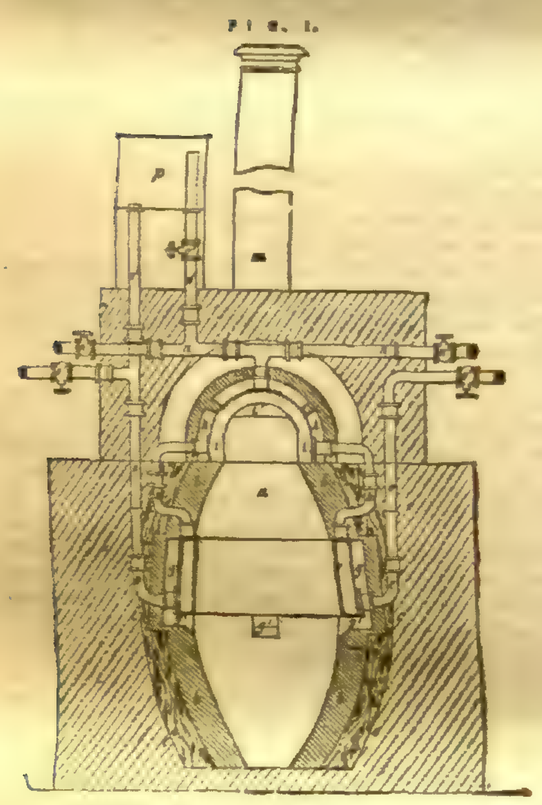
THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company, having purchased from the Dromore Patent Heating Company Mr. Cowan's valuable Patents for the United Kingdom, is now prepared to undertake the Erection of Apparatus on that System in all parts of the Country.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

THE SUCCESS OF EVERY APPARATUS ERECTED BY THE COMPANY IS GUARANTEED.



Full Particulars of this System, Testimonials, and Opinions of the Press, can be seen in the Company's Illustrated Pamphlet, which can be obtained, post free, on application.

The Company has an Efficient Staff of Engineers, and sends at any time to inspect places where the idea is entertained of Erecting the Apparatus.

The System has lately been adopted at Hazelwood, Herts, the seat of Lord Rokeby; Stackpole Court, the seat of the Earl of Cawdor; Ripley Castle, Yorkshire, the seat of Sir H. D. Inglby, Bart.; Langleybury House, Herts, the seat of Jones Lloyds, Esq.; and at many other places. Also Mr. E. Bennett, of Hatfield, says:—

"I now most cordially beg to congratulate you on the glorious success of your Heating Apparatus (now in use at Hatfield), which is working most satisfactorily, and which has exceeded my expectations. It is a decided success, and more cannot be said in its favour. Should it continue to work in the manner it now does, it will prove a great boon here, and start a new era in the heating of horticultural buildings generally. By your Compensating System we have for every barrow of coals thrown into the kiln some substantial return; by the old system the returns were ashes, and the trouble of clearing them away. I find our chalk is of an inferior quality to some I have seen in the neighbourhood, but we have plenty of heat."

The Company also undertakes the Erection of all other kinds of Heating Apparatus, and of Horticultural Buildings.

PLANS AND ESTIMATES FURNISHED ON APPLICATION.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

Office: 4, LOTHBURY, BANK, LONDON, E.C.

THE MOST IMPORTANT PRIZE

OFFERED TO

GARDENERS, GENTLEMEN, AMATEURS, and OTHERS,

During the year 1875, is

THE CARTER CUP,

VALUE FIFTY GUINEAS,

Which is to become the absolute Property of the Winner, and will be awarded at the *Provincial Show of the Royal Horticultural Society, under the following Conditions :—*

FIRST PRIZE—The "CARTER CUP," Value FIFTY GUINEAS, to become the absolute property of the Employer to whom the Prize may be awarded, also Ten Guineas for the Gardener.

SECOND PRIZE—Seven Guineas.

THIRD PRIZE—Five Guineas.

FOURTH PRIZE—Three Guineas.

FOR THE

Best Collection of Vegetables, 24 Dishes,

TO INCLUDE

½ peck Carter's Early Premium Gem Pea.
½ ,, James' Prolific Pea.
½ ,, G. F. Wilson Pea.
½ ,, Hardy's Pedigree Windsor Bean.
½ ,, Carter's White Advancer French Bean.
½ ,, Carter's Champion Runner Beans.
½ ,, Blue Peter Pea.
½ ,, Carter's Commander-in-Chief Pea.
½ ,, Carter's New Mammoth Long Pod Bean.
*Carter's New Fern-leaved Parsley, and Little Heath Melon.

* Owing to the difficulty that would be experienced in getting this Parsley to perfection in time for the show any other good curled variety would be eligible.

Conditions, &c.—All vegetables to be grown by *bonâ fide* Gentlemen's Gardeners or Gentlemen Amateurs, and in the open ground, excepting Cucumbers and Melons. The following to comprise dishes :—Of Peas, half peck (unless otherwise stated); Onions, 12 ; Melons or Cucumbers, 1 brace ; Beet, 3 ; Potatos, 18 ; Cauliflower, 2 ; Parsnips, 6 ; Celery, 3 ; Broad Beans, 18 pods ; French Beans, 24 pods.

Many valuable prizes will also be offered at the London Shows of the Royal Horticultural Society during the year by JAMES CARTER AND CO.

Pretty Flowers in Winter and Spring.

Carter's Popular Guinea Collection of Bulbs

For the OPEN GROUND, contains :—

12 Named Hyacinths, distinct
12 Mixed Hyacinths
6 Polyanthus Narcissus
12 Double White Narcissus
12 Narcissus Poeticus
25 Extra Fine Double Tulips
25 Extra Fine Single Tulips
50 Yellow Crocus
50 White Crocus
50 Blue Crocus
50 Striped Crocus
12 Star of Bethlehem
12 Extra Fine Spanish Iris
50 Winter Aconites
25 Extra Fine Persian Ranunculus
25 Extra Fine Anemones
12 Extra Fine Fritillarias, mixed
12 Blue Scillas

PACKING AND CARRIAGE FREE.

OTHER COLLECTIONS, price 10s. 6d., 42s., 63s., and 84s. 20s. value carriage free.

We allow a Discount of 5 per Cent.

CARTER'S,

The Royal Seedsmen, High Holborn, London, W.C.

SATURDAY, DECEMBER 19, 1874.

AT GHENT.

(*Continued from p.* 740.)

BEFORE taking leave of the Messieurs Gazelle, the great courtesy and obliging reception met with from them and all the other horticulturists of Ghent, whether major or minor, must not be passed over without thankful acknowledgment. The smaller growers are simple, friendly, and frank in their manners, making no pretensions to be greater than they are, and instead of giving themselves professional or social airs, doing their work in rough working costume, and protecting their feet from the damps of the soil by those excellent non-conductors, wooden shoes ; which their wives also do not disdain to wear upon occasion. They manifest no wish to keep secret, processes which many people might endeavour to conceal. Such details of their art as can be conveyed by telling and showing, they seem perfectly willing to communicate. The real secret of success lies, in fact, not in knowing the way in which a thing is done, but in the practical skill, the perfect manipulation, and the completed experience, acquired by doing it long and frequently. The visitor desirous of seeing how Camellias or Azaleas are propagated ; how long they, or other cuttings or grafts are kept *étouffées*, stifled close under double, sometimes triple glass ; the mixture of soils, and their renewal, in these hard-cropped, circumscribed nurseries ; the practice of cross-fertilisation by which, for instance, herbaceous Calceolarias maintain their parti-coloured flowers—such knowledge as this, and more, the visitor to Ghent can acquire without difficulty, through the amiable desire of its horticulturists to oblige inquiring strangers. Of course they must see that the inquirer takes a real interest in the matter, and knows something about it, and is not a mere idle lounger, or questioner for questioning's sake. Pretty things and nice specimens are often to be found up amongst them. Their prices, too, are moderate, as most of the trade are well aware ; and, like other weak creatures here below, they have no objection to ready money. Probably, they may often act as propagators and providers to the horticultural grandees of the place ; but about those business matters a casual visitor has no right to be too inquisitive. They do not really concern him. Enough for him if he be received, as we have always been, with an affable and ready welcome.

Through M. Gazelle's back-garden gate we step into grounds occupied by Monsieur F. Vandriessche-Leys — which combination of proper names means that Mr. Vandriessche married Miss Leys. Here we have a different culture, with a different object. The plants are anything but show plants, being stuck about the houses anyhow, run up o' legs, grown into shapeless masses — *vide* the double scarlet Pelargoniums, in boxes, like ill-pruned Gooseberry bushes — some even shoved away into inner darkness, but all in as flowering trim as may be. M. Vandriessche shares with M. Gazelle the cellars of the Military Hospital ; the most dungeon-like of these are temporarily converted into beds of Chrysanthemums, to make the poor flowers turn as pale as possible, in spite of which imprisonment they keep fresh a couple of months. The truth is, M. Vandriessche grows plants, to sell, not them, but their blooms as bouquets, which are his grand speciality, appending to them *jardinières*, dinner-table garnitures, and other forms of floral decoration. He has won so many prizes for bouquets and so forth that his walls are hung with medals, framed and glazed, the bouquets having gained 114 of those rewards, the "so forth" the rest. Last year he sold 14,000 francs' (or £660) worth of bouquets, dispersing them, like the picture on the Mulready envelope, to sundry points of the civilised world (Vendome, Orleans, Mayence, Coblentz) —some east, some west, and others whose exact point on the compass would be hard to indicate. The above-mentioned sum is easy to reach when bouquets are sent off at 200 francs a-piece. Nay, there is a rumour that certain brides refuse to be married without a Vandriessche-Leys bouquet. If they would hold out in their resolution I cannot tell. Those who want one must apply, not to the back gate, by which we gained admittance, but to No. 87, Rue d'Akkergem. We were shown a handsome specimen, just finished off : nothing but a centre of Orange flower buds (end of October), with an outer border of their natural foliage, the whole trimmed, not too staringly, with white satin and real lace. In our surprise we forgot to ask the price, as well as the name of the fair *destinataire*. The circular box was ready to receive it, and to prevent all evaporation on the way. No doubt she got it, still laden with its overpowering fragrance. By this time her honeymoon is over, which does not imply that she is not happy still, or has cause to repent of having, as the vulgar say, tied a knot with her tongue which she can't untie with her teeth.

The bouquet, before completion, passes through several hands, and is composed of several elements. First, the master takes a basket and gathers the flowers which he judges suitable for its composition. These he hands to an assistant, who mounts them, separately, by tying them to the top of a dried Rush, or other slender and light support. As each flower is mounted, he sticks the lower end of each artificial flower-stilt into a box of sand, which thus serves as a pincushion. The arrangement of the bouquet is not his business—though in case of need he might acquit himself fairly—but Madame's, whose taste is supposed to be superior. She has circular cushions of moss ready made and kept in stock ; a bunch of Box from an edging is sometimes used for small and low-priced bouquets. On one of these moss cushions she arranges the stilted flowers like pins, until the desired arrangement is completed. The whole is then slipped into a cardboard case or holder fringed with real or imitation paper lace, and the thing is done. No engraving, without colour, would give an idea of the beauty of the effect produced. That beauty, unfortunately, is shortlived. All that can be done to prolong it is to sprinkle the bouquet's surface with water, and to keep it closely covered in a box during the night. Sticking a mounted bouquet into a jar of water, to preserve it, has been compared to a Chelsea pensioner's putting his two wooden legs into a hot foot-bath to cure a cold.

Since the invention of railways, bouquets, like oysters, have penetrated into regions where they were unknown before. Those countries might make nosegays from time immemorial : but a nosegay is one thing, and a bouquet another ; for instance, a bouquet-holder is quite inapplicable to, and useless for, a nosegay, for whose reception a porcelain vase, a girdle, or a button-hole, are more befitting. An Arcadian shepherd might present his Chloë with a nosegay culled in the half-shade of an Olive grove. Was it Otaheite or Owyhee whose king and queen, on court-days, begged Ellis the missionary to decorate their bosoms with a Sunflower nosegay? But neither in Arcadia

nor in the Pacific Islands before their discovery, were bouquets ever dreamt or thought of, although, as Sir Thomas Browne, writing to John Evelyn, says :—"The use of flowery crowns and garlands is of no slender antiquity, and higher than I conceive you apprehend it. The crowns and garlands of the ancients were either gestatory, such as were worn about their heads or necks ; portatory, such as they carried at solemn festivals ; pensile or suspensory, such as they hanged about the posts of their houses in honour of their gods, as Jupiter Thyræus or Limeneus ; or else they were depositary, such as they laid upon the graves and monuments of the dead. And these were made up after all ways of art—compactile, sutile, plectile—for which work there were στεφανοπλόκοι, or expert persons, to contrive them after the best grace and propriety. We find in Athenæus that a Myrtle crown, of one-and-twenty feet in compass, was solemnly carried about at the Hellotian feast in Corinth, together with the bones of Europa."

Consequently, although wreaths and garlands (*serta* and *serviæ*) may be classical, the goddess Flora never saw a true bouquet laid as an offering upon her altar. Even the bunch of artificial flowers with which a Breton bridegroom adorns his coat-front is a symbolical nosegay—called by some of our Belgian friends a nosey-gay—and not a bouquet. Complaints have been made that "nosegay," considered the prettier word, should be superseded in our speech by the foreign "bouquet ;" but as each of those substantives indicates a different article, both word and thing are good in their respective places.

A nosegay, large or small, consists of cut flowers, on their natural stems, stalks, or branches, tastily grouped together, and either tied together by a ligature or assembled and united in a common receptacle, mostly containing water, to prolong their duration. A nosegay may be either one-sided, *i.e.*, all the flowers facing one way, or round and Janus-like, meeting your gaze with a full-faced floral countenance on whichever side you look at it: a flat, one-faced, upright bouquet is, I fancy, a thing unknown. The nosegay is more natural, more persistent, of quite an every-day, living-room, morning-dress, character, with sterling qualities though quiet pretensions. The bouquet is a laboured, artificial production, of striking but evanescent beauty—an ephemeral mosaic of living gems which charms at first sight but speedily withers—the companion of sometimes exaggerated full dress, whose place is the theatre, the ball-room, the wedding, and occasionally the banquet or the supper-table ; in which last positions, however, the true nosegay often claims and takes its natural precedence, the bouquet being politely relegated, on leave of absence (permanent) to the buffet or side-board. The nosegay, mostly inexpensive, gains a hold on our affections ; we prolong its existence as long as we can, renew its water, eliminate its fading members, and retain its survivors to the last moment of their presentability. The bouquet is a costly floral soap-bubble, which flatters the eye for a few brief moments and is then discarded. If its first favourable impression is produced on presentation, no more is required of it ; its mission is fulfilled, and it may disappear. After gracing for a second a princess or a *prima donna*, it is passed over to waiting-maids, to be sold, second-hand—unworthy fate for choice gift-flowers—in half-lighted alleys and dingy arcades, to be tossed after a brief interval into the dust-bin or gutter. Nosegays attract the sympathies of either sex ; bouquets are the delight of only one. Many men are fond of a nosegay ; few, I believe, would care much for a bouquet. The fabrication of the article has given a name to the *fabricant*, who is a *bouquetier*, or bouquetist, but nobody ever thinks of talking of a nosegayer or a nosegayist.

Bouquet-makers are not masters of the situation in respect to the flowers to be employed. They cannot use every flower they may have at hand. They may happen to be overstocked with unsuitable flowers and understocked with others needed for bouquets ordered. A ball-room bouquet should contain few blue flowers, if any, because most of them, bright and brilliant by day, are dingy and neutral-tinted by candlelight. Yellow flowers (so abundant) must be sparingly used, being supposed by some to convey unpleasant or delicate allusions. Nobody would put a Marigold into a bouquet, because the French name for Marigold is *Souci*, which also means care, anxiety, trouble ; and who would present a lady with that? The chief difficulty, however, lies in having a sufficient supply of white flowers, which are required not only exclusively for bridal bouquets and such-like, but also for relieving and contrasting with the various shades of scarlets and pinks as well as with bright foliage-greens. What a beautiful combination is scarlet and white! But white in bouquets, like black in embroidery, goes well with and sets off any colour. Now, white varieties of the Rose constitute the minority of their species ; white Camellias also. New whites of either meet with a hearty welcome from the trade, not on account of their natural beauty merely, but for their commercial serviceableness. The new double white Pelargonium, Aline Sisley, is exactly their affair. Many white flowers have coloured (often yellow) centres or other disqualifications when pure white is absolutely called for ; to obviate which, tricks are played. A bouquet is not a competitive horticultural exhibition ; and, in order to take its place amongst other candid (literally) candidates, a flower may be Rachelised without the commission of a dishonourable fraud. For instance, the white Abutilon is a drooping flower with incurved petals, beyond which protrude its orange-yellow organs of fertilisation. Pinch out that inconvenient yellow tuft ; blow forcibly into the flower so as to make the petals become recurved and convex instead of incurved and concave—turn the flower, in short, inside out—set it upright on a stem of Rush instead of allowing it to hang naturally pendant, and you obtain a pure white bouquet-flower whose own grower would hardly know it again. Many blush or so-called French white Chrysanthemums become pure white either by being placed in darkness as soon as the flowers begin to expand, or naturally, in the light of day, as they advance towards maturity. Indeed, it may be doubted whether some varieties do not vary from white to blush or from blush to white, according to the difference of seasons or their own innate sportive character. Blanched Lilac, so well-known and so great a favourite, is also an elegant and valuable addition to the list. But would lilac Lilac, blanched to a white, be admissible at a horticultural exhibition of winter or spring flowers ?

New Garden Plants.

ORNITHIDIUM STRUMATUM, *Endr. et Rchb. f.**

This is a highly curious plant, since one must have seen very many Ornithidia in order to recognise it at all to be such a thing. Twenty years ago one would have made a new genus of it. Though a small plant, forming dense patches of one-leaved pseudobulbs, yet it is graceful enough by its small ivory-white flowers, comparable to those of the Lily of the Valley. The anterior part of the eye is yellow, and the anther is dark violet purplish. It has just flowered (November) in Hamburgh Botanic Garden. One of the very numerous discoveries of Senor Endres in Costa Rica.

* (Acaulia disepala.) Pseudobulbis ligulatis densissime aggregatis basi plurivaginatis monophyllis ; foliis petiolatis lineari-ligulatis apice obtuse bilobis cum apiculo ; pedunculis unifloris solitariis seu pluribus ex vaginis ; bractea cucullata ovarium pedicellatum omnino tegente ; sepalo supremo ligulato acuto ; sepalis lateralibus excluso apice coalitis, basi in calcar spurium subovario canaliculatum extensis ; tepalis linearibus acutis ; labello apiculato cum pede lineari semisigmoideo columnæ omnino continuo, scaphiformi, trilobo ; lobis lateralibus oblongis ; lobo antico transverso brevi acuto ; callo depresso tridentato ante apicem ; columna trigona, utrinque sub fovea angulata ; anthera apice minute bidentata.—Flores lactei, labelli apex flavus, anthera violacea.

PLEUROTHALLIS MACROBLEPHARIS, *sp. n.**

This is a tiny, but a lovely thing, introduced by M. Roezl with his new Masdevallia, from Northern Peru, I believe. It looks rather like a small lovely Masdevallia. The sepals are pale whitish, with rows of blackish-purplish dots, ovate, prolonged into long tails, and adorned with numerous small ciliæ. The petals are triangular, and ending in long tails with long bristles. The singular lip is very gorgeous ; it consists of a blackish ligulate oblong body, covered with warts and numerous bristles, and moves very quickly. It may, perhaps, be easily believed to be an insect by inferior stupid insects, as it is well known that some insects are attracted by pictures of fruits, while the clever ones are never the dupes of artists. I have to thank for this very lovely novelty M. Kirchhoff, hofgärtner to the Prince Charles Egon zu Fürstenberg, at Donaueschingen in Baden, where, under the liberal patronship of the Prince and the very skilful management of M. Kirchhoff, there is a very splendid array of well-known plants in choice specimens, amidst which the collection of Orchids is one of the highest attractions. We have also just flowered the same plant at the Hamburgh Botanic Garden. *H. G. Rchb. f.*

DECORATIONS IN THE HOUSEHOLD.

THE accompanying illustration (fig. 156) serves to show how tastefully and pleasantly a room can be decorated on the occasion of a family gathering, social party, or some such assembly. It represents the way in which the walls of the billiard-room, which for the nonce served the purpose of a supper-room on the occason of a dance party, were so draped by the clever handiwork of some young ladies, as to furnish an exceedingly agreeable aspect to the party which gathered within them at the early part of the present year.

The lower half of the walls is covered with paper of what is known as the Dado pattern, viz., diaper paper, in buff, red, and black, which gives a room a warm and comfortable appearance. The upper half is covered with a grey paper. The word "Welcome" over the fire-place was of gold cloth laid on a blue cloth panel, with a yellow star at each end, the margin of the panel being composed of a wreath of variegated Holly. The rosettes on either side were continued round the walls at regular intervals immediately under the cornice. The ground or disc was formed of blue cloth, with a star of red paper ; a smaller star of blue was laid on this, with a final golden star in the centre. The festoons between and below the rosettes were made of variegated Holly and suitable sprigs of evergreen tastefully entwined together ; the drops between the festoons being formed of green Holly covered with red berries. The festoons were also continued round the length of the walls. Bands of coloured cloth were also attached to the ceiling immediately above the cornice. First came a band of blue, with yellow stars at intervals ; then an intervening space of white ceiling about 4 inches in width, and next that a band of red cloth about half the width of the blue. At each angle of the ceiling was a shield formed of red cloth, with a golden cross on it. On the mantel-piece were three plants of Acacia lophantha ; between these plants of the variegated Abutilon Thompsoni, the young growth being charmingly coloured ; and between the larger plants a few flowering examples of the Chinese Primrose.

When the supper tables were set, and ornamented with suitable plants and cut flowers, and when the gas was lit, the effect was extremely good ; the brighter colours of the cloth were toned down by the evergreens, a cheerful glow of warmth and vivacity pervaded the whole, which reflected great credit on the young ladies whose clever handiwork contributed so much towards securing so favourable a result. After all, the elements making up the effect were of a simple character, and their employment in this instance may serve to indicate other ways in which they may be agreeably introduced at a season of the year when a little festivity within-doors serves to lighten and soften the gloom and sterility of the period of mid-winter without.

* Apodæ cæspitosæ. Foliis petiolatis cuneato oblongis obtusatis obscure tridentatis ; pedunculis capillaribus longe exsertis parvifloris, distantifloris ; bracteis triangulis abbreviatis ; sepalis triangulo ovatis aristatis parce hinc ciliatis dorso carinatis ; tepalis a latiori basi bene longeque ciliaris, aristatis, æquilongis ; labello breviori unguiculato ligulato ante basin utrinque obtusangule auriculato, obtusangulo retuso antrorsum multipapuloso, multiciliato barbaro ; cerina triangula dependente in basi paginæ inferioris (!) ; columna clavata androclinio triangulo serrulato ; callo triangulo in basi ante labello unguem.—Sepala lateralia basi plus minus coalita. Flores albidostraminei seriebus macularum atropurpureum.

ROYAL AGRICULTURAL SOCIETY AND THE POTATO DISEASE.

IN your issue of Dec. 5 you report an address by Professor Dyer on the Potato disease, and some observations made on that address by Dr. Masters, at a meeting of the Horticultural Society three days before. Dr. Masters "thought the Professor might with propriety have gone further in vindication of his colleague, the Rev. M. J. Berkeley; and stated that to him and to this Society was due the credit of discovering and publishing the origin and cause of the Potato disease, and that it did not seem a courteous act on the sister society to entirely ignore both Mr. Berkeley and the Society."

I am ready to consider the matter of courtesy if need be, but at present I desire to say that the statement with reference to the discovery of the Potato disease is without foundation. There is no difficulty in establishing this assertion. It needs only the perusal of Mr. Berkeley's paper of 1846, to which Dr. Masters refers, and which Professor Dyer apparently quotes, but which I venture to say Dr. Masters has not read, or he would not have made the statement assigned to him.

Mr. Berkeley's paper is entitled "Observations, Botanical and Physiological, on the Potato Murrain;" it is published in the first volume of the *Journal of the Horticultural Society* (pp. 9—34), 1846, but it is dated "Nov. 22, 1845." It is an exposition and critique of the views advanced up to that time, with arguments derived from the published facts and the author's observations in support of the view he adopted. After stating the different opinions he says: "I must candidly confess, that with a becoming share of philosophic doubt where such authorities are arranged upon the opposite side, I believe the fungal theory to be the right one" (p. 18). After the description of the species, which Mr. Berkeley gives from Montagne's manuscript communicated to him, two published papers are quoted (p. 30). The first is the original publication of the species in *L'Institut* for September 3, 1845, where Montagne says—"Cette affection est occasionée par la présence d'un Champignon. . . . Ce Botrytis, qu'en raison de ses effets nous proposons de nommer Botrytis infestans, attaque surtout le dessous des feuilles de la Solanée, qu'il recouvre entièrement comme d'une poussière blanche, et sa propagation est si rapide qu'en trois ou quatre jours au plus de vastes champs sont dévastés et la récolte du précieux tubercule anéantie" (p. 313). He promises a description and figure in the *Annales*, but, as Mr. Berkeley informs us, Montagne transmitted to him his descriptions, "together with copious sketches of this and other species which I have availed myself of in the figures. It was his intention to have published them himself, but at my request he gave up the intention, placing his materials in my hands" (p. 30).

The second paper quoted is one by Morren, published in the *Annales d'Agric. de Gand*, for 1845, pp. 287—292, entitled "Notice sur le Botrytis devastateur ou le Champignon des Pommes de Terre." In this Dr. Morren, speaking of the disease, says—"Nous croyons sincèrement qu'elle est due au Botrytis devastatrix, Lib.," a synonym of B. infestans, Mont. Drawings of the fungus, representing the fruiting plants on the under surface of the leaf, *and the mycelium among the cells of the tuber*, are given in this paper, together with figures of the fruit, which are more accurate than those by Montagne, published in Mr. Berkeley's paper.

Mr. Berkeley further refers to the opinion of Payen—"The notion that the disease is the effect of the parasite has met with some advocates, especially in Belgium. M. Payen also, to a greater or less extent, accords with Dr. Morren" (p. 18). Payen's paper was published in the number of the *Annales Soc. Hort. de Paris*, for November, 1845. At p. 683 he says:—"En résumé, les caractères de la maladie nous paraissent consister dans le développement d'une végétation cryptogamique dont les sporules, introduites probablement de la tige dans les tubercles, se sont développées entre et à l'intérieur des cellules, se nourrissant de la fécule et d'autres principes immédiats puisés dans les tissus environnants."

I do not go beyond Mr. Berkeley's paper to establish my statement. These extracts from papers published before "November 22, 1845," and the statements contained in which are estimated by Mr. Berkeley, establish that he was not, and never claimed for himself to be, the discoverer and publisher of the origin and cause of the Potato disease.

Though this is already a longer communication than I intended, I must ask your indulgence while I point out, without comment, the relation between the statements in Mr. Berkeley's paper and Professor Dyer's account of them.

Professor Dyer says, the paper of Mr. Berkeley "clearly established that the disease was due to a fungus." Mr. Berkeley said:—"To my own apprehension, then, it appears clear at least that the cause of the premature decay and putrefaction of the haulm is to be found in the parasitic fungus, in consequence of whose attacks the tubers are unripe, and in a bad condition for preservation. Under these circumstances, if decay takes place, there cannot be much matter of surprise; and that, as in all cases of decay, various species of fungi should establish themselves upon the tubers and accelerate it" (p. 25). After arguing on the appearance of the Botrytis on the tuber he says: "It should seem certain, then, that the mycelium or elements of the fungus must have pre-existed in the tuber; and, as it uniformly springs from the decayed spots, that it has itself caused the decay. But here a difficulty arises from the great obscurity, or as some say, the total absence of mycelium in an early stage of the disease. I have satisfied myself of its existence in some cases, but not uniformly. Another difficulty arises," &c. (p. 26). Near the conclusion Mr. Berkeley says: "On the supposition that it springs from some contagious matter, we can form no probable conjecture, except by mere analogy; but if it arises from a parasitic fungus, it may be hoped from our experience of other productions," &c. (p. 29). And again, "I come now to the more purely botanical part of the question, namely, the description of the parasite which has been so constant an *attendant upon the disease*" (p. 29).

Professor Dyer says the paper clearly established that the fungus "penetrated, by means of its fine mycelial filaments, the tissues of the plants, and eventually reaching the tubers, involved the whole in a common destruction." Speaking of the tubers Mr. Berkeley said: "The disease, I believe, commences in the mother cells of the fecula. . . . In general, no traces of mycelium are visible in this stage"

FIG. 156.—DECORATION OF A ROOM FOR A PARTY.

(p. 16). Mr. Berkeley protects himself from being understood to maintain that the "disease of the tuber" was immediately caused by the tuber—thus for instance, "as far at least as the aërial portions of the plant are concerned the Botrytis is the immediate cause of destruction" (p. 24).

Professor Dyer says the paper clearly established that "the branches bore spores of two kinds, one of which set free a number of locomotive and extremely agile little bodies, capable of propelling themselves through water by means of their whiplash-like filaments with considerable rapidity. These bodies were called zoospores, and there was reason to believe that in showery weather they readily found their way from one moisture-covered leaf to another, and so became extremely active agents in propagating the disease. The Rev. M. J. Berkeley had observed these zoospores, but had not detected their cilia, and had not, therefore, apprehended their full significance." Mr. Berkeley said—well, he said nothing whatever about the matter! He indeed gave a figure from Montagne, which is probably a zoospore-bearing capsule (pl. iv., f. 17), but neither Mr. Berkeley nor any one else then knew its meaning. All he says regarding it is "occasional appearance of a spore"! (p. 34).

In placing before your readers the true state of the case I am doing a service to science, as well as to the Rev. M. J. Berkeley, who does not need the ascription to him of work which belongs to others, and which he never claimed. Agriculturists, horticulturists, and scientific botanists are not likely to forget the eminent services that Mr. Berkeley has rendered alike to pure and applied science.

I am saved following Professor Dyer into his numerous inaccuracies regarding the Agricultural Society, as the secretary of that Society has satisfactorily exposed them in *Nature* for December 10. I must observe that it was a curious coincidence that Professor Dyer published, in *Nature* of November 26, a letter, holding up the "botanic referee" and the Agricultural Society to ridicule, basing his remarks on an obviously erroneous and ignorant report of the Society's proceedings, when he was in possession of information obtained from myself and the proceedings of the Society, which was so important that on December 2 he retailed them, with approbation, to the Royal Horticultural Society! *Wm. Carruthers, Consulting Botanist to the Royal Agricultural Society.*

CULINARY NOTES.

"Glad you find your meal endurable, Mrs. Munster. We like a good dinner on Sundays and holidays (acknowledged by the Church as feast days) just as well as anybody else; at the same time, we wish on those days to occupy the time of those who serve us as little as possible. A cold Sunday dinner suggests itself as the simplest way of meeting the case."

"But do you eat cold dinners on Sunday all winter through?"

"By no means; you see we have had hot soup today. Something hot at the principal repast of the day is pleasant, wholesome, and even necessary for certain constitutions, during the greater part of the year; and in the climate of the United Kingdom people cannot live in winter, even in a kitchen, without a fire. Where a fire is burning, it would be carrying out a principle to an absurd extent, not to make a moderate and reasonable use of that fire. Cold dishes may pleasantly form part of a meal. They often do so on week days without our noticing the fact; and, therefore, on Sundays, they may fairly be made to do so with a purpose. The labour of servants can be very much eased, by abstaining, on Sundays, from dishes which require much or long preparation immediately previous to serving them. I am sure that Susan, though she is housemaid, and 'it isn't her place,' as servants often say, does not object to warm up things ready prepared and easy to manage, in order to let cook have her day of rest, which she herself will have in her turn."

"Indeed, I don't, sir," Susan modestly interposed.

"And I am sure cook is not unwilling to do things fresh which take little time and give little trouble. She need not, by thus consulting her employers' comforts, either neglect her religious duties or debar herself from the sight of her friends. The waiting is simplified by laying the table at an early hour and setting on it everything that is to be eaten cold—you see here a lobster, there an undressed salad—removing all as soon as done with. It then serves for the kitchen supper. For we do not give white bread to the master and brown to the servant, but feed the whole household on the very same joints, only taking the first cut ourselves. At inns and restaurants you eat many warmed-up vegetables without knowing it—Peas, French Beans, Salsify, sundry *purées*—why not do the same at home? There are plenty of hot dishes that take little time; omelettes, in variety; boiled or fried sausages on warmed-up chopped Cabbage; poached or fried eggs on warmed-up Sorrel or Spinach; *vol-au-vents*, the *ragout* and the crust being made on Saturday; hashes having everything prepared beforehand; sheeps' feet, or other things *à la poulette*; plain boiled Potatos. In short, to carry out the plan, you have only to consult your Cookery-books and your own invention.—Take away the mutton, Susan, and let us have the hare, smoking hot, if you please."

"Hare! hot! and without much trouble?"

"Certainly; the trouble was taken yesterday. While she is serving, Charlotte, out with your notebook, and write as fast as I dictate. For this, I must tell you, is so first-rate a wrinkle, that we will divide it, for clearness, into three acts or processes, after skinning the hare, cutting it into pieces, and saving all the blood therefrom.

"I. Take fine herbs, four cloves, pounded, one large Onion cut into shreds, one cooking Apple chopped fine, and some finely grated lemon-peel.

"Put in a frying-pan 2 oz. of butter, place it over a bright clear fire, add all the ingredients following I.; when very hot put in the pieces of hare, turn them over quickly with a fork, while the frying-pan is gently shifted and moved over the fire; brown the pieces well.

"II. Have a stewpan ready with half a pint of good stock broth, a little pepper and salt, and some strips of best streaky bacon. Simmer one quarter of an hour. Then place the whole contents of the frying-pan into the above mixture. Simmer quite gently for three hours. If allowed to boil, it will not be worth a farthing.

"III. Add to the blood saved a small quantity of beef stock, one gill of sherry, and one tablespoonful of brandy. Twenty minutes before serving add this dose to the hare, and continue to simmer well together. During the cooking, should the stewpan require feeding, add a little beef stock from time to time, and repeatedly turn the pieces of hare. There! The result lies steaming before you."

"It is indeed a deal of trouble. But how do you manage to have it so nice and hot to-day?"

"No great work was accomplished without trouble. Its appearance to-day is effected simply enough. When cook had completely finished it off, she put enough for our dinner, meat and gravy, into an earthen jar with a close fitting lid, which jar was placed by Susan in a *bain marie* this afternoon; that is, into a saucepan of hot water, which, placed on the fire, gradually brought the hare to the boiling point, without the possibility of burning it."

"Ah! That's an excellent contrivance; so easy, too!"

"By the way, now we are at it, how's your plum pudding, Mrs. Munster? Good? Only so-so, eh? You are not tired of writing, Charlotte? We will give you ours, which is not expensive.

"Beat up four eggs well. Add to them, first, half-a-pint of new milk and a teaspoonful of salt. Then mix in half-a-pound of beef suet, chopped very fine; a pound of raisins, stoned and chopped; a quarter of a pound of currants; a quarter of a pound of brown sugar; one nutmeg grated; one ounce of candied peel, cut into thin, small strips. Stir all well together and add another half pint of new milk; then beat in sufficient flour to make it a stiff paste. Add a glass of brandy and a glass of white wine. Tie it up close, and boil it, if in a tin mould or earthenware pudding-basin, five hours; if in a cloth, four; but the pudding is better, as well as more shapely, when boiled in a shape or mould.

"For sauce, make some good melted butter; put in some loaf sugar, a glass of white wine and a glass of brandy; make it just boil up; pour half of it over the pudding, and serve the rest in a hot sauce-boat. Plum pudding *au Vésuve* is done by cutting a hole in the top, filling it with warm cognac at the dining-room door, and setting light to it immediately before it is carried in; but this is a practice fraught with some danger to errant drapery, and should be guarded against accordingly." *Coquinus.*

BRAZIL NUTS.

The seeds of Bertholletia nobilis are known in commerce as Brazil nuts. The amount exported from Para alone in six months of the year 1863 was 18,862 alquieres; and from Manáos, on the Rio Negro, 9976 alquieres. Taking this to be the average export for one year, the yield amounts to about 2,500,000 of the fruits, or 50,000,000 of seeds, occupying the bulk of 60,000 bushels. This does not include the several other large quantities exported from the Rio Orinoco, Demerara, Cayenne, Maranhao, and other places. These seeds, in Brazil, may be valued at about 30*s.* per bushel. The hard seeds which fall to the ground are broken in the forests by Indians, where a man and a boy will break about 300 of them daily, yielding them about 2 alquieres of the nuts. The kernels of these nuts, broken in a similar manner, are subjected to pressure, when they yield an oil greatly esteemed for domestic purposes and for export, each pound of the kernels furnishing 9 oz. of oil, valued at 2*s.* per lb. This oil, according to Martius, consists, per cent., of 74 parts of elæine and 26 of stearine. The finely laminated inner bark of the trunk is also a valuable article of commerce, especially adapted for the caulking of ships and barges, being worth about 18*s.* per cwt.

The question here arises—how do the seeds germinate and strike root, confined, as they are, in an inextricable prison? for it is manifest they cannot find an exit through the opercular opening, and they cannot escape by any other means than by the rotting of the thick pericarp on moist ground; and it would probably require three years' exposure to the sun and moisture before so thick a shell could decay sufficiently to allow of the liberation of the seeds, and then, perhaps, another year's exposure before the thick testa of the seeds could rot sufficiently to allow the embryo to germinate. This shows an extraordinary power of vitality in the embryo, which would seem to remain four or five years in a dormant state. Oily seeds are generally supposed to ferment and decay soon, but that, perhaps, is where the oil-cells are contained in albumen; here, however, we find a reverse condition. I have been told that when the embryo of Bertholletia has been extricated and planted under the most favourable circumstances, it takes a whole year before it begins to germinate. Is this inertness due to the large amount of stearine in the oil-cells which preserves it from decay? *J. Miers, in "Transactions of the Linnean Society,"* vol. xxx., p. 157.)

A BOTANICAL TRIP TO MONT CENIS AND THE MARITIME ALPS.*

By GEORGE MAW, F.G.S., F.L.S.

Mr. Ball, in his *Guide to the Western Alps*, says of Mont Cenis that "it is one of the best head-quarters for a naturalist in the entire chain of the Alps." There is no part of the Alps more easily accessible. You may breakfast in London, and on the following evening find yourself comfortably quartered on the summit of the Pass, between 6000 and 7000 feet above the sea, almost within sight of the glowing plain of Lombardy, and surrounded by mountains abounding in the richest gems of the alpine flora.

Soon after daybreak, just twenty-four hours from leaving London, you are entering a picturesque valley through the chain of the Jura, shut in by noble escarpments of oolitic limestone clothed with a luxuriant growth of Box and a rich subalpine flora. Many interesting plants are seen from the railway, including Orchis laxiflora, Centranthus angustifolius, with pale rose-coloured flowers. Here and there, at the margins of the woods, Spiræa Aruncus displays its feathery sprays of elegant cream-coloured flowers, and in early autumn Sambucus racemosa is conspicuous with its bunches of coral-red fruit. One of the commonest plants by the side of the railway and on the shingly beds of the stream is Epilobium rosmarinifolium—perhaps the most ornamental species of the beautiful genus. It attains a height of 3 feet, and in the higher alps assumes a dwarfer habit under the name of Epilobium Dodonæi.

Salvia pratensis is a frequent weed on the railway banks, and here and there may be seen Salvia Sclarea and S. glutinosa. Amongst the other commoner plants may be enumerated Saxifraga rotundifolia, Sedum altissimum, Primula farinosa, Saponaria ocymoides (which forms lovely rose-coloured patches on the rocks), Genista sagittalis, Teucrium Chamædrys, and T. montanum.

At 9 A.M. Culoz Junction is reached, and after half an hour's delay for the division of the Swiss from the Italian train, we turn South, cross the Rhone, skirt the beautiful lake of Bourget, and enter, after passing Chambéry, the Val de Maurienne. The line gradually ascends through a picturesque subalpine district. Hippophae rhamnoides, laden with orange-scarlet berries, is remarkably abundant on the shingle beds of the valley, and Berberis vulgaris, in full fruit, is one of the commonest shrubs. Here and there the remains of ancient moraines form dams across the ravine, through which the turbid river has cut narrow channels, and rushes amid huge boulders in its course towards the Isère. Deeply striated rock surfaces are occasionally seen where the glacial *débris* has been removed, indicating the former existence of a great glacier that filled up the valley, and has now receded 20 miles in distance and 4000 or 5000 feet in altitude. The valley gradually narrows, and up the lateral ravines glimpses are occasionally obtained of the snow-capped summits of the Mount Tabor range to the South, and the Dent Parassée to the North. Picturesque cliffs of contorted strata of the age of our lias and upper trias shut in the valley through which the rail ascends, and here and there are so twisted as to completely invert by great folds the succession of the beds. Soon after 1 o'clock Modane is reached, and the entrance of the great tunnel high overhead approached by a double bend in the railway, and a steep incline of 3 miles. Mont Cenis is, however, still 15 miles off, and leaving the rail at Modane, a

* Read at the December meeting of the Botanical Society Edinburgh.

drive of three or four hours brings me at nightfall to the village of Lans le Bourg. Here at a height of 4465 feet I am at the foot of the Pass, and on the following morning after an early breakfast climb up the steep northern slope of 2000 feet, a long straight incline of alpine pasture, enlivened by the bright blue flowers of Gentiana ciliata, and I reach the summit of the Pass at 9 o'clock. I know of no point in the Alps more beautiful than this; northwards I look down between 2000 and 3000 feet into the deep ditch-like valley of the Maurienne, and on to the very roofs of Lans le Bourg, overhung on the opposite side by the snow-capped summits of the Dent Parassée, and the Grand Casse between 12,000 and 13,000 feet high, and 7000 feet above where I stand, the view to the right being completed by the wild valley of Bonneval.

The Pass of Mont Cenis is an irregular plateau 6 miles across, with an average altitude of between 6000 and 7000 feet, and bounded on the right and left by mountains exceeding it in height by 3000 or 4000 feet. The *tout ensemble* is charming. Soon after reaching the top of the Pass, I look down on a pretty blue lake occupying the middle of the plateau, and on a terrace of crystalline white limestone. Overhanging it is an inn which affords tolerable quarters. The brilliant alpine flora has passed its prime, but the scene is full of attractions, both of form and colour. The marshy meadows surrounding the lake are of a rich golden brown seared by "the mellowing year," and bright with patches of Saxifraga aizoides, and a band of fresh emerald-green vegetation separates this from the blue waters of the lake. The foreground is very singular; the terrace of several hundred acres of white saccharoid limestone overhanging the lake has been perforated with thousands of "pot-holes" due to the gradual dissolution of the limestone by watery percolation. Some of these are 30 feet deep, and they are in such close juxtaposition that the whole terrace has been wrought into an intricate network of narrow ridges environing deep pits, forming a complete honey-combed surface across which it is difficult to climb without making a long and sinuous *détour*.

On the opposite side of the lake the brown mountains shut in the view, the Petit Mont Cenis to the right, and Mont d'Ambin to the left, their picturesque outlines developed by a fresh sprinkling of autumnal snow, and framing in the more distant ranges over the Glacier of Savalain.

A complete list of the plants of Mont Cenis would include a large proportion of the alpine flora, but the following (including some species at the base of the mountain) were amongst my gatherings.

The plateau of Mont Cenis at the time of my last visit in September was bespangled with the beautiful blue flowers of Gentiana ciliata and the miniature Colchicum alpinum; Primula farinosa covers the moist meadows surrounding the lake, and amongst the more general alpine plants on the plateau level may be enumerated—Gentiana excisa, G. asclepiadea, G. verna, Hugueninia tanacetifolia, Atragene alpina, Centaurea uniflora, Gnaphalium Leontopodium, Alyssum alpestre, and another species of Alyssum, Erysimum helveticum (on the limestone terrace above the lake), Draba aizoides, Tunica Saxifraga, Aster alpinus, several species of Sempervivum, Dryas octopetala, Herniaria incana, Teucrium montanum, Ononis rotundifolia, O. Natrix, with golden-yellow flowers, a most striking plant, but not easy of cultivation; Gypsophila repens, Polygala Chamæbuxus, Bellidiastrum Michelii, Campanula pusilla, C. rhomboidalis, C. thyrsoidea, C. barbata, Silene acaulis, S. exscapa, Saponaria ocymoides, Anemone vernalis, A. alpina, Viola biflora, Viola calcarata varying with blue, yellow and buff flowers, Lilium Martagon, Bupleurum ranunculoides, Rhododendron ferrugineum, Aquilegia alpina, Thalictrum aquilegifolium, Convallaria verticillata, C. Polygonatum, and a host of other alpine plants. In Saxifrages Mont Cenis is particularly rich. During a former visit I, in company with my friend Mr. J. Westcombe, met with sixteen species during a short afternoon's walk; one of the most abundant is the lovely little Saxifraga cæsia, which adorns with its neat little cushions of silvery leaves and white flowers the tufaceous rocks on the west side of the lake; and in company with it we found the rarer Saxifraga valdensis, easily distinguishable to the touch by its hard crusty masses of rosettes. This species is limited to a small district in the western Alps.

Saxifraga diapensoides, closely allied to Saxifraga valdensis and also to Saxifraga Tombiena of the Eastern Alps, is said to grow on the meadows surrounding the lake, but I failed to find it after a diligent search. Scattered over the mountains on either side of the lake we found Saxifraga aizoides, S. Aizoon, S. androsacea, S. Sequieri and S. aspera, S. exarata, S. hypnoides, S. oppositifolia, S. retusa, S. petræa, S. planifolia, S. rotundifolia, and S. stellaris were also observed. The rare and curious Saxifraga biflora, with both white and vinous-red flowers, I found in great abundance on the loose *débris* receiving the drainage of a small glacier, on the mountains to the east of the lake. This species, I believe, never occurs except in the immediate neighbourhood of melting snow, which will perhaps account for the extreme difficulty in keeping it alive under cultivation. Associated with this fleshy-leaved species are several unallied plants with similar fleshy leaves, including Ranunculus glacialis, Thlaspi alpestre, and the lovely little Campanula cenisia, and afford an instance of the frequent occurrence in geographical association of plants wholly unallied possessing some common secondary character either in the colour of their flowers or character of foliage or appendages. Another charming little plant, abundantly distributed over the Mont Cenis range, is Petrocallis pyrenaica, a draboid plant, with delicate rosy lilac flowers springing out of mossy tufts of bright green foliage, resembling Saxifraga hypnoides in miniature. On the mountains to the west of the lake the rare and beautiful Primula pedemontana grows abundantly; in habit it resembles a miniature Auricula, with large vivid rosy flowers with a white eye. I find this is one of the easiest species to cultivate, and a very free bloomer. The geographical range of this species seems very limited, as it is nowhere found in the Swiss Alps, and does not extend southwards to the Maritime Alps.

Dianthus neglectus is another lovely alpine, abundantly distributed throughout the Mont Cenis and Dauphiné mountains. In the end of June nothing can be more lovely than large patches of this pigmy Pink, covered with its beautiful crimson flowers. Another more local plant occurring on the mountains west of the lake is Saponaria lutea, forming compact cushions of linear leaves, and bearing neat little heads of dull yellow flowers 3 or 4 inches high. Scattered about the mountains overhanging the Col du Clapier, at an altitude of from 8000 to 10,000 feet, Eritrichum nanum occurs on the drier ground, and is conspicuous by its bright patches of densely blue flowers, contrasting beautifully with the gem-like cushions of the rosy Androsace glacialis, with which it is intermixed. Here also occurs Lychnis alpina, and silvery white patches of Artemisia glacialis, Artemisia mutellina, and Senecio incanus; also Veronica alpina, V. fruticulosa, V. Allionii, V. bellidioides, V. tenella, Sedum atratum, Gentiana nivalis, G. brachyphylla, Astragalus aristatus, Alchemilla pentaphylla, A. subsericea, Astrantia minor, Silene rupestris, Alsine verna, A. ciliata, Allium sphærocephalum, Potentilla pedemontana, Arnica montana, several Phyteumas, Adenostyles albifrons, Achillea moschata and A. nana, Androsace carnea, A. lactea, Aretia vitaliana, Myosotis alpestris, Erysimum pumilum, Oxytropis fœtida, O. pilosa, and several species of Astragali. This last might be much extended, but as my fortnight's ramble included a visit to the Maritime Alps, to which I must make some reference, I will bid adieu to Mont Cenis.

After four days' stay on the plateau, I crossed the Italian side of the Pass to Susa, by a continuous winding descent of about 4000 feet round the spurs of the Mont Cenis range into the valley of Susa, a hot *cul-de-sac*, which, before the opening of the tunnel, was the great highway between France and Italy. I leave the alpine flora behind me, and soon find myself again on the railway between Mulberry orchards, vineyards, and fields of ripening Maize, and enter, just before reaching Turin, on the great north Italian plain, which affords evidence of having been submerged during glacial and post-pliocene times.

Looking from Turin to the west, the alpine range of Savoy is seen to make a bend to the south-west, returning in an easterly direction along the Mediterranean coast, and environing a great bay of the plain of Northern Italy, which runs up as a dead level to the very foot of the mountain chain. I cross this in about three hours by the line from Turin to Cuneo, a picturesque city at the foot of the northern flank of the Maritime Alps. The grand mass of Monte Viso, 12,643 feet high, is seen to the north-west, from which the main chain branches out to the south in picturesque outline to a height of from 9000 to nearly 11,000 feet, for the most part a single ridge, with lateral spurs enlosing narrow valleys. A drive of two hours takes me to Valdieré and the village of Entraque, situated in one of the lateral valleys on the north side of the watershed, which I made my headquarters for four days. There is, perhaps, no part of the Alps so little frequented by tourists, though so rich in beautiful scenery and natural productions. It must be confessed that the accommodation is, for the most part, wretchedly poor, but fair quarters can be obtained from June to the end of August at the Baths of Valdieré, situated at the head of one of the principal valleys. There is also a tolerable inn at Limone—both places are capital centres for a naturalist. The change in the flora from that of Mont Cenis is very striking. Quite one-fourth of the species are new to me, and many of these are peculiar to the Maritime Alps. Soon after leaving Cuneo the following species presented themselves:—Anchusa Barrilieri, a lovely little plant with intensely blue Forget-me-not-like flowers, the handsomest of the genus. Lamium longiflorum, Satureja montana, Alyssum halimifolium, on limestone rocks between Bourg St. Dalmazzo and Valdieré, which are also covered with the beautiful Saxifraga lantoscana. In may and June this forms a conspicuous feature in the flora of the Maritime Alps, decorating many of the rocks and cliffs with its feathery panicles of snow-white flowers. Aster Amellus is abundant on the rocks between Vernante and Limone, Dentaria digitata and D. pinnata are conspicuous and beautiful with their graceful foliage and handsome pink and white flowers. Another striking plant is Streptopus distortus (or Uvularia amplexifolia), allied to Convallaria, which I found in the Valle dell' Anmellina near Limone. Of Primulas there are several species, distinct from those found on the Mont Cenis range, of which Primula marginata is the most conspicuous. In many places the rocks are completely covered with the handsome rosettes of its silver-fringed leaves. Primula viscosa, All. (P. latifolia, Lap.), P. suaveolens and P farinosa, are also abundant; but P. pedemontana so common on Mont Cenis, is not to be found in this region.

The alpine meadows in June are richly enamelled with the white and red forms of Orchis sambucina intermixed with Corydalis cava, both white and rose colour; and in the Valle dell' Anmellina near Limone, associated with hundreds of the lovely yellow Fritillary (Fritillaria delphinensis Moggridgei), bulbous plants are extremely abundant. I found Tulipa australis, a small brown Fritillary (Fritillaria delphinensis Burnati), Muscari botryoides, Leucojum vernum, several Gageas, one or two species of Allium, and both the white and violet varieties of Crocus vernus intermixed with Soldanella alpina. Cardamine asarifolia is abundant by the banks of the water-courses, and higher up in the Valdieré mountains I found the rare Senecio Balbisianus, also Achillea Herba-rota, Asplenium alternifolium, Silene cordifolia, Anemone ranunculoides, Leucanthemum coronopifolium, and several other alpine Composites. Amongst the specialities of the ridge of the Maritime Alps, Viola nummulariifolia is one of the most beautiful, and grows abundantly at an altitude of 8000 feet, near the Colle de Cerise and Colle de Fenestrelle. In habit it resembles Viola biflora in miniature, but with bright azure-blue flowers and round leaves. The local Saxifraga pedemontana makes vigorous tufts of bright green rosettes in the midst of a great mass of dead leaves, the remnant of many years' growth. It is only found near the snow line, and is difficult to cultivate. But by far the most interesting plant of this region is Saxifraga florulenta, confined to a limited area of the Maritime Alps, and known in no other part of the world. It is said to have been discovered in the year 1824 by an English tourist, who communicated specimens to Professor Moretti, of Pavia. He published a short description of the plant at the time, after which it was vainly sought for by many botanists, till M. Lisa rediscovered it in the year 1856 near the Colle de Fenestre. Fresh localities have since from time to time been discovered in the same region, where, at an altitude of from 7500 to 9000 feet, it seems to be far from unfrequent; but all the habitats are within a radius of 4 or 5 miles of the spot where it was originally discovered.

During my recent visit I had the good fortune to observe it in two unrecorded habitats—viz., on rocks with a northern exposure near the Colle de Fenestrelle and the Colle de Cerise, where its glossy green symmetrical rosettes, some of them 6 inches in diameter, nestle under the projecting ridges. Out of many hundred plants I found but one in flower, from which the excellent figure, from a drawing by Mr. Fitch, in the *Botanical Magazine* for July, was taken. The rosettes evidently attain a great age before flowering, and then die, falling into the snow-fields at the foot of the cliffs, where, judging from the number I found, they must remain undecayed for many years. The flowers are of a dull rose colour, and are produced as a dense thyrsus on a glandulose stem from 15 to 18 inches in height. Its nearest ally is Saxifraga mutata, but it is so unlike any other species, and as it has but three instead of five styles and carpels, it is open to question whether it should not be placed in a separate genus.

After several days' exploration of the many beautiful valleys intersecting the northern side of the watershed of the Maritime Alps, I again descended to Entraque, and following the main road from Cuneo to Nice, crossed the Colle de Tenda at a height of 6158 feet. From this point a magnificent view is obtained. To the north I look down on the great western bay of the north Italian plain, bounded by the Alps, the complete range of which, from Monte Viso to Monte Rosa, is visible in the distance, framed in by the northern spurs of the range on which I stand. To the west, the fine chain of mountains forming its watershed rise in picturesque succession; and to the south I look over a confused mass of peaks, and catch a single glimpse of the Mediterranean some 18 miles off, the foreground being a long straight descent of 3000 feet to the valley of the Roja, down which the road winds by numerous short bends and zig-zags to a narrow gorge, shut in by precipitous limestone cliffs. Fritillaria delphinensis, Tulipa australis, and many other subalpine species enamelled the meadowy slope in early June. Genista cinerea is also abundant, and

this is one of the habitats of the rare Cytisus ardoini. Many other leguminous shrubs festoon the limestone rocks bounding the valley at the foot of the Pass, in company with Saxifraga lantoscana, Micromeria Piperella, Alyssum halimifolium, and other varieties. At about 4 miles from the foot of the Pass the road suddenly turns to the right, and I approach the picturesque town of Tenda, situated at a height of 2680 feet in a hot valley bounded by limestone cliffs. Here many fresh species present themselves, including Silene cordifolia, Mœhringia papulosa, Fritillaria involucrata, Saxifraga cuneifolia, Asperula hexaphylla, Passerina dioica, Euphorbia spinosa, Saxifraga cochlearis, &c., associated with a few alpine plants, such as Saxifraga valdensis and Sempervivum arachnoideum, which are rarely found at so low a level.

The road from Tenda towards Nice rapidly descends the valley of the Roja, which for 7 or 8 miles is contracted to a narrow defile, resembling the Via Mala on the Upper Rhine, but on a grander scale and more beautiful aspect, the river and road being narrowly pent in between high cliffs, here and there interrupted by lateral ravines, up which glimpses of the mountain ranges are occasionally seen. Many fresh species present themselves, including Primula Allionii, Potentilla saxifraga, Mœhringia dasyphylla, and the abundance of the individuals of those special to he district give a marked character to the flora.

The cliff sides are festooned with silvery patches of Cineraria maritima, and a rich arboreal vegetation contrasting with the alpine district we have just left adds to the beauty of the scene. Passing views of the valleys of the Miniera on the right and Briga on the left are especially lovely. We descend rapidly through Chestnut and Olive groves, alternating with narrow gorges, through which the Roja foams in boiling rapids and cataracts, the rocks on either hand being clothed with noble patches of Centranthus ruber, Campanula macrorhiza, Orange Lilies, Cineraria maritima, Saxifraga lantoscana, and other species.

The frontier town of Fontan is reached at nightfall, from which, on the following day, I make an excursion up the Val de Caiross, leading over by the Col de Rans to the valley of Lantosca, one of the habitats of the true Lilium pomponium. Saxifraga lantoscana, S. cochlearis, and Potentilla saxifraga adorn the rocks; and here I also found Primula Allionii, Mœhringia dasyphylla, Sedum alsinifolium, Micromeria Piperella, &c. From Fontan the road passes through another defile, the Gorge of Saorgio, shut in by precipitous cliffs, and terminating at Breglio, where we leave the valley of the Roja, which turns to the south towards the coast of Ventimiglia. The road winds over two of the lateral spurs of the maritime Alps, and reaches Nice through a hot valley rich with Fig trees, Pomegranates, Vineyards, Olive groves, and patches of Arundo Donax, 18 feet high, the result of little more than seven months' growth. The herbaceous and bulbous plants have long passed their beauty, but the aspect of the district in September is much more fresh and green than I had anticipated, from the abundance of deciduous and evergreen trees now in full leafy strength. At Nice the market held daily in the streets strikingly exhibited the richness of the district in the extraordinary quantity and variety of fruit—Figs, Pomegranates, Tomatos, Grapes, Peaches, Capsicums, Prickly Pears, &c., exposed for sale under the shade of the Plane tree avenues. I have now wandered far away from Mont Cenis and the Maritime Alps, which have been the subject of my paper, and a passing glimpse of the beautiful Mediterranean coast on my homeward route, with its shrubby headlands and blue bays, rich in a flora peculiar to itself, concludes a pleasant fortnight's ramble.

SABAL UMBRACULIFERA

IN THE PALM STOVE AT EDINBURGH.*

A LARGE addition has recently been made to the glass department in the Royal Botanic Gardens at Edinburgh, by the fitting up of the open space in the centre of the chief range, as a temperate house for the growth of cool Palms and other tall hard-wooded exotic trees. The extra accommodation thus secured for these plants has permitted the removal of the temporary partition which for many years separated the eastern octagonal portion (previously used for the cool Palms, &c.) from the present large Palm-house, thus converting the two houses into one for the growth of the tropical Palms, &c.

In the centre of the large Palm-house, and immediately opposite the chief entrance door, stood a fine specimen of the Bull Palm (Sabal umbraculifera). It was in a tub 22 feet in circumference and 4 feet 9 inches in depth. It had stood in this position for nearly seventeen years, and during that time had made great progress. The lower part of the tub was completely decayed, in consequence of the heat and moisture; and notwithstanding that it was originally raised on bricks 3 inches from the floor, the bottom had given way, and the whole under-space had become a dense mass of matted roots, resting on the surface of the stone floor. Owing to the decayed condition of the tub, the removal of this tree, in an upright position, became a matter of rather serious consideration. During several wet days in the end of October and the early part of November preparations were extensively made, and everything requisite for its being raised and removed was got together. Two strong planks, 8 feet long and 10 inches broad, were first introduced below it, one at each side; and, by means of strong lever power along the sides of these two outer planks, two strong 8 feet long battens were put further under, alternately on each side, till they nearly reached the centre. This done, the ends of each, beginning with the west side, were raised to such a height as to allow a strong cross plank to be got under to receive all the ends of the longitudinal ones; the same was also done on the east side. Lever power was then applied under the cross plank, which enabled longitudinal supports, 10 inches long, to be put in, one under each end, but within the line of the cross plank, in two uniform thicknesses, till the mass was raised 5 inches above the floor. The east side of the plant was raised in the same manner 6 inches. Similar supports were also put under the broad side-planks, at regular distances, three on each side. When the plant was resting on the eighteen 5-inch high supports, the cross planks were removed, and long smooth boards, used for flooring purposes, were then pushed under the plant from east to west, and between the temporary 5-inch high supports. Iron rollers, 6 feet 8 inches long, and 3 inches in diameter, were introduced under the planks and battens, but above the flooring boards, from north to south; all the supports were then removed, and the mass rested on the iron rollers. By means of block and tackle, the plant was drawn, over a series of flooring-boards, to its new situation in the centre of the octagon-house.

The distance was 44 feet, so that the Palm now stands exactly 80 feet from the chief entrance door, and from which it presents a very noble appearance, there being now a broad, open space from the door to it. After removal, by means of the leverage power, the supports were again put under the ends of each of the planks and battens, to such a height as enabled all the iron rollers to be taken out. Numerous porous bricks were then driven below every portion of it, between the battens and flooring-boards, to act as a future drainage; the old iron hoops and staves of the tub were next removed, when the surface of the ball was found to be coated with a dense mass of matted roots, and which had enabled it to stand so well the strain which it had undergone. A box was then erected round it, 7 feet 10 inches square and 5 feet deep, made of well-seasoned red-wood plank, 2½ inches thick, the sides being kept together by iron rods and screw bolts, placed along the two opposite sides. After sufficient drainage had been put, in the whole box was filled up with old turfy loam, and afterwards well watered.

The Sabal stands 36 feet high from the surface of the floor. It has a clean upright stem, 14 feet in height. The circumference at the base is 5 feet 4 inches, and 3 feet at the top, where the leaves begin. At present the leaves are forty in number. The side ones, including the leaf-stalk, are about 16 feet long, the leaf-stalk being 10 feet and the frond 6 feet long by 5 feet 6 inches broad. The head of the Palm has somewhat of a globular appearance, and is 22 feet in diameter. All the leaves and stalks are naturally curved, otherwise the diameter would be nearly 32 feet. It is now covered with large clusters of fruit.

When the Sabal stood in its old situation, it could not be seen to advantage, owing to its leaves being intermixed with those of the adjoining Palms; now that it stands alone it has really a magnificent effect, and proves that Palms, of all other plants, ought to stand perfectly free, otherwise their noble outlines are almost entirely lost. Since its removal, the other Palms in line have a more commanding appearance, their straight stems nearly forming an avenue, their tops filling up, but not interfering with, the outline of the Sabal.

This tree cannot be less than sixty years old. It was removed from the stove in the old Botanic Garden, at Leith Walk, during the year 1822, and was kept in a lean-to house in the present garden for 13 years. This house was 18 feet high at the back and 7 feet high in front, so that it was greatly hampered for accommodation. During 1834 a new house, 42 feet in height, was erected for Palms and other tropical plants. The Sabal was removed into it during 1835, where it succeeded well, and was thence transferred to the new large structure in 1858. The plant was then 30 feet high, chiefly composed of long and heavy leaves, proceeding from a thick and massive rustic-looking stem, about 6 feet in height, made up externally of the lower portions of the old leaf-stalks, thickly intermixed with long brown fibrous network or "reticulum." The leaf-stalks were all divided in the middle, and the two ends firmly attached to the opposite sides of the stem. About twelve years ago the whole of the old leaf-stalks and reticulum came off, and exposed the bare stem; since then it has increased rapidly, but the leaves and leaf-stalks have become smaller in size, and the fibrous material less abundantly produced. This hemp-like substance seems to be required most while the plants are comparatively stemless, all the leaves being then more or less in an upright position. This substance, which is produced along each edge of the lower portion of the leaf-stalk, is at first like strong woven cloth, and is closely attached, and as it encircles the base of the other leaves, and is aided by the overlapping of the foot-stalks of neighbouring leaves, it greatly assists to hold them in their upright position; otherwise, their weight would probably bring them to the ground. After a time, the network, particularly at the lower part of the stem, appeared as if teased out into a bundle of rough Hemp among all the lower leaf-stalks. This was particularly noticeable before their removal from the plant, in 1862. After the formation of the stem, the upper leaves become more pendent, and the reticulum in consequence does not appear to be so much required, as less seems to be produced. When a leaf is first formed, the centre portion of the stem at that place must be small, and the base of each leaf-stalk must be united. As the stem thickens by age the base of the leaf-stalk begins to divide in the middle; as it goes on enlarging the division increases, till the two ends the of leaf-stalk are found to be fixed, one on each side of the stem as above described. Since the stem has become bare about 150 ring markings have become visible round it. On the lowest part, for a distance of about 4 or 5 inches, they are exceedingly close together. Above this they vary in breadth from 1 to 2 inches; and the upper ones are from an inch to half an inch apart. The rings or circles are all of unequal breadth, and each has the rudiments of two scars, some being more prominent than others, and which indicate the attachment of each half of the leaf to the stem, one exactly on each side of a ring. No regular system is observable, although the existing leaves show something like a spiral arrangement. It is evident from the scars that each ring indicates the number of leaves which the plant has produced.

Judging from the peculiar structure at the base of each leaf-stalk just described, it is obvious that it is for the purpose of enabling the leaves better to withstand a gale of wind in its native condition than they could possibly be expected to do without some such arrangement. *James McNab.*

* Read at the December meeting of the Botanical Society, Edinburgh.

THE FARM.

THE PARSNIP.—As we have attended to the Carrot we need not let the Parsnip stay any longer in the cold, and we now, therefore, direct attention to it as a small-farm plant.

In practice we have found that the Parsnip does not yield so large a crop as the Belgian Carrot, but, as its cotyledon and secondary leaves are larger, it is, on the whole, less liable to be smothered out by surface weeds, and, consequently, its early cultivation is usually not only easier, but more certain and uniform.

Its cultivation is much like that of the Carrot, and we have found in practice that these roots may very well succeed each other, in which case Parsnips should be first, as containing less of the alkalies and phosphoric acid than the Carrot, though both of them are remarkably alike as to their quantity of potash salts, but the Parsnip has far less of soda than the Carrot, so that, in any compounds for manuring, potash nitrate may well form a part for the first or Parsnip crop, and soda nitrate or salt for the Carrot crop.

The following analysis, quoted by our friend Dr. Voelcker, from Dr. Richardson, when compared with that of the Carrot (p. 650), will explain these facts:—

Ash Analysis of Parsnips.

	Parsnip.	Root.
Potash		36.12
Soda		3.11
Magnesia		9.94
Lime		11.43
Phosphoric acid		18.66
Sulphuric acid		6.50
Silicic acid		4.10
Phosphate of iron		3.71
Chloride of sodium		5.54
Charcoal and loss		0.89
		100.00

For both Parsnips and Carrots we prefer deep cultivation, steam smashing up in autumn being the plan we pursue when practicable. We then work the soil down as firmly as possible in spring, and drill the seed, previously broadcasting any top-dressing we may use. The plan adverted to, of succeeding one root crop by another, may be extended to Mangels

FIG. 157.—SABAL UMBRACULIFERA IN THE PALM STOVE AT EDINBURGH.

and Swedes, and especially as corn hardly pays the expenses of cultivation.

In utilising Parsnips it will be well to point to their composition. Professor Voelcker says, "Carrots contain more water and possess a less nutritive value than Parsnips. The fatty oil, which can be extracted from Parsnips by means of ether, has a bright yellow colour, no perceptible smell, and an agreeable, sweet taste. There is no soluble albumen in Parsnips, but, instead of it, casein, and about an equal quantity of nsoluble protein compounds. By moistening a transverse section of Parsnip with dilute solution of iodine, the more external layers are deeply coloured blue, from the formation of iodide of starch, but the heart and layers next to it are not turned blue at all, showing thus that the starch is deposited only in the external layers of the root."

It seems further that Parsnips contain more starch and less sugar than Carrots—facts which point to an explanation of why sometimes Carrots, at others Parsnips, seem most suitable for stock, and hence the *petit* farmer especially may grow a stretch of each, using, probably, the forked or ill-shaped roots, which in some seasons are sure to prevail, and sending the best to market as a vegetable esculent.

We append the following as the

Percentage Estimate of the Composition of the Parsnip.

	Natural state.	When quite dry.
Nitrogenised matter capable of forming flesh	7.30	7.25
Substances not containing nitrogen, fitted for the support of respiration and formation of flesh..	9.65	87.18
Ashes	1.00	5.57
Water	82.05	..
	100.00	100.00

We have used Parsnips for pigs, cow-stock, sheep and horses, and found them wholesome and palatable. Beasts and horses do not always relish them at first, but they very soon get fond of them, and we have found them have an especially good effect, as possessing quite an alterative action upon the skin.

Parsnips may be stored or not, as found convenient, as they do not get injured either by being kept in the ground or by frost, so that, if desired, they can be dug up as they may be wanted. We, however, clear the ground of Parsnips as soon after the Carrot crop is housed as may be, and then break it up, if possible, before Christmas. Our plan is then to select those for table use and store them in sand, whilst the others we cave up like Mangels, and cover up securely with a layer of loose litter, and then a thick thatching of straw.

Florists' Flowers.

No two florists acquainted with the leading varieties of the ZONAL PELARGONIUM now in cultivation, will be disposed to question this *dictum*—that among some of the finest sent out during the present year must be classed the fine seedlings raised by Mr. J. George, of Putney Heath. If I were disposed to single out any one variety of his raising (among the many fine ones he has from time to time obtained) as having a marked individuality of its own, and as summing up the highest outcome of the progress made with these flowers, it would be Mr. J. George, recently distributed by Mr. W. Paul. It is termed a hybrid nosegay, I suppose because of its noble trusses of flower, else in the fine symmetry of the large rounded pips it might pass for a true Zonal. The colour is particularly striking—a pale, yet bright hue of salmon-scarlet, dashed with orange. A. F. Barron, Edward Bennett, and Lustrous, all belonged to the same batch, and were certificated by the Floral Committee.

This season, also, Mr. George exhibited some fine seedlings well worthy of his reputation as a raiser, though they failed to obtain certificates as plentifully as the preceding batch in 1873. One, however, obtained this award, namely, Sir Garnet Wolseley, a hybrid nosegay, having crimson upper petals shaded with purple; lower petals clear crimson, large bold pip, of great substance, and very large truss. This is in every respect first-class. Others coming under the denomination of hybrid nosegays are—Belle of Surrey, flowers white, large and distinct, carmine centre; Black Prince, a remarkably deep glowing scarlet, very large truss and good habit, distinct; Enchantress, crimson shaded with a deeper hue in the edge of the petals, and flushed with purple, distinct in character, with fine bold pip and truss; and Rose Unique, lively salmon-rose flushed with orange, fine pip and noble truss.

What Mr. George denominates true Zonals are represented by Celebrity, lustrous orange-scarlet, pip stout and circular, large, bold, and showy truss, plain foliage; Mrs. E. Bennett, fine deep fiery scarlet with white eye, pip large and of fine form; and Par Excellence, very bright scarlet with white eye, pip large and of excellent symmetry, and extra large bold truss.

Mr. George has done good service to floriculture by the production of such fine forms of this popular flower during the past few years; his Circulator, a distinct cerise salmon-coloured variety still holds its own among many rivals, and is invaluable for pot culture. It may be added that the foregoing new varieties will be distributed by Mr. George Smith, of Hornsey, in the coming spring. *R. D.*

Notices of Books.

Plants, their Natural Growth and Ornamental Treatment. By F. E. Hulme, F.L.S., &c. (Marcus Ward & Co.)

Mr. Hulme's book is one intended more particularly for the designer, and less so for the botanist or cultivator. Nevertheless, the latter classes will find a series of accurately drawn plates representing various plants, and an illustrative text containing much information which will be acceptable to the amateur, the more so because it is pleasantly set forth without any assumption of *ex cathedra* knowledge which is sometimes so irritating to the *dilettante*. Of the designs founded on the plants we need say but little. It appears to us that Mr. Hulme has been more successful in direct proportion to the fidelity with which he has depicted natural forms. The book is well got up, but the smell either of the printer's ink or some ingredient in the colouring of the plates is anything but agreeable.

—— *Eason's Almanac and Handbook for Ireland for* 1875 (Dublin: W. H. Smith & Son) deserves special mention for the fullness of information that it contains upon a large variety of subjects connected with Ireland. We cull a few facts, which will be read with interest: Ireland is in the main an agricultural country, and its prosperity depends on the state of its agriculture to a very much larger extent than is the case in England. It appears from the tables before us that Ireland is rapidly passing "out of a system of tillage into a system of pasturage," in itself perhaps a not very desirable thing, but one easily explained by climatal conditions. Of more serious import is the fact that, combined with this increase of pasture, there has been a falling off in live stock (cattle, horses, sheep), though pigs have increased. While Scotland in the course of sixteen years had increased her tillage by about 50,000 acres, Ireland has diminished hers by more than a million, the general increase of live stock being about the same in both countries. It is clear, then, that while the Scotch have adopted a system of stall-feeding, the Irish cling to a system of simple grazing. Again, while the arable land in Ireland is over 15,000,000 statute acres, that of Scotland is only 4,500,000, yet the latter country maintains over 8,000,000 of cattle, sheep, and pigs, while Ireland on its much larger area maintains only 9,000,000. The population of Ireland is now estimated at about 5,500,000—the number of emigrants in 1873 being over 90,000, a higher number than since 1866. In spite of these figures, which are not very reassuring, we are consoled by the statements relating to the commerce of Dublin, Belfast, &c. "There is no disguising the fact that, estimating the prosperity of a country by the ability and disposition of its people to procure the comforts and luxuries of life, Ireland is little behind other parts of the empire in all the indications of material prosperity."

—— A valuable report on the *Gums, Resins, Oleo-Resins, and Resinous Products in the India Museum or produced in India*, has been prepared by Dr. M. C. Cooke under the direction of the Reporter on the Products of India (Dr. Forbes Watson). The report takes notice of the several products under the following heads:—1. Gums, including true gums, such as gum arabic; pseudo-gums, such as tragacanth, which swell up but do not dissolve in water; and astringent gums. 2. Gum-resins, comprising emulsive gum-resins, such as gamboge; fœtid gum-resins, such as asafœtida; and fragrant gum-resins, such as benzoin. 3. True resins, such as white damar. 4. Oleo-resins, including balsams, such as Cajeput oil; natural varnishes or lacquers, as afforded by various species of Rhus, &c.; and turpentine and tar, as obtained from various Conifers. By way of appendix, Dr. Birdwood's exhaustive paper on the species of Boswellia, originally published in the *Transactions of the Linnean Society*, is added, with its accompanying illustrations. The species are arranged under each heading, and a copious digest of what is known concerning them botanically, commercially, or economically, is given, together with, in most cases, a reference to the principal works where further information may be had. It is to be presumed that a large portion of the work before us was in type prior to the publication of Brandis' *Forest Flora*, or Hooker's *Flora of British India*, as we find, relatively, few references to those works; moreover, the author has frequently gone to second-hand sources for his information, when he might just as readily, and with greater authenticity, have taken it from the original publication. Why, for instance, cite purely descriptive notices from Drury, when Drury himself took them from Roxburgh or Wight? In a work of this character, however, this is of relatively little importance; but the absence of an index is a very serious defect, and one which greatly detracts from the value of the book.

—— The last number of the *Gartenflora* — that for September—which has reached us, contains coloured plates of Pironneava Morreniana, a handsome Bromeliaceous plant, with tufted flowers borne in panicles, and protected by coloured bracts; and of Caltha polypetala, botanically different from our own Marsh Marigold, but otherwise in nowise superior to it, according to the present plate. An uncoloured plate represents various forms of Gingko (Salisburia) found in a fossil state in Spitzbergen by the late Swedish Polar Expedition, and also others from Greenland. Similar fossils were originally detected in England, but were supposed to be impressions of Ferns, whence the name, Cyclopteris, applied to them.

—— The *Florist* for December contains coloured plates of Rhododendron Vauban, described as a fine showy, telling variety, with good foliage and grand trusses of distinct rosy lilac flowers of a peculiar and very pleasing tint, which is set off by a finely blotched upper segment. It is one of the well-proved hardy forms at Mr. Waterer's nursery at Knap Hill, and a late bloomer. Prince Engelbert Plum, a variety now much in favour in the market gardens near London, is the subject of another illustration.

—— The *Monthly Report of the American Department for Agriculture* for October, has lately reached us. It contains a valuable summary of the condition of the crops in the several States, and notes from the State Entomologist, Chemist, Botanist, and Microscopist respectively. The first-named gentleman records an unsuccessful attempt to prove the identity of the leaf-gall louse of the Vine with the root-gall louse or Phylloxera. Vines affected with the latter were placed with healthy Vines in the same house. The latter were attacked by the root-lice, but none of the leaf-galls or their attendant insects were found. Under the head of microscopical observations Mr. Taylor gives a valuable report on the Cranberry rot and scald, a disease which is doing much damage in the great Cranberry plantations of New Jersey. The rotting of the berries appears to arise from stagnant moisture and fermentation in the soil, which evolves an odour of sulphuretted hydrogen.

—— *Oesterreichisches Landwirthschaftliches Wochenblatt*, Vienna. This is a specimen number of a new weekly German paper devoted to agriculture and horticulture, to appear at the beginning of the year. It is, however, only horticultural in the sense of Vine culture, and the cultivation of vegetables on a large scale. Dr. G. Krafft undertakes the editorship, with a very numerous staff of contributors. It is well got up, and the range and nature of the contents of the first number promise well for the future. It contains, in addition to the editor's introduction, articles on the Aims of Agriculture in Austria, Acclimatisation and Interchange of Seed, Garrett's Potato-planting Machine (with illustration), Phylloxera vastatrix, accompanied by good original woodcuts, &c. We wish it every success.

Botanical Notes.

M. DE LANESSAU, in some communications made to the Linnean Society of Paris, concludes that the peculiar and characteristic ribs on the fruits of Umbellifers (*e.g.*, Carrot, Parsnip), are wholly independent of the nerves of the calyx, and are merely accessary productions having no direct relation to the other parts of the flower, and that therefore their value for purposes of classification is less than is generally admitted. M. de Lanessau's observations are of interest with reference to the distribution of the vascular bundles (nerves) on which M. Van Tieghem lays so much stress. In this case carpels, sepals, petals, and stamens are all formed before there is any appearance of vessels.

—— M. Baillon has latelely been experimenting on the power which leaves have of absorbing water. He sowed some Peas in a cubical box open on one side only, so that the box could be turned in any direction. Suppose the box to be turned on one side, the plant can be immersed in water without the roots or the soil being wetted. In this manner M. Baillon has succeeded in keeping plants alive for two months without giving the roots a drop of water.

RECENTLY PUBLISHED PORTRAITS OF GARDEN PLANTS.

Name and Reference to Figure.	Character and Quality.	Leaves.	Flowers.	Season.	Native Country.
RETINOSPORA DUBIA, *Carrière* .. .. Rev. Hort. 1874, 193, fig. 25.—Coniferæ	Hardy evergreen bush, turning brown in winter = R. ericoides	Young l. linear-obtuse, scentless; mature ones squamiform	(Adolescent and mature states very dissimilar)	....	Origin unknown ....
RETINOSPORA ELLWANGERIANA, *Hort.* .. Rev. Hort. 1874, 195, fig. 27	Hardy evergreen shrub, dwarf and bushy	Young l. acicular, the mature ones squamiform	(Mature leaves fragrant, as in R. dubia)	....	American Gards. ....
RETINOSPORA OBTUSA AUREA GRACILIS, *Hort.*—Veitch Cat. 1874, 13, 18, with fig.	Hardy evergreen shrub; exceedingly ornamental	Foliage as in R. obtusa	(Twigs elegantly pendulous, freely variegated with golden-yellow)	....	Garden variety *Messrs. Veitch*
RHAMNUS OLEIFOLIUS, *Hook.* .. .. Rev. Hort. 1874, 354, fig. 47.—Rhamnaceæ.	Half-hardy evergreen shrub; seedlings very variable	Oblong, persistent, entire, glabrous, leathery	Small, greenish, in short axillary panicles	....	N. W. America ....
RHEUM OFFICINALE, *Baillon* .. .. Rev. Hort. 1874, 93, fig. 13; Bot. Mag., t. 6135.—Polygonaceæ.	Hardy perennial; exceedingly interesting as furnishing the true officinal drug	Large, orbicular-subreniform, five-lobed, the lobes incised	Small, greenish, in dense spikes; stem 8—10 feet, branched	Summer	Thibet *Mr. Hanbury, &c.*
RHIPSALIS HOULLETII, *Lemaire* .. .. Bot. Mag., t. 6089.—Cactaceæ.	Stove succulent shrub, curious ..	Branches pendulous, the joints elliptic-lanceolate, toothed	Straw-coloured, copious, from the axils of the marginal teeth	November	Brazil *Mr. Corderoy*
RHODODENDRON MALAYANUM, *Jack.* .. Bot. Mag. t. 6045.—Ericaceæ.	Stove evergreen shrub, slender, pretty	Elliptic, and as well as the branchlets lepidote	Umbellate, dull scarlet, with a flat limb ½ in. across	....	Malay Archip. *Messrs. Rollisson*
ROMANZOFFIA SITCHENSIS, *Cham.* .. .. Gfl., t. 748; B. M., t. 6109.—Hydroleaceæ.	Hardy perennial; aspect of a dwarf alpine Saxifrage	Reniform-cordate or suborbiculate, lobed	White, 5-lobed, in few-flowered lax racemes	April	N. W. America *Haage & Schmidt*
RONNBERGIA MORRENIANA, *Lind. et And.* Ill. Hort., n. ser., t. 177.—Bromeliaceæ.	Stove perennial, ornamental ..	Oblong acuminate, bright-green, zonately barred with dark green	Blue and white, in thyrsoid panicles	....	New Grenada *M. Linden*
RUBUS DELICIOSUS, *Torrey* .. .. .. Bot. Mag., t. 6062.—Rosaceæ.	Hardy shrub, 3 ft., branched, fruit-bearing	Orbicular-reniform, 3—5 lobed, acutely toothed	Large, white, succeeded by sweet, globose, maroon-brown fruits	May	Rocky Mountains *Anderson-Henry*
RUCKIA ELLEMETIANA, *Regel* .. .. G.C. 1874, i. 243, fig. 57; Gfl., t. 571.—Bromel.	Stove perennial, handsome = Bromelia longifolia	Linear ensiform channelled, spiny-toothed, 18—24 in. long, mealy	In globose sessile spike, pinkish-lilac, with rosy bracts.	Winter	Mexico *Mr. Peacock*
SALVIA FARINACEA, *Benth.* .. .. .. Rev. Hort. 1873, 91, with tab.—Labiatæ.	Half-hardy perennial, ornamental	Narrowly lanceolate, acuminate, on angular powdery stems	Numerous, amethyst-blue, in elongate spikes	Summer and aut.	Mexico ....
SALVIA RUTILANS, *Carrière*.. .. .. Rev. Hort. 1873, 251, with tab.	Greenhouse sub-shrub, of a decorative character	Cordate-ovate, acuminate, soft, downy	In terminal leafy panicles, bright scarlet with deflexed lower lip	October onwards	Origin unknown ....
SAXIFRAGA KOTSCHYI, *Boissier* .. .. Bot. Mag., t. 6065.—Saxifragaceæ.	Half-hardy perennial, growing in densely tufted rosettes	Small, closely imbricate, obovate, obtuse, apiculate	Yellow, in cymes terminating the short leafy stems	May	Asia Minor *Kew*
SAXO-FRIDERICIA SUBCORDATA, *Körn.* .. G.C. 1874, i. 275, fig. 65; Ill. H., 3 ser., t. 153-4 (as Rapatea).—Rapateaceæ.	Stove perennial, of remarkably distinct character	Equitant at base, then spiny-petioled, the blade lanceolate-oblong, 8 to 9 in. long	In subspherical heads (young leaves coloured red)	....	Amazon *M. Linden*
SCORZONERA UNDULATA, *Vahl* .. .. Bot. Mag., t. 6127.—Compositæ.	Hardy or h.-h. perennial, 1—2 ft. high, pretty	Narrow linear-lanceolate, 1 ft. long	Bright purplish rose, in heads 2½ in. across	July	Algeria, &c. *Mr. G. Maw*
SILENE HOOKERII, *Nuttall* .. .. .. B M., t. 6051; Flore, t. 2093.—Caryophyl.	Hardy perennial, ornamental = S. Bolanderi	Narrowly elliptic-lanceolate, on short decumbent stems	Numerous, 2½in. across, pale pink, deeply 4-cleft	May	California *Mr. Thompson*
SILENE PENDULA COMPACTA, *Hort.* .. Floral Mag., t. 84.	Hardy annual, tufted, forming dense cushions 2—3 in. high	As in the type	Bright rosy pink, very abundant	May	Garden variety *Mr. Bull*
SKIMMIA RUBELLA, *Carrière* .. .. Rev. Hort. 1874, 311, with tab.—Rutaceæ.	Hardy evergreen diœcious shrub	Lanceolate-elliptic, leathery ..	Greenish-white, in thyrses, odoriferous	March	China? *French Gardens*
SONERILA BENSONI, *Hook. f.* .. .. Bot. Mag., t. 6049.—Melastomaceæ.	Stove perennial, with fleshy tetragonal branches	Ovate, seven-nerved, serrated ..	Bright rose-purple, in terminal stalked cymes	....	India *Kew*
SPATHIPHYLLUM ORTGIESII, *Regel* .. Gartenfl., t. 738.—Araceæ.	Stove perennial, stemless, interesting	Elliptic-oblong, with a broadly-winged petiole	Spathe oblong-elliptic, green, with an oblong white spadix	....	Mexico *Zurich Garden*
SPATHIPHYLLUM PICTUM, *Hort. Bull* .. Bull Cat. 1874, 13, with fig.	Stove woody-stemmed perennial, ornamental	Broadly ovate-elliptic, 16 in. long, fleshy and glossy	(L. dark green, mottled with golden green)	....	S. America *Mr. W. Bull*
SPYRIDIUM GLOBULOSUM, *Benth. et Hk.* .. Gartenfl., t. 795.—Rhamnaceæ.	Greenhouse evergreen shrub ..	Elliptic-lanceolate or oblong ..	Small, inconspicuous, yellow ..	July	Australia ....
STANHOPEA BUCEPHALUS ROEZLII, *Regel* Gartenfl., t. 785.—Orchidaceæ.	Stove epiphyte, showy	As in the type	Deep saffron, spotted with brown, the horns and column white	May	Nicaragua *Petersb. Garden*
STAPELIA CORDEROYI, *Hook. f.* .. .. Bot. Mag., t. 6082.—Asclepiadaceæ.	Stove succulent, curious, dwarf	(Stems four-angled, ovoid-oblong)	Green tinged with olive, throat lilac; star-shaped	Sept.	South Africa *Mr. Corderoy*
STEUDNERA DISCOLOR, *Hort. Bull* .. .. Bot. Mag., t. 6076 (as colocasiæfolia).—Araceæ.	Stove perennial, with short, thick stem, showy	Oblong-ovate, peltate, acuminate, with brown purple blotches	Spathe short, ovate, yellow, with purple base	May	India *Mr. Bull*
SYRINGODEA PULCHELLA, *Hook f.* .. .. B. M., t. 6072; Flore, t. 2096.—Iridaceæ.	Greenhouse bulb, very dwarf and pretty	Terete, almost capillary	Solitary, pale purple, with long tube, and bilobed segments	April	South Africa *Kew*
TACCA ARTOCARPIFOLIA, *Seem.* .. .. Bot. Mag., t. 6124.—Taccaceæ.	Stove perennial, curious; fl.-scape 5—6 ft. high	Large, trisected, segments 1—2 ft. long, with acuminate lobes	Green and brown, with long sterile threads, a 6—7 lvd. involucre	May	Madagascar *Kew*
TILLANDSIA JONGHEI, *C. Koch* .. .. Belg. Hort. 1874, tt. 12-13.—Bromeliaceæ.	Stove perennial, curious	Lorate, recurved, fusco-purpurascent beneath	Green and yellow, in distichous spikes	November	Brazil *Mad. Mawet*
TILLANDSIA MUSAICA, *Hort.* .. .. Bull Cat. 1874, 9, with fig.	Stove epiphytal perennial, pretty (G. C. 1874, ii. 487, fig. 100)	Ligulate, recurved, a foot long, smooth	(L. pale green, marked by patches of dark green transverse veins)	....	Colombia *Mr. Bull*
TRICHOPILIA LEPIDA, *Hort. Veitch* .. Floral Mag. t. 98.—Orchidaceæ.	Stove epiphyte, very handsome .	Ligulate, the pseudobulbs oblong	Wine-red, edged with white; lip crimson, with white edge	April	Costa Rica *Messrs. Veitch*
TRICHOPILIA SUAVIS LAMARCHIÆ, *E. Morr.* Belg. Hort. 1874, t. 4.	Stove epiphyte; fl. very beautiful and fragrant	As in the type	Large, white, richly spotted with deep rose	April	Costa Rica *M. Lamarch*
TULIPA GREIGI, *Regel* .. .. .. Gartenfl., t. 773.—Liliaceæ.	Hardy bulb with 3—4 leaves, showy	Ovate-lanceolate, undulated, spotted	Broadly campanulate, scarlet or purple	Spring	Turkestan *Petersb. Garden*
TULIPA HAGERI, *Heldr.* .. .. .. Gartenfl., t. 790.	Hardy bulb, showy	Linear, channelled, glaucous, reddish at margin	Purplish-red, with blue spots, and yellow stripe on each petal	Spring	Greece ....
TYDÆA LINDENIANA, *Regel*.. .. .. Ill. Hort., 3 ser., t. 147; Gartenfl., t. 589.	Stove perennial, pretty; base of upper lip purple (Gesneraceæ)	Ovate, central and secondary veins white	White, with purple blotch on lower lip, axillary	March	Ecuador *M. Linden*
TYDÆA PARDINA, *Lind. et And.* .. .. Ill. Hort., 3 ser., t. 152.	Stove perennial, second-rate ..	Ovate, acute (fl. in axillary clusters)	Scarlet, the limb white, with black lines and dots, throat yellow	....	New Grenada *M. Linden*
VERNONIA SCORPIOIDES, *Pers.* .. .. Rev. Hort. 1874, 231, tab.—Compositæ.	Stove subshrub, dwarf, erect, pretty = V. centriflora	Ovate-lanceolate, acuminate ..	Lilac-rose, in roundish heads; inflorescence scorpioidal	July	Brazil, &c. ....
VIOLA UMBROSA, *Fries* .. .. .. Gartenfl., t. 752, figs. B, C.—Violaceæ.	Hardy perennial, dwarf, neat ..	Cordate-ovate, toothed at the margin	Lilac, the lower petal veined with purple	May	Russia *Petersb. Garden*
VRIESIA BRACHYSTACHYS, *Regel* .. .. Bot. Mag., t. 6014.—Bromeliaceæ.	Stove perennial, showy; bracts green above, scarlet at base	Broadly loriform, acute, recurved, green	Yellow, in distichous ovate spike, 5 in. long, on red scape	November	Brazil *Mr. Rucker*
WISTARIA MULTIJUGA, *Siebold* (?) .. .. Flore des Serres, t. 2002.—Leguminosæ.	Hardy deciduous twining shrub, ornamental	Pinnate, leafl. numerous, elliptic-ovate, acuminate	Lilac, with purple keel, racemes 2—2½ ft. long	May	Japan *M. Thibaut, &c.*
XANTHOCERAS SORBIFOLIA, *Bunge* .. Rev. Hort. 1872, 291, with tab.; Id. 1873, 448, fig. 40 (fruit).—Sapindaceæ.	Hardy deciduous tree, ornamental	Imparipinnate, with lanceolate serrated leaflets	White, with purplish centre, cotemp. with young leaves	April	Mongolia *French Gardens*
XANTHORRHŒA QUADRANGULATA, *F. M.* Bot. Mag., t. 6075.—Junceæ § Xerotideæ.	Greenhouse shrub, with thick woody trunk	Filiform 4-cornered, in a dense crown or tuft	Minute, greenish, in close long-scaped spike 3—4 ft. long	Autumn	S. Australia *Kew*
XANTHOSOMA MIRABILE, *Mast.* .. .. G. C. 1874, ii. 258, figs. 53-4.—Araceæ.	Stove perennial, curious = Phyllotænium mirabile	Three-lobed, long-stalked, green, blotched with pale yellow	Spathe primrose, 5—6 inches long, decurved	Autumn	S. America *Mr. W. Bull*
XIPHION HISTRIO, *Hook. f.* .. .. .. Bot. Mag., t. 6033.—Iridaceæ.	Half-hardy bulb-tuberous perennial, very handsome	Linear-subulate, 1 ft. long, acutely quadrangular	Deep purple; outer segments with a golden disk, purple veins, and dark blue blotches	March	Mount Lebanon *M. Berbery*
XIPHION SISYRINCHIUM, *Baker* .. .. Bot. Mag., t. 6096.	Half-hardy bulb-tuber, dwarf, pretty = Iris Sisyrinchium	About two, elongate-subulate, falcate	Blue-purple, with yellow spot on outer segments	May	South Europe *Kew*
YUCCA BACCATA, *Torrey* .. .. .. Illust. Hort., 3 ser., t. 115.—Liliaceæ.	Hardy or half-hardy shrub, with short erect trunk	Erect, ensiform, channelled, the edges marginate, filamentose	Panicled, tulip-shaped, succeeded by pulpy, edible fruits	....	New Mexico *M. Linden*
ZAMIA ROEZLII, *Regel* .. .. .. Illust. Hort., 3 ser., t. 133-4.—Cycadaceæ.	Greenhouse shrub, with thick trunk	Pinnate, 6½ ft. long; pinnæ linear-acute, falcate, glabrous	Cones (female) large, cylindraceous, obtuse	....	New Grenada *M. Linden*
ZAMIOCULCAS BOIVINII, *Dcne.* .. .. Bot. Mag., t. 6026.—Araceæ.	Stove rhizomatous perennial, very interesting; petiole nodose in the middle	Solitary; petiole 2—3 feet high; blade triangular-ovate, triternately-pinnate	Spathes externally lurid yellowish green thickly streaked with brown, straw-coloured within	Winter	East Tropical Africa *Kew*
ZYGOPETALUM RIVIERI, *Carrière* .. .. Rev. Hort. 1873, 191, with tab.—Orchidaceæ.	Cool stove epiphyte, ornamental, and possibly a large-flowered form of Z. Mackayi	Ensiform, 20 in. long (fl. with a Hyacinth-like odour)	In racemes; green with brown blotches, the lip white flabellately-veined with lilac-rose	November, onwards	Brazil *M. Rivière*

PROTHEROE AND MORRIS Horticultural and Market Garden Auctioneers and Valuers, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. JAMES FRASER, Horticultural and Agricultural Valuer and Auctioneer, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

SIMPSON'S RED SPIDER and THRIPS, &c., ANTIDOTE.—*Bonâ fide.* See former advertisements. Prepared by JOHN KILNER, Wortley, Sheffield.

Wood Engraving.

MR. W. G. SMITH, Artist and Engraver on Wood, 15, Mildmay Grove, London, N.

RODERICK NICHOLSON, Advertising Agent and General Commission Agent, 112, Fleet Street, E.C

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., Importers and Manufacturers. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

HENRY ORMSON,
Horticultural Builder and Hot-Water Apparatus Engineer,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

THE THAMES BANK IRON COMPANY
(Successors to Lynch White),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

THE LONDON MANURE COMPANY
(Established 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under 12, £2 15*s.*
For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards, Freehold, from 10*s.* to 25*s.* per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to
ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

SALES BY AUCTION.

Beautiful New Masdevallia and Oncidium,
Both offered for the first time. Established plants of ODONTOGLOSSUM ALEXANDRÆ, ROEZLII, MAXILLARE, and VEXILLARIUM; good plants of CATTLEYA GIGAS and DOWIANA, SOPHRONITES GRANDIFLORA, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 21, at half-past 12 o'Clock precisely, by order of Messrs. Veitch & Sons, of Chelsea, a splendid NEW MASDEVALLIA—M. DAVISII. This species has been named and described by Professor Reichenbach as coming near the M. Veitchiana and Harryana section; the flowers are about the size of those of M. Harryana, and of a bright orange. Dried flowers will be exhibited at the sale, and the plants are in excellent condition. Also a very distinct and fine ONCIDIUM, named AUREUM. See dried specimens. The ODONTOGLOSSUM ALEXANDRÆ are established plants, and from the same importation which produced the fine O. Andersonianum and other beautiful varieties, and the other plants offered are all in good health.
On view the morning of Sale, and Catalogues had.

Lilium auratum and other choice Lilies,
just arrived.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, December 22, at half-past 12 o'Clock precisely, without the least reserve, 10,000 splendid Bulbs of LILIUM AURATUM, just arrived in the finest possible condition, being quite as fresh and plump as English-grown Bulbs; 2300 beautiful Bulbs of LILIUM TIGRINUM FLORE-PLENO, and a variety of other choice LILIES.
On view the morning of Sale, and Catalogues had.

Seeds and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 28, at half-past 12 o'Clock precisely, a Consignment of CONIFEROUS and other SEEDS from various parts; and a great variety of GLADIOLI, LILIUMS, and other BULBS.
On view the morning of Sale, and Catalogues had.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to
CARTERS', The Royal Seedsmen, High Holborn, London.

Seed Potatos.

H. AND F. SHARPE'S Wholesale Special Priced LIST of SEED POTATOS is now ready, and will be forwarded, post free, on application. It includes all the best English and American sorts in cultivation, and the prices will be found very moderate.
Seed Growing Establishment, Wisbech.

FIBROUS PEAT.—Brown Fibrous Peat, best quality, for Orchids, Stove Plants, and Potting, £6 6*s.* per 6-ton truck load. Black Fibrous Peat, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5*s.* per 6-ton truck load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

SPHAGNUM or PEAT MOSS. — Fresh Sphagnum Moss, 10*s.* 6*d.* per sack.
WALKER AND CO., Farnborough Station, Hants.

TO BE SOLD, very Cheap.
PINUS AUSTRIACA, 6 to 9 feet.
MAPLE, Norway, 9 to 12 feet.
CHESTNUT, Horse, 8 to 10 feet.
OAK, English, 7 to 9 feet.
All nicely grown and well rooted. For price apply to
H. BLANDFORD, The Dorset Nurseries, Blandford.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire, has to offer:—
100,000 LARCH, 2 to 3 feet, very strong, 30*s.* per 1000.
50,000 SPRUCE FIR, 1½ to 2½ ft., very strong, 25*s.* p. 1000.
50,000 SCOTCH FIR, 1½ to 2½ ft., very strong, 25*s.* p. 1000.
20,000 BLACK ITALIAN POPLAR, 2 to 4 ft., 25*s.* p. 1000.
BLACK AUSTRIAN PINES, three times transplanted, 2 to 3 feet, 20*s.* per 100.
The above are all very fine stout trees, being thinly planted. The prices are for cash, less 5 per cent. discount, and delivered free on the Railway.

Remarkable Novelties.

AMYGDALUS ALBA AUREA-VARIEGATA, a splendid shrub, with grand foliage marked with broad bands of yellowish white; superior to the Acer Negundo variegata (see *Revue Horticole*, September 1, 1874). Price, strong plants, 28*s.* to 40*s.*
BETULA ALBA FOLIIS PURPUREIS, a magnificent shrub, of the most bewitching aspect. Price 12*s.* to 25*s.*
GLADIOLUS—NEW ROSES.
EUG. VERDIER, fils aîné, Nurseryman, 72, Rue Dunois, Gare d'Ivry, Paris.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.
Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

The Nurseries, Dumfries, N.B.

FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, ROSES, GREENHOUSE PLANTS, &c.
Our Stock of the above is one of the largest in Scotland. The Trees and Shrubs are of all ages and sizes, and are well adapted for extensive Planting, or giving immediate effect in the Formation and Improving of Ornamental Parks, Pleasure Grounds, &c.
Priced CATALOGUES free on application.
THOMAS KENNEDY AND CO., Seed and Nursery Establishment, Dumfries.

Picea nobilis.

THOMAS METHVEN AND SONS beg to announce that, having a very large and fine Stock of this, one of the hardiest and most ornamental of the Californian Conifers, raised from SEED saved from the original glaucous-leaved variety, they are in a position to offer it in large quantities, on terms more favourable to purchasers than it has ever been offered since its introduction to this country: 1-yr. Seedlings, 1-yr. transplanted, about 3 inches high, 90*s.* per 1000; 1-yr. Seedlings, 2-yr. transplanted, 4 to 6 inches high, 120*s.* per 1000. Price to the Trade on application.
Leith Walk Nurseries, Edinburgh.—December 1.

150,000 Gladiolus.

EUG. VERDIER, FILS AINÉ, NURSERYMAN, 72, Rue Dunois, Paris, having a most complete collection of the above, solicits the favour of orders for the same from Nurserymen, Seedsmen, and Florists—to whom he engages to send only good healthy bulbs, correctly named.
NEW VARIETIES for 1874-75; do. of 1873-74, and of 1872-73. The old varieties, Amabilis, Archimède, Aristote, Berthe Reabourdin, Canari, Clémence, Courantii fulgens, Don Juan, Edith, Eldorado, Fanny Rouget, Fulton, Imperatrice, Le Poussin, Lord Byron, Louis Van Houtte, Madame Coudere, Madame Monneret, Napoleon III., Penelope, Prince Imperial, Princess of Wales, &c., are to be obtained per 1000 of each sort.
Mixed, by separate colours, and very varied.

Special Notice to Advertisers.

"*THE GARDENERS' CHRONICLE*" *for December 26 will be published on Thursday, Dec. 24. All Advertisements for that Number must reach the Office by Noon, on Wednesday, Dec. 23.*

BARNES FUND.—As it is intended to CLOSE the SUBSCRIPTION LIST to this Fund on DECEMBER 31 NEXT, all Friends wishing to Contribute will oblige by intimating their intention of doing so to either of the Undersigned as early as possible, so that their names may be inserted in the final list.
ROBERT PARKER, The Nursery, Tooting, S.W.
JOHN FRASER, The Nursery, Lea Bridge Road, E.
BENJAMIN MALLER, The Nursery, Lewisham, S.E.
F. R. KINGHORN, Sheen Nursery, Richmond.
BARR AND SUGDEN, King Street, Covent Garden, W.C.

Christmas Trees.

VIRGO AND SON have a splendid lot of SPRUCE FIR, in various heights, bushy, and of good colour. Prices and samples per hundred or per dozen can be obtained at
The Nurseries, Wonersh, near Guildford.

DUTCH and FRENCH FLOWERING BULBS.—We have now received, in splendid condition, one of the choicest and most extensive Collections of these Roots ever imported. Orders amounting to 20*s.* carriage free.
CATALOGUES on application.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6*s.*, 9*s.*, and 12*s.* per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40*s.* cash. Baskets and Packing included.
Crown Nursery, Reading.
N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1*s.* per packet, post-free.

Standard Tea Roses from Paris.

LEVÉQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer for next autumn a splendid and large stock of TEA ROSES, comprising all the best sorts, Maréchal Niel, per hundred. The price will be £5 per 100. LIST of sorts on application.

Home Grown Agricultural and Garden Seeds.

H. AND F. SHARPE are now prepared to make special offers to the Trade of their home-grown choice selected stocks of AGRICULTURAL and GARDEN SEEDS of this season's growth. They have been harvested in very fine condition, and are quoted low in price.
Seed Growing Establishment, Wisbech.

The Planting Season.

LARGE TREES.—Limes, Horse Chestnut, Giant and English Elms, Sycamores, Norway Maple, Upright and other Poplars, Bedford and Cœrulean Willows, Weeping and Cut-leaved Beech, Turkey Alders, &c. Fine Trees for immediate effect. For particulars and prices apply to
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

J. SCOTT'S TREE and SHRUB CATALOGUE is replete with information about Trees, &c. It enumerates the names and gives descriptive notes of one of the best and well-grown Collections in the West of England. Parties intending to Plant should send for a copy, supplied gratis, as are also the SEED and BULB CATALOGUES; and SCOTT'S ORCHARDIST, at 5*s.* 6*d.*, free by post.
The Nurseries, Merriott, Somerset.

J. SCOTT'S FRUIT TREES cover many Acres, and form the most complete Collection in the World, consisting of 2200 sorts of Pears, 1400 sorts of Apples, and other kinds in proportion, amounting in the whole to over 5000 sorts. CATALOGUES, gratis, sent to all applications; or SCOTT'S ORCHARDIST, post free, for 5*s.* 6*d.*, the most complete work upon Fruit Trees in the English Language.
Merriott Nurseries, Somerset.

Catalogues! Catalogues!!

EWING AND CO.'S PRICED, DESCRIPTIVE, and ILLUSTRATED CATALOGUES are now ready. Rose Catalogue, and Fruit Tree and General Nursery Catalogue—both are forwarded gratis and post-free to applicants.

New Apple—Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now sending out strong maiden plants of this splendid novelty, which obtained a First-class Certificate from the Royal Horticultural Society, November 12, 1873. Circulars, with testimonials and full description, will be forwarded, gratis and post free, to applicants. Price 7*s.* 6*d.* each, or three for 20*s.* The usual Discount to the Trade.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

PLANTS for WINTER FORCING.—Any one desirous of Successfully Forcing Flowering Plants during the coming Winter Months, should apply at once to JOHN STANDISH AND CO. for a LIST of their PLANTS specially prepared and adapted for this purpose.
Royal Nurseries, Ascot, Berks.

From Paris.—Gladioli Seedlings,
Per Colour, Mixed Seedlings, and Sorts to name.

LEVÉQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer, for the first time, SEEDLING GLADIOLI, in separate colours, beautiful, of flowers equal to the collection.
Mixed White, 12*s.* per 100; do. Red, 12*s.* per 100; do. Yellow, 24*s.* per 100; do. Rose, 12*s.* per 100.
Seedlings, mixed, of all colours, 8*s.* per 100, £3 4*s.* per 1000.
Their stock of named sorts is splendid and cheap.
See the LIST, sent free on application.

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. *for* 12 *months, including postage to*—
AUSTRALIA, BELGIUM | CANADA, FRANCE | JAMAICA, NEW ZEALAND | WEST INDIES, UNITED STATES

£1 10s. 4d. *for* 12 *months, including postage to*—
AUSTRIA, CHINA | HOLLAND, INDIA | PORTUGAL, PRUSSIA | SPAIN, SWITZERLAND

£1 14s. 8d. *for* 12 *months, including postage to*—
RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 19, 1874.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Dec. 21	Sale of Established and Imported Orchids, at Stevens' Rooms.
TUESDAY,	Dec. 22	Sale of 10,000 Lilium auratum from Japan, at Stevens' Rooms.
WEDNESDAY,	Dec. 23	Sale of Hardy and Ornamental Trees and Shrubs, Roses and Dutch Bulbs, at Stevens' Rooms.

IN continuation of our remarks on the CONDITION of the TREES in HYDE PARK and KENSINGTON GARDENS (p. 589), we would first notice a letter received from our correspondent, "West Somerset," who ascribes the present deplorable condition of these trees and their death to the following causes :—

(1.) "There are two very sufficient causes—the one is, that round every fine tree, wherever there was room to plant, a young, coarse-growing one has been inserted, which, as it is more vigorous than the old trees, cuts out the only remaining space for the roots of the older tree to find nourishment."

To this we take exception. There are, it is true, a few examples of this grouping or planting of young plants round the old specimen trees, but they are quite exceptional; nevertheless, we quite agree with our correspondent that it is a practice that ought to be avoided. It is to a certain extent injurious to the tree to be so surrounded; but no one can pretend to say that these young trees, however coarse-growing they may be, are the cause of the death of the fine old Elms in question. It is contrary to all experience for young plants to succeed when planted in the vicinity of old-established trees. Were it not so it would be an easy matter to renovate old plantations—and the sylvan beauty of Kensington Gardens would be easily maintained. This is the great difficulty that the managers of these places have to contend with; no putting in a tree here or a tree there will answer—it must be complete renewal.

(2.) "The other cause of decay is that the roots have really filled up all the space between the gravel on the surface and the stiff brick clay, beneath which many of the trees will not penetrate; and this gravel, being held in a water-tight clay, chills and rots their roots. As though this were not patent to even an idiot, the same process is going on in the new plantations round Hyde Park, especially opposite the Bayswater Road."

This admits of some consideration. The top soil is undoubtedly exhausted by overcropping, and the subsoil may not, in many cases, be quite agreeable or suitable for the growth of trees. We cannot pretend to any very intimate acquaintance with it. We know that this is the cause of the decay of many trees in various parts of the country, yet we are scarcely prepared to admit much of its influence here. There is no evidence of this over-supply of water to the roots, excepting it may be in the hollow near to the Barracks. There is, on the other hand, abundant evidence of the great scarcity of water on the higher grounds where the trees seem in the worst condition, and where they seem to die the most rapidly. But assuming for a moment this theory to be correct, it seems strange that these trees should have grown so vigorously and to such a size for nearly 200 years before meeting their doom, and should now die off so rapidly, whilst others now meet the same fate in a very few years. But it is not so, the younger newly-planted trees do not die off so rapidly; they may not be over vigorous, but, being tutored to dry hard living from the beginning, they will, like the mountain sheep or the seedling tree growing on the top of a wall, get used to it, and flourish. But upon these fine old trees, which have been grown in plenty, this dearth of food comes like a great shock, and they succumb in the manner we have seen.

We thank our correspondent for his suggestions, which we have noticed thus prominently with a desire to give the subject the very fullest consideration. It may be said, however, that it is not the cause or causes that we have so much to deal with, as the remedial measures. It is of no use to point out a sore without making an attempt to heal it. We would, therefore, in the first place, most naturally inquire what, if anything, is being done by the powers that be, in the way of the preservation of the trees, or in remedy of this sad state of matters? A strict regard for truth compels us to say, very little. It is melancholy to witness the gradual dwindling away of these trees, with scarcely an effort to save them. A great portion are undoubtedly too far gone for any remedial measures, and the sooner these are removed the better; but surely something can be done to save some. If the ground wants draining, why can't it be done? If the trees want fresh soil and water, surely it could be supplied to some extent. If young rubbishy plants are injuring specimen trees, let them be swept away. This ought to be mere routine labour. It seems to us, however, that some much more decisive measures than these will have to be adopted. There appears to us no alternative now—the case is far too desperate—but complete re-planting and renewal. This will no doubt be an expensive process, but it is the only thing that can now be done if we wish to preserve the woodland character of Kensington Gardens. A portion—some 10 acres or so—should be trenched up, enclosed and planted every other year. Some definite plan of procedure with the whole place, and of gradually renewing and replanting the whole, might be and of course should be at once adopted. Thus, dealing with it in detachments, we should in the course of a few years have a fine colony of young trees again, and be able to maintain our West-end gardens in their pristine condition.

A vast amount of public money is annually expended upon these parks and gardens, to keep them in their present highly-embellished condition. The countless thousands of showy bedding plants annually planted out here are no doubt highly appreciated by many; yet it seems to us that there is just getting a trifle too much of this garish splendour. What possibly could have been in worse taste than the dotting about of those Palms and other semi-tropical plants by the side of Rotten Row, as was done last season? The money expended on this at least would be far better devoted to the renovation of the trees, which are by far the most desirable occupants of a park. We would, in short, like to see more attention paid to the cultivation of trees; but we do not imagine that money would be wanting or grudgingly bestowed by Government for such a laudable purpose as this, could they only be impressed with the necessity of the case. Some steps have, we believe, been already taken—at least we had rumours of the appointment of a Committee of Inspection last year, which was to report on the condition of the trees, &c. But, whether this committee ever met or has made any report, we know not; probably, with the usual red-tapeism and circumlocution of official quarters, we shall hear of this about the time when Kensington Gardens become as bare of trees as Hampstead Heath or Primrose Hill.

We call upon the Government to take this matter in hand at once, for there is no time to lose. Let Lord HENRY LENNOX the present First Commissioner, who is well-known as a great patron of horticulture, signalise his period of office by commencing the renovation of the trees in Kensington Gardens. He will be ably seconded and assisted by the present superintendent, Mr. GIBSON, jun., who has both youth and strength on his side, aided and guided also as he would be by the experience of our old friend, Mr. GIBSON, the maker of some of our modern London parks.

—— RESPECTING the SUMBUL PLANT, Mr. WOBST, of the Moscow Botanic Garden, writes to the *Gartenflora* as follows :—"I succeeded in raising the Sumbul from seed this year for the first time. I sowed the seed last autumn in a dung-bed, and covered them up later with snow and lights, and treated thus they germinated freely in the spring." After some other notes respecting its culture, he says :—"I am puzzled at the development of the first leaves, which appear below the cotyledons." The formation of shoots beneath the cotyledons is not infrequent in Anagallis arvensis, several species of Euphorbia, Antirrhinum, &c., and it has also been previously observed in some species of Umbelliferæ (Masters' *Vegetable Teratology*, p. 161). The Sumbul invariably dies after flowering, Mr. WOBST informs us; of all the plants that have flowered with him not one has thrown up again. But many of the Umbelliferæ are monocarpic.

—— The successor to Mr. THOMAS SIMPSON in the management of the gardens at Broomfield Lodge, Chelmsford, is Mr. JOHN STERLING, of Park Wern Gardens, Swansea, and formerly house foreman to Mr. BENNETT, at Enville. Mr. BENNETT's late foreman at Hatfield (and also a pupil at Osberton), Mr. GEORGE FINNIS, has just been appointed head gardener at Byam, Marchwood, Hants, an almost new, but well-appointed, place.

—— LUCULIA GRATISSIMA is splendidly in flower in the conservatory at Kew. Though well known, much less attention is bestowed on it than its merits should command. We cannot afford to dispense with a plant of so much beauty, combined with a pleasing fragrance, and so distinct also from other ornaments of the wintry season. For details of culture ample information will be found in back numbers of this journal. Although it may be grown in pots successfully, it is always best planted out, as is the specimen at Kew; and in a bed where Camellias flourish it is likely to do well. Some difficulty is usually experienced in its propagation. If suitable cuttings are taken about midsummer and placed in a cold frame some are sure to strike. L. PINCEANA, a native of Nepal, has the reputation of striking more freely, and might perhaps be used as a stock.

—— The following PLANTS are mentioned by a correspondent as being IN FLOWER in Merionethshire, North Wales, near the shore of Cardigan Bay, on December 12 :—Camellias, Rhododendron dahuricum, R. cinnamomeum, Tea and Hybrid Perpetual Roses, Hydrangea Hortensia, Primulas, Spanish Broom, Gorse, Chrysanthemums, Fuchsias, Sweet Bay, Erica arborea, Berberis Darwinii.

—— In a recent article on Matico, published in our columns, the writer referred to the PECULIARITIES of ADVERTISING. Great as this art (?) has become in England of late years, everybody knows that we cannot touch our American cousins in this respect. It will be remembered by most of our readers that not many years since some interest was excited amongst the medical profession in this country by the reputed efficacy of the North American Sarracenia purpurea in the cure of small-pox. After trials both here and in America the plant was proved to be of no avail; at least, such was the opinion of those best qualified to speak on the subject. Nevertheless, the plant, together with S. flava and S. variolaris—which, by the way, are more favourably spoken of by the medical

profession in America—is still much advertised for purifying the blood, strengthening the nerves, restoring muscular power, creating appetite, &c. In an advertisement of somebody's celebrated "Sarracenia Life Bitters," which comes to us from Alabama, is the following :—

"JULIUS CÆSAR SAID :—

"'Let me have men about me that are fat—
Sleek-headed men, and such as sleep o' nights.
Yon CASSIUS has a lean and hungry look ;
He thinks too much.'

"Now, if CASSIUS had only used the

SARRACENIA LIFE BITTERS,

he would have suited JULIUS to a T. Hungry he might have been, but LUCULLUS, the cook, would have appeased his appetite. With a good digestion, a contented mind, and 'sleep o' nights,' CASSIUS would have been jolly and rotund, CÆSAR might have lived, and Rome continued mistress of the world."

One is tempted to regret that these wonderful bitters were not invented in those days ; the world would no doubt have been very different from what it is now, and America infinitely greater.

—— Mr. COWAN writes to us to take exception to a statement in our advertising columns to the effect that Mr. COLLIS was the original inventor of the system of LIME-KILN HEATING. The statement, as we understand it, requires qualification, and Mr. COWAN asserts positively that Mr. COLLIS is not the original inventor of the system which has been brought before the public during the last two years. As we cannot hold ourselves responsible for statements made in our advertising columns, so we cannot here enter more fully into the question at issue.

—— In Hungary it appears that even the SHEEP CHEW TOBACCO, and thrive well on it, at least so we are told by Professor WRIGHTSON, who learnt this remarkable fact last year when on a tour through that country for the purpose of collecting information on the state of agriculture. In his very interesting report, published in the tenth volume of the second series of the *Journal of the Royal Agricultural Society of England*, Professor WRIGHTSON, speaking of the Theiss district, says :—

"I found Tobacco cultivated on a large scale here, and learnt that sheep do very well upon Tobacco in a green state as a forage crop. It is sown in the middle of March in beds ; well watered and weeded, and planted out when 4 or 5 inches high, the plants being set as deep as the heart, or to where the leaves branch off from the stem. The field is ploughed in the autumn and again in the middle of May. It is then well harrowed, and either rolled or bush-harrowed to smooth the surface. The land is then marked out into 3 feet rows, and the young plants are placed 1 foot apart in the rows and well watered. When the second pair of leaves rise from the heart it is time to use ; when the third pair of leaves are expanded, and the fourth and fifth pairs begin to drive, earth up. Immediately the crown of the flower appears it is broken out, to strengthen the Tobacco. This is when the Tobacco is grown for cigars, but if for smoking in pipes the seed is allowed to ripen. When light flecks appear on the leaves they are broken off."

This is certainly a novel application of the much-abused weed.

—— In the new *Oesterreichisches Landwirthschaftliches Wochenblatt*, it is stated that the POTATO CROP is extraordinarily plentiful this season, and on account of large quantities continually arriving in the markets the growers realise only very low prices. The very best picked Potatos were selling at from 1*s.* 10*d.* to 2*s.* 6*d.* per Austrian centner. Many growers are extracting the starch, but prices have receded so much that there is barely any profit attached to the production of this article now. From the same paper we learn that for some years past experiments in making wine from plums have been going on at Marburg, on the Drave. The fruit is crushed, but the stones should not be broken and pressed in the ordinary way. Ten buckets of fruit yield five of juice. Further particulars respecting the results of the experiments are promised for a future number.

—— LISIANTHUS RUSSELLIANUS is one of the finest of decorative plants, but owing to some supposed difficulty in growing it, it is now rarely seen. Mr. JAMES BARNES, writing to the *Florist and Pomologist*, has recently described a mode of culture carried out by a neighbour of his, Mr. WEBBER, of Exmouth, which is both simple and successful. Mr. WEBBER has only the convenience of a greenhouse and a two-light pit. In spring the pit is cleared of plants, the decayed materials turned out, and 2 feet 6 inches of well-wrought fermenting material placed inside. On this gentle heat is placed the Lisianthus seed, sown on light, open, sweet soil, and very lightly covered with sand, a bell-glass or piece of glass being put over the pot. As soon as the plants can be handled, they are pricked out in the same open kind of soil ; and when they have grown a little they are potted into 60-sized pots. The fermenting materials having by this time become exhausted and sunk down, a temporary stage is formed close to the glass with a few bricks and slips of boards, and on this the plants are now placed in saucers, the reason being that they are never watered on the surface of the soil, but tepid water is always supplied in the saucers. If the surface of the soil late in autumn and through the winter is watered, the plants are very liable to shank off or canker at the surface, and that, too, very suddenly. By the end of September the greenhouse is re-arranged with winter plants, when the warmest, lightest, and most sheltered place on the front shelf is chosen for the Lisianthus plants, which are there set in pans until the following spring, when they get a good shift, and are replaced on the prepared cutting bed, now again got in readiness with its fermenting materials. By the time most of the cuttings, &c., are removed, the young plants are ready for their final shift, and get more room till they begin to show bloom-buds, when they are again placed on the front greenhouse shelf to bloom. The clean pots used are drained fully one quarter of their depth with broken sherds ; and the soil is healthy, sweet, well pulverised, and tolerably light and rich, being composed of well-decomposed leaf-mould, heath-soil, or light turfy loam, a portion of well-decomposed cow-dung, and of clean, well washed, sharp sand, enough to keep all open, sweet, and porous, being always incorporated. In their full-growing season the plants may be watered with good clear liquid manure, never applying the water cold, or from autumn to spring, on the surface of the soil. The plants may be grown to any desired size, with the convenience of heat and room and large shifts. Mr. WEBBER'S are finished off in 10-inch and 12-inch pots, and are noble, healthy plants, with from three to four score or more open flowers on each plant.

—— We learn that the veritable MASDEVALLIA CHIMÆRA is in bloom in Mr. W. BULL'S establishment at Chelsea, and hope shortly to give an illustration of the flower.

—— A very useful BELGIAN DIRECTORY has just been published by the Professors in the National School of Horticulture annexed to the University of Ghent. Its title is *Annuaire de l'Horticulture Belge.* It contains, in addition to the usual calendar matter, a notice of M. GHELLINCK DE WALLE, the President of the Royal Society of Agriculture and Horticulture of Ghent, and who presided in that capacity on the occasion of the last quinquennial exhibition at Ghent, and charmed the visitors by his tact, courtesy, and splendid hospitality. Then follows a list of Belgian nurserymen and of other tradesmen connected with horticulture ; and a list of botanic gardens and horticultural societies, with their officers. An account of the principal new plants, fruits, &c., is then added, and a series of practical articles (illustrated) on various horticultural subjects. The work ends with a calendar of operations for each month. As our horticulturists are so much interested in all that concerns Belgian gardening, we commend this publication to their special attention as a very useful publication. It is published at the office, 4, Boulevard du Château, Ghent.

—— A French journal, says the *Engineer*, gives the following particulars respecting the value of the MUD OF PARIS, for which and for its removal it states that the contractors pay 600,000 francs annually to the Municipality. It is sold for manure at from 3 francs to 5 francs per cubic metre, and thus yields a revenue of about 3,000,000 francs ; but out of this amount the expenses of sweeping the streets and carting away the mud, must be deducted. The scavengers and other *employés* of the contractors are under the superintendence of the authorities, the entire staff being composed of several thousand persons. In 1823 the amount paid for the right of collecting the mud of Paris was only 75,000 francs, in 1831 it was let for 166,000 francs, and in 1845 it reached the sum of half a million of francs.

—— Mr. CANNELL, finding it impracticable to obtain a lease of his NURSERY GROUNDS at Woolwich, an "ill-shaped railway embankment," has succeeded in obtaining on lease for ninety-nine years 17 acres of suitable land, very conveniently situated, adjoining the Swanley Junction Station of the London, Chatham, and Dover Railway, to which his business will shortly be removed. The land consists of three different kinds of soil ; one-fourth of the most elevated part abounds with chalk, which will be utilised in heating thousands of feet of piping. The grounds will be laid out to the best advantage.

—— It is reported, says the *Pall Mall Gazette*, that they have very nice CABBAGES IN COLORADO. One of the principal growers has this year harvested from 4½ acres nearly 40 tons of the bounteous vegetable, one variety averaging 26 lb. per head. It is recorded of this agriculturist that three years ago he contrived, by putting temporary side boards 2 feet high on the top of those of the usual height, to load thirty-nine heads on his farm waggon. The fortieth head was put on, but could not be made to stay. He drove the load to the nearest town, and proposed to sell it to a local proprietor. He, however, wanted only a sackful, but when informed that it would be impossible to get one head in the sack the landlord desired to see the load. His report soon drew around the waggon a number of curious spectators, and in fifteen minutes the load was disposed of, at a cent and a half per pound over the market price, and every head was sent to the States as specimens of Colorado's productions. The load weighed over 1700 lb., making an average for the thirty-nine heads of 46 lb. each—a case of "ground and lofty" farming !

—— Our correspondent, Mr. T. BAINES, late gardener to Mr. MICHOLS, of Southgate, and one of the most successful plant growers of the day, proposes to act as referee on all subjects connected with landscape gardening and horticulture generally. Mr. BAINES' address is Avenue Road, Southgate.

—— One of the most attractive of late summer and autumn flowering plants, is SALVIA SPLENDENS ; and indeed it is one of those things that can be had in bloom almost "all the year round." Introduced from Mexico some half a century or more ago, it was at first thought to require stove treatment, till, by means of one of these fortunate ventures that frequently materially changes the character of the estimate of the cultural process required by a plant, it was found to succeed best with cool treatment. Some cultivators who make a speciality of this fine old plant with signal success, now allow it to mature its growth planted out in the open ground, taking the plants up the first week in September, and potting them for flowering during the winter, after keeping them close for a few days till established. It is a plant that requires all the solar light possible to be obtained at the dull season of the year, in order to bring out to a fulness of brilliancy the glowing scarlet flowers it produces with so much freedom. Specimens will yield many hundred spikes of flower, and the cutting away of the leading spike only results in the breaking forth of lateral shoots that speedily produce flowers also, the more valuable because so bright in hue at the dullest season of the year.

—— Mr. PHILLIPS, Canonbury, Kingsland, Shrewsbury, proposes to publish *fasciculi* of dried specimens, duly named, of British Elvellacei, the group of fungi containing the Morel, the various species of Peziza, &c. As the number issued will be small, early application should be made as above by those desirous of possessing them.

—— Mr. SETH GREEN, the well-known American pisciculturist, proposes that some enterprising persons should turn their attention to FROG CULTURE ; and he gives careful directions for procuring and treating the spawn of frogs. The spawn will hatch in about fifteen days, and if the tadpoles and young frogs are placed in a suitable position it is calculated that they may be easily reared, and a large profit made. The mode of feeding the frogs is to place pieces of meat, or other substance, to attract the flies, upon which the frogs feed ; they will also eat the maggots of decayed meat, and even the meat itself. It appears, says *Nature*, that the demand for frogs in America is increasing, and in that case a frog-farm might be made a good investment.

—— The REPORT OF THE GOVERNMENT BOTANIST OF VICTORIA for the year ending June 30, 1874, has been published. Though not primarily intended to be so, it is in reality a modest, yet dignified protest against the treatment to which the Government Botanist has been subjected. It is difficult to conceive of the perversity and lack of appreciation which has led to such unworthy conduct towards a public servant, the founder of his department, and one who has devoted his whole energies and his private resources entirely to it. In Europe we can only judge from the results before us, and, tried by that test, the labours of Baron VON MÜLLER appear so indefatigable and so useful alike to science and to economic botany, that nothing short of actual misdemeanour should have exposed him to such annoyance, or checked his power of doing work useful to humanity. The report before us deals in brief with the routine duties of the office, such as correspondence and replies to inquiries (which are naturally extensive), descriptions of Australian plants, industrial researches, and the issue of educational collections. With reference to the industrial researches made by Baron VON MÜLLER, mention is made of the lists of timber trees and other useful plants drawn up and circulated. The reporter laments the arbitrary closure of his laboratory, wherein he made researches on the tars and other products derived from the Eucalyptus, and for which he received a special award at the recent International Exhibition. Many other researches of like kind are alluded to, as also the introduction of the Eucalyptus globulus into Europe as a fast-growing tree, specially valuable in unhealthy situations. Adverting to some expeditions he made during the year, the Baron alludes to specimens of Eucalyptus amygdalina, 400 feet in height, as also to Festuca dives, a stately grass, often 12—17 feet in height, growing in Fern tree gullies. It is mentioned

as one of the most eligible grasses for growing under trees, and one of the most desirable for scenic planting in horticulture. Doubtless this grass would thrive in our south-western counties. In any case, our Mediterranean friends should make inquiries for it. The educational collections above referred to consist of collections of dried specimens of wild Australian plants, carefully selected and named, and distributed among various institutions in the colony. The Baron is sadly hampered by the fact that he has but a single room—the museum—wherein to carry on his work, and is altogether placed at such disadvantage that we can hardly believe but that the next report will contain the details of the steps taken to furnish him with the requisite space and means.

— In our issue of August 15, p. 205, we published an original paragraph on the forcing of ORCHIS MACULATA, which has recently been reproduced, word for word, in the *Farmer* (unintentionally, no doubt), without acknowledgment. Our contemporary, the *Garden*, copied the paragraph from the *Farmer*, and gave that journal the credit for it. In the December number of the *Villa Gardener* the same paragraph is trotted out as original matter from the pen of its Editor. Surely, if the information was considered of sufficient interest for quoting by our contemporaries, it was worth acknowledging the source whence it was derived.

— From the *Report of the Commissioner of Agriculture* (United States) for the year 1872, we find that there are no less than thirty-eight agricultural colleges, in most or all of which a complete system of education—general, theoretical, and practical—is given. In this country we boast of one, and one only!

— There is now, in fine condition, in the conservatory at Hatfield, Herts, a grand specimen of LUCULIA GRATISSIMA, every shoot having a flower-spike upon it. What with its delightful fragrance and immense quantity of Hydrangea-like heads of blossoms, it is truly a noble object at this dull season of the year. The plant is growing in the open border, which is at all times more suitable to its successful culture than being cramped up in a pot. Mr. BENNETT, when at Enville, stated his experience and treatment of the Luculia in the *Gardeners' Chronicle* of June 11, 1870.

— At p. 178 (No. 32) of the present volume of the *Gardeners' Chronicle* is an account of a species of Luffa known in America as the BONNET or DISHCLOTH GOURD. A specimen of the fruit of this Gourd, together with some notes as to its uses, which are almost identical with those given at the page referred to above, have, we learn, recently been received at the Kew Museum from Mobile, Alabama. This fruit, which has, however, been denuded of its thin epicarp, leaving only the vascular substance containing the seeds, is about 2 feet long, and to all appearance is none other than that of the Sooly Qua, which has been identified with Luffa ægyptiaca (Miller); the only difference is that the seeds in the specimen from Alabama are white, which, however, counts for nothing, inasmuch as it is stated in OLIVER'S *Flora of Tropical Africa*, vol. ii. p. 54, that the "seeds are black, rarely whitish," and, moreover, in the article referred to in these pages, it is said that the seeds are black. The only difficulty as to its identification with L. ægyptiaca is that the fruit of this species is described (*Fl. Trop. Af.*) as "cylindric or trigonous, with ten dark lines, but no sharp ridges," while L. acutangula, Roxb., has "ten sharp ridges;" and the "Bonnet" or "Dishcloth Gourd" is stated to have these distinct ridges. The conclusion, however, would seem to be, that this Gourd, which has been made so much of in America, is none other than the "Sooly Qua," and the "Sooly Qua" is none other than Luffa ægyptiaca. So far as the use of the vascular portion is concerned, there is nothing new in the applications to which it is put in the United States; bonnets, hats, and ornamental articles are constantly made of it in the West Indian islands, and the fruits are sometimes sold in this country for use as flesh brushes, sponges, &c.

— The following plants are now flowering in Mr. TYERMAN'S garden in Cornwall:—Jasminum revolutum and nudiflorum, Hepatica triloba, Gentiana verna, Narcissus incomparabilis and patulus, Helleborus niger and atrorubens, Primula Palinuri, P. double lilac, vulgaris, alba and Polyanthus, many varieties; Iris stylosa, Convolvulus linearis and C. Cneorum; Scilla sibirica, and Watsonia rosea. A bed of this plant flowered very finely with him in July: the plants have continued to grow, and at the present are again in flower, the spikes being as strong and beautiful as in the summer flowering. Schizostylis coccinea is nearly over, but Cyclamen Coum and Atkinsii are extremely beautiful; as are several varieties of the shrubby Veronicas and evergreen Candytufts, Triteleia alliacea, Coronilla glauca, and Vittadenia triloba (Erigeron mucronatum) of gardens.

BRITISH GARDENERS.—VIII.

THOMAS SPEED.

MR. THOMAS SPEED is one of those cultivators of the soil who, by practical skill, have won for themselves a high position among British gardeners. He was born at Abingdon, in Cambridgeshire, on December 19, 1832. His father was gardener and steward to Thomas Mortloch, Esq., at Abingdon Hall; and at an early age the son was occupied in assisting his father in the garden department, where he remained until 1851, when he went to work under his brother, Mr. Joseph Speed, who was the gardener to H. Ray, Esq., of Pymmes, Edmonton, and who was at that period one of the select band of exhibitors who, by their splendid examples of cultivation, made the London flower shows not only famous on the score of horticultural merit, but popular among the upper ten thousand. Thomas Speed remained with his brother during the season of 1851, assisting in preparing the plants for exhibition, and attending all the great shows. Thus he became initiated into a little really good plant culture, which evidently has never been forgotten, as witness the excellent condition of the grand collection of plants now under his charge at Chatsworth.

In 1852 Speed was fortunate enough to be engaged by Mr. William Thomson as a journeyman in the

kitchen garden at Wrotham Park, and, after being in that position for twelve months, he was promoted to be foreman of the department; afterwards he was advanced to be foreman of the flower garden and conservatory department, and from that to be foreman of the forcing department. "In all," writes Mr. Speed, "I was nearly four years with Mr. Thomson; and to the excellent practice I then saw I owe no little of my after success—so much so, that I have always felt a deep debt of gratitude to that gentleman:" a well-deserved recognition of the ability and successful career of one of the best of modern gardeners and fruit growers.

In 1856 Mr. Thomas Speed was engaged by Mr. William Ingram, gardener to the Duke of Rutland, to go as foreman of the houses in the gardens at Belvoir Castle. "I remained there four years," he writes, "and during that time received many valuable lessons in good gardening. Mr. Ingram, being a good practical geologist, I there became acquainted with the different geological formations, and their bearings upon horticulture; and I need scarcely say that their influence is much greater than is imagined by many cultivators."

In 1859 Mr. Speed was engaged as gardener to Sir Edward Walker, of Berry Hill, Mansfield, Nottinghamshire, where he remained until 1868, during which time he laid out the flower garden anew, replanted all the vineries, built a range of Pine-stoves, replanted all the Peaches, and, in a word, remodelled the whole place. Our volume for 1866 contains abundant evidence of Mr. Speed's success as a Grape grower while living at Berry Hill. One correspondent—we believe, Mr. Ingram, of Belvoir—describes them as "surpassing in size and general excellence all that had ever before been grown in the midland districts." Another, Mr. Ayres, writes, that Mr. Speed's Grapes at the present time (Feb., 1866) will bear comparison with those produced by the best growers in England; he has not only quality but he has quantity; and all in excellent condition, . . . such as in a forty years' experience I have rarely seen equalled and never excelled in the end of January." Of these same Vines Mr. Meredith writes, in the same volume, as follows:—"No one can look upon the Vines at Sir Edward Walker's without admiring them and their wonderful productions, brought about, of course, through the liberality of the owner, and the skilful management of his gardener."

In 1868 Mr. Speed was appointed to the charge of the noble gardens at Chatsworth, the seat of his Grace the Duke of Devonshire, and that his management of these compares worthily with that of his predecessors, the descriptive notes published by us in our volume for 1873 (pp. 648, 1175, 1238), and for 1874 (ii., p. 291), bear ample testimony. Mr. Speed's display of Pitcher-plants in the Amherstia-house is something marvellous; and as a feature of acknowledged improvement which comes from his own hand, may be mentioned some raised beds with Ivy-covered sides introduced on the stretch of lawn lying between the mansion and the great fountain, and which take off some of the baldness which formerly was apparent there. To some of the features of this princely garden we hope to revert shortly.

Home Correspondence.

Plants for Table Decoration.—Probably at no time has there been a greater request for plants for table decoration than at the present, and among recent introductions are some plants of great value for the purpose. In selecting the plants always avoid those that would have too sombre or dense an appearance when placed on the table; on the contrary, choose those that will give a light and elegant effect, and which will not obstruct the view from any part of the table. Nothing looks worse than a dense plant or heavily-dressed vase of flowers for this purpose. For general uses I do not exceed pots of 6-inch diameter (*i.e.*, 32's); in some cases 48's, and even 60's, are sufficiently large. The following is a selection of plants which I grow, and some of which I have used in competition in the table decoration classes at the Crystal Palace and elsewhere, and where they have been greatly admired. There is no class of plants which surpasses the Palms for elegance and durability, and when judiciously used their graceful leaves appear to great advantage. Cocos Weddelliana is one of the very best plants for this work, and which ought to be in every good collection. Its light and elegant leaves make it a universal favourite. Chamædorea graminifolia, next to the above is one of the best, rather taller in habit; while C. elegantissima, a more spreading kind than the preceding, is very pretty. Areca lutescens is a useful Palm, being of a more hardy constitution than some kinds. Kentia australis is a splendid kind, of a pleasing shade of green, a good centre plant for a table where three are used. Dæmonorops fissus also makes a fine plant for a centre, and is a very graceful Palm, but requires a higher temperature than the foregoing. Euterpe edulis is a beautiful Palm in a small state when grown in 3-inch pots, with a very slender stem supporting its arching leaves; it looks well in the centre of a group of flowers. Geonoma Spixiana is a distinct and useful kind. Rhaphis flabelliformis, when grown with a single stem, makes a very effective plant; it can also be grown in a greenhouse. Areca Verschaffeltii, in a small state, is very pretty; when larger it makes a good sideboard plant. Oreodoxa regia is rather tall but very light and elegant; a good centre plant to a table with flowers at the base. Martinezia erosa, a distinct kind, looking very pretty from its profusion of spines. Thrinax elegans is the best of all Fan Palms for the purpose; its finely-divided leaves make it a useful kind. Seaforthia elegans, grown in 48's, is also a useful species, of hardy constitution. Phœnix tenuis, again, is a distinct and hardy Palm. All the Palms when grown for table decoration are necessarily confined at the root, and in time become partially exhausted. They are then greatly benefited by an occasional application of manure, for which I mostly use Standen's Gardener's and Amateur's Friend, being one of the best artificial manures. The following are a few useful stove plants, viz., Aralia Veitchii, a beautiful plant for this purpose, very light and elegant; when better known it will become a general favourite. A. leptophylla is also a good plant when not grown too strong. Dracæna gracilis is one of the prettiest of all Dracænas for decoration, when in a small state. D. Cooperii in the form of young plants, when well coloured, is very effective; D. nigro-rubra is a distinct and useful kind, lighter in character than the foregoing; D. terminalis is a well known variety; D. Guilfoylei, when well

coloured is very pretty, being very distinct. Croton Johannis and C. Weismanni, are two of the very best in their class for this kind of work,—the arching, golden foliage of the former places it in the first rank when well grown and coloured. Pandanus Veitchii is one of the very best plants of recent introduction, and for table decoration when in a small state one of the most graceful; when used on a wide table it produces a beautiful effect. I find it colours best when grown in rather poor soil. P. Vandermeerschi, a pretty green species, has narrow foliage. Curculigo recurvata variegata is a good and very distinct plant for this purpose, better, I think, than the green variety. Casuarina sumatrana I have seldom seen grown for table work, but when it is, its distinct and light appearance makes it at once attractive. Jacaranda mimosæfolia, with foliage of a light green, ought to be more grown than it is. Lomatia elegantissima is a distinct and beautiful plant and also very hardy. Those not possessing any included in the above list might with advantage add them to their collections, and I feel satisfied they will be well pleased with their purchase. *J. Hudson, Champion Hill, S.E.*

Transplanting Evergreens.—As I observe that your correspondent, M. Saul, allows that "the season best adapted for transplanting evergreens is still a disputed point," I may be allowed to state that we have come to the conclusion, within the last few years, that May is the most desirable month for transplanting Hollies. We grow them ourselves from seed, so that after being lifted annually until they are ready to plant out, they have made nice roots, and all is in their favour. We rarely or never lose one. I should be glad if any of your correspondents could explain the reason why that month should suit Hollies better than other evergreen shrubs. *E. O. Maynard.*

Notes on Plants Grown in Cornwall.—During the past season I have had less success than usual with the Passifloras. P. cœrulea, as well as another, purchased as P. Neumanni, have flowered well, but produced very few fruits. Those in pots, unplunged, suffered from cold winds, and later on from want of water; the fruit of P. pinnatistipula was not half the usual size, but I have never seen the late autumn flowers exceeded for beauty. There were no good flowers on the somewhat more tender Tacsonia mollissima. Given a sheltered situation, pots not over 8 or 10 inches, and abundant water, success is sure with these if put out when frost is over. They will stand not a little frost under glass. I tried the curious Disemma coccinea: it does just as well, is somewhat hardier, begins to grow and flower very early in spring, and produces a vast quantity of not bad tasting green fruit, but the not very conspicuous flowers are hidden by the leaves; plants come up in spring if there any seeds in the manure used in the garden. The seeds of T. Van Volxemi grow in the same way, if the fruit is only thrown on the ground, and one of such a crowd survived last winter. Solanum jasminoides fruits abundantly, if permitted to extend itself, in clusters of three to eight small blue or purple-black berries. Swainsona Osborni, has been planted and kept out for three winters protected by ashes. It grows about 3 feet high, and forms a semi-herbaceous bush, covered with its beautiful lavender-pink pea-flowers in abundant spikes. It has each season produced three or four pods of seed. I have Mandevilla suaveolens, two winters in the ground against a south wall, otherwise unprotected; it flowered for the first time, and abundantly, this past summer, but only produced one pair of seed-pods, each 17 inches long, round, somewhat tapered, soldered together at the points, and springing apparently from one bloom. This plant may be killed by a hard frost, as I made the mistake of planting it, a twiner, against a wire trellis. Schizostylis coccinea has been very fine indeed this autumn. *W. S. C. P., Trehane, Cornwall, Dec. 14.*

Flower Shows.—On reading Mr. Shuttleworth's letter at p. 752, I was reminded of a rebuff I received one evening when presiding at a committee meeting. The conversation ran into a curious subject, and as I was the cause of the same we were all enjoying a hearty laugh, when I bethought me of the business, and remonstrated with the others for the digression, whereupon a gentleman, pointing to me, exclaimed, "What, the devil reproving sin!" I have often heard parties threatening not to exhibit again, but they soon forget it. The remarks about made-up plants should have come from other quarters. Is it not a fact that the Maranta Makoyana shown at South Kensington and Bath by your correspondent in 1873 was three and not one plant? I know he may plead that he bought them so, but that don't improve the case. Then, as to buying, &c., every one who knew the matter was well aware that the Encephalartos ampliatus and Cyathea Burkei, shown at South Kensington by him in 1874, for the same prize, were the same plants that Mr. Bull received First-class Certificates for, and that they were not grown by the exhibitor. Then, as to staging these plants, they were left until others had finished, both at Bath and South Kensington, although the men were waiting about some time. Again, the lot of Sarracenias at Birmingham this season, were they grown by the exhibitor? As to the matter of "round men in square holes," I have had some experience, and must say that, with the exception of once at South Kensington and once at Birmingham (where one of the two others was at sea, but we were able to keep him from error), I have always found men perfectly competent and above suspicion. As to judging by points I never saw men do otherwise. Any person can grumble, but he would find himself as sharply criticised if he attempted the work. I think it would be but just, if a person has any grievance, to state the exact cause and where it happened: then an explanation could be given; but when it is general no remedy can be attempted. I believe the projectors of exhibitions are always desirous to please and accommodate the exhibitors, but I believe many exhibitors, upon seeing the name at the bottom of Mr. Shuttleworth's letter, will exclaim, like the man who invented thunder for theatres—the manager refused to pay him, but paid the man who made the apparatus—who, whenever the performance came off, would shout from the gallery, "That's my thunder!—that's my thunder!" *J. Croucher, Gr. to J. T. Peacock, Esq., Sudbury House.*

Sanitary Reforms.—I have read with much interest your recent articles on sanitary reforms. As we have some intention of building labourers' cottages at no very distant period, we should be glad to learn anything that would throw light on the subject. It had occurred to us about clean and foul water tanks; but for each cottage to have one of both might prove a great outlay. Why not have one large foul-water tank for the whole row placed at some little distance from the cottages—near allotment gardens, for instance, and have a pump attached, so that it would come in useful for watering the gardens? I should recommend an open stone gutter, which could be properly swept, as underground drains near cottages are always getting filled up and causing disagreeable odours. A clean-water tank for each cottage might prove less costly than one large rain-water tank, and less likely to cause disputes among the inmates. *E. O. M.*

Matico.—In the communications in your issue of November 28, about Matico, so commonly used in South America for wounds, vomiting of blood, leucorrhœa, &c., you express some doubts about the name of the plant that serves for the preparation of that drug. In the case where it seems you expressed the greater doubts, namely about Piper elongatum, in my humble opinion this is the only plant intended, if I might be allowed to judge from the labels with which the drug is accompanied! It is generally used in Peru as a liquid extract, and sold in small bottles. I believe it is prepared in Lima, the capital of Peru, whence it finds its way into the neighbouring countries, as Ecuador, New Grenada, and Bolivia. Each label bears not only the distinct printed inscription, Piper angustifolium, but is also adorned with a small portrait of that plant. However it may be, the other plants named by you, as Eupatorium glutinosum, &c., are used for the application either as a similar extract or as a cataplasm (the latter by means of a simple leaf) in the region of their respective occurrence, or it might be supposed to serve for a fraudulent imitation of Matico. *Gustavus Wallis.* [The only leaves sold by the druggists, so far as we know, are those of the Piper above mentioned. Eds.]

Ozokerit (pp. 679 and 720).—"The secret of ozokerit" might have been known to visitors to the Kew Museums, and, no doubt, to other museums, long before its recent revelation as an article of commerce. A fine specimen of this substance from Moldavia, where it is used by the peasants for greasing the axles of their carts, as well as for making candles, is contained in Museum No. 2. In Thomson's *Cyclopædia of Chemistry*, published in 1854, ozokerit is described as a "brown, resinous, waxy substance, green by transmitted light, slightly soluble in alcohol and ether." *J. R. J.*

Birds and Fruit Buds.—Most gardeners like to get bush fruits pruned early so as to be able to get the quarters forked over and tidy before the press of work commences at the turn of the year, but many are deterred from so doing by the havoc small birds make of the remaining buds. Sparrows are most destructive this way, especially if in the neighbourhood of towns or farm buildings, and such birds are becoming far too numerous. Although no advocate for the indiscriminate destruction of small birds, I do think that both garden and farm would be greatly benefited by having their numbers considerably reduced. No bird commits so many depredations as, or is more destructive than, the house-sparrow; for as soon as the corn is formed in the ear he makes unceasing attacks on the crop, and follows the same to the farmyard, continuing his depredations as long as it continues in his reach: and to vary his diet after the grain gets hard and ripe, he divides his favours between early Peas, Lettuces, and fruit-buds, and without some means of protection it is hopeless to think of securing a crop of either. In the matter of fruit-buds they are almost as destructive as the bullfinch, but the numbers of the latter being more limited, a few charges of powder and shot soon rids the garden of their presence, but to try and reduce sparrows in this way appears to bring hundreds to the funeral. Some plead for them that they destroy large numbers of insects, but of this I have grave doubts, as I have watched them closely, and have never yet seen them take insect food; and it would appear almost as natural to see any of the carnivorous animals eating hay as it would to see hard-billed birds such as sparrows and finches eating insects. Such birds as sparrows, linnets, and finches are almost an unmixed evil in a garden, and those who decry their destruction, on the score that they do more good than harm, can never have observed their habits closely. I find the most effectual way of keeping sparrows and other birds from destroying fruit-buds is to syringe the trees over with a mixture of lime, quassia, and soot. This not only keeps every bud safe during the winter, but greatly benefits the trees or bushes by killing every particle of moss or lichen that may have formed on them. The lime should be in lumps fresh from the kiln, and slaked with boiling water, having previously thrown in a handful or so of quassia chips to extract the bitter, which the slaking of the lime will do effectually. After the lime is well slaked, sufficient water must be added to make it about the consistency of whitewash, and the whole should then be run through a fine sieve to take out any lumps that would not pass easily through the tube of a common syringe. By taking advantage of a still day for the operation, any man expert in the use of a syringe will be able to go over a large number of low trees or bushes in a day, and thoroughly coat them over with the wash; and if used quite fresh, as advised, it will remain on till the buds burst in the spring and throw it off—thus thoroughly protecting them from the depredation of birds, and ridding the trees of moss. *J. S. W.*

Desmodium penduliflorum.—In "H.'s" remarks on the plants on the old walls at Kew, he expresses a doubt of the hardiness of Desmodium penduliflorum. I have had it in cultivation during the past four years, and have seen it elsewhere and in less favoured localities, and have no doubt of its perfect hardiness. It is a plant of rapid growth, producing woody-looking stems about 5 feet high, but they are too slender to sustain the masses of beautiful rose-purple flowers, and require a stake to support them. It is the nature of the plant to die down to the ground, but not from the effects of frost alone, as my plants were ripened down this season before we had frost sufficient to destroy vegetation. Each year adds fresh vigour to the plants, and increased beauty. It is a plant greatly to be recommended. *J. Tyerman.*

Primula japonica.—Permit me, from my standing as a Continental amateur, to state my experience and views concerning Primula japonica, in answer to "E. S. D.'s" inquiry. Allow me to state, from my own experience as well as that of many others, that as a general rule the great expectations entertained of this plant have not been realised, and that it has proved rather a slight disappointment than a first-rate acquisiiton. It is to your great botanical traveller, Mr. R. Fortune, who first conceived the idea how it might be possible to obtain seed with germinating powers, that the horticultural world is primarily indebted for the introduction of the plant. The energies of Mr. W. Bull, who first raised and sent out the plant, deserve also their due appreciation, although with him this was a mercantile speculation. He sent it out at a comparatively low price, and made it available even to the purse of the most modest amateur. It seems, however, to me—although I only suppose so—that the artist who made the original drawing of the flowers has somewhat overdone it, and it appears the original drawing also served for the *Botanical Magazine*—a periodical of such high standing that nobody doubted its exactness, an exactness which as a general rule is to be strictly relied upon. When amateurs began to cultivate the plant, and found their expectations were not realised, they suspected that they were not experienced enough in its cultivation, or that there was some reason for their non-success. England can boast of having the most skilled and most experienced gardeners in the world, but I venture to think that ninety-nine out of a hundred have come to the conclusion that the plant was not as good as they expected. Be this as it may the plant is nevertheless a beautiful one, and deserves cultivation as much as many others. In this country (Germany) it wants greenhouse cultivation, for it cannot stand our winters without injury, and even when the plants have gone through the trial of the changes of weather they very often refuse to flower freely, the flower-stalks refuse to rise to a proper height, and the flowering begins even before the flower-stalk rises from the rosette of leaves. This is obviated when the plant is introduced at the proper time into the greenhouse. I have seen

thousands of plants, but never saw one with four well-expanded flower-whorls in an equal state of development, as is shown in the figure alluded to; generally the first whorl has faded by the time the third one opens. Yet strong plants produce four or five flower-stems succeeding one another, and the later ones open just when the flowers of the first ones go off, making a beautiful object for the decoration of our greenhouses. In my opinion, however, I consider the Primula cortusoides amœna grandiflora [P. Sieboldii, M. Morr.], introduced by Messrs. Veitch & Son, as a more deserving plant. "E. S. D.'s" failure to raise the plant may perhaps be attributed to dampness of the air in his house, or to the employment of a rich compost soil, which is not suitable to it in its first stage of growth. *Max Leichtlin, Baden-Baden, Dec.* 13.

—— Your correspondent at p. 752 seems to have been very unfortunate with Primula japonica, not being able to get to maturity plants from home-saved seed. In November, 1873, I sowed a pan, seed saved from plants I flowered the same year; in two months I had up over 200 seedlings: they were pricked off into boxes large enough to handle, they grew luxuriantly, and in June were potted into 48-pots and placed on a north border against the wall. The situation quite suited them, being cool and moist; they formed nice crowns, and along with numerous other spring bedding plants, last October, I planted out a quantity of Primula japonica: they have stood 15° of frost, and are as fresh and sound as the day they were planted out. I trust to be rewarded in spring with a fine display of flowers. I find it one of the simplest of plants to cultivate as a pot plant, either from offsets or seedlings. *R. Greenfield, Priory Gar-dens, Warwick, Dec.* 15.

Prize Vineries.—I am pleased to see that some of your correspondents encourage this idea, but I rather regret to see Mr. Sheppard throw cold water on the scheme. Possibly there may be a few obstacles in the way at first, but I foresee none that could be very serious. In the first place I do not expect that there would be a multitudinous lot of entries, for it is easy to see that no ordinary crop of Grapes would have a chance unless a large number of prizes were offered, which would not be advisable at first. Besides, if each competitor were handicapped 20*s*. he would think twice before entering the lists, and unnecessarily increase the expenses of judging, &c. Even if the prizes were open to all England, I do not see that the difficulties would be so great, for the entries would, I anticipate, be few. I would suggest that a plan something like the following might be followed:—Supposing the entries were to cover a wide area, the Royal Horticultural Society, through the medium of, say, the *Gardeners' Chronicle* and other journals, might, to save travelling expenses, &c., appoint judges from the localities or counties in which the competitors resided, whose duty it would be to examine the vineries, record their dimensions, total length of bearing rods, number of bunches, and to cut and weigh, in the presence of the gardener, about the average largest and average smallest bunch in the house, so as to get at the aggregate weight of crop, and send them on to a South Kensington exhibition to be finally adjudicated upon all together, as regards finish and general excellence, in conjunction with the general weight of crop, size of vinery, &c., as furnished by the provincial judges, whose responsibilities would be reduced to a conscientious use of the tape and scales. This would actually reduce the doubtful part of the judging to a question of "weight and measure," as Mr. Sheppard says, and materially lessen incidental expenses. Unless the entries were more numerous than I anticipate, I do not see any obstacles to including all England or one half of it, and the honour would be greater to the winner. To go on by one county at a time would be too tedious. I hope the scheme will receive due consideration at all events, for if carried out it would undoubtedly present Grape growing in a new aspect, as it is a fact that the successful exhibitors at our shows do not, as a rule, represent the most successful cultivators if we are to estimate success by its uniformity and continuance. *York.*

Wellingtonia gigantea.—In reply to Mr. W. Manning's inquiry in the *Gardeners' Chronicle* for December 5, respecting the Wellingtonia gigantea, I may say we have a similar specimen here, perfect in every way. Dimensions as follows:—Height, 38½ feet; circumference of the lowest branches, 56 feet; the bole, 9 feet 1 inch. It was planted in March, 1857, being at that time 4 or 5 inches in height. *A. Armstrong, The Gardens, Redrill, Andover.*

Pelargoniums *v.* **Geraniums.**—As the question whether the Pelargonium can be fertilised by the Geranium is being ventilated just now, through the medium of your columns, and—what is of far more importance still to physiologists—a theory broached to account for the production of some "queer seedlings," supposed hybrids between Geranium pratense and Pelargonium Madam Vaucher, otherwise than by fertilisation—I am induced to add a few remarks, which I think are relevant to the subject. In the first place, it is evident Mr. E. J. Lowe considers he has obtained some hybrids between P. Madam Vaucher and G. pratense. It may be so, for it certainly does not follow that because I and others have failed to fertilise the Geranium with the Pelargonium, and *vice versâ*, others may not succeed; but I must be excused for saying I must see these supposed hybrids in flower to be convinced, if even I am then. I have known instances of good practical men being positive they had effected crosses between Madam Vaucher and some of the first imported doubles (which belonged to the Beauté de Suresnes type), who were afterwards bound to admit their error. To return to Mr. Lowe's supposed hybrids, it seems that Mr. Pearson, who, like myself, was for a long time sceptical, has by inspection become converted, and now believes them to be true hybrids. Yet, strange to say, he is equally certain that they will in his hands prove to be fertile. Mr. Pearson has promised to exhibit one of these queer things in flower at the Pelargonium Society's show in July next, a promise that will doubtless be anticipated with much interest by many besides myself. Mr. Grieve has also seen these supposed hybrids, and he agrees with Mr. Pearson both in their being "queer-looking things," and in the possibility of their being fertile; but Mr. Grieve remarks, if they are the result of a true cross, the male parent has not been prepotent, or in other words that they resemble P. Madam Vaucher more than G. pratense. Mr. Grieve also remarks that his experience of all true hybrids, such, for instance, as those varieties raised by him between the Zonal and the Ivy-leaved sections, has been that they are invariably sterile; and this, too, I believe, is the experience of all hybridists. We next come to the question contained in Mr. Grieve's letter suggestive of matter of the greatest possible interest to every lover of science, viz.: "Can it be possible, or otherwise, that the progeny may be in any degree affected by the application of foreign pollen to the stigma after the bloom has been already fertilised by its own pollen? If that were admitted," continues Mr. Grieve, "it might account for the queer seedlings raised by Mr. Lowe;" and then goes on to relate an experiment of his own, which certainly bears out the suggestion his question contains. He states that he applied the pollen of a variegated Pelargonium to the stigma of an Ivy-leaved variety, the next day after it had been impregnated by its own pollen, and that the result has been the production of seedlings of such varied appearance (not yet flowered) that he can only account for it by the supposition of the second pollen's influence. It is also a question whether my experience relative to the prepotence of the male parent does not bear upon the same point. This prepotency of the male parent, which I find as the result of my crosses (which now can be numbered by many thousands), is disputed by Mr. Pearson and others; but as it is so invariable with me, it is impossible for me to be mistaken as regards my own seedlings. So I must conclude, that we either differ in the modes of manipulation, or that my disputants are not so precise in their registration of the crossings as I am. It is to the mode of manipulation I refer as applying to the question in point: when I have ascertained by the means of my lens that the stigma is in a virgin and suitable condition for impregnation, I immediately smother it with the pollen I purposed employing; and it is owing to this smothering of the stigma by the pollen, I am informed by Professor Duncan, that I derive the prepotent influence of the male parent; because, he says, he has found by careful experiments that if the ovule be impregnated by the application of a single grain of pollen to the stigma, it is nourished principally by the mother plant, which the offspring will in that case most resemble: but if a large quantity of pollen be applied to the stigma the ovule would derive nourishment by the superabundant pollen grains being absorbed and carried down to it, and then the offspring would resemble the pollen parent. Professor Duncan's experience appears to me confirmatory of Mr. Grieve's, and their theories to point in the same direction also. The value of these suggestions contained in Mr. Grieve's letter cannot be over-estimated, for should the theory be borne out by continued experiments, it is impossible to say to what extent of practical importance the knowledge of it may not lead. It may enable us to obtain breaks into new forms and varieties of plants or fruits that could have been obtained in no other way, or, at any rate, without paying the penalty of sterility in its products; in fact, should such influence really be found to exist in foreign pollen applied after impregnation, I look forward to the possibility of obtaining results equal to the union of two distinct species, and yet preserve fertility. *John Denny.*

Fruiting of Stephanotis floribunda.—Can any of your correspondents inform me if it is usual for Stephanotis floribunda to fruit, as we have a plant here with one fruit on it? I have seen many large plants, but have never seen it in fruit before. I may mention that the plant is trained to a globe. It is about 6 inches long, and 4 inches broad nearest the stalk. It has been growing about three months, and does not seem to have attained its full growth. In shape it is like a pear reversed. *Harry Hepburn, The Gardens, Scarisbrick Hall, Ormskirk.* [Unusual, but not unprecedented. A specimen was shown at the meeting of the Royal Horticultural Society on December 2. Eds.]

The Melting of Snow on Short and Long Grass.—In observing the difference of time between the two one cannot help inquiring whether the effects of grass, and other plants, on the melting of snow, is mechanical, or vital, or both. The fact can hardly be questioned that snow melts faster on long grass than on short. I observed a singular proof of this today. Yesterday the final mowing was to be given to the flower garden: the small machine was sent round all the beds, but before the large one could follow a slight fall of snow fell. All round the track of this machine the snow has laid almost as thick again as on the longer grass. Of course, this is after allowing for appearances, for it is obvious that the snow would lie closer on the smoother surface. Not only has it done so but thaw is absolutely off it on the short grass, and moreover the disparity is greater in the quantity and also in the time of thawing than I remember to have seen before. It would seem not only that the length of the grass had to do with the disparity of quantity of snow on the two places side by side all through the garden, but with its constitution. The short grass has not simply lost its head, but its entire structure is bruised. The machine had been over it at a low temperature. We know that to bruise grass in a frozen state kills it for the time: May it not be possible that the snow was lying longer on the short grass because its vitality is lower, or at *nil?* Of course there are mechanical reasons also that might account for some of this disparity in the time of melting the snow, as the short grass lies in less compass. It is more firmly compact together—less air in it, among it, under it. But making all allowance for this, I still think the vitality of the grass has something, perhaps almost everything, to do with it. There is, to begin with, greater bulk of living tissue; and living plants, even blades of grass, are possibly not mere passive agents in the hands of cold, to put the matter popularly. They have probably certain vital means of resistance up to a certain stage; if so, of course, the long grass would thaw the snow first. This would agree with other facts noted—that the power of resisting cold in plants is to as great an extent perhaps a matter of condition as of species, and that condition can hardly yet be said to be surely determined, though it seems to point to a state of dormancy. The last word is, however, very deceptive. In an absolute sense it cannot be applied to plant life, and it would be a curious fact if the time of greatest resistance also proved to be the period of relative highest temperature of plant growth, and the consequent motion and perspiration of fluids may reduce temperature, and hence make the plants more tender. This may seem opposed to most snow on the shortest grass, but in this case there is a reduction of the volume of vital force as well as a mutilation of the power of that left. The question may be worthy of some attention these cold days and long wintry nights, and I should be glad to hear opinions upon it. *D. T. Fish.*

What is an Oxlip?—Having frequently heard the above question asked, and never satisfactorily answered, induces me to ask the question, in hopes of some of your numerous readers being able to do so. Primula elatior of Jacquin goes by the above name. If I remember right, he enumerates it among his Austrian plants in *Floræ Austriacæ Icones;* it is also figured in *Eng. Bot.*, 518. It is believed by some to be a cross between P. acaulis and P. veris. I have doubts about this, never having been able to cross those two species, and I have the authority of one of our most experienced and successful hybridists that they refuse to cross. On the other hand, I have frequently seen in Nottinghamshire, in fields covered with P. veris, that in the hedges where P. acaulis is plentiful here and there appear a different plant, apparently half-way between the two: what is it? I possess plants of Jacquin's P. elatior, from the Wingen Alps, and from Bardwell, in Suffolk, one of the stations assigned to this plant, and they differ slightly, and come true from seed. I believe P. elatior and P. acaulis will cross: I know P. acaulis and P. elatior, var. Polyantha, will do so, having frequently raised many varieties. I have just been informed that P. suaveolens and P. veris cross without difficulty—is this so? There is certainly a great muddle among our Primulas; would that some of our eminent botanists would undertake to extricate this confusion. *Aberia.* [The true Oxlip is a species (known in England as the Bardfield Oxlip). The common Oxlip is probably, as you say, a cross between the Cowslip and the Primrose. There is besides an umbellate variety of the common Primrose, and which is often called the Oxlip. Eds.]

Reports of Societies.

Linnean: *Nov.* 19.—Dr. G. J. Allman, F.R.S., President, in the chair. Mr. D. Hanbury exhibited dried specimens of a Rose raised from seed received direct from the country where the attar of roses is produced, as the species from which this perfume is obtained. Mr. Baker pronounced it to be Rosa gallica, var. damascena, belonging to the Centifolia group—thus confirming previous conjectures on this point. It appears that several varieties are cultivated for this purpose.

The President read a paper "On the Structure of Stephanoscyphus mirabilis, the type of a new order of Hydrozoa." The animal is a remarkable organism which occurs imbedded in sponges on the southern shores of France. It forms composite colonies which have a general resemblance to a campanularian hydroid with its cup-like hydrothecæ, or so-called polype cells, opening on the surface of the sponge, and, when the animal extends itself, giving exit to a beautiful crown of tentacles. It has, however, though a true Hydrozoon, no immediate relation with the campanularians, or with any other hitherto recognised order of Hydrozoa; for the hydrothecæ-like receptacles are occupied, not by a hydranth or polypite, but by a body which has all the essential characters of a Medusa; and the tentacles, which are displayed when the animal extends itself, are really the marginal tentacles of a Medusa. It is further provided with the radiating and circular canals of a true Medusa. The animal is essentially a composite colony of medusiform zooids included in a system of chitinous tubes, from which, like a campanularian hydroid, each zooid has the power of extending itself, and within which it can again retreat. The author regards the Stephanoscyphus mirabilis as the type of a new order of Hydrozoa, to which he assigns the name of Thecomedusæ. He regards Stephanoscyphus as affording a convincing proof of the homology on which he had formerly insisted in parallelising the tentacles of a hydranth with the radiating canals of a Medusa.

Dr. M. T. Masters, F.R.S., then communicated a "Monograph of the Durioneæ." The paper contains an enumeration of the genera and species of the tribe, together with descriptions of the new species found by Beccari in Borneo, &c. It is accompaied by some remarks on the morphology and geographical distribution of the group. In both respects the group is very distinct. The peculiar scaly pubescence, the compound stamens, the (in some cases) very peculiar anthers, and the muricate fruits, all constitute remarkable features. The question of "divided" or "compound" stamens, which has of late been re-discussed by Chatin, is alluded to with the result that the author adheres to his previously expressed views on the subject—views, moreover, supported by those of Payer, Sachs, Baillon, Van Tieghem, and others. The nature of the petals in Malvales in general is also touched on. Sometimes these appear to be autonomous organs, while in other cases they seem to form part and parcel of the staminal phalanges.

Dec. 3.—The President in the chair. Professor Huxley read a paper "On the Classification of Animals," which excited some discussion.

The Villa Garden.

Forecourt Gardens.—There are thousands of little front gardens to houses in London and its suburbs to which this designation might fittingly be given; and the same holds good of other towns and populous centres. Some of these gardens are small, others large, according to the size of the house and the space of ground it occupies; they also vary in situation as well as in size, and some must, of course, be in situations less favourable to the well-being of plants than others, and yet, in the main, if appropriately looked after, and planted with subjects calculated to thrive according to position and surroundings, they are capable of affording much pleasant enjoyment to those who would make the forecourt of their house bear some correspondence to a home of taste.

That this is only very partially done in the more busy and crowded districts of London, to wit, is at once apparent to a casual observer. If one would seek out the best illustrations of forecourt gardens, they must be looked for in the more quiet and secluded parts of London, where a kind of halo of respectability surrounds the streets, and a somewhat oppressive sense of rigid genteel observance is felt by the visitor to such highly proper quarters.

In regard to many of these gardens it may be remarked generally, that there is a most material deficiency apparent in them. For instance, the extent of ground enclosed in front of town residences is, in most cases, too narrow in dimensions, and not in proportion to the buildings. The ground consists commonly of a narrow strip, or a small enclosed square, in which there may be a few half-starved, half-decayed looking plants and shrubs, or a narrow steep slope covered with a few scrubby grasses. In other cases we see a dark and dismal wall, sometimes high enough to enclose a prison, shutting out alike the air, the light, and the gleams of the glorious sun. It must, however, be admitted that in constructing modern dwellings, the forecourt garden is thrown more open, and it is, in consequence, more pleasant and airy in every respect.

Many a forecourt garden has been completely spoiled by an excessive planting of shrubs and trees, all of which have been allowed to grow till their dimensions are out of proportion to the size of the place in which they are planted. It appears, however, that if we are to have trees at all in in our streets and roadways, it must be through the means of forecourt gardens. The happy time to come, when they will be planted at the sides of our roadways by parochial or municipal authorities, must, we fear, be deferred, till modern vestrydom—which too often means the rule of the ignorant—is swallowed up in the something better that is to succeed it. A good commencement, however, is being made on the new Shaftesbury Park Estate, in the Clapham district. There the main streets, at least, are planted with trees, and the forecourt garden can be made a tasteful bit of handiwork on the part of those who grow plants.

What can be done in a forecourt garden depends very much upon its locality. A garden of this character in the Euston or City Roads, in the crowded parts of Chelsea and Lambeth, in the Old Kent Road, and further east, in the Great North Road, cannot possibly compete with a garden in a pleasant part of Highgate Hill, or other favoured localities. In too many of the crowded parts of London the garden is left to take care of itself, and a dreary-looking thing it becomes under the circumstances. In some of the open London squares, under comparatively favourable circumstances, plants have anything but a happy appearance; they may be said to exist—grow they do not.

Take a forecourt garden in the Euston Road, for instance, and let us see how it is arranged. There may be a tall deciduous tree or two; its spreading branches darkening what is beneath; Privet, on the last verge of nakedness; Lilacs, woe-begone in the extreme; and others equally unhappy in aspect; there may be an attempt at a flower-bed with a few Michaelmas Daisies, a white Lily or two, and some Chrysanthemums, to represent the great class of perennial garden plants; while the annuals are represented by the common pot Marigold and a few Nasturtiums at best. The occupier of the house knows nothing of gardening, and cares nothing about it; there is no attempt to curb the growth of the shrubs, everything is dust-begrimed, and given over to dirt and uncleanliness; the soil has had all the heart taken out of it, and, in addition to being altogether unsuited to the growth of plants, it is frequently too dry to sustain what little life is in it. There are hundreds of such gardens in London, hateful in appearance, given over to neglect and the undisturbed possession of the domesticated among the feline race of animals. "What can be done to improve such gardens?" is a question easily put, but very difficult to answer. We must trust to the gradual development of a taste for gardening or of a love for flowers for maintaining these gardens better than they have hitherto been, but it may be many years before this growth manifests itself to any appreciable degree. The planting of our public squares and gardens as on the Thames Embankment may conduce to this. The praiseworthy efforts now being made with so much success in several parts of London in encouraging window gardening might perhaps also be extended to the improvement of forecourt gardens in such of our main streets where they continue to exist; or perhaps it might be deemed to come within the scope of a great association like that of the Royal Horticultural Society to inaugurate so laudable a work. Once arouse a spirit of emulation and cheering results would follow. The difficulty lies in so framing a course of action as that birth shall be given to this spirit of emulation, and itself be directed in a proper manner.

What can be done, however, to improve one of these gardens? In the first place the soil must undergo some improvement. The attenuated Lilacs, gaunt Privet, emaciated Snowberry, &c., must be cleared out, the surface dug over, and some rich fresh soil mingled with it; and in the process of digging it will be invariably found that the spent soil is as dry as dust, or nearly so, and full of the surface fibres of the trees. Some good yellow loam, mingled with rotten dung and leaf-mould, will prove the very thing to renovate the soil, and give it a chance of rearing some creditable specimens of plant-life. If the garden have a south or west aspect, an attempt may be made to turf a portion of it, provided it be open and airy. On the other hand, if the garden is on the other side of the way, and has a north or north-eastern aspect, then dispense with turf altogether; for under such conditions the grass gets drawn, and makes a weakly growth, with but little bottom, owing to its being shaded; and it requires constant looking after to keep it at all nice. Even if the position be at all favourable in point of aspect, it is yet better to dispense altogether with turf, if the trees be of spreading growth so as to shade the garden, for turf will not do well under them, and it will always have a weakly appearance.

If the dividing line between two gardens be a light iron fence, which is a common occurrence, it will be best to plant a row of evergreen shrubs against it—not in a crowded or regular line, but sufficiently wide apart to admit of each plant making an unfettered growth. Hollies thrive fairly well under trees, and the common form (Ilex Aquifolium) should find a place here, for it forms a fine mass of dark green foliage; and if one or two variegated kinds are associated with it, they will supply an acceptable contrast. The common Privet must not be excluded, because of the free growth it makes, and also because it bears the shade patiently. It makes a profuse growth in a young state, and it requires to be boldly pruned back every spring to induce a bushy habit. If the fine-leaved Ligustrum ovalifolium will stand well in such a place, it should be included also. It must, however, be borne in mind that when the Privet is grown in deep shadow it does not fruit freely. Another good useful evergreen is Phillyrea angustifolia, the most commonly used of the dense-growing shrubs, and which forms an excellent background of dark green foliage. Berberis japonica must be included also. This grows in the form of a dense bush, with large pinnate leaves of hard texture, and of a lively green hue. It flowers finely in early summer, and in the autumn it is covered with bunches of berries like miniature Grapes. Mahonia Aquifolium is an excellent companion to the foregoing; and the beautiful Berberis Darwinii, which has been well described as "one of the liveliest of flowering shrubs," is very handsome indeed in early winter. Add to these Aucuba japonica, the elegant large-leaved Box, Buxus balearicus, Euonymus japonicus, the common Arbor-vitæ, &c., and a list is obtained which affords ample choice. The Hollies and Arbor-vitæ might be planted about as specimens, the smaller ones round the garden, and also grouped in a bed in the middle, and the remainder laid down with gravel, leaving circles of soil about the roots of the specimens.

"When the planting has been completed," writes Mr. Shirley Hibberd with great propriety in one of his articles on town gardening, "the great secret of success will be to give abundance of water. When the trees overhead (if any) are in full leaf, all ordinary showers will be prevented reaching the ground below. It is at that period that the shrubs usually begin to decline, and, if not assisted, some are sure to perish. Once or twice a week, according to the state of the weather, the roots of the newly-planted shrubs should be liberally watered. To every one should be given at least a pailful, and the larger specimens will require two or three pailfuls each. When this part of the watering is done, there should be thrown over them a smart shower from the hydropult or syringe, or even from a hand-bowl, if these instruments are not at hand, to wet the foliage; and if the leaves are at all sooty, wash them clean by throwing the water on with some force. Watering in this fashion from the beginning of May till the middle of August will have a surprising effect; the shrubs will by that time be clothed with ample and glossy foliage, and there need be no more artificial watering till May comes round again, but it ought to be repeated every year, if it is desired to have a luxuriant underwood. It is drought and not shade that kills vegetation under trees."

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DECEMBER 16, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction	Rainfall.
Dec.	In.	In.	°	°	°	°	°	°			In.
10	29.55	−0.24	31.5	25.8	5.7	28.8	−12.2	25.5	87	WNW: S.S.W.	0.00
11	28.61	−1.18	47.7	28.1	19.6	40.3	− 0.4	37.3	89	SW: W	0.21
12	28.89	−0.90	40.0	35.6	4.4	38.4	− 2.2	36.1	92	NNW: N.	0.03
13	29.25	−0.55	40.6	34.2	6.4	36.7	− 3.8	33.7	89	N.N.E.	0.02
14	29.71	−0.10	37.7	31.0	6.7	34.1	− 6.3	31.0	89	N.N.E.	0.00
15	29.82	+0.01	32.9	29.1	3.8	30.7	− 9.5	28.2	90	NNE: S.	0.00
16	29.50	−0.32	34.6	29.6	5.0	31.5	− 8.5	29.0	90	SE: E.	0.33

Dec. 10.—Nearly cloudless during the morning; generally cloudy afterwards. Fog and hoar-frost A very cold day.
— 11.—Overcast, with rain in the morning; fine, and partially cloudy till the afternoon; again overcast at night, with occasional rain.
— 12.—Overcast, gloomy at times. Rain fell occasionally.
— 13.—Overcast and rain fell ocacsionally till evening; cloudless, and very fine at night.
— 14.—A fine day; the amount of cloud was variable.
— 15.—Hoar-frost in morning, generally overcast, and at times foggy.
— 16.—Generally cloudy, and snow fell frequently throughout the day.

—— In the metropolis and its vicinity the reading of the barometer, at the level of the sea, decreased from 29.79 inches at the beginning of the week to 29.27 inches by 5 P.M. on the 6th, increased to 30.03 inches by the evening of the 7th, decreased to 28.63 inches by 4 A.M. on the 9th, increased to 29.76 inches by noon on the 10th, decreased to 28.65 inches by the evening of the 11th, and was 29.27 inches at the end of the week. The mean reading for the week was 29.39 inches, being 0.19 inch below that of the week ending December 5, and 0.36 inch below that of the corresponding period, as deduced from eighteen years' observations. The values for the 11th and 12th were respectively 1.18 inch and 0.90 inch in defect of their averages. The range of readings in the week amounted to 1.40 inch.

The highest temperature of the air at 4 feet above the ground was as high as 53¼° on the 6th, while that on the 10th was only 31½°, and the mean of the seven maximum values was 45¼°. The lowest temperatures at night ranged from 25¾° on the 10th to 37° on the 6th, with a mean for the period of 32½°. The mean daily range of temperature was 12¾°, the greatest difference between the maximum and mininum readings being 12½° on the 11th, and the least 4½° on the 12th.

The mean daily temperatures of the air, with departures from their respective averages, were as follows: 6th, 45°.6, + 3°.5; 7th, 38°.2 − 3°.8; 8th, 44°.6, − 2°.9; 9th, 38°.1, − 3°.2; 10th, 28°.8, − 12°.2; 11th, 40°.3, − 0°.4; 12th, 38°.4, − 2°.2. The mean temperature of the air for the week was 39°.1, being 2°.2 below the average of fifty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 73° on the 7th and 63° on the 11th, but on the 10th the highest temperature by this instrument was only 35½°. The lowest readings at night of a thermometer on grass with its bulb fully exposed to the sky were 23½° and 19¼° on the 9th and 10th respectively, and all the lowest readings of the thermometer on grass were below 32°.

On the 8th and 12th the sky was entirely overcast and at other times the amount of cloud was variable.

The general directions of the wind were S.W. and N.W. A heavy gale was experienced from noon on the 8th till the afternoon of the following day, during which the greatest pressures recorded were 29 lb. and 20¼ lb. on the square foot.

Rain fell on five days, the amount measured was 0.82 inch.

In England, the extreme high day temperatures varied from 53¼° at Blackheath to 44° at Hull and Newcastle-on-Tyne, the general average over the country being 49½° The extreme low night temperatures ranged from 31¼° at Liverpool to 21° at Hull, with a general average of 26¼°. The mean range of temperature in the week was 23¼°, varying from 28° at Nottingham to 17° at Sunderland. The mean high day temperatures ranged between 45¾° at Bristol, and 39° at Hull, with an average value of 42½°. The mean low night temperatures ranged from 35° at Bristol to 29½° at Newcastle-on-Tyne, the general average being 32½°. The mean daily range of temperature in the week was 10°, the greatest range occurring at Blackheath, 12¾°, and the least at Liverpool, 7½°. The mean temperature for the week was 37½°, the highest being at Bristol, 40½°, and the lowest at Hull, 34½°. Rain fell on every day in the week at Leicester, and on six days at most other stations; the amounts measured were generally large, varying from 2 inches four-tenths at Bristol to eight-tenths of an inch at Blackheath, the last-named station being the only one at which a fall of less than an inch was recorded, the average fall over the country being 1½ inch.

The weather during the week was cold, showery, and generally cloudy.

In Scotland the highest temperatures ranged from 50¾° at Glasgow to 39° at Dundee, the general average being 42¾°. The lowest temperatures varied from 26¼° at Leith to 22½° at Paisley, with an average value of 24½°. The mean range of temperature in the week was 18¼°. The mean temperature for the week was 35°, the highest being at Paisley, 37¾°, and the lowest at Dundee and Greenock, 33¾°. Rain was measured at each of these stations, varying in amount from 1 inch six-tenths at Leith to three-tenths of an inch at Aberdeen, the average fall over the country being 1.07 inch.

At Dublin the highest temperature was 55°, the lowest 27°, the mean 38¾°, and the fall of rain 0.86 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS. — *Azalea indica.* Amongst hard-wooded plants, grown either for general home decorative purposes or for exhibition, there are none that surpass the Azalea, if we take into account the ease with which it may be grown, and its accommodating nature in flowering at any time of the year by merely selecting suitable varieties, and giving them the necessary treatment and preparation for blooming at the particular time they may be required. There are few plants so easily kept in health provided they are not allowed to become infested with insects, especially thrips, to which they are more subject than almost any other plants grown under glass. This insect has such a marked partiality for them, and does such vital injury, that where it is allowed to gain an ascendancy, they never can possibly be seen in anything but an indifferent state. The impossibility of growing Azaleas to anything approaching a satisfactory condition if infested with this pest has so often been urged as to make the repetition irksome, yet to meet with a collection of these plants where thrips are kept thoroughly down, is rather the exception than the rule. This state of matters is easily traceable to a mistake in attempting to cope with the insect at the wrong season of the year—that is, in the spring and summer, when it is fully matured. The low autumn temperature quickly puts an end to such as are then in existence fully developed, yet not so their eggs, which will bear a lower degree of cold than the plants can stand, and which may be found in thousands in the shape of small black varnish-like spots upon the leaves and buds of plants that have been much subject to them in the growing season; these eggs, if not destroyed in the winter, are brought into life by the increase of temperature.

For their destruction in summer different growers employ different methods, such as fumigation or washing with any solution that will destroy them. Where the plants are grown in a good light house, without too much heat, they will bear tobacco fumes strong enough to kill the mature insects without much injury; but when grown under conditions opposite to these, serious harm is often done, as is evident by the leaves falling off; but under no conditions can the eggs sealed up under the before-mentioned black specks be reached by fumigation. These must be dealt with by washing, with something that will penetrate the covering and destroy their vitality. As will be evident, if this is done effectually during the winter season, when there are no mature insects in existence, there is every likelihood of the plants being little affected during the season of growth.

To effect this, the whole stock should be well washed with tobacco-water, which, to be strong enough, should be as dark-coloured as porter. The way I used to make it was, to boil for an hour very slowly, 1 lb. of tobacco-cord, and 1 oz. of washing soda, to each gallon of water; the soda dissipates the oil with which the cord is saturated, and much more effectually extracts the essence of the tobacco with which the cord is impregnated. After boiling, and whilst yet hot enough to dissolve it, add to each gallon an ounce or two of Gishurst; this will still further soften the liquid, and cause it to more readily penetrate every crevice where the eggs may be deposited. Dip the small plants; such as are larger lay on their sides over a vessel big enough to catch the liquid as it is syringed on them, and in this position they should remain until it is quite dry upon the leaves, so as not to run down into the soil (it must not be washed off); but however applied the work must be thoroughly done. The dressing, to be effectual, must reach every leaf, and if the plants have been much affected they should be thus washed twice in the course of a fortnight or three weeks, and completed before the end of January, as after that time the young wood-buds will begin to push. Plants for forcing should be well dressed in this way before being placed in heat, or the eggs will quickly come to life and infest everything near that they will live upon.

This tobacco cord, which is as strong, weight for weight, as good tobacco, and not more than a third or fourth of the cost, can be procured at any of the manufacturers where twist tobacco is manufactured. A few words as to how it is produced will give an idea of its insect-destroying properties. Where twist tobacco is manufactured the leaf is first dipped into sweet oil, hung up and allowed to drain, it is then twisted much in the same way that ordinary cord is spun, this dipping in oil is to correct the brittle nature of the leaf, which otherwise would break; when spun it is coiled up into much the shape of small Dutch cheese; the coils are then placed under a powerful hydraulic press, previous to which each lump is closely wound round with hempen cord as thick as the little finger, to keep the tobacco in shape; the force of the press squeezes out the oil and essence of the tobacco, with which the cord surrounding it naturally becomes saturated: it is thus used as long as it will bear the force of the press, and is then sold for garden purposes.

Camellias.—Late flowering plants of Camellias that have not yet begun to swell their buds, should if at all affected with scale be well cleaned; for this purpose there is nothing better than a hard tooth-brush: with one of these a man will do more in a day than he would in two with a sponge, or anything similar, which is more fit for cleaning the leaves from soot and dust after the insects have been removed. In the case of plants that are not so forward in their flowering as desirable, if ever so little fire-heat is used, care must be taken that the atmosphere is not thereby dried too much, or falling buds will be a certain result. When Camellias are in conservatories attached to a dwelling, either planted out, or more particularly when their roots are in the confined space of pots or tubs, they are, from the objection in using more moisture here than can be avoided, placed under conditions anything but favourable to the swelling buds, which delight in and require for their development a somewhat moist atmosphere. This may be secured in several ways. First, the soil in which the plants are growing must be kept considerably wetter than would do for many plants. In the flowering and growing stages the Camellia absolutely requires more water at the root than most things. The soil in the borders should also be kept as moist as the roots of the different plants that occupy them will bear; and the cavities wherein the pipes are placed should have water regularly poured into them, so as to supply sufficient, but not too much humidity.

CONSERVATORY.—The early flowering of *Chrysanthemums* this season will naturally cause their absence from the conservatory sooner than is usual, and will so far make a blank which can only be filled up by the introduction of such plants as have been previously advised to be brought on for decoration here; but even where comparatively few flowers exist, a good deal may be done by thorough cleanliness and tasteful arrangement of the plants at command. Where all possible is thus carried out, a better effect is often produced than with a greater wealth of flowers, where the grouping is defective. *T. Baines, Southgate, N.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—Now that the leaves are all down, this department should receive a thorough cleaning up. Let every corner be raked out, for if left the first windy day will tell tales of work only half done, and cause much annoyance by blowing the leaves just where they are not wanted, and in the long-run they are treble the labour than if effectually cleared at once. All walks should be frequently rolled and swept. The greatest charm of any garden, especially in winter, is well-kept walks; if these are out of order, everything else seems to be the same. Thinning out and transplanting shrubs where too thick, digging or forking over shrubbery beds and borders, and making new ones, all may now be done as weather and opportunity offers. Where it is intended to plant, or lift and replant *Roses*, if done thus early they will flower as freely next season as established plants, only do them well, neither be afraid of having the soil too deep, or of giving them too much dung. As soon as planted out it will be advisable to stake and tie

standards at once, and to mulch all with rotten dung or litter. Should severe weather set in, it will be necessary to protect with bracken or straw *Cannas* that were left in the ground, and to mat up such half-hardy plants as *Chamærops humilis*, *Aralia Sieboldii*, *Dracæna australis*, *Bamboos*, &c. The necessary soil for spring potting of bedding stuff and enriching the flower-beds should be got together at this comparatively slack time, and indeed everything else that can be done to aid the work at that busy period. Look frequently over bedding plants, the wet weather we are having is much against the well-doing of these. *Verbenas*, *Petunias*, and the like require a dry airy place, and a minimum temperature of 45°; succulents should be kept as dry as possible and free from frost; *Alternantheras*, *Coleus*, and *Iresines* must have plenty of heat and light. *W. Wildsmith, Heckfield.*

FRUIT HOUSES.

Vines.—Assuming that the inside border of the earliest house received a good soaking of water at a temperature of 90° at the time it was closed—that the economical system of obtaining assistance from a heap of fermenting material placed within the structure has been followed, aided by the mild weather, the buds will now be swelling fast without the help of fire-heat. If a portion of this material is turned over every day to create steam and moisture, the Vines will break strong and even, and the young shoots will luxuriate in a soft atmosphere which no other system of artificial heating can supply. If any outside Vine borders have not received their annual top-dressing of turf and bones, they should be examined, put right, and covered up forthwith. Sometimes a layer of hard, inert soil forms on the surface, and shuts off the roots from the benefit of air and moisture. Where this is the case, no border should be considered satisfactory until every particle has been carefully removed down to the roots, and replaced with the usual compost and covering. Get rid of old foliage from mid-season and late houses as fast as possible, and prune quite up to the Grapes in use. One of the most important, and perhaps most neglected, operations in Grape culture is early pruning. Heavily-taxed Vines cannot rest too long, and they will do so far more effectually after than before the removal of the past season's wood. *W. Coleman.*

The Cherry-House.—A supply of ripe Cherries from about the middle of April and onwards, until those outside are fit for use, is a valuable addition to the dessert, particularly at the season in question, when variety in fresh kinds of fruit is somewhat limited, and these very expensive. Houses with trees which are to be advanced by forcing for this purpose should now be closed. An internal temperature ranging from about 40° at night to 50° in the daytime will be suitable during the present month. Use no fire-heat unless it is absolutely necessary, and then be sparing at the commencement. Ventilation should be attended to, avoiding in the case of forcing here, at all times, a confined atmospheric condition when the temperature is above 55°. An occasional syringing of the trees and surfaces in the house early in the afternoon on fine days, and at other times when they become dry, will be all that is required at present. Under these conditions, the treatment of Cherry and Plum trees being identical, these remarks will apply to both. *G. T. Miles, Wycombe Abbey Gardens.*

Peaches and Nectarines.—Fire-heat may now be applied to the earliest house if it has been duly shut up and prepared for forcing, but the night temperature must not range higher than from 45° to 50° at the commencement, and in the day from 55° to 60°. The trees may be syringed daily, and the water used must be of the same temperature as the air in the house. Some of the earliest dishes of Peaches and Nectarines are best procured from trees grown in pots, where there is the advantage of a pit, or house, with a slight bottom-heat in it to plunge the pots in. Some of Mr. Rivers' early varieties of Peaches, such as Early Beatrice, Early Louise, Early Rivers, and Hales' Early York are well adapted for the purpose. The earliest Nectarines are Hunt's Tawny and Rivers' Lord Napier, to be succeeded by the Early Newington, Rivers' Orange, and Rivers' White. If a stock of the above Peaches and Nectarines are required for forcing early in pots they should be procured from the nurseries now, and potted and grown in heat in February, March, and April, so as to acquire an early habit for forcing early in another year. *William Tillery.*

Figs.—Where ripe *Figs* are required early in May the trees should be started at about the middle of the present month; for this purpose cultivation in pots is to be recommended as being preferable to starting trees which are permanently planted in large borders, as at this early period of forcing a slight degree of warmth at the roots is highly beneficial, provided it be applied with regularity and does not during the early part of the process exceed a temperature of 70°. More than this is not necessary, as it tends to produce growth too rapidly. No heating medium provides such suitable conditions for Fig trees as that arising from fermentation, which a good compact bed of leaves will afford when secured in a dry state and firmly packed together. Valuable, however, as they are in forcing operations generally, still in many places they are a fertile source of introducing that terrible pest, the red spider, into many forcing-houses, as in some places (here amongst others) that destructive insect is to be found on them in countless numbers. Under such circumstances a good covering of some material which will stop its egress is essentially necessary. Assuming the trees to be in pots, and that they were attended to in the manner described in this Calendar for the week ending October 3, and have subsequently had the treatment there advised, they will be fit for starting at any period when required. Commence forcing with a night temperature of 50°, and 55° by fire-heat daily, allowing an advance of from 5° to 10° more with sunshine. Abstain from plunging the pots deeply into the bed, if its temperature exceeds 70°, and see that the balls of the trees are thoroughly moist before they are plunged. If they have become very dry, immerse the pots in water until they are well saturated. Keep the air about the trees generally moist by the usual means, and syringe the trees twice every day; above all, give the trees a position where they will be fully exposed to every ray of light and sunshine. Continue to ventilate early Fig-houses, which are to be started at the commencement of the year, as before indicated, and proceed with the clearing and tying of trees in later houses. *Geo. Thos. Miles, Wycombe Abbey.*

The Orchard House.—Little at the present time is required to be done here, further than opening and closing the ventilators, as the state of the weather may render necessary. If not already done, finish as soon as possible the pruning and dressing of all kinds of fruit trees, as has been formerly directed. With a view of rendering this structure as interesting as possible during the winter months, and combining to some extent the *dulci* with the *utile*, it was recommended in a former Calendar to introduce a few plants in pots, of suitable hardy evergreens, winter flowering shrubs, and hardy berry-bearing plants of various sorts; and where this has been done such plants will, of course, require some little attention as regards watering, &c., while a very pleasing effect may be produced in this structure by grouping such plants in sundry convenient parts of the house, and concealing the pots with green moss, which will render little water necessary, and will prevent the soil in the pots becoming frozen during very severe weather. *P. Grieve, Culford, Bury St. Edmunds.*

Cucumbers.—The advice which was given in the last Cucumber Calendar expresses nearly all that it is necessary to enforce on the cultivator now. The winter fruiters are showing plenty of fruit, and unless the plants be fairly strong, quite two-thirds of these first fruits should be removed, the male blossoms and tendrils also, while the roots should, at the same time, receive a moderate earthing up of previously warmed soil, pressing it down rather tight. Do not stop the growing points over much for the next few weeks, and be moderate in the supply of water for a like period—a fair soaking twice a week should suffice. Plants growing in pots or boxes, however, may require it a little oftener, and should receive a little extra feeding. A night temperature of 70°, and a day temperature of 75° to 82° with sunshine, should be maintained, and every ray of daylight admitted. Wage incessant war against worms at the roots, and perhaps there is no better way than to pay a nocturnal visit with a lighted candle, when they will be found travelling over the surface of the bed, and can readily be gathered up into a flower-pot and destroyed. It is impossible to secure a healthy and continuous fruitful condition, if worms abound. Wireworm may also be trapped by means of thick slices of Turnip or Potato, laid on the surface of the bed. Always keep a couple of toads in the house. Be ever watchful at this season for canker in the old growths and at the collar, and apply a pinch of freshly slaked lime on its first appearance. Continue to collect Oak leaves, as weather permits, and opportunity offers. *Thomas Simpson, Broomfield Lodge.*

HARDY FRUIT GARDEN.

When the weather is open the planting of fruit trees of all sorts, whether on walls or elsewhere, should be brought to a close as soon as possible. And as soon as the trees are planted they should be well mulched with littery manure to a considerable depth, in order to resist frost and to keep the soil around the roots in a moist and equable condition, as this is of great importance to the success of newly-planted trees. Proceed also with the pruning and dressing where necessary, and nailing of such wall trees as the *Cherry*, the *Plum*, and the *Pear*; while it is advisable to defer the pruning, &c., of the *Apricot* and the *Peach* until spring. Wherever the condition of fruit trees on walls or elsewhere appears in any respect unsatisfactory the roots should be carefully examined, and it will frequently be found that remedial treatment may be had recourse to with success. In cases of exhaustion from over-bearing, or other causes, let the surface of the soil be carefully removed, so as to expose a considerable portion of the roots, avoiding as much as possible injury to them in any degree; and after carefully removing any dead or decaying portions of roots, let the remainder be at once covered with 3 or 4 inches of compost, formed of about two parts of good turfy loam, well chopped up, to one part of well-decayed leaf soil, at least two years' old. Over this place the necessary portion of the original surface soil, which had been removed. If the soil is tolerably dry, tread it down moderately firm, and immediately mulch with good littery manure. Such a compost as has been recommended, or even leaf-soil alone, used as a surface-dressing, will be sure to have the effect of bringing the roots of fruit trees of all kinds towards the surface of the soil, but at the same time it is by no means advisable to encourage them to come there, to be afterwards mutilated by the spade. On this account fruit tree borders should never be cropped with vegetables of any kind nearer to the wall than 6 feet; if double that distance can be entirely given up to the roots of the trees, so much the better. Over-luxuriance in the case of fruit trees of whatever kind, and whether trained to walls or espaliers, or as standards, can generally be remedied by judicious root-pruning, which should, however, be performed carefully, using a sharp knife for the purpose, and carefully extracting from the soil the portions cut off, instead of leaving them to decay, and to the probable injury of the remaining roots. As soon as the pruning and nailing, &c., of wall, espalier, or cordon-trained fruit trees, is finished, standard trees in the orchard or elsewhere should have attention—removing all superfluous shoots and branches, thinning out spurs, &c., in order to freely admit sun and air to ripen and mature the crops of fruit. Timely attention to these matters will generally result in regular crops of superior fruit, while the neglect of them will very frequently lead to a very different result. In cases where trees of considerable age may from some cause have become unproductive; or where the variety is of inferior quality, or is unsuited to the soil or the situation, such trees may now be headed down, and grafted in March next with more suitable varieties. Locality and the nature of the soil have much to do with the quality of the various kinds of *Apples* and *Pears*, more particularly perhaps as regards the latter named fruit, which are frequently excellent in certain parts of the country, while in other parts the same sorts are nearly, if not altogether worthless. In forming plantations of fruit trees it is, therefore, always advisable to plant largely of the sorts which experience has proved to succeed well in that particular locality, without, however, altogether excluding new or improved varieties. Bullfinches are already becoming troublesome, their early attention being generally directed towards standard *Damson* and other *Plums*, as well as to the Gooseberry quarter; red worsted strained among the bushes and branches sometimes acts as a deterrent, but not always, and recourse must generally be had to the gun. During inclement weather cuttings of the various sorts of choice *Gooseberries* and *Currants* may be prepared, and these should be tied in bundles according to their several kinds, all duly labelled, placing their ends in moist soil to remain until the time arrives when it may be convenient to plant them in beds or lines in the nursery ground. During such weather shreds may also be prepared for nailing, and nails may be cleaned and pointed, so that no time may be taken up with this description of work when the weather is favourable for nailing, &c., in the open air. *P. Grieve, Culford, Bury St. Edmunds.*

Variorum.

THE LADY AND THE FLOWER.

(from the Japanese.)

There was a sweet flower, red and white,
That filled the gazer with delight.
Dropped in soft showers the summer rain;
Joy bounded through each teeming vein.
Shone the glad sun, and round it rolled
His quickening heat in waves of gold.
A lady from her chamber came,
And watched its bells in beauty flame.
Each jewelled branch she closely scanned,
Then bore the brightest in her hand.
Across the grass she gaily sped,
And, smiling, to herself she said
"Of flowers that bloom, or birds that fly,
"Not one is half so bright as I."
Then, from the sun to grateful gloom,
She passed into her fragrant room,
Took down the mirror from its place,
And gazed on her own lovely face,
Close to her cheek then held the flower,
Still sparkling with a silver shower,
And softly murmured "eyes that shine
"Like crystals—rosy lips are mine.
"The foolish flower can never vie
"With this fair face—so sweet and shy."
Her husband viewed the pretty scene—
The blossom in its robe of green—
The smiling girl in silken dress
Rejoicing in her loveliness,
And felt the thrill to monarchs known—
The darling vision was his own.

Hearing his mellow laugh she turned,
And asked with blush that brightly burned,
"Which is more beautiful?" a smile
Rippling around her lips the while.
A roguish light was in his eye,
And jestingly he made reply,
To draw into some sunny strife
His dear, vain, jealous little wife.
"The flower a thousand times," he cried,
"Ah, would that it could be my bride,
"Fair as an angel from above,
"My soul is one wild sea of love."
An angry flush swept o'er her brow
"What think you of your Beauty now?"
She said: then dropped the blossoms sweet,
And crushed them with her dainty feet.
Alas for her who, every hour,
Is jealous—even of a flower.

Kajin.

FERNS FROM NEW ZEALAND.—Among the natural productions of New Zealand—the Britain of the Southern Hemisphere, as it has been called—which most struck the early settlers was its wealth of strange and beautiful vegetation. Writers have described in glowing terms the grandeur of the forests of Tree Ferns, and of the weird loveliness of a grove of, say, Dicksonia antarctica after a snowstorm. Ferns have for many years been favourite subjects for cultivation, not only with professional, but amateur gardeners. Scarcely a villa garden may now be found without its fernery, and in many of the houses alike of the middle and working classes may be seen neat collections of a class of plants whose "elegant fronds, symmetry of form, and graceful habits have in no slight degree contributed to the marked improvement in our national tastes." Among the botanical treasures which New Zealand has furnished none have attracted more attention, from their extreme loveliness and comparitive rarity, than the Ferns known by the generic name of Todeas. Having their natural habitat in caves or under the dense shade of Tree Ferns, and being continually subject to the drip of moisture, the fronds of the Todeas have assumed a filmy character, which becomes transparent. This, with the exquisite cutting of the pinnæ and the delicate shade of their colour, renders them objects of "rare loveliness." Naturally such Ferns have been much sought after, and a regular trade in their importation has sprung up, from which cause it is said that even in New Zealand itself they are becoming rather scarce. One of the largest importations of Todeas ever made to Europe has just been received at the Bangholm Nurseries of the Lawson Seed and Nursery Company, and admirers of such Ferns would do well to pay them a visit before they are distributed. The collection numbers about 500 specimen plants, and it is contained in two large houses. The bulk of them are of the variety known as Todea superba, though there are specimens of Todea intermedia and hymenophylloides. In one of the houses, darkened to a cool shade, there are nearly 150 plants—many of them having stems like Tree Ferns, while it is not rare to come across specimens whose beautiful crowns of plume-like fronds measure from 3 to 4½ feet across. In the second house there are 350 plants, and their arrangement in the semi-gloom of the glass structure renders the display peculiarly attractive. *Scotsman.*

A GOOD MARKET FOR OLD HATS.—It is said that the inhabitants of the Nicobar Islands, a group in the Indian Ocean, about 150 miles south of the better-known Andamans, have a universal passion for the cast-off hats of civilisation. There is a regular trade in old hats between Calcutta and the Nicobars. The value of the article is measured in Cocoa-nuts, the only produce of the islands. The chimney-pot is the favourite shape, the taller the better; and the consummation of Nicobarian desire is the possession of a high white hat, with a black band round it. Such a hat is worth, we are told, from fifty to sixty-five Cocoa-nuts, and is the favourite attire of the noble savage when he goes a-fishing, clad for the rest only in the usual waist cloth.

POMMES DE TERRE SOUFFLÉES.—Take some large Potatos, peel them, and cut them in slices rather less than a quarter of an inch thick, dry them thoroughly with a cloth, and put them in the frying basket. Have ready two pans filled with boiling lard, plunge the basket in one of them, and keep shaking it; in two or three minutes lift up the basket and plunge it into the other pan. When the slices of Potato swell out drain them of all fat and serve. The secret of success consists in removing the basket from the first pan of fat at the right time; they should not be allowed to colour in it. *Queen.*

THE PELARGONIUM SOCIETY.—The following members constitute the committee for the first year:—Henry Webb, Esq., Chairman; Messrs. W. Browse, H. Cannell, J. Denny, M.D., J. Fraser, P. Grieve, J. George, Dr. Hogg, F.L.S., S. Hibberd, W. B. Kellock, F. R. Kinghorn, T. Laxton, J. Laing, F. Miles, Thos. Moore, F.L.S., Dr. Masters, F.R.S., J. R. Pearson, R. B. Postans, J. D. Pawle, Rev. C. P. Peach, Jean Sisley, G. Smith; John Denny, M.D., Treasurer; Thos. Moore, F.L.S., Honorary Secretary.

Obituary.

WE regret to have the mournful task of announcing the death, at his residence, Somerville Cottage, Leith Walk, on the morning of the 13th inst., of Mr. ALEXANDER MCQUHIRE TAIT, who had for many years occupied a confidential position in the nursery establishment of Messrs. Dicksons & Co., of Edinburgh, and whose removal, to take charge of the Fern department in the nursery of Messrs. Downie & Laird, we announced last year. Subsequently Mr. Tait had a handsome testimonial presented to him by his friends. Mr. Tait was one of the pioneers in the search for striking varieties of British Ferns, and was also a most successful cultivator of them. His knowledge of the nursery business was extensive and profound, which gave a great value to his services, while in private life he was one of the most gentle and amiable of men.

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

30. OTACANTHUS CÆRULEUS. — Can any of your readers inform me whether Otacanthus cœruleus, Lindl., *Flore des Serres*, t. 1526 (O. violaceus, Lindl. Hb.), is in cultivation in this country, and if so, kindly send me a fresh specimen? *W. B. Hemsley, Kew.*

31. RATES AND TAXES.—*L. H.* wishes to know if the nurserymen near London have their nursery land taxed for all local and other rates.

Answers to Correspondents.

COVER FOR WILD FOWL (Q. 29, p. 755): *A. H.* I would recommend, for covert for water-fowl, clumps of Pinus austriaca, Abies excelsa (Spruce Fir), or Abies canadensis (Hemlock Spruce), say about fifty in each clump, 5 feet or 6 feet apart, with a border of Rhododendrons or horizontal Yews (Taxus horizontalis); and, for the water-edge, the great Cat's-tail or Flag (Typha latifolia). *James Smith, the Nurseries, Darley Dale, Matlock.*

GRAFTING THE LILAC ON LIGUSTRUM JAPONICUM: *J. T. S.* (Q. 26, p. 724). This plant is easily multiplied by cuttings; so much so, that a branch of Syringa persica in bud may be grafted on to the cutting, and the cufting will take root and the graft "take" at the same time. In August the Lilac must be budded on the Ligustrum, by which means fine plants may be obtained for growing in pots, which do much better than on their own roots. *Joseph Baumann, Ghent.*

CAMELLIAS: *Enquirer.* The buds doubtless fall from want of water. Camellias require to be drenched while growing and swelling their buds, and *never* to be in a state approaching to drought.

CRICKETS: *E. Z.* Bait them for a few nights with oatmeal, and then mix some strychnine with it for one night, repeating the dose at intervals. You must, of course, be careful with the poison.

FRUIT-ROOM: *H. H.* It matters very little what sort of timber be used for the shelves of a fruit-room. We should use the best yellow Pine, as it would last longest.

HEATING GREENHOUSE: *J. H. Howard.* We have no faith in the attempts to utilise hot air from the fire-place of a sitting-room for this purpose. If the house is of moderate size put in a Trotman's or Deard's apparatus; if a very small one, you may keep it warm with candles or lamps.

INSECTS: *C. A.* Your insect, which appears to be rather fond of Cucumber blossom, is not a water-beetle, and not even a beetle at all; neither is it the common insect generally miscalled a black-beetle or cockroach. It is, however, another species of cockroach, the Blatta americana, which seems to be gradually becoming naturalised in this country. *I. O. W.*

JERUSALEM ARTICHOKE: CLAY LAND: *D. E. M.* 1, Jerusalem Artichokes succeed best in a rich, light, or open soil, and a fully exposed or sunny situation. If your soil is in good heart, no manure will be requisite. Plant the tubers about the middle of March, in rows 2½ feet to 3 feet apart, and the "sets" 2 feet apart in the rows, and 3 inches to 4 inches deep. Keep them well hoed subsequently, moulding the young growths up slightly during the operation. 2, The soil, according to your description of it, might be brought to excellent heart with good dressings of any ordinary manure. Plant any kind of crop that habitually comes in quickly; such, for instance, as Coleworts, Endive, Spinach, Celery, &c., according to the season and requirements. It would be useless to fix successionals for such a shady site, as success would depend greatly on the brightness or otherwise of the weather, and the strength of the seedling plants when put out. Late Strawberries, we surmise, would pay you better than vegetable crops.

MANILLA BAST: *Nomenclator.* The specimen of bast you sent belongs to a Malvaceous or Sterculeous plant. Further than that we cannot say.

NAMES OF FRUITS: *H. Mobbs. Pear:* Knight's Monarch. *Apple:* Dumelow's Seedling. *J. B. D.* 1, quite rotten; 2, like Shepherd's Newington; 4, a small Norfolk Beaufin; 5, Hoary Morning; 6, Sturmer Pippin.

NAMES OF PLANTS: *F. J. C.* Your Orchid blooms were smashed beyond recognition. It is absurd to send such flowers in an ordinary envelope, with no other protection.—*F. E. C.* Cladonia cornucopioides, formerly called Cenomyce coccifera, a common Lichen. *F. J. H.* Muhlenbergia complexa, not coccoloba.—*E. G.* Lobelia erinus. Arundo conspicua has hermaphrodite flowers, the spikelets being 1—3-flowered. Gynerium argenteum is diœcious, and the spikelets are about 6-flowered. — *Inquisitor.* Malvaviscus pilosus.

NEW ROSES: *An Old Subscriber* should have sent us his name and address.

PHYLLOXERA AT HAMBURGH: *Masdevallia.* The Senators, "most potent, grave, and reverend seigniors" as they are, desire to enact quarantine against Phylloxera, and propose, so a correspondent says, to surround the city with numbers of the *Gardeners' Chronicle* for the purpose. Good news for advertisers, this. Meanwhile, a sharp inspection at the frontier on all Vines, and thorough submersion in water of all *suspects* (if with a *little* carbolic acid in it, all the better) may be efficaceous.

POT VINES: *J. B.* Brush the ends of the shoots over with some of the Painter's Patent Knotting. That is the most effectual cure for bleeding of Vines that we know of. 2. Yes, do as you propose: it may improve the colouring.

TEMPERATURE OF CUCUMBER HOUSE: *T. W.* See p. 788.

WASTE STEAM: *Novice.* There seems no reason why the waste steam referred to should not be utilized for the cultivation of choice fruits or flowers; but the mode of application would necessarily have to be studied by a horticultural engineer on the spot.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers who send Post Office Orders, to be good enough to write to the Publisher at the same time, stating that they have done so.

CATALOGUES RECEIVED. — Dicksons & Co. (1, Waterloo Place, Edinburgh), Catalogue of Forest and Ornamental Trees and Shrubs, Coniferæ, Rhododendrons, &c.—The Lawson Company (1, George IV. Bridge, Edinburgh, and 106, Southwark Street, London, S.E.), Catalogue of Forest Trees, Shrubs, &c.—B. K. Bliss & Sons (34, Barclay Street, P.O. Box 5712, New York), Descriptive List of New Varieties of Potatos.—John Standish & Co. (Royal Nurseries, Ascot, Berks), Catalogue of New and Rare Plants, Hardy Trees, Shrubs, Roses, Fruit Trees, &c.—Rush & Yeats (19, Foregate Street, Chester), Priced List of Forest, Ornamental, and Fruit Trees, Evergreens, &c.

COMMUNICATIONS RECEIVED. — W. T. D. — A. G. — W. S.— J. Smith (next week). — J. M.—T. & Co.—W. G.—H. K.— H. T.—D. T. F.—A. O. W.—A New Beginner (consult the reports of the leading exhibitions).—W. Small (who do you mean by Mr. Judges, 41, Wellington Street?).—W. H. M.— G. B.—W. G.—G. E. E.—R. W.—J. H.—W. J.—J. F.— J. W.—J. G. B.—W. B. L.

Markets.

COVENT GARDEN, December 17.

A very quiet week, both in the wholesale and retail markets, which is usually the case in that just preceding Christmas. The present weather, however, if it continues, will be sure to have a marked influence on outdoor produce. A large quantity of rough Apples are still consigned here, both from the Western Counties and the Continent. Amongst the latest arrivals of New Town Pippins from New York, are some very fine samples, at prices varying from 42*s.* to 55*s.* per barrel. *Thos. Taylor, Wholesale Apple Market.*

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	1 6-	3 0	Mignonette, 12 bun.	4 0-	6 0
Camellias, 12 blooms	4 0-	12 0	Pelargoniums, 12 spr.	1 6-	3 0
Carnations, 12 blooms	2 0-	4 0	— Zonal, 12 spr.	0 9-	1 6
Chrysanthem., 12 bl.	3 0-	6 0	Roman Hyacinths, per 12 spikes	2 0-	4 0
— 12 bunches	6 0-	12 0	Roses, indoor, p. doz.	2 0-	6 0
Cyclamen, 12 blooms	0 3-	0 6	— French, do.	2 0-	3 6
Epiphyllums, 12 bl.	1 0-	2 0	Stephanotis, 12 sprays	9 0-	15 0
Eucharis, per doz.	9 0-	15 0	Tuberoses, p. doz.	2 0-	4 0
French Lilac, p. bun.	10 0-	15 0	Violets, per 12 bun.	1 6-	3 0
Heliotropes, 12 sprays	0 6-	..			

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0-	12 0	Heaths, in var., doz.	12 0-	30 0
Bouvardias do.	9 0-	18 0	Mignonette, do.	4 0-	6 0
Chrysanthemums, do.	4 0-	9 0	Myrtles do.	3 0-	9 0
Cyperus, do.	6 0-	12 0	Pelargoniums, dble., per doz.	6 0-	12 0
Dracæna terminalis	12 0-	30 0	— Scarlet, do.	6 0-	9 0
— viridis, per doz.	12 0-	24 0	Primula sinensis, do.	4 0-	8 0
Epiphyllums, each	1 6-	3 6	Solanums, do.	6 0-	18 0
Ficus elastica	1 6-	7 6			
Fuchsia, per dozen	6 0-	12 0			

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Melons, each ..	.. 1 0– 3 0
Chestnuts, per bush.	10 0–20 0	Nuts, Cob, p. lb.	.. 1 6– 2 0
Grapes, English, p. lb.	2 0– 6 0	Oranges, p. 100	.. 8 0–12 0
— Muscats, do. ..	4 0– 8 0	Pears, p. doz.	.. 2 0– 5 0
Lemons, per 100 ..	8 0–12 0	Pine-apples, p lb.	.. 3 0– 6 0
Medlars, per doz. ..	0 6– 1 0	Walnuts, p. bush.	..16 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, Fr., each	0 8– ..	Lettuces, per doz. ..	1 6– ..
Beans, French, p. 100	2 0– ..	Mushrooms, per pott.	1 0– 2 6
Beet, per doz. ..	1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle..	0 9– 1 6	Parsley, per bunch..	0 4– 0 6
Brus. Sprts., p. bush.	5 0– ..	Parsnips, p. doz. ..	0 9– 1 0
Cabbages, per doz. ..	1 0– 2 0	Radishes, per bunch.	0 2– 0 4
Carrots, p. bundle ..	0 4– 0 6	— black, Turnip, do. ..	– 0 6
Cauliflowers, per doz.	2 0– 6 0	Seakale, per bundle	1 6– 2 6
Celery, per bundle .	1 6– 2 0	Shallots, per lb. ..	0 3– ..
Cucumbers, each ..	2 0– 4 0	Salsify, per bundle ..	1 6– ..
Endive, per doz. ..	1 0– 2 0	Spinach, per bush. ..	5 0– ..
Herbs, per bunch ..	0 2– 0 4	Tomatos, per doz. ..	1 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Turnips, per bundle.	0 3– 0 4
Leeks, per bunch ..	0 2– 0 4		

Potatos:—Early Shaws, 110*s.*; Early Myatt's, 140*s.*; Early Regents, 120*s.*; and Early Dons, 120*s.* per ton.

SEEDS.

LONDON: *Dec.* 16.—Our seed trade is now quiet, but firm. New English red Clover seed is offered sparingly. For anything good long prices are asked; secondary and inferior parcels are held at irregular prices. With regard to French and American descriptions, values are firm at the recent advance. A fair quantity of Alsike has lately changed hands at currencies some £3 to £4 per ton higher than those ruling last week. For white Clover and Trefoil seeds the demand is at present limited. Foreign Italian is without change. We have a good inquiry for English Linseed. For foreign feeding parcels last week's quotations are well maintained. There is no noteworthy alteration in either Mustard or Rape seed. Canary seed must again be written some shillings per quarter dearer; scarcity and speculation have now forced up this article to a most exorbitant figure. Boiling Peas are in improved request. Hemp seed continues cheap. Other articles at this quiet time of the year offer no subject for remark. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday English Wheat was held for late rates, and the demand was quiet. For foreign the demand was only moderate, but prices were steady. Flour was dull and unchanged in value. Malting Barley continued fully as dear, but grinding was rather a dull sale. For Beans and Peas the tendency was against buyers. Oats were in moderate request, and without change in value.—On Wednesday the market was quiet, but in the sales effected the rates of Monday were realised for Wheat. Fine Barley was equally as dear, and the value of malt underwent no material change. Oats were in excess of the demand, though not quotably lower, while Maize, Beans, and Peas supported late rates steadily. Flour was dull, and rather weak in tone.—The average prices for the week ending December 12 were:—Wheat, 44*s.* 10*d.*; Barley, 44*s.* 3*d.*; Oats, 28*s.* 10*d.* For the corresponding week last year—Wheat, 61*s.* 11*d.*; Barley, 45*s.*; and Oats, 26*s.* 3*d.*

CATTLE.

The Christmas market held on Monday was in every way well suited to the occasion. The Scotch breeds were a prominent feature, the Devons were never surpassed, the Herefords formed an excellent collection, the Shorthorns well deserved the commendations they received, and the cross-breeds were quite up to any previous year. The trade opened quietly, but the demand soon improved, and a fair clearance was effected at very steady prices. The number of home-fed beasts at market was 6570, as compared with 7130 same day in 1864, and with 6181 in 1854. The prices obtained on Monday ranged from 4*s.* 4*d.* to 6*s.* 8*d.*; 1864, 3*s.* 8*d.* to 5*s.* 8*d.*; 1854, 3*s.* 6*d.* to 5*s.* 4*d.* The supply of sheep was adequate, the Down breeds being remarkably prime. There were 23,415 on offer (including 6485 foreigners), and prices ranged from 5*s.* 8*d.* to 6*s.* 8*d.* per 8 lb. The few calves at market, where prime in quality, brought higher prices, ranging up to 6*s.* 6*d.* Pigs sold at from 3*s.* 8*d.* to 5*s.*—Few choice beasts were offered on Thursday, and they were readily disposed of at Monday's prices. Good sheep were scarce, and dearer than on previous market day. Choice calves were scarce and dear, and the trade for milch cows was in a very depressed condition.

HAY.

Supplies at Whitechapel have been somewhat shorter, and the trade brisk, with rather higher prices for the better qualities. Quotations: Clover, best, 116*s.* to 124*s.*; inferior ditto, 70*s.* to 90*s.* Meadow hay, best, 106*s.* to 112*s.*; inferior, 60*s.* to 70*s.* Straw, 34*s.* to 40*s.* per load. Cumberland Market quotations:—Superior meadow hay, 108*s.* to 118*s.*; inferior, 86*s.* to 95*s.*; superior Clover, 115*s.* to 126*s.*; inferior, 95*s.* to 107*s.*; and straw, 38*s.* to 43*s.* per load.

COALS.

There was a quiet demand at Monday's market, the rates being those of the previous market day. On Wednesday, however, owing to the severity of the weather, activity characterised the operations generally, and house coals advanced 1*s.* to 1*s.* 6*d.* per ton.

GRAPE VINES.

THOMAS METHVEN & SONS

Have at present a large and very fine Stock of GRAPE VINES, thoroughly ripened, which they beg to offer at the following prices:

1st size, 7s. 6d.; 2d size, 5s. each.

T. M. & SONS had the honour of supplying to the Gardens at Glamis Castle the Vines which have succeeded so admirably under the management of Mr. Johnston; and their present Stock is raised from eyes taken from these famous Vines.

LEITH WALK NURSERIES, EDINBURGH.—December 1.

THE FINEST BROCCOLI IN CULTIVATION

COOLING'S MATCHLESS.

GEORGE COOLING

Begs again to offer Seed of the above now well known Broccoli. It has taken its rank as one of the finest self-protecting varieties grown, coming into use immediately after Snow's Winter White, with immense pure white heads of a pyramid shape, very close, and of a delicious flavour. It was awarded a First-class Certificate by the Royal Horticultural Society when first exhibited, and has upon several occasions since been shown and Specially Commended, and again obtained the First Prize in a strong competition at South Kensington last spring.

Price 1s. 6d. per packet.

Price to the Trade per Hundred Packets or per Pound on application.

GEORGE COOLING, NURSERYMAN AND SEEDSMAN, BATH.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,

SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.
First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; ha strong and vigorous, producing flowers on every shoot, an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, price 7s. 6d. each.

NEW HYBRID PERPETUAL ROSE,

CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3s. 6d. each; 30s. per dozen.

CLIMBING PERPETUAL ROSE,

CLIMBING JULES MARGOTTIN (Cranston's).

A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3s. 6d. each.

Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

THE LAWSON NURSERIES,

EDINBURGH.

The Extensive Stock of

Seedling and Transplanted Forest Trees, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, &c.,

Is this Season in Splendid Health, and will be Sold at Moderate Prices.

Catalogues on Application, and Special Offers will be made for Large Contracts.

THE LAWSON SEED AND NURSERY COMPANY, LIMITED,
EDINBURGH AND LONDON.
LONDON ADDRESS: 106, SOUTHWARK STREET, S.E.

To the Trade and Others.—Cheap Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the following various plants, of which he has a good stock :—

AZALEAS, Ghent, fine named varieties, 9*s*. per dozen.
RHODODENDRONS, hardy hybrid, choice named varieties, [12*s*. per doz.
MAGNOLIA GRANDIFLORA, 9*s*. per doz.
" PURPUREA, bushy, 9*s*. per dozen.
" EXONIENSIS, strong, in tubs, 21*s*. each.
" MACROPHYLLA, strong, 7*s*. 6*d*. each.
WENZIESIA POLIFOLIA, alba and rosea, 6*s*. per dozen.
PÆONIES, Tree, fine, named, 15*s*. per dozen.
SKIMMIA JAPONICA, 6*s*. per dozen.
ARALIA SIEBOLDII, strong plants, 12*s*. per dozen.
ROSES, Standard Perpetual, £4 per 100.
" Dwarf, 50*s*. per 100.
" Tea, choice, 18*s*. per dozen.
" Climbing, choice, 9*s*. per dozen.
LILIUM LANCIFOLIUM RUBRUM, 9*s*. per dozen.
" ALBUM, 12*s*. per dozen.
" PUNCTATUM, 9*s*. per dozen.
" RUBRUM, extra, 18*s*. per dozen.
" SUPERBUM, 9*s*. per dozen.
" TESTACEUM, 12*s*. per dozen.
" POMPONICUM, 6*s*. per dozen.
TRITOMA UVARIA GRANDIFLORA, 25*s*. per 100.
ASCLEPIAS TUBEROSA, flowering roots, 25*s*. per 100.
IRIS HISPANICA, in fine varieties, 12*s*. per fifty roots.
CYPRIPEDIUM ACAULE, 18*s*. per dozen.
SARRACENIA PURPUREA, 24*s*. per dozen.
YUCCA FLEXILIS, 6*s*. per dozen.
" RECURVATA, fine, 12*s*. per dozen.
" ALOIFOLIA, fine, 12*s*. per dozen.
FUNKIA UNDULATA, fol. elegantissimus var., 50*s*. per 100.
HEMEROCALLIS FULVA, flore-pleno, 9*s*. per dozen.
HELLEBORUS ABSCHASICUS, flore-rubro, 40*s*. per 100.
" flore-albo, 40*s*. per 100.
CONVALLARIA MAJALIS, flore-rosea, 6*s*. per dozen.
" " flore-pleno, 6*s*. per dozen.
" " foliis striatis, 6*s*. per dozen.
ANEMONE HEPATICA, roseo-pleno, 6*s*. per dozen.
" PULSATILLA, 6*s* per dozen.
ADONIS VERNALIS, 4*s*. per dozen.
SPIRÆA JAPONICA, strong clumps, 21*s*. per 100.
PHORMIUM TENAX, 18*s*. to 24*s*. per dozen.
" VEITCHII, fol. var., 10*s*. 6*d*. each.
" COLENSOI, fol. var., fine plants, 21*s*. each.
TAHEITE ORANGES, 12*s*. to 18*s*. per dozen.
ORANGE TREES, fine, 21*s*. per pair.
AZALEAS, Indian, with flower-buds, £4, £6, to £8 per 100.
CAMELLIAS, with flower-buds, £6 to £8 per 100.
" without buds, £5 per 100.
" Double White, without buds, 24*s*. to 36*s*. per dozen.
" strong plants, 5*s*., 7*s*. 6*d*., and 10*s*. 6*d*. each.
FUCHSIA SUNRAY, fol. var., 6*s*. per dozen.
PETUNIA ERMENEA REVEIL, fol. var., 6*s*. per dozen.
CYCAS REVOLUTA, 60*s*. per dozen.
" " very strong and fine specimens, 105*s*.
" MEDIA, 48*s*. per dozen.
" CIRCINALIS, 60*s*. per dozen.
AGAVE, twelve fine varieties for 24*s*.
ECHEVERIA ATROPURPUREA, 6*s*. per dozen.
" CALOCEPHANE, 6*s*. per dozen.
BROMELIACEOUS PLANTS, of sorts, 24*s*. per dozen.
MEDINILLA MAGNIFICA, 30*s*. per dozen.
MUSA SUPERBA, 60*s*. per dozen.
" ROSACEA, 18*s*. per dozen.
FICUS ELASTICA, 12*s*. to 24*s*. per dozen.
GARDENIA RADICANS and FLORIDA, 6*s*. per dozen.
SMYRNUM GRANDIFLORUM, 9*s*. per dozen.
OSMA PURPUREA, 6*s*. per dozen.
GREVILLEA ROBUSTA, 12*s*. per dozen.
CYPRIPEDIUM INSIGNE, 24*s*. per dozen.
" MAULEI, 48*s*. per dozen.
" BARBATUM, 18*s*. per dozen.
PASSIFLORA, of sorts, 12*s*. per dozen.
COFFEA ARABICA, 18*s*. per dozen. [per dozen.
AMARYLLIS RETICULATA STRIATIFOLIA, 12*s*. to 18*s*.
GLOXINIAS, strong bulbs, fine mixed, 25*s*. per 100.
" in named varieties, 6*s*. per dozen.
ACHIMENES, in sorts, 15*s*. per 100.
CALADIUMS, twelve fine varieties for 15*s*.
BEGONIAS, fine foliaged varieties, 6*s*. per dozen.
" bulbous varieties, fine mixed varieties, 18*s*. per dozen.
MARANTAS, in fine varieties, 18*s*. per dozen.
CROTON, in fine varieties, 18*s*. per dozen.
CAMPYLOBOTRIS, in fine varieties, 18*s*. per dozen.

FERNS.

ONCHOMARIA ZAMIOIDES, fine plants, 24*s*. per dozen.
" GIBBA, 6*s*. to 9*s*. per dozen.
" FALCATA, 6*s*. to 9*s*. per dozen.
GLEICHENIA ANTARCTICUM, 40*s*. to 60*s*. per 100.
ONYCHIUM JAPONICUM, 6*s*. to 12*s*. per dozen.
ALSOPHYLLA AUSTRALIS, fine, 9*s*. per dozen.
GYMNOGRAMMA, of sorts, 9*s*. per dozen.
PTERIS CRETICA, albo lineata, 42*s*. per 100.
SELAGINELLA, of sorts, 6*s*. per dozen.
ADIANTUM, of sorts, 42*s*. per 100.

PALMS.

PHŒNIX RECLINATA, fine young plants, 18*s*. per dozen
" " in store pots, 2-yr. old, 25*s*. per 100.
CHAMÆROPS FORTUNEI, fine plants, 18*s*. per dozen.
" HUMILIS, 2-yr. seedlings, 63*s*. per 100.
" " fine plants, 24*s*. to 36*s*. per dozen.
CORYPHA AUSTRALIS, fine, 18*s*. to 24*s*. per dozen.
ARECA LUTESCENS, fine plants, 5*s*. each.
" VERSCHAFFELTII, fine plants, 5*s*. to 7*s*. 6*d*. each.
" SAPIDA, fine plants, 15*s*. each.
LATANIA BORBONICA, 18*s*., 24*s*., and 36*s*. per dozen.
" " young specimen plants, 6*s*. to 8*s*. each.
PTYCHOSPERMA ALEXANDRÆ, fine plants, 36*s*. per doz.
KENTIA BALMOREANA and FORSTERIANA, fine [plants, 21*s*. each.
SABAL ADANSONII, 24*s*. per dozen.
EUTERPE EDULIS, 18*s*. per dozen.
MAXIMILIANA REGIA, 18*s*. per dozen.
COCOS CORONATA, 30*s*. per dozen.

CONIFERS.

ARAUCARIA IMBRICATA, 1 foot, 63*s*. per 100.
WELLINGTONIA GIGANTEA, 6 to 9 inches, 50*s*. per 100.
CUPRESSUS MACROCARPA, 25*s*. per 100.
PINUS EXCELSA, 3-yr. seedlings, 21*s*. per 100.
" DENSIFLORA, 1½ to 2 feet high, 18*s*. per dozen.
THUJA ELEGANTISSIMA, 42*s*. per 100.
" VERVÆNEANA, strong, 18*s*. per dozen.
LARIX KÆMPFERII, seedlings, 30*s*. per dozen.
THUJOPSIS DOLABRATA, 1 foot, 9*s*. per dozen.
" BOREALIS, fine plants, 9*s*. per dozen. [per 100.
CEDRUS DEODARA, fine stuff, 4-yr. transplanted, 63*s*.
ABIES NORDMANNIANA, 1½ foot high, fine plants, 30*s*. doz.

Reference from unknown Correspondents.

Agents: Messrs. R. SILBERRAD AND SON, 5, Harp Lane, London, E.C.

PEAT.—From 5 to 100 tons of excellent Peat can be delivered at any Station on the South-Eastern or South-Western Railways. Apply to
Mr. TARRY, Golden Farmer, Frimley, Surrey.

ODAMS' MANURES,
FOR ALL CROPS.
Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 150,000 Acres of Land.
Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s*., 3*s*., and 10*s*. 6*d*. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

CANTHARIKOPHO.
COCKROACH AND BEETLE POISON.
Destroys Rats and Mice.
Sold everywhere in Tin Boxes. By post, 1*s*. 3*d*. and 1*s*. 10*d*. each.

MILDEW
May be entirely prevented as well as cured by
EWING'S INFALLIBLE COMPOSITION.
Can be had through most Seedsmen and Florists, or direct of the Manufacturers, EWING AND CO., the Royal Norfolk Nurseries, Norwich, at 1*s*. 6*d*. p. bottle, with full directions for use.

Russia Mats.

BLACKBURN AND SONS, the only Importers of Mats in London, have, in consequence of the SCARCITY of ARCHANGEL MATS, instructed their Russian friends to send **100,000** best selected PETERSBURG, which they are now offering, to the Trade only, at low prices.
Samples and prices on application, at 4 and 5, Wormwood Street, London, E.C.

Russia Mat Merchants.

MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., have a large Stock of Archangel, Heavy and Close-woven ST. PETERSBURG MATS, and all kinds of DUNNAGE MATS, RAFIA FIBRE, &c.
N.B.—The best Heavy St. Petersburg Mats are most suitable for covering purposes.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of ARCHANGEL and PETERSBURG, for Covering and Packing, Second sized ARCHANGEL, 100*s*.; PETERSBURG, 60*s*. and 80*s*.; superior close Mat, 45*s*., 50*s*., and 55*s*.; PACKING MATS, 20*s*., 30*s*., and 35*s*. per 100; and every other description of MATS at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.
MAW AND CO., Benthall Works, Broseley.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT.
Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.
For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.
For Particulars, and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton, and the late Professor Lindley, &c., &c.
MADE OF PREPARED HAIR AND WOOL.
A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.
PROTECTION FROM COLD WINDS and MORNING FROSTS.
"FRIGI DOMO" NETTING, 2 yards wide, 1*s*. 4*d*. per yard.
"FRIGI DOMO" CANVAS.

Two yards wide	1*s*. 10*d*. per yard run.
Three yards wide	3*s*. per yard.
Four yards wide	3*s*. 10*d*. per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.
NOTICE.—REMOVED from 3, CANNON STREET, CITY.

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	3*s*. 4½*d*.
3-inch Pipe, per yard	2*s*. 8½*d*.
2-inch Pipe, per yard	1*s*. 8*d*.

Connections at proportionate prices.
Illustrated Price List free on application to
T. G. MESSENGER, Hot-water Engineer, Loughborough.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of
CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.
Illustrated Price Lists free.
HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

J. G. SMEATON & CO.,
Horticultural Architects and Builders,
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,
HARWOOD ROAD, FULHAM, LONDON, S.W.
Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.
HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

AGRICULTURAL LOCOMOTIVES,
STEAM PLOUGHING MACHINERY,
ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES, STEAM ROAD ROLLERS.
For Prices, Description, and Reports of Working, apply to the Manufacturers,
AVELING & PORTER,
ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.
AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England, their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

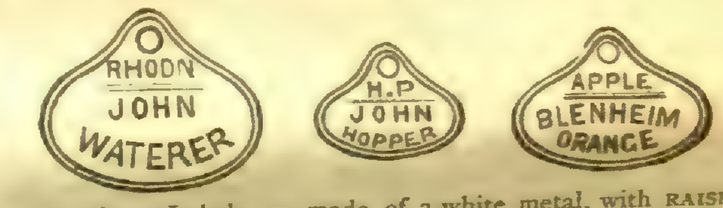
GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.
F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.
Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.
Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s*. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.
WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.
F. ROSHER AND CO., Brick and Tile Merchants.
See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries.
KENT PEATS or LOAM supplied at lowest rates in any quantities.
F. ROSHER AND CO.—Addresses see above.
N.B.—Orders promptly executed by Rail or to Wharves.
A liberal Discount to the Trade.

By Appointment to, and Under the Distinguished PATRONAGE of, HER MAJESTY.

J. SMITH'S IMPROVED METALLIC LABELS.



The above Labels are made of a white metal, with RAISED BLACK-FACED LETTERS, and are of various shapes and sizes.
For illustration of the different shapes see the *Gardeners Chronicle*, Nov. 28.
Samples and Price List free.
Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

Labels—Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3*s.* 6*d.* per 1000, or 30*s.* per 10,000; if eyeleted, 4*s.* per 1000. Vellum Cartridge, 4 inches long, 3*s.* per 1000 for 10,000. Sample Labels sent on receipt of Postage Stamp Orders delivered free in London.

JOHN FISHER AND CO., Label Works, Boston.

SPECIAL NOTICE.

F. K. BELL'S
IMPERISHABLE METAL LABELS
FOR
HORTICULTURE, WINE BINS, ARBORICULTURE AND MACHINERY.

THE ORIGINAL MANUFACTORY

of these Labels (which have given such general satisfaction throughout the United Kingdom) has been removed ENTIRELY from Stratford-on-Avon to

EASTBOURNE, SUSSEX,

where all Orders should be addressed, and shall receive prompt attention. Catalogues and samples on application.

F. K. BELL,
LABEL FACTORY, EASTBOURNE.

Garden Wall Wiring.

R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.

For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.

Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

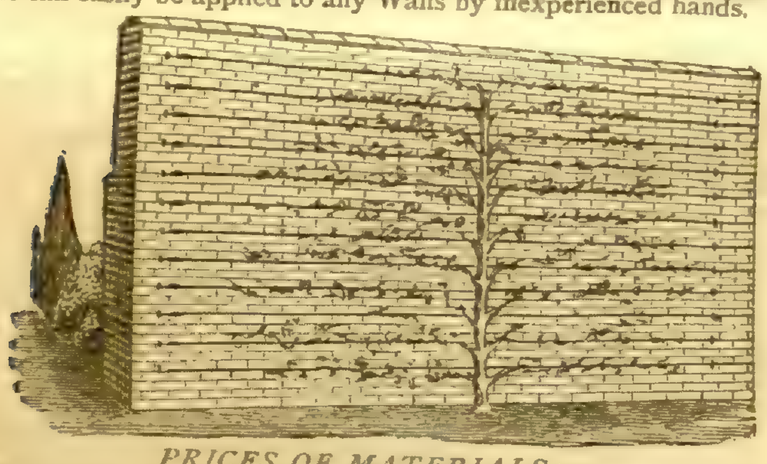
GALVANISED WROUGHT IRON

FITTINGS for WIRING WALLS,

For the Purpose of Training Fruit Trees
ON THE FRENCH SYSTEM,

and as recommended by Mr. W. ROBINSON, F.L.S., in his new work, "The Parks, Promenades, and Gardens of Paris."

By this system nails and shreds are entirely dispensed with, the walls are not injured, and no harbour is afforded to small insects. The Tying of the Fruit Trees is effected in one-fifth of the time required by the old system. The arrangement is so simple, that it can easily be applied to any Walls by inexperienced hands.



PRICES OF MATERIALS:—

GALVANISED RAIDISSEURS for Tightening the Wires. One of these required for each Line of Wire.

No. 900. 4*s.* per doz.

GALVANISED WALL EYES, 6*d.* per dozen.
GALVANISED TERMINATING HOLDFASTS, 2*s.* per doz.
GALVANISED WIRE, 2*s.* 6*d.* and 3*s.* per 100 yards.

ILLUSTRATED LISTS, with full particulars of the above, and of FITTINGS for ESPALIER TRAINERS, on very economical principles, free on application to

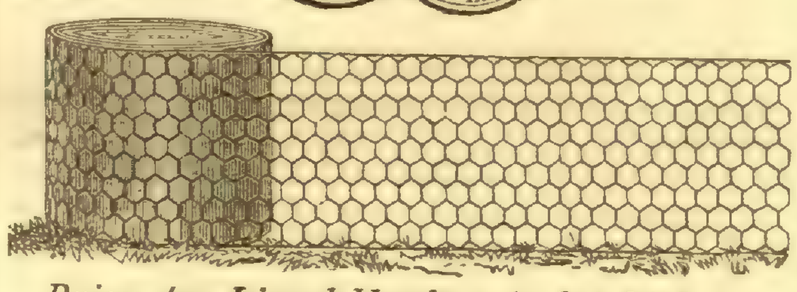
BARNARD, BISHOP & BARNARDS,
NORFOLK IRONWORKS, NORWICH.

Messrs. J. B. Brown & Co.'s VIENNA PRIZE WIRE NETTING.

THE MEDAL FOR MERIT
At the Vienna Universal Exhibition, 1873,

Was awarded to Messrs. J. B. Brown & Co., for "excellence and perfection in material and

workmanship, large extent of production, and cheapness of produce."



Prices per Lineal Yard, 24 *inches high*:—

Size of Mesh.	Mostly used for	Gauge.	Or Light Quality.	Gauge.	Or Medium Quality.	Gauge.	Or Strong Quality.
2 in.	Dogs or Poultry .	19	3¾*d.*	18	4½*d.*	17	5¾*d.*
1⅝ in.	Small Rabbits, &c.	19	4¼*d.*	18	5¼*d.*	17	6¼*d.*
1½ in.	Smallest Rabbits	19	5¼*d.*	18	6¼*d.*	17	8*d.*

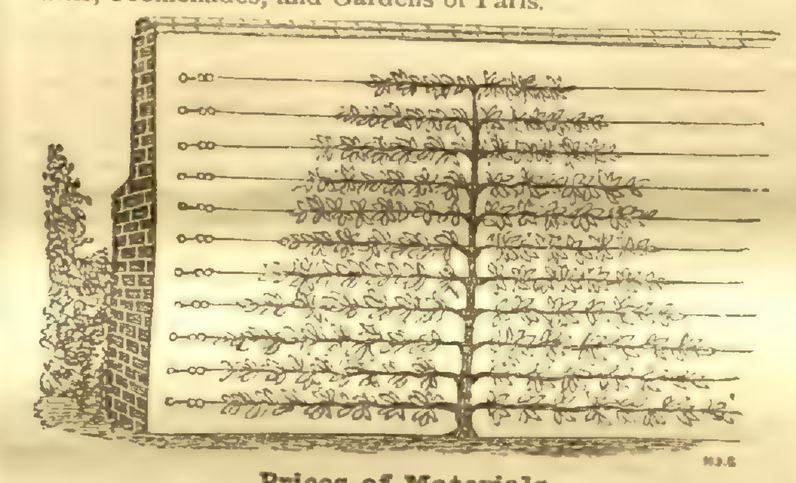
*** Circulars with prices and further particulars of Wire Netting, also of Iron Fencing, Espalier and other materials for Wiring Garden Walls for Fruit Trees on the French System, on application.

Messrs. J. B. BROWN & CO.,
Offices—90 CANNON STREET, LONDON.

THOMAS'S
GALVANIZED
WROUGHT-IRON FITTINGS

FOR WIRING WALLS, FOR THE PURPOSE OF TRAINING FRUIT TREES

On the French system, and as recommended by Mr. W. Robinson, F.L.S., editor of *The Garden*, and author of "The Parks, Promenades, and Gardens of Paris."



Prices of Materials.

	Per doz.—*s.*	*d.*
GALVANISED RAIDISSEURS	4	0
GALVANISED TERMINATING HOLDFASTS .. (Two required for each line of wire.)	2	0
GALVANISED WALL EYES	0	6

GALVANISED WIRE, 2*s.*, 2*s.* 6*d.*, and 3*s.* per 100 yards.

Illustrated Lists, with full particulars of the above, and Fittings for Espalier Trainers, on very economical principles, free on application.

Five per cent. discount allowed for prompt cash on orders amounting to 20*s.* and upwards. Special quotations for larger quantities

J. J. THOMAS & CO.,
PADDINGTON WIREWORKS, 285 and 362, EDGWARE ROAD, LONDON, W.

Illustrated and Priced Catalogues of every description of Horticultural Wirework on application.

Stoves for Greenhouses! Portable! Terra Cotta!

ROBERTS'S PATENT PORTABLE TERRA COTTA STOVES give pure heat, without attention, 24 hours or longer, for about 1*d.* for coal, or coal and coke. Suitable for almost any purpose. See *The Garden* for March 1, 1873:—"ROBERTS'S Patent Terra Cotta is the best and cheapest dry stove that has ever been invented. . . . May be used in any plant-house without injury to the most delicate plants." Prospectus, drawings, and authentic testimonials, can be had, and the Stoves can be seen in use, and ordered, on application to the patentee,

THOMAS ROBERTS, 48, Rochester Row, Westminster, S.W.

J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

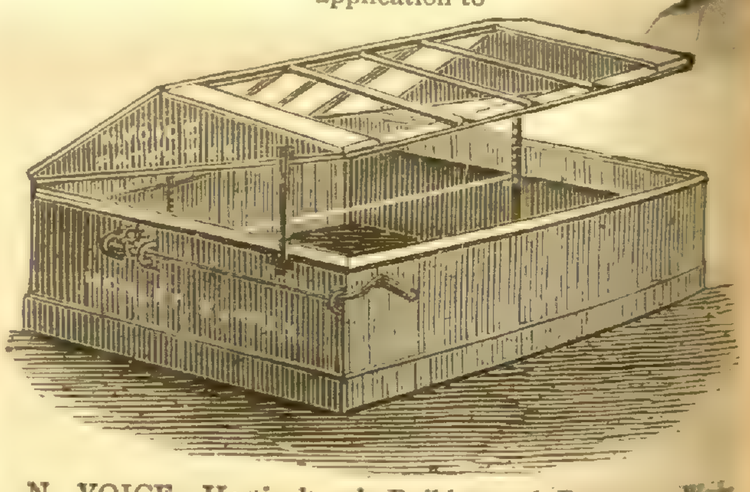
References to the Nobility, Gentry, and Trade in most of the Counties in England.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDS'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

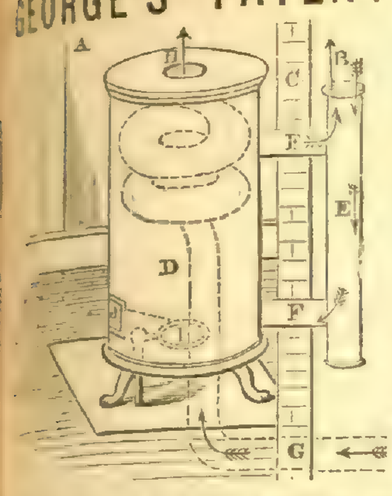
T. G. MESSENGER,
CONTRACTOR, MIDLAND HORTICULTURAL BUILDING AND HOT-WATER ENGINEERING WORKS, LOUGHBOROUGH,

Begs to inform his numerous Patrons and the Public generally, that since his recent disastrous fire he has erected new, more extensive, and commodious works, fitted with the best steam-power machinery, for the construction of Horticultural Buildings in wood or iron, plain or ornamental, of any required dimensions. T. G. MESSENGER is now, therefore, in a position, from his great facilities and experience, to carry out with dispatch and in the best manner, at moderate cost, the orders with which he may be entrusted. Glasshouses erected on Messenger's Patent principles are, owing to mechanical arrangements, very strong, *most durable*, light, *elegant; perfect efficiency* for purpose intended is *guaranteed;* are economical in cost and maintenance. Hot-water engineering in all its branches. Messenger's Patent Hot-water Boilers, Flexible Jointed Hot-water Pipes and Valves, are now in use in many thousands of instances, with the greatest success. Particulars on application.

Plans and Estimates forwarded. Ladies and Gentlemen waited upon. The Plans of Architects and others carried out.

A richly Illustrated CATALOGUE forwarded Post Free on receipt of 33 Stamps.

GEORGE'S PATENT CALORIGEN,



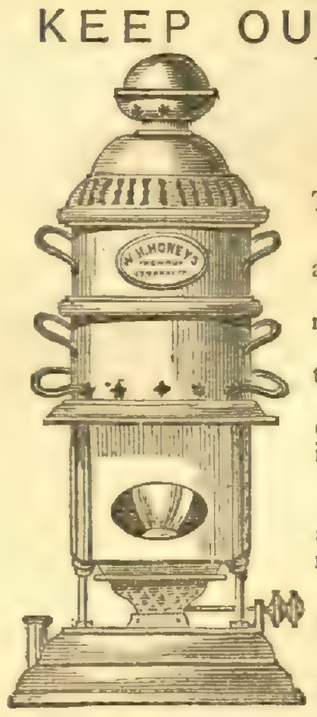
FOR WARMING AND VENTILATING.

COAL CALORIGEN, £6 6s.
Height, 36 inches; diameter, 21 inches.
GAS CALORIGEN, £3 3s.
Height, 28 inches; diameter, 14 inches.

The only Gas Stove which retains the whole of the heat given off by the gas without vitiating the atmosphere. The "Coal Stove" consumes the smallest amount of Fuel—d per diem being the average cost. It will be found very ...able in the Nursery or Sick Room, Damp Buildings, Con...atories, Offices, &c. Exhibited at the Exhibition of 1871 ...epartment of Scientific Inventions).

Illustrated Prospectuses and Testimonials on application.
F. FARWIG AND CO., 36, Queen Street, Cheapside, E.C.
This Stove introduces a strong current of warmed (not burnt) fresh air.

ESTABLISHED 1856.
KEEP OUT THE FROST.



WILLIAM H. HONEY'S PORTABLE
VAPORISING STOVES,

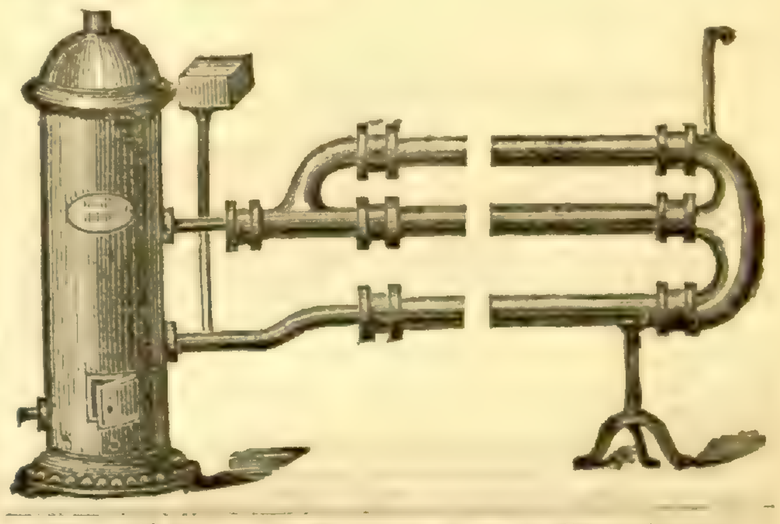
To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.
They require no attention beyond replenishing the oil.
Suitable for greenhouses, conservatories, halls, bed-rooms, &c.
They will not injure the most tender exotics, nor are they in any way injurious to the health.
Prices, in block tin, 30s.; in copper, 50s. Copper, with glass, to give light and heat, 55s. Either will be sent on receipt of Post-office Order.

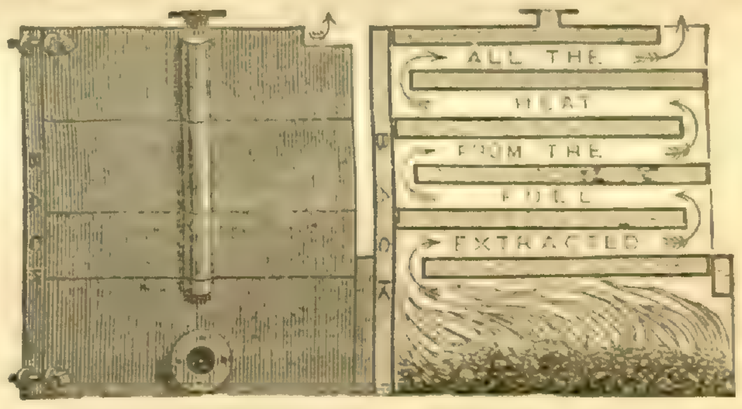
To be seen in operation at
WILLIAM H. HONEY,
263, REGENT STREET, W.
Catalogue free. No agents appointed

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.
For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

HOT-WATER APPARATUS
(Heated by Gas)
FOR SMALL CONSERVATORIES, GREENHOUSES, &c.
Price from £3 3s. To be had of
JOHN GILL AND CO., 299, Oxford Street, London, W., and of all Ironmongers.
Wholesale only of JOHN WRIGHT AND CO., Essex Works Broad Street, Birmingham.



The "Victoria" Hot-water Circulator.



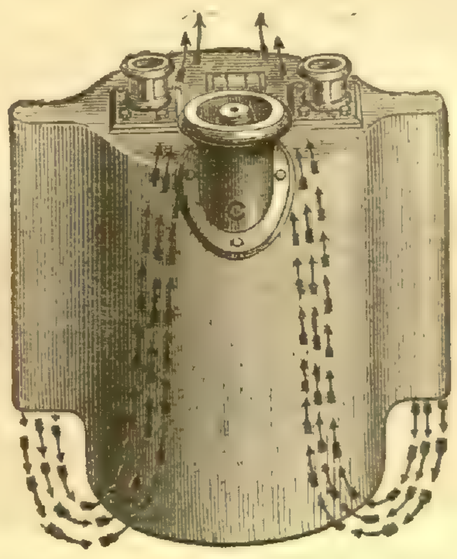
THE ONLY APPARATUS thoroughly adapted for its purpose. No other possesses half the merits and advantages. Warranted for ten years. Also guaranteed to far surpass and give much more satisfaction than the common Boilers. A break-down never yet known. See Illustrated Prospectus and Testimonials from most eminent men, sent post free.

Patronised by H.R.H. the Prince of Wales.
The Gardens, Sandringham, October 28, 1874.
DEAR SIR,—I am in receipt of your Warranty, and am now able to tell you, after my having tried all kinds and all sizes of Boilers for the last twenty-five years, your Hot-water Circulator beats them all—not by a head, but it is a simple walk over—for economy and power. I think I may say, we shall never need any further research for a thorough good Boiler.
I am, dear Sir, yours truly,
Messrs. Cannell & Co. CHAS. PENNY.
P.S.—You are at liberty to make what use you like of this.

HOT-WATER CIRCULATOR COMPANY,
48 and 49, King Street, Woolwich, S.E.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,
SURREY SIDE, BLACKFRIARS BRIDGE,
Have the largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.

HOT-WATER BOILERS,



("ATLAS BOILER.")

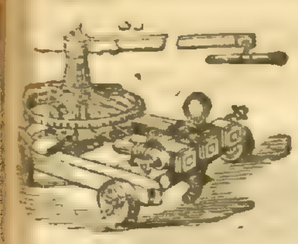
PIPES, CONNECTIONS,

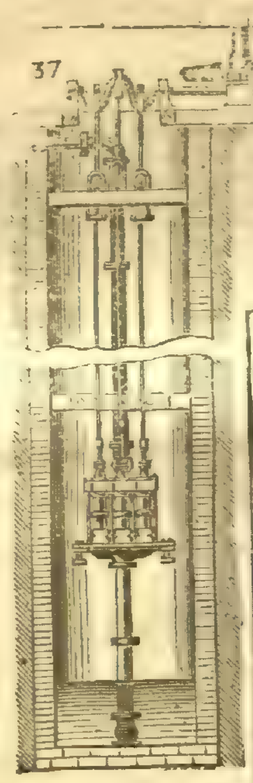
AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

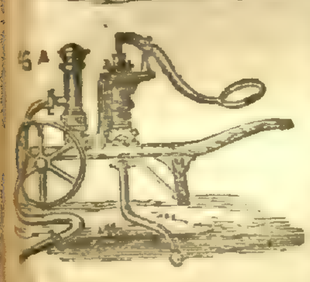
NEW PATENT "CLIMAX" BOILER (1874). See p. 666, *Gardeners' Chronicle.*
"GOLD MEDAL" BOILER (Birmingham, 1872).
PATENT "EXCELSIOR" BOILER (1871).
"WITLEY COURT" BOILER (Silver Medal, 1872).
"TRENTHAM IMPROVED" BOILER, with Waterway End and Smoke Consumer.
"TUBULAR," and every other Boiler of known merit or excellence.

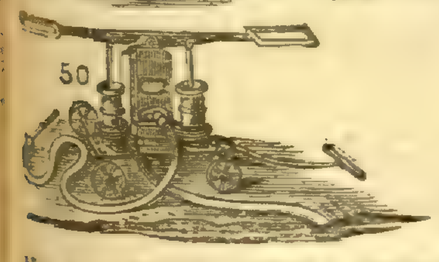
HOT-WATER APPARATUS ERECTED COMPLETE.
PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

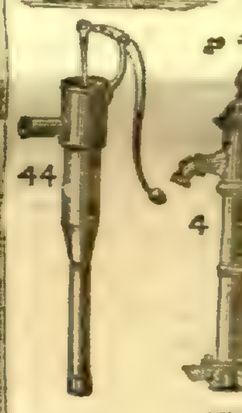
S. OWENS & CO.,
HYDRAULIC ENGINEERS,
WHITEFRIARS STREET, LONDON, E.C.

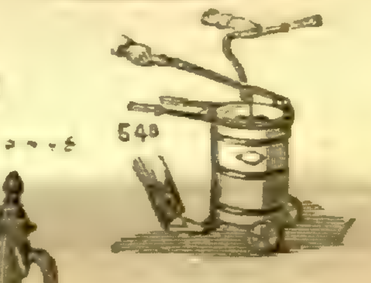


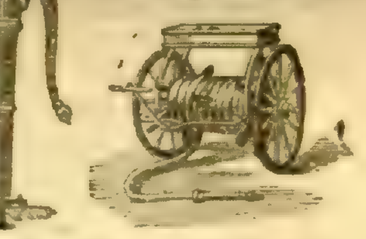


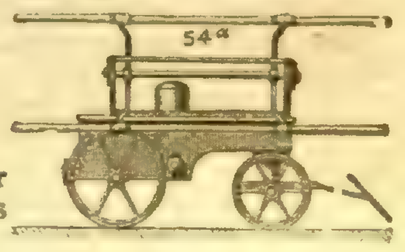












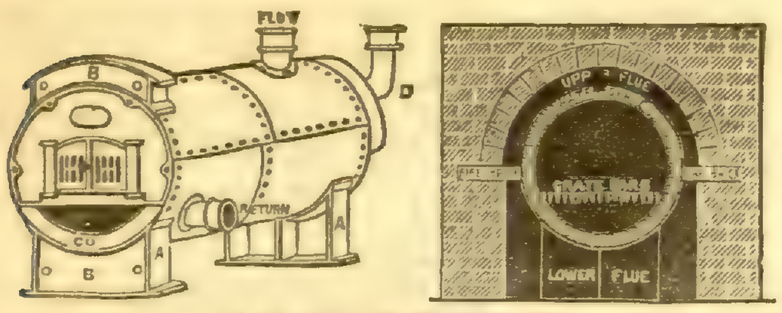
THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
No. 63. PORTABLE IRRIGATORS with Double or Treble Barrels for Horse or Steam Power.
No. 46a. IMPROVED DOUBLE ACTION PUMPS on BARROW for Watering [Gardens, &c.
No. 49a. GALVANISED SWING WATER CARRIERS, for Garden use.
No. 50 and 54a. FARM and MANSION FIRE ENGINES of every description.
No. 38. PORTABLE LIQUID MANURE PUMPS, on Legs, with Flexible Suction.
No. 49. GARDEN ENGINES, of all sizes, in Oak or Galvanised Iron Tubs.
No. 54b. THE CASSIOBURY FIRE EXTINGUISHER, as designed for the Right Hon. the Earl of Essex.
No. 44. WROUGHT-IRON PORTABLE PUMPS of all sizes.
No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.
No. 39b. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution. FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.



STEVENS'

TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

The Royal Pottery, Weston-super-Mare.

UNDER ROYAL PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7*d.* each.

JOHN MATTHEWS, Royal Pottery, Weston-super-Mare.

GARDEN TARPAULINGS, 24*s.* per dozen, 6 feet by 4 feet, with eyelet holes—larger sizes in proportion. of Second-hand Railway Tarpaulings, redressed. POLICE CAPES, 36*s.* per dozen; LEGGINGS, 24*s.* per dozen; Large Capes, 4*s.* 6*d.* each; 100 SOLDIERS' TENTS, 42 feet round, 21*s.* each, complete for use.

R. RICHARDSON, 99, Euston Road, N.W.

WANTED, to PURCHASE (or on Loan for a short time, with Deposit) a Complete Set or Volumes of the *Botanical Magazine and Register.*—Apply, stating price, to H. ELWES, Esq., Miserdine House, Cirencester.

Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

THE SYDNEY MAIL

AND

NEW SOUTH WALES ADVERTISER.

CONTENTS:—

INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*

Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.

The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London ..	Mr. George Street, 30, Cornhill, E.C.
	Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
	Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham.	Mr. R. S. Kirk, 90, New Street.
Liverpool ..	Lee & Nightingale, 15, North John Street.
Bristol ..	James & Henry Grace, Royal Insurance Buildings.
Edinburgh ..	Robertson & Scott, 13, Hanover Street.
Glasgow ..	W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices or the use of Advertisers.

Belgian.

BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAICHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid 10*s.* per annum.

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

HORTICULTURE.—The following Works (by THOMAS RIVERS) may be had by post at the prices quoted:—

THE ORCHARD HOUSE; or the Cultivation of Trees in Pots. Fifteenth Edition. 3*s.* 6*d.*

THE MINIATURE FRUIT GARDEN; containing Directions for Root Pruning, &c. Seventeenth Edition. 3*s.*

THE ROSE AMATEUR'S GUIDE; containing the History and Culture of Roses. Tenth Edition. 4*s.*

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

This Month will be Published a New and greatly Enlarged Edition of

GORDON'S PINETUM:

BEING A

Synopsis of all the Coniferous Plants at present known,

WITH

DESCRIPTIONS, HISTORY, and SYNONYMS,

AND

Comprising a considerable number of New and Undescribed Kinds;

With elaborate Indexes of both Scientific and Popular Names.

In One Volume, 8vo, Cloth, Price 18s.

*** The former Edition, now extremely scarce, was published at 16*s.*, the Supplement at 6*s.*, both of which are included in the present with considerable additions.

LONDON:

HENRY G. BOHN,

18, HENRIETTA STREET, COVENT GARDEN, W.C.

SECOND EDITION, NOW READY.

Price 3d., Post Free 4d.

THE

Agricultural Gazette Almanac, 1875.

The best Illustrated Agricultural Almanac.

Office: 7, Catherine Street, Strand, W.C.

THE AGRICULTURAL GAZETTE ALMANAC CONTAINS:—

PORTRAIT of H.R.H. the PRINCE of WALES, President of Smithfield Club.

PORTRAIT of LORD BRIDPORT, President of Royal Agricultural Society.

PORTRAIT of Dr. VOELCKER, President of London Farmers' Club.

PORTRAIT of H.R.H. the PRINCE of WALES' CHAMPION PRIZE HEIFER.

PORTRAIT of Mr. STRATTON'S Prize Heifer, "NECTARINE BUD."

The WHEAT CROP of 1874.

LIST of MEMBERS of HOUSE of LORDS, and HOUSE of COMMONS.

AGRICULTURAL SOCIETIES, CHAMBERS of AGRICULTURE, and FARMERS' CLUBS.

PORTRAITS of Prize-taking CATTLE, SHEEP, and PIGS at BEDFORD, and Numerous other Illustrations, with Letterpress Descriptions.

Price 3d., Post Free 4d.

W. RICHARDS, 7, Catherine Street, Strand, W.C.

New Volume Commences in January.

THE FLORIST and POMOLOGIST, Pictorial Magazine of Gardening. Monthly, 1*s.* 6*d.*; 12*s.*; or free by post, 13*s.* Two finely-coloured Plates are given with each Number. Established as the "Florist" in 18[illegible]

The FLORIST and POMOLOGIST is a Popular Monthly Magazine of Gardening in all its Departments. It supplies the class of information required by GARDEN AMATEURS, as well as by PROFESSIONAL AND COMMERCIAL GARDENERS. It keeps its readers posted up as to the NOVELTIES which may interest them, and instructs them as to the best forms of GARDEN PRACTICE; and as the LETTERPRESS is contributed by some of the most distinguished Practical and Scientific Horticulturists of the day, the sound practical character of the information contained in its pages can be vouched for.

The FLORIST and POMOLOGIST is issued on the 1st of every Month, and may be ordered through any Bookseller or Newsagent, or direct from the Publisher,

MR. EDWARD H. MAY, 171, Fleet Street, London, E.C.

Youatt on the Horse. Edited by Watson

Latest Edition, in 1 Vol., 8vo, price 12*s.* 6*d.*

THE HORSE. By WILLIAM YOUATT. Revised and enlarged by WALKER WATSON, M.R.C.V.S. With upwards of fifty Woodcut Illustrations.

YOUATT on the DOG, uniform, price 6*s.*, may also be had.

London: LONGMANS, GREEN, AND CO., Paternoster Row, E.C.

Now ready, Price 1s., or Free by Post for 1s. 2d.,

THE

GARDENERS' YEAR-BOOK AND ALMANAC FOR 1875.

By ROBERT HOGG, LL.D., F.L.S., Co-Editor of "THE JOURNAL OF HORTICUTURE."

"THE GARDENERS' YEAR-BOOK" will contain, besides the information usually found in Almanacs, a great mass of valuable information, and numerous useful Tables in connection with Horticulture; a Complete Garden Calendar; Notices of all Horticultural, Floricultural, and Pomological Novelties, and a great mass of miscellaneous matter useful to Horticulturists.

JOURNAL of HORTICULTURE OFFICE, 171, FLEET STREET, LONDON, E.C.

To be ready not later than January 1, 1875, Price 2s., Free by Post, 2s. 3d.,

THE HORTICULTURAL DIRECTORY For 1875.

ADVERTISEMENTS inserted at the same rate as in the "Year Book." Should space be required, Copy must be sent to this Office as early as possible.

JOURNAL of HORTICULTURE OFFICE, 171, FLEET STREET, LONDON, E.C.

THE AGRICULTURAL GAZETTE,
SATURDAY, DECEMBER 19, 1874,
Contains—

ORIGINAL ARTICLES on Tenant-right—How to tell Age by Dentition (Illustrated)—Poultry Shows—A Rat-proof Fence (Illustrated)—Peacocks—A Child's History—On Fruits, and Tree Planting—Agricultural Machinery (Illustrated)—Cheese Factories in Derbyshire—Atkin's Filters (Illustrated)—Piecework Wages and the Agricultural Labourer—Chemical Report to the Royal Agricultural Society of England—The Future of the Labourer—The Racing Season of 1874—Coursing—Cattle at the Birmingham and Smithfield Shows (Illustrated)—The Future of Agriculture—Common Law for Farmers—Mr. Fawcett's Suggestions—Shorthorns in County Cork, and a Memoir of

THE LATE WILLIAM TORR.

HOME AND FOREIGN CORRESPPONDENCE on The Season—Manilla Hemp Ropes for Steam Cultivation—Mangel Wurzel—Statute Fairs—The Labourers' Movement—Cheyne Barley—Agricultural Notes from France—An Emigrant's Experience of Queensland.

FARM NOTES AND MEMORANDA from a large number of Counties in Great Britain and Ireland.

REPORTS OF SOCIETIES, FARMERS' CLUBS, &c.

ALSO—

The Veterinarian—The Poultry Yard—The Garden of the Farm—Forestry—The Weather—Reports of Markets—Notices of Books—Miscellaneous, &c.

Price 4d.; post free, 4½d. Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

Works on Botany, by Dr. Lindley.

THE VEGETABLE KINGDOM; or, THE STRUCTURE, CLASSIFICATION, AND USES OF PLANTS illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25s., with upwards of 500 Illustrations.

EXTRACT FROM THE AUTHOR'S PREFACE.

"The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be sought by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. Small selection was indispensable; firstly, because a greater [illegible] would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects."

By the same Author.

INTRODUCTION to BOTANY. Fourth Edition, greatly enlarged; with six Plates, and numerous Wood Engravings. Two Volumes, 8vo, 24s.

*** It has been the Author's wish to bring every subject that he has introduced down, as nearly as possible, to the state in which it is found at the present day. In doing so, he has added a very considerable a quantity of new matter, especially in what relates to Vegetable Anatomy and Physiology, that the present Edition may be considered, in those respects, a new work.

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

WANTED, as GARDENER, a married Man, without children; must be able to take Charge of Fancy, &c., and not afraid of Work. Cottage found.—Apply by letter, stating wages required, to B. W., Farmer's Library, Upper Norwood, Surrey, S.E.

WANTED, a WORKING GARDENER, by the Burial Board for the Parish of St. George, Hanover Square. Wages £1 per week, with residence. A married Man, not over thirty-five years of age, required.—Applications, endorsed "Application for post of Gardener," to be sent in own handwriting, stating age and present employment, not later than January 1, 1875. By order, J. H. SMITH, Clerk to the Board.

WANTED, a SECOND GARDENER (single), to take Charge of the Houses, Wall Trees, and Assist the Gardener in the ordinary Work. Wages 16s. a week, lodgings found.—Apply, stating all particulars, where previously employed, to H. APPLEBY, Box Hill Nursery, Dorking, Surrey.

WANTED, as GARDENER and GROOM, a thoroughly steady, experienced Man—married, but without family, preferred. Must understand and be interested in Stock. Wife as Laundress.—Apply first, by letter, to P. S., *Press* Office, Barnet, N.

WANTED, a FOREMAN; must be a good Plantsman and Propagator; one used to Market Work preferred, or a good Second Man from a Market Nursery.—Apply by letter, stating particulars, to RICHARD BIGGS The Nurseries, Lewisham, S.E.

WANTED, a good steady PROPAGATOR, for Indoors, who can Grow Hard and Soft-wooded Plants well.—Apply to B. WHITHAM, The Nurseries, Reddish, near Stockport.

WANTED, a MAN to Grow Plants for Sale, and take Charge of the Houses in a small Nursery; a married Man, without a large family, preferred.—Apply by letter only, stating wages required, to S., Hooper & Co., Covent Garden, London, W.C.

WANTED, a steady MAN, with a good knowledge of Laying-out Grounds and Making Plans.—Apply to B. WHITHAM, The Nurseries, Reddish, Stockport.

WANTED, a young Man for the Ornamental Tree and Shrub Department.—Apply, stating age, wages required, and where previously employed, to JAMES DICKSON AND SONS, Newton Nurseries, Chester.

WANTED, a young MAN, who has had one or two years' experience in a Retail Seed Shop. He must be willing to make himself generally useful.—Apply, by letter, stating particulars and wages required, to F. W., 7, Borough Market, London, S.E.

WANTED, as SHOPMAN, an experienced young Man, who has been accustomed to the Wholesale Seed Trade.—Apply, by letter, giving age, reference, and salary required, to HURST AND SON, 6, Leadenhall Street, London, E.C.

WANTED, a JUNIOR SHOPMAN.—Apply by letter, stating age, experience, and salary required, to WAITE, BURNELL, HUGGINS AND CO., Seed Merchants, 79, Southwark Street, London, S.E.

WANTED, as INVOICE CLERK, a young Man, in the Retail Seed Trade. Must be a quick and accurate writer. Preference given to one who could assist occasionally at the Counter.—Apply, by letter only, stating experience and salary expected, to RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD).—Age 36, married, one child; understands Early and Late Forcing, Hot and Cool Orchids, Pines, &c., also Meadow-land and Stock. Good references from present and former employers.—J. ASKHAM, Joldwynds, Wotton, Dorking, Surrey.

GARDENER (HEAD).—Mr. WOODFORD, eighteen years at Eastwell Park, under the Earl of Winchelsea and the Duke of Abercorn, is desirous of an engagement in a large Establishment. Leaving in consequence of a change of occupier.—21, May's Buildings, St. Martin's Lane, London, W.C.

GARDENER (HEAD).—J. SPAVEN, four and a half years Manager to Messrs. T. Jackson & Son, Royal Kitchen Gardens, Hampton Court, S.W., is open to engage with any Nobleman or Gentlemen requiring the services of a competent Man. Can also undertake the Management of Cattle and Land.

GARDENER (SINGLE-HANDED, or otherwise).—Married; unexceptionable references as to character and ability. Five years in last situation.—J. H., H. Stapleton, Spring Grove, Isleworth, W.

MANAGER of PLANTATIONS, &c.—Wanted, an engagement by the present Curator of an extensive Public Establishment (who is well known through reports of the various horticultural journals) to proceed abroad to any temperate climate, either as Manager of Plantations, Curator of Botanical Gardens, Plant Collector, Landscape Gardener, or Farm Manager. Advertiser holds a Certificate (advanced stage) in Botany, and will furnish testimonials to show that he is competent, practically, to carry out any of these offices with energy and skill. Advertiser has also had a thorough training and great experience in the Management of Men. Age 33.—B. L., Messrs. F. & A. Dickson & Sons, Seed Merchants and Nurserymen, Chester.

To the Nursery and Seed Trade.

MANAGER, or SHOPMAN and PLANT SALESMAN.—Has had long experience in the Nursery and Seed Trade, and for many years Shopman and Salesman to one of the largest Nurseries near London.—F. C., 14, Richmond Avenue, Fair View, Dublin.

To Nurserymen.

FOREMAN, or FOREMAN and PROPAGATOR (IN or OUTDOOR).—Well up in Roses, Clematis, Coniferæ, &c. Expert and successful Budder and Grafter. Fifteen years' practical experience. First-class references.—H. L., The Cottages, Heatherside, near Bagshot, Surrey.

To Seedsmen and Florists.

SHOPMAN, &c.—Age 31. Sixteen years' experience in London Wholesale Houses. Understands Book-keeping, and has a knowledge of Plants.—A. F. D., 29, Overstone Road, Hammersmith, London, W.

SHOPMAN (ASSISTANT).—C. E. GIBBONS, is open for an engagement as above. Well acquainted with Warehouse duties, and has a knowledge of the Nursery Trade. Reference to present employers, Messrs. Cocks Bros., Donington, near Spalding.

ASSISTANT, in a Seed Shop, or FOREMAN in a Nursery.—Age 26, married. Good experience and reference.—W. B. D., Spriging's Nursery, St. Albans.

IMPROVER.—The Archdeacon of HUNTINGDON wishes to obtain a situation in a good Garden for a young Man of excellent character, age 19, who has been in the Gardens of Castle Hill House, Huntingdon, for six years, the last year and a-half as principal Man in the Houses.—HEAD GARDENER, Castle Hill House, Huntingdon.

CORRESPONDING CLERK and TRAVELLER.—Young, married; thoroughly acquainted with the Trade. First-class testimonials.—W. T. J., 4, Cobden Terrace, New Road, Peterborough.

KINAHAN'S . LL . WHISKY.
This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA.
BREAKFAST.
"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast-tables with a delicately flavoured beverage, which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us, ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame." See article in the *Civil Service Gazette*.
Made simply with boiling water or milk.
Sold in packets (in tins for abroad) labelled:—
JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS,
48, Threadneedle Street, and 170, Piccadilly, W.
Works:—Euston Road, and Camden Town, London, N.W.
Makers of Epps's Glycerine Jujubes for Throat Irritation.

DINNEFORD'S FLUID MAGNESIA.
The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.
DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

Lea & Perrins' Sauce,

THE "WORCESTERSHIRE," pronounced by connoisseurs "the only good Sauce." Improves the appetite, and aids digestion. Unrivalled for piquancy and flavour.

ASK FOR LEA AND PERRINS' SAUCE.
BEWARE OF IMITATIONS,
and see the names of LEA AND PERRINS on all Bottles and Labels.
Agents—CROSSE AND BLACKWELL, London; and sold by all Dealers in Sauces throughout the World.

THE FIRST STEP IS THE CHIEF DIFFICULTY.

AT THIS SEASON PARR'S LIFE PILLS are USED by THOUSANDS. They clear from the body all hurtful impurities, and promote a regular and healthy action of the Liver and Bowels.

PERSONS SUFFERING from HEADACHE, INDIGESTION, Pains in the Shoulders and the Back, Gout, Rheumatism, and General Debility, are particularly recommended to try PARR'S LIFE PILLS. They have never been known to fail in affording immediate relief.

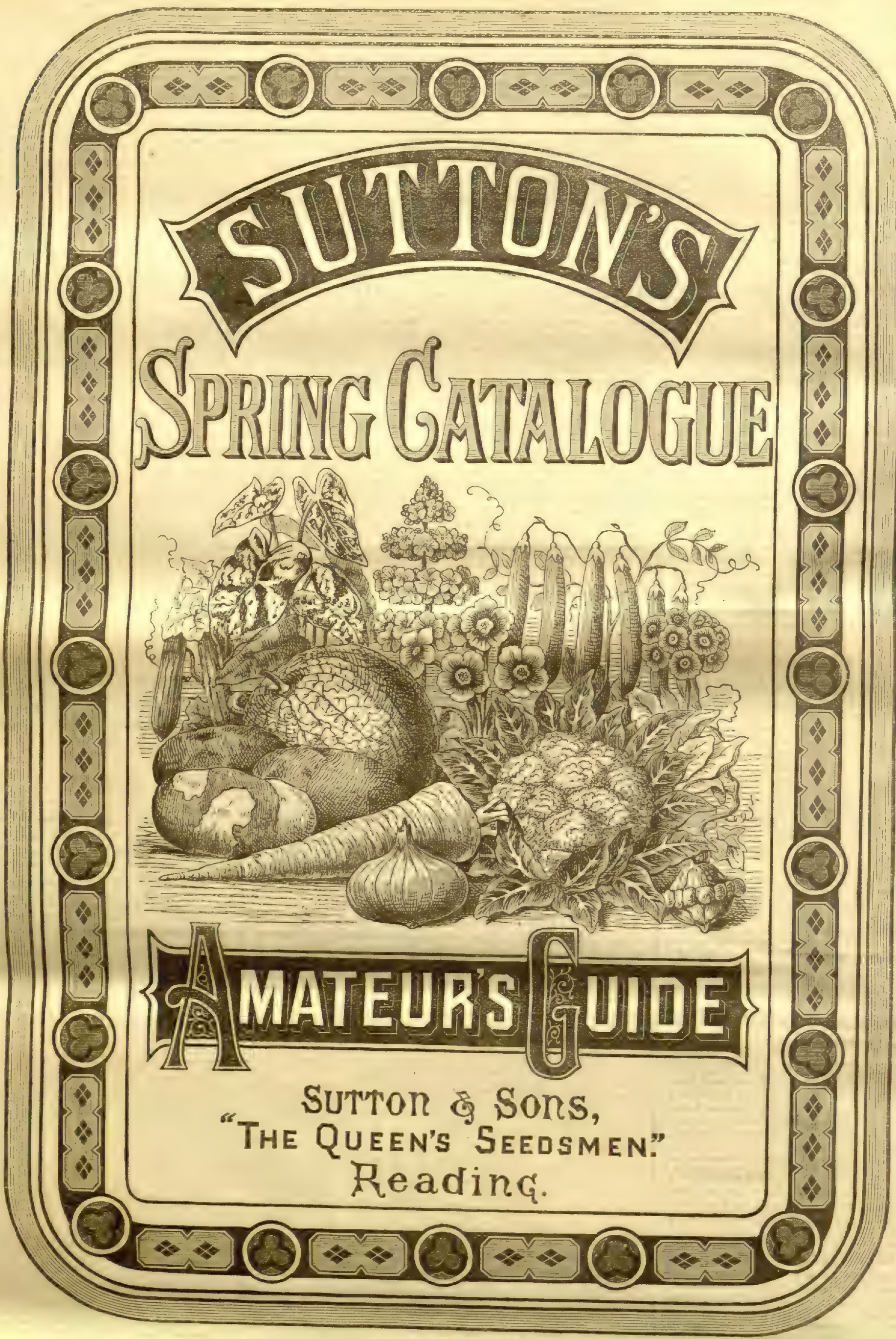
SOLD BY ALL CHEMISTS.

EVERY ONE WHO HAS A GARDEN,

AND WISHES TO GROW

THE BEST VEGETABLES, THE BEST FLOWERS, THE BEST POTATOS,

SHOULD SEND FOR



"Sutton's Amateur's Guide" is beautifully illustrated with several handsome Coloured Plates, and upwards of 250 Engravings. It also contains complete instructions for the successful cultivation of Vegetables, Flowers, and Potatos.

Opinion of William Robinson, Esq., F.L.S., Editor of the *Garden*: "'Sutton's Amateur's Guide' is full of sound and useful instructions on Gardening matters: issued by one of the most trustworthy and important Horticultural Firms in existence, whose experience and means of acquiring information are unsurpassed."

THE MOST PRACTICAL WORK ON GARDENING YET PUBLISHED.

NOW READY, AND MAY BE HAD,

Price 1s., Post Free. Gratis to Customers.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, December 19, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 52.—Vol. II. { New Series. } SATURDAY, DECEMBER 26, 1874. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Aganisia fimbriata	804	Paper-making, Esparto for	812
Books, notices of	808	Pine-apple, Charlotte Rothschild	814
Charade, a floral	808	Plants, new, certificated at the Royal Horticultural Society	805
Christmas trees	803	Plants, new garden (with cuts)	804
Conservatory, heating a	813	Plants, objections to dyed	814
Cymeria Roezlii (with cuts)	804	Pomona Palace show, the	815
Decorations in the household	814	Potting	815
Doum Palm, the	813	Prize gardening	813
Dyed plants, objections to	814	Roses, some new, what are their merits?	814
Esparto for paper-making	812	Royal Agricultural Society and the Potato disease, the	806
Events of the year	811	Sanitary condition of villages, the	814
Floral charade, a	808	Slow-worms v. mice	808
Flower shows	814	Solanum Capsicastrum	814
Gardeners' Royal Benevolent Institution	814	Soldiers' gardens	811
Garden operations	817	Stephanotis floribunda, flowering of	814
Garden plants, new (with cuts)	804	Unpopular Grapes	815
Grapes, unpopular	815	Villa garden, the	808
Holly, the common, and its varieties (with cuts)	812	Villages, the sanitary condition of	814
Masdevallia Chimæra	804	Weather, the	816
Mice v. slow-worms	808	Year, the, events of	811
Mistleto as a medicine	804		
Myosotis dissitiflora	811		
Natural history	808		
Notices of books	808		
Obituary	816		
Odontoglossum madrense	804		
Palm, the Doum	813		

Important Notice to Foreign Subscribers.

FOREIGN SUBSCRIBERS are PARTICULARLY REQUESTED, *when sending Post Office Orders through the Post Office, to Advise the Publisher that they have done so.* *(Signed)*

W. RICHARDS, Publisher.

Post Office Orders should be made payable at the King Street Office, Covent Garden, London, W.C.

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE, including postage to the United States, is **$6.30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

GRAND SPRING FLOWER SHOW, MARCH 10 and 11, 1875, in the Large Hall, Leeds Horticultural Gardens Company (Limited). Schedules on application.
JAMES BIRBECK, Secretary and Manager.
Office, 103, Hyde Park Road.

Trade Notice.

B. S. WILLIAMS regrets to announce that he will be UNABLE to SUPPLY SEED of AGERATUM COUNTESS of STAIR this season. Plants will be ready in May next.
Victoria and Paradise Nurseries, Upper Holloway, London, N.

LILIUM AURATUM.—The annual importations from Japan have now arrived. The bulbs this season are in the finest condition possible. Price 12s., 18s., 24s., and 42s. per dozen.
Mr. WILLIAM BULL, Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

SEMPERVIVUM BOLLI, 1s. 6d. and 2s. 6d. per packet.
WILLIAM E. DIXON, Norwood Nursery, Beverley.

WHITE CAMELLIAS, and other CUT FLOWERS.
WILLIAM E. DIXON, Norwood Nursery, Beverley.

E. WILSON SERPELL (late PONTEY), NURSERYMAN AND SEED MERCHANT, Plymouth.

GIANT LILY of the VALLEY.—Strong blooming roots, 2s. per dozen, 12s. 6d. per 100, package free.
E. COOLING, Mile Ash Nurseries, Derby.

Fruits Cultivated in the United Kingdom.

A DESCRIPTIVE LIST, by LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle, free, by post, for twelve stamps.

GARDENIAS.—Twenty fine plants, 2 feet to 4 feet, to be SOLD a bargain, either separately or in one lot.
A. PRATT, Horticultural Depot, Lewisham, S.E.

PLANTS for WINTER FORCING.—Any one desirous of Successfully Forcing Flowering Plants during the coming Winter Months, should apply at once to JOHN STANDISH AND CO. for a LIST of their PLANTS specially prepared and adapted for this purpose.
Royal Nurseries, Ascot, Berks.

Roses.—To the Trade.

THOMAS S. WARE can still supply strong well-rooted PLANTS in Standards, Half-standards, and Dwarfs; also Common MOSS and CLIMBERS. Price on application.
Hale Farm Nurseries, Tottenham, London.

AMATEUR'S BUNDLE of ROSES.—Twenty best kinds of Dwarf Roses, including packing, 20s.; twenty ditto, Standards, 30s. Selected by purchaser from Catalogue, excepting the new sorts of 1874.
DAVISON AND WHITTEM, White Cross, Hereford.

TO BE SOLD, twenty beautiful CREEPING ROSES, 10 feet high, 8 feet wide, trained on trellis under glass for two years. Sorts:—Maréchal Niel, Gloire de Dijon, Sénateur Vaisse, Madame Falcot, Souvenir de la Malmaison, and Climbing Devoniensis. 10s. 6d. each.
J. MONRO, Potter's Bar, N.

New Roses of 1874.

E. COOLING offers nice healthy plants of the above, budded low on Manetti, from open ground, at 2s. each, 21s. per dozen, package free. Also splendid plants of older sorts, Standards, 18s., Dwarfs, 10s. to 12s. per dozen.
New CATALOGUE free.
Mile Ash Nurseries, Derby.

Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S stock of ROSES, FRUIT TREES, &c., is unusually fine this season. A visit to the Nurseries would well repay intending purchasers. CATALOGUES post free.
Highgate Nurseries, London, N.

VIOLETS.—LEE'S VICTORIA REGINA, very strong, 6s. and 9s. per dozen.
TO THE TRADE.—Extra choice POLYANTHUS SEED, superb strain, 5s. per oz. Also, LEICESTER RED CELERY, true, 1s. per oz. Cheaper in quantity. Postage extra.
B. R. DAVIS, Seed Warehouse, Yeovil, Somerset.

Poinsettias.

MESSRS. JOHN STANDISH AND CO. have a large number of the above to offer, with very fine heads, suitable for Christmas Decorations. 24s. to 42s. per dozen.
Royal Nurseries, Ascot, Berks.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

Large Sycamores and Poplars.

THOMAS S. WARE can offer well-grown POPLARS, of sorts, 12 to 20 feet—the Lombardy are handsome, well-weathered trees. SYCAMORE, 12 feet; also Standard LIMES. Price on application.
THOMAS S. WARE, Hale Farm Nursery, Tottenham.

No Reasonable Offer Refused.

HORSE CHESTNUTS (1000), 5 to 6 feet. ENGLISH OAK (1000), 4 to 5 feet, all well rooted.
WILKIN, Tiptree, Kelvedon.

Vines.

B. S. WILLIAMS has a large and fine stock of FRUITING and PLANTING CANES, of all the best kinds. Prices on application.
Victoria and Paradise Nurseries, Upper Holloway, N.

Asparagus, Asparagus, Asparagus.

SPECIAL OFFER of the above, two, three, and four years old.
Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

To the Seed Trade.

NUTTING AND SONS' WHOLESALE GARDEN and AGRICULTURAL SEED CATALOGUE will be published this week, and may be had on application.
Seed Warehouses, 60, Barbican, E.C.

WANTED, TWO PEACH TREES, Noblesse or Royal George, trained for a Peach-house; spread of branches from 10 to 12 feet, 6 feet high, full of fruit-bearing wood.
H. MITCHELL, Heydon, Reepham, Norfolk.

Laxton's Supreme Pea.

WANTED, a few quarters of the above, of present year's growth. State lowest price and quantity to P., *Gardeners' Chronicle* Office, W.C.

APPLES WANTED.—Half-standard, 3 to 4 feet stems, or 2-yr. to 3-yr. unpruned Trees of the following sorts:—Lord Suffield, Hawthornden (new and old), Keswick Codlin, Stirling Castle, Northern Greening, Beauty of Kent, Small's Admirable, and Red Astrachan. Quote lowest price per 100 or 1000.
RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.
New and Rare Seed Importers and Growers, St. Albans.

MR. LAXTON'S NEW PEAS—Unique, Dr. Hogg, Supplanter, and Connoisseur. Three First-class Certificates, Royal Horticultural Society. For descriptions, &c., see large advertisement at p. 769 of last week's *Gardeners' Chronicle.*
HURST AND SON, 6, Leadenhall Street, London, E.C.

YOUNG'S NONSUCH PEAS.—A List of Names of all Firms who have ordered a supply will shortly be advertised. For price apply to
CHARLES YOUNG, Seedsman, &c., Balham Hill, S.W.

Notice.

EDMUND PHILIP DIXON'S Wholesale CATALOGUE of GARDEN and FARM SEEDS is now ready, and may be had, post free, on application.
Seed Warehouses, 75, 76, and 77, High Street, and 57, Queen Street, Hull.

THE NEW AMERICAN POTATO, THORBURN'S EARLY PARAGON.
Combining more superior qualities in a higher degree than any of the early sorts of late introduction.
For Sale by all the leading London Seedsmen.

SEED POTATOS.—All the leading kinds grown specially for seed from carefully selected stocks. Prices on application.
J. AND G. McHATTIE, Seed Merchants, Chester.

Seed Potatos.

H. AND F. SHARPE'S Wholesale Special Priced LIST of SEED POTATOS is now ready, and will be forwarded, post free, on application. It includes all the best English and American sorts in cultivation, and the prices will be found very moderate.
Seed Growing Establishment, Wisbech.

WHITE SPANISH ONION SEED.—A large quantity of the above, best Bedfordshire seed, nett growth of 1874, now on offer. For price apply, stating quantity required, to
WOOD AND INGRAM, Seed Merchants, &c., Huntingdon.

Christmas Trees.

VIRGO AND SON have a splendid lot of SPRUCE FIR, in various heights, bushy, and of good colour. Prices and samples per hundred or per dozen can be obtained at
The Nurseries, Wonersh, near Guildford.

To the Trade.

ROSEBERRY BRUSSELS SPROUTS, extra selected. Lowest price on application.
EDMUND PHILIP DIXON, Seed Merchant, Hull.

Fruits.—To the Trade.

THOMAS S. WARE can supply Maiden APPLES, PEARS, and CHERRIES; Standard Pears and Cherries; Dwarf-trained Pears, Apples, PLUMS, and NECTARINES. Prices, low, on application.
Hale Farm Nurseries, Tottenham, London.

Catalogues! Catalogues!!

EWING AND CO.'S PRICED, DESCRIPTIVE, and ILLUSTRATED CATALOGUES are now ready. Rose Catalogue, and Fruit Tree and General Nursery Catalogue—both are forwarded gratis and post-free to applicants.

New Apple—Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now sending out strong maiden plants of this splendid novelty, which obtained a First-class Certificate from the Royal Horticultural Society, November 12, 1873. Circulars, with testimonials and full description, will be forwarded, gratis and post free, to applicants. Price 7s. 6d. each, or three for 20s. The usual Discount to the Trade.

APPLE, PEAR, and WALNUT TREES for Sale; transplanted, strong, choice sorts, for Gardens or Orchards, especially Orchards. Height 5 to 11 feet, butts 2 to 8 inches round. Apply to Mr. TASWELL, Lichfield.

The Planting Season.

LARGE TREES.—Limes, Horse Chestnuts, Giant and English Elms, Sycamores, Norway Maples, Upright and other Poplars, Bedford and Cœrulean Willows, Weeping and Cut-leaved Beech, Turkey Alders, &c. Fine Trees for immediate effect. For particulars and prices apply to
EWING AND CO., The Royal Norfolk Nurseries, Norwich.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

SPHAGNUM or PEAT MOSS.—Fresh Sphagnum Moss, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

Hyacinths, Tulips, Crocus, &c.

The best material in which to grow the above is COCOA-NUT FIBRE REFUSE.—Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

ORCHARD PLANTING.—Stong Standard APPLES, strong Standard Table and Perry PEARS, Pyramid and Dwarf-trained PEARS. A choice Collection of ROSES; strong Common, Colchic, and Portugal LAURELS; LAURUSTINUS, BOX, YEW, and other Evergreens; Evergreen and Deciduous Flowering SHRUBS; Scotch and Spruce FIRS; CHESTNUT, LIMES, and other Forest Trees, up to 12 feet. Prices on application.

CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

NEW and SELECT VEGETABLE SEEDS.

BROCCOLI, Christie's Self-Protecting Late White.—This valuable Broccoli has been raised by Mr. Christie of Aswarby, and is pronounced by all who have seen it as the finest self-protecting late Broccoli in cultivation. See Testimonials. Sold only in sealed packets, 1*s.* 6*d.* each.

BORECOLE, Variegated Triple-curled, extra selected.—This stock includes all the best varieties for decorative purposes, for garnishing, the embellishment of the flower garden and the dinner-table. Price 6*d.* and 1*s.* per packet.

BRUSSELS SPROUTS, Roseberry, extra selected.—Price 1*s.* per ounce.

CELERY, Dixon's X L Red.—A very strong grower, early, hardy, remarkably solid and crisp. Has obtained a First Prize wherever exhibited during last season, and is acknowledged to be a very decided acquisition. Price 1*s.* 6*d.* per packet.

CELERY, Dixon's Mammoth White.—The best White extant. Price 6*d.* and 1*s.* per packet.

CUCUMBER, Burnett's Perfection.—Growing from 24 to 30 inches long, fine flavour and very productive. Price 1*s.* 6*d.* per packet.

CUCUMBER, Rollisson's Telegraph.—True, handsome, and very prolific. Price 1*s.* per packet.

LETTUCE.—Dixon's Champion Green Cos still maintains its well-known reputation as being the largest and most delicious Lettuce in cultivation. Price 6*d.* and 1*s.* per packet.

PEA, Dixon's Yorkshire Hero.—My stock of this magnificent variety of the wrinkled Marrow is grown from the original stock introduced by me a few years ago. It is exceedingly prolific, having as many as sixty or seventy pods on a single stem. The Pea, of a most delicious Marrowfat flavour, is fourteen days earlier than Veitch's Perfection, and withstands the effects of mildew better than any other variety. Price 1*s.* 6*d.* per quart.

TURNIP, Silver Ball.—A superb white, solid root, fine shape, flesh tender and delicious; very select stock. Price 1*s.* per ounce packet.

EDMUND PHILIP DIXON, The Yorkshire Seed Establishment, 57, Queen Street, and 75, 76, and 77, High Street, Hull.

Garden Seeds.

CHARLES SHARPE AND CO., SEED MERCHANTS, Sleaford, beg to intimate that their WHOLESALE CATALOGUE is now ready, and will be forwarded Post Free on application.

Farm Seeds.

CHARLES SHARPE AND CO.'S CATALOGUE of FARM SEEDS is now ready, and will be forwarded Post Free on application.

Seed Potatos.

CHARLES SHARPE AND CO.'S SPECIAL LIST of SEED POTATOS is now ready, and will be forwarded Post Free on application.

Specialities.

PEA—Turner's Emerald,
,, Sutton's Emerald Gem,
,, Maclean's Best of All,
,, Williams' Emperor of the Marrows,
,, The Prince.
BEANS—Minster Giant Long Pod.
CABBAGE—Sharpe's Selected Nonpareil,
,, Wheeler's Cocoa Nut.
CARROT—Sharpe's Selected Altringham.
POTATOS—Sutton's Hundredfold Fluke,
,, Red-skin Flourball.
SWEDE—Sharpe's Improved Large.
MANGEL—Sharpe's Selected Large Yellow Globe,
,, Sharpe's Selected Giant Long Red.

CHARLES SHARPE AND CO. have the above to offer to the Trade. Fine pure stocks. Price upon application.

CHARLES SHARPE & CO.,
SEED GROWERS AND MERCHANTS, SLEAFORD.

MAURICE YOUNG'S
NEW DESCRIPTIVE CATALOGUE
Is now ready, and may be had on application.

IT COMPRISES:—

HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

NEW HYBRID BEGONIAS.

THE following NEW BEGONIAS belong to the handsome-flowered, bulbous-rooted section, and are most desirable acquisitions, as they succeed and bloom well in an ordinary Greenhouse. The Bulbs being similar to those of Gloxinias, and now dormant, can be sent by Post:—

ANACREON, deep crimson, a beautiful flower, very long petals, 7*s.* 6*d.*
BRILLIANT, very rich bright orange, a fine showy flower, 7*s.* 6*d.*
CARDINAL, magnificent variety, fine large flowers of a rich deep magenta-rose, 7*s.* 6*d.*
CAROLINE, deep rosy pink, with broad petals, 5*s.*
CLIMAX, deep rich rosy carmine, broad outer petals, 5*s.*
CORSAIR, rosy salmon, profuse bloomer, 5*s.*
ENSIGN, bright pink, a very elegant variety, 5*s.*
GEM, cream colour, the reverse of the petals pink, 5*s.*
GLITTER, vivid orange-scarlet, extremely showy, 7*s.* 6*d.*
HERMINE, bright orange-cinnamon, very distinct, 5*s.*
LOTHAIR, deep rose, a fine flower, with short broad petals, 7*s.* 6*d.*
LUCINDA, fine flowers with long petals, of a deep rose colour, 7*s.* 6*d.*
MAGNET, light pink, the reverse of the petals deep pink, 5*s.*
MAZEPPA, light cream colour, tinted with orange-pink, 5*s.*
PHYLLIS, delicate sulphur colour tinted with pink, 5*s.*
SERAPH, soft pink suffused with rose, 5*s.*
SURPRISE, bright pink, a very pretty colour, 5*s.*
TROJAN, light rosy pink, very distinct, 5*s.*

The entire Collection of the above Eighteen Varieties for Four Guineas.

Seed of the above New Begonias, separate kinds, 2*s.* 6*d.* per packet; mixed, 3*s.* 6*d.* per packet,

WILLIAM BULL, F.L.S.,
ESTABLISHMENT FOR NEW AND RARE PLANTS,
KING'S ROAD, CHELSEA, LONDON, S.W.

COTTINGHAM POMOLOGICAL NURSERIES (Established 1788).

SPECIAL OFFER.

ARBOR-VITÆ, American, 4 to 5 feet, 40*s.* per 100; 5 to 6 feet, 50*s.* per 100.
,, LIBOCEDRUS DECURRENS, 1½ to 2 feet, 18*s.* per dozen; 2 to 2½ feet, 20*s.* per dozen; 2½ to 3 feet, 25*s.* per dozen; 3 to 4 feet, 30*s.* per dozen.
,, gold variegated Chinese, 1½ to 2 feet, 24*s.* per dozen.
,, ELEGANTISSIMA, 1 to 1½ foot, 24*s.* per dozen.
,, SEMPER AUREA, 9 to 12 inches, 18*s.* per dozen.
THUJOPSIS BOREALIS, 2 to 3 feet, 18*s.* per dozen.
,, ,, VARIEGATA, 1 to 1¼ foot, 24*s.* per dozen.
CEDRUS AFRICANA, 3 to 5 feet, 12*s.* per dozen.
CUPRESSUS LAWSONIANA AUREA VARIEGATA, 1 to 1½ foot, 24*s.* per dozen.
JUNIPERUS SINENSIS, 3 to 4 feet, 12*s.* per dozen.
,, VIRGINIANA, 3 to 4 feet, 6*s.* per dozen.
,, DRUPACEA, 1½ to 2 feet, 30*s.* per dozen.
PINUS CEMBRA, 3 to 4 feet, 18*s.* per dozen.
YEWS, English, 2 to 3 feet, 60*s.* per 100.
,, Irish, 3 to 4 feet, 12*s.* per dozen, 80*s.* per 100.
IVY, gold Tree, 9 to 12 inches, 12*s.* per dozen.
LAUREL, common, 1 to 1½ foot, 6*s.* per 100; 1½ to 2 feet, 8*s.* per 100; 2 to 3 feet, 12*s.* per 100.
,, caucasica, 1 to 1½ foot, 16*s.* per 100; 1½ to 2 feet, 20*s.* per 100.
,, Colchic, 1 to 1½ ft., 10*s.* per 100; 1½ to 2 ft., 12*s.* p. 100.
LIGUSTRUM SINENSIS, 3 to 4 feet, 30*s.* per 100.
,, JAPONICUM, 1½ to 2 feet, 50*s.* per 100.
PRIVET, Evergreen, fine, 3 feet, 30*s.* per 1000.
FIR, Austrian, 2 to 3 feet, 40*s.* p. 1000; 3 to 4 feet, 30*s.* p. 1000.
QUICK, or THORNS, ex. ex., 20*s.* per 1000.
BEECH, 2 to 3 feet, 25*s.* per 1000.
OAK, English, 5 to 7 feet, 40*s.* per 100.
SYCAMORE, 6 to 8 feet, 20*s.* per 100.
BEECH, Purple, 5 to 7 feet, 75*s.* per 100.
LABURNUMS, 6 to 8 feet, 20*s.* per 100.
WILLOWS, American Weeping, fine, 12*s.* per dozen.
ACER NEGUNDO VARIEGATA, 1½ to 2 feet, 50*s.* per 100.
BOX, Tree, 2 to 2½ feet, 25*s.* per 100.
DEUTZIA SCABER, 3 to 4 feet, 30*s.* per 100.
SNOW BERRY, 3 to 4 feet, 10*s.* per 100.
ROSES, Climbing, 4 to 6 feet, 40*s.* per 100.
PEARS, Standard, 12*s.* per dozen, 75*s.* per 100.
PLUMS, Standard, fine, 15*s.* per dozen, 100*s.* per 100.
POTATOS:—Myatt's, £8 per ton; Rivers' Ashtop, £8 per ton; Veitch's Kidney, £10 per ton; Beech House Prolific, best round Potato grown, £10 per ton; Mona's Pride Kidney, £16 per ton.

N.B.—Their NURSERY and SEED CATALOGUES may be had on application.

Martin & Son

Seed Growers, Merchants, and Nurserymen, Cottingham, and 61, Market Place, Hull.

To Gardeners.
Gardeners are most respectfully Invited to Visit
THE PINE-APPLE NURSERY,
MAIDA VALE, LONDON, W.,
Where it is anticipated they will be highly gratified.
JOHN BESTER, Manager.

KNIGHT'S NEW PEA,

DUKE of CONNAUGHT.

This is a really useful new Pea, of a branching habit, about 3 feet high, and very prolific—well adapted for second and general crops; also for late sowing, as it is never affected by mildew. It is a fine exhibition and market Pea.

Quarts, 5s.; Pints, 2s. 6d.

THE OXONIAN PRIZE ONION.

A very superior white Onion, growing to an immense size quite surpassing the white Spanish, both in mildness of flavour and quality of bulb. Ripens early. Has obtained 1st prize wherever exhibited.

Per Packet, 1s.

NUTTING & SONS,
Seed Warehouses, 60, Barbican, London, E.C.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT,
QUEEN VICTORIA STREET,
CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to
THOMAS THORNTON,
Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

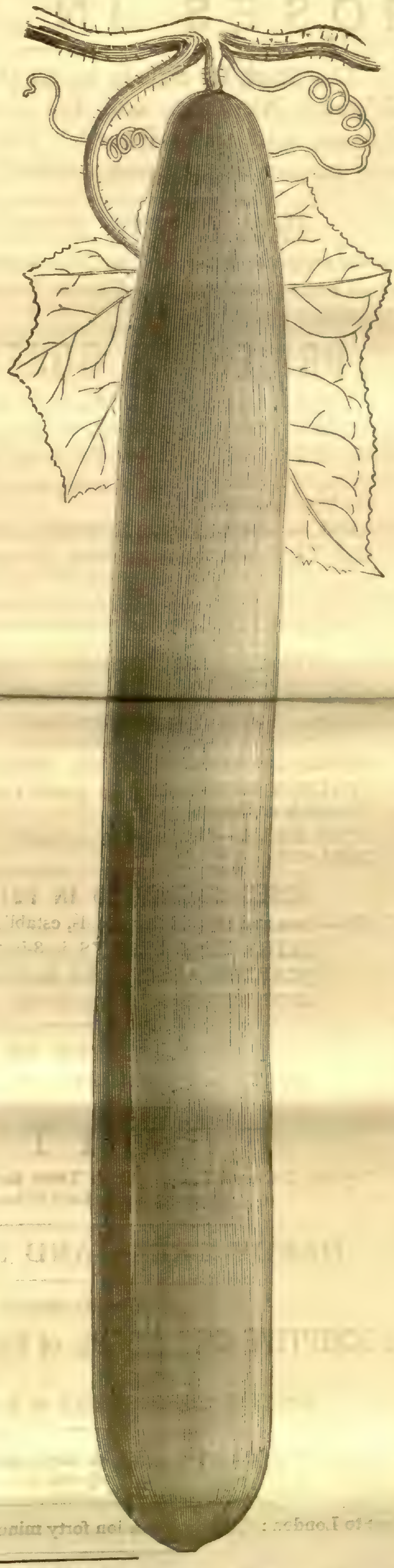
GENUINE SEEDS.

B. S. WILLIAMS
BEGS TO ANNOUNCE THAT HIS
DESCRIPTIVE CATALOGUE OF FLOWER, VEGETABLE,
AND AGRICULTURAL SEEDS for 1875
Is now ready. Post Free on application.

VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

CAUTION TO THE TRADE.

MONRO'S
DUKE OF EDINBURGH CUCUMBER.



J. MONRO

Has just been informed that a Person has been offering to the Trade, in London, Seed of the above named Cucumber, and one Firm, to his knowledge, has Purchased Seed from this Person. As advertised, and for the benefit Horticulturists and Purchasers of Seeds, J. MONRO will publish the Name of every Firm that has had Seed direct from him in next week's *Gardeners' Chronicle.*

J. MONRO also begs to say to Private Growers that he only supplies the Trade, and they must order them through their Seedsmen.

J. MONRO, POTTER'S BAR, N.

Invaluable to Purchasers making their own Selections of Seeds.

CARTER'S
SEED ORDER SHEET for 1875

IS NOW READY,

Containing all really good and Improved Novelties, as well as a Catalogue of everything necessary for a Garden,

Gratis and Post Free on Application.

CARTER'S
VADE MECUM,

The Handsomest Catalogue ever published,

Will reach Messrs. CARTER'S Customers about January 1, 1875.

Price 1s. to Non-Purchasers.

CARTER'S,
THE ROYAL SEEDSMEN,
237 and 238, HIGH HOLBORN, LONDON, W.C.

PLANTING SEASON.

RHODODENDRONS

WILL BE SUPPLIED,

In Fifty of the most Popular and finest known Hardy Kinds,

Sturdy, Bushy Plants, 1½ to 2 feet high, at

£10 per 100,

Carriage Free to any Railway Station in England.

Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.

A Descriptive Catalogue free on application to

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

HARRISON'S
"KING KOFFEE" SAVOY.

We have great pleasure in introducing this splendid new variety. It is quite distinct from any kind yet sent out, and is sure to become a general favourite. Its habit is very compact, occupying about the same space as "Suttons' Tom Thumb," and possesses very few outside leaves—being, in fact, nearly all heart. Its colour is deep glossy green; is very curly and finely crimpled. One trial will prove it to be the earliest, handsomest, and best variety for a Gentleman's garden, or Amateur's, ever introduced.

Per packet, 1s.

From Mr. A. CRAMB, *Head Gardener to Earl Ducie. October* 22, 1874.

"My experience of your 'King Koffee' Savoy enables me to recommend it strongly. It is certainly very distinct from any other kind. The habit is very dwarf; and the crimpled state of the foliage gives a peculiar appearance."

From Mr. F. WOODFORD, *Gardener to H. R. H. The Duke of Edinburgh, Eastwell Park, October* 20, 1874.

"It is a very superior variety. Its chief feature seems to me an almost complete absence of stem—the leaves resting on the ground; offering perfect resistance to frost."

From Mr. G. BEECH, *Gardener to the Marquis of Northampton.*

"It is now being sent to table for consumption. I consider it the best of all Savoys—being very small, compact, dwarf, and more crisp than any other. Priority will be given to 'King Koffee' when better known."

From Mr. BOGUE, *Gardener to the Earl of Verulam.*

"I have tried your 'King Koffee' Savoy, and think highly of it. It is finely curled, and very distinct from anything I have ever seen."

CELERY "Leicester Red."

Tested this year at the Royal Horticultural Society's Gardens, Chiswick, and proved to be the best of all Red Celeries. An immense number of Testimonials were received to the same effect last season.

Packets, 1s.

From Col. CHARLTON, *Braddon, Isle of Man, Feb.* 9, 1874.

"Your Celery, 'Leicester Red,' I have never tasted any to compare to it."

From Mr. A. F. BARRON, *Royal Horticultural Society's Gardens.*

"'Leicester Red' is the best Red Celery."

SPECIAL TERMS TO THE TRADE.

HARRISON & SONS,
SEED GROWERS, LEICESTER.

Lilies.

MR. WILLIAM BULL, being the largest Importer of LILIES direct from their native habitats, can offer them on special terms by the 100 or 1000 for planting in large groups.

LILIUM AURATUM, small sound English-grown bulbs, 18*s.* and 24*s.* per dozen; fine bulbs, on arrival of the annual importations from Japan, 30*s.* and 42*s.* per dozen.
„ AURATUM RUBRO-VITTATUM, the most handsome of the "auratum" group, 15*s.*, 21*s.*, and 31*s.* 6*d.* each.
„ BLOOMERIANUM OSCELLATUM (Kellogg), new; first time imported from Santa Rosa Island. Mr. W. B. has imported all and the only bulbs of this Lily that could be found in the Island. 42*s.* and 63*s.* each.
„ BROWNII, 10*s.* 6*d.* each.
„ CALIFORNICUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
„ CALLOSUM, very rare, 7*s.* 6*d.* each.
„ CANADENSE RUBRUM, very rare, 5*s.* and 7*s.* 6*d.* each.
„ DALMATICUM, exceedingly handsome, 10*s.* 6*d.* each.
„ HUMBOLDTII, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
„ „ PUNCTATUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
„ KAMTSCHATCENSE, the Black Lily, 3*s.* 6*d.* each.
„ MONADELPHUM, one of the most handsome of Lilies, 3*s.* 6*d.* each.
„ PARDALINUM, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
„ PARVUM, 7*s.* 6*d.* each.
„ PULCHELLUM, 5*s.* and 7*s.* 6*d.* each.
„ ROSEUM, 2*s.* 6*d.* and 3*s.* 6*d.* each.
„ SPECIOSUM ATRO-SANGUINEUM, the most handsome of the whole section; 7*s.* 6*d.* each.
„ SPECIOSUM KRŒTZERI, flowers of snowy whiteness and symmetrical form, 5*s.* and 7*s.* 6*d.* each.
„ TENUIFOLIUM, 3*s.* 6*d.* each.
„ THUNBERGIANUM SPLENDENS, one of the best of the Thunbergianum group, 3*s.* 6*d.* and 5*s.* each.
„ TIGRINUM FLORE-PLENO, the most handsome of the double-flowering Lilies, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
„ TIGRINUM SPLENDENS, 3*s.* 6*d.* and 5*s.* each.
„ WASHINGTONIANUM, 3*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each.
„ „ PURPUREUM.—This Lily is well figured in the *Florist* for November; no more of it can be found in its native habitat. 7*s.* 6*d.* and 10*s.* 6*d.* each.

The above are a few choice Lilies, of which Mr. B. holds a large stock.

GOOD and VARIED SELECTIONS of LILIES made, at 12s., 18s., 30s., and 42s. per dozen.

Where the selection is left to Mr. W. B. the Catalogue Prices are not strictly adhered to, the Purchaser being given a considerable advantage.

Mr. WILLIAM BULL's Annual Importations from California of CALOCHORTUS of sorts, CYCLOBOTHRAS BLOOMERIA, and BRODIÆAS, have now been received.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

THE GAINSBOROUGH SEED ESTABLISHMENT.

Dixon's X L Celery—1s. 6d. per packet.

JOHN ETHERINGTON DIXON, Seed Grower and Merchant, Lord Street, Gainsborough, having grown a quantity of this, one of the finest Red Celeries extant, begs to offer it to those who are particularly fond of this vegetable. It is very crisp and delicious, and a sort that when once tried will be well appreciated, as it is very early and will stand forcing better than any other variety.

The usual discount allowed to the Trade.

On account of the short crop of this Celery early orders are requested.

J. E. DIXON, Seed Merchant, &c., Lord Street, Gainsborough.

Standard Oaks, &c.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers several thousand well-grown transplanted Standard OAKS, from 12 to 14 feet, at 1*s.* 3*d.* each, franco Rotterdam and Harlingen.

ROSA MULTIFLORA DE LA GRIFFERAIE, stocks, 20*s.* per 1000.

ROSA MANETTI, stocks, 20*s.* per 1000.

Samples can be seen at Mr. T. S. WARE'S, Hale Farm Nurseries, Tottenham, near London.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.

PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.

All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.

POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

HANDSOME SPECIMEN CONIFER TREES.

CUPRESSUS LAWSONIANA, 6, 7, 8, to 10 feet, very handsome.
JUNIPERUS CHINENSIS, 5, 6, to 7 feet.
PICEA LASIOCARPA, 3, 4, to 5 feet.
„ NORDMANNIANA, 4, 5, to 6 feet.
„ PINSAPO, 3 to 4 feet.
„ NOBILIS, 3 to 4 feet.
PINUS AUSTRIACA, 3, 4, 5, to 6 feet.
„ BENTHAMIANA, 3 to 4 feet.
„ CEMBRA, 3, 4, to 5 feet.
„ MACROCARPA, 3 to 4 feet.
„ SABINIANA, 3, 4, to 6 feet.
RETINOSPORAS, 3, 4, to 6 feet.
THUJOPSIS BOREALIS, 3, 4, to 6 feet.
THUJA LOBBII, 5, 6, 8, to 10 feet, splendid specimens.
„ AUREA, 1, 2, 3, to 4 feet, and as much through; superb specimens.
„ GIGANTEA, 4, 5, to 7 feet.
WELLINGTONIA GIGANTEA, 3, 4, 5, to 6 feet.

These Trees are all beautifully furnished and handsomely grown, and, having been repeatedly transplanted, can be lifted with large balls of soil. Prices on application.

Cranston's Nurseries, King's Acre, near Hereford.
Address: CRANSTON AND MAYOS.

PAUL & SON'S ROSES,

GROWN AT THE "OLD NURSERIES," CHESHUNT,

One of the Traditional Homes of the Rose.

MESSRS. PAUL & SON

RESPECTFULLY SOLICIT EARLY ORDERS FOR

ROSES IN ALL FORMS.

The Stock for Sale is by far the finest ever produced at these long-celebrated Nurseries, and the plants are thoroughly grown, healthy, vigorous, and well ripened. The undernamed prices will be found really reasonable, and comparatively cheap for really good plants.

PAUL & SON'S DESCRIPTIVE ROSE CATALOGUE

Contains a septennial review of the New Roses as sent out in the past seven years, special notes on New Roses of the year, and Cultural Directions for the Rose year. LIST sent post free on application.

PRICES OF ROSES FOR 1874—1875.

STANDARDS, fine stems and heads, of best kinds only, as grown here, 18*s.* per doz., £7 per 100.
STANDARD ROSES, newer kinds, 24*s.* to 30*s.* per dozen, £10 per 100.
DWARF STANDARDS, Hybrid Perpetuals, 12*s.* per dozen, 90*s.* per 100.
DWARFS, Hybrid Perpetuals, older kinds, on Manetti or on Seedling Briar, 10*s.* to 15*s.* per doz, 75*s.* to £6 per 100.
DWARFS, on Manetti, Hybrid Perpetuals, newer sorts, 18*s.* to 30*s.* per dozen, £7 10*s.* per 100.
DWARF TEAS, 18*s.* to 21*s.* per dozen, £7 10*s.* per 100.
Extremely fine and well ripened this season.
DWARFS, new varieties of 1874, 36*s.* per dozen.

SPECIAL ROSES, raised here at Cheshunt.

TEA, or HYBRID TEA, CHESHUNT HYBRID.—Of this deservedly favourite Rose we had, at the commencement of the season, 2000 plants, showing our estimate of its value. It is still finely in bloom here, and is valuable in all ways, more especially as a free autumnal climber. Standards, 2*s.* 6*d.*; Dwarfs, 2*s.*

H.P. REYNOLDS HOLE.—The finest dark maroon Rose yet raised, which has a good vigorous habit and free flowering character. Standards, 2*s.* 6*d.*; Dwarfs, 2*s.*

H.P. WILSON SAUNDERS.—A grand novelty. A peculiarly free perpetual crimson Rose. Standards or Dwarfs, 5*s.* each.

H.P. THE SHAH.—The brightest-coloured garden Rose yet obtained. Standards or Dwarfs, 3*s.* 6*d.* each.

ROSES CULTIVATED IN POTS, speciality of the Old Nurseries.

ROSES—Teas and Hybrid Perpetuals, established for forcing or pot culture:—
EXTRA FINE PLANTS, in 8-inch pots, 42*s.* per dozen.
QUARTER SPECIMENS, in 9 to 10-inch pots, 60*s.* to 84*s.* per dozen.
SPECIMEN ROSES, 42*s.* to 105*s.* each.

ROSES ON OWN ROOTS.

SORTS, as Special Lists, in 48's, 12*s.* to 18*s.* per dozen, 100*s.* per 100.

FRUIT TREES.

Of Espalier Palmetti-Trained Fruit Trees for Walls PAUL & SON hold a very large Stock, with from two to six tiers of branches. 3*s.* 6*d.* to 7*s.* 6*d.* each.

HARDY TREES AND SHRUBS, NEW AND OLD.

We will be glad to send, Post Free,

DESCRIPTIVE CATALOGUE of FRUIT TREES and HARDY GROWTHS,

WITH

SPECIAL SUPPLEMENT of NEW HARDY TREES and SHRUBS.

An Inspection of the Stock, which is large and fine, and unimpaired, not having been weakened by frequent Auction Sales, is invited.

Close to London; Cheshunt Station forty minutes from Bishopsgate, one mile from the Nurseries.

ADDRESS IN FULL—

PAUL AND SON, THE "OLD NURSERIES," CHESHUNT.

"GENUINE SEEDS ONLY."

JAMES VEITCH & SONS

BEGS TO ANNOUNCE THAT THEIR

ILLUSTRATED PRICED CATALOGUE

OF

GARDEN and FLOWER SEEDS for 1875,

Containing LISTS of NOVELTIES, HORTICULTURAL IMPLEMENTS, and other GARDEN REQUISITES, is now Published, and will be forwarded, Post Free, on appplication.

It contains full descriptions of the following Novelties, and other Choice Seeds:—

VEGETABLE SEEDS.

	s.	d.	
BEAN, Premier Runner	5	0	per quart.
CAULIFLOWER, Veitch's Autumn Giant	1	6	per packet.
CUCUMBER, "Tender and True" ..	3	6	,,
MELON, Eastnor Castle Green-flesh ..	2	6	,,
PEA, Culverwell's Prolific Marrow	5	0	per quart.

FLOWER SEEDS.

	s.	d.	
BLUMENBACHIA CORONATA.. ..	1	6	per packet.
CELOSIA PYRAMIDALIS (selected) ..	1	0	,,
CINERARIA, New Double	3	6	,,
COCKSCOMB, "Glasgow Prize"	2	6	,,
RICINUS GIBSONII	1	6	,,

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

THE LAWSON NURSERIES,

EDINBURGH.

The Extensive Stock of

Seedling and Transplanted Forest Trees, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, &c.,

Is this Season in Splendid Health, and will be Sold at Moderate Prices.

Catalogues on Application, and Special Offers will be made for Large Contracts.

THE LAWSON SEED AND NURSERY COMPANY, LIMITED,

EDINBURGH AND LONDON.

LONDON ADDRESS: 106, SOUTHWARK STREET, S.E.

GRAPE VINES.

THOMAS METHVEN & SONS

Have at present a large and very fine Stock of GRAPE VINES, thoroughly ripened, which they beg to offer at the following prices:

1st size, 7s. 6d.; 2d size, 5s. each.

T. M. & SONS had the honour of supplying to the Gardens at Glamis Castle the Vines which have succeeded so admirably under the management of Mr. Johnston; and their present Stock raised from eyes taken from these famous Vines.

LEITH WALK NURSERIES, EDINBURGH.—December 1.

NEW ROSES.

SEEDLING HYBRID PERPETUAL ROSE,

SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.
First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

N.B.—Orders are now being booked for Plants to be sent out in the Spring of 1875, price 7s. 6d. each.

NEW HYBRID PERPETUAL ROSE,

CRIMSON BEDDER (Cranston's).

As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

Strong Plants 3s. 6d. each; 30s. per dozen.

CLIMBING PERPETUAL ROSE,

CLIMBING JULES MARGOTTIN (Cranston's).

A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

Strong Plants 3s. 6d. each.

Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

New Grape.—Venn's Black Muscat.

W. DODDS, having sold all his strongest plants of the above splendid GRAPE, begs to thank his friends who have ordered it, and to inform those who have not that he has a few well-ripened Canes, which he can offer at 31s. 6d. and 25s. each, delivered to order on receipt of Cheque or Post-office Order on Bristol, payable to
WILLIAM DODDS, Gladstone Villa, Bishopston, Bristol.

Pelargoniums.

D. S. THOMSON begs to offer strong healthy plants of Show, Spotted, and Fancy PELARGONIUMS, in 60 pots, distinct varieties, at 4s. per dozen.
A fine stock of WINTER BLOOMING PLANTS, comprising Ericas, Camellias, Azaleas, Cytisus racemosus, Epiphyllums, Bouvardias, Poinsettias, Cinerarias, Cyclamen, single and double Primulas, Solanums (well set with berries), &c.
A large stock of CROTONS, beautifully coloured.
The Nurseries, Wimbledon, S.W.

Bouvardias—Vreelandii, jasminiflora, &c.

MESSRS. JOHN STANDISH AND CO.'S Stock of the above beautiful Winter-flowering Plant is exceptionally fine this season. 15s. to 18s. per dozen, fine plants.
They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24s. to 36s. per dozen.
Royal Nurseries, Ascot, Berks.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum).—SEEDS of the Blue Gum, and other Tasmanian and Australian Forest Trees and Shrubs, can be obtained of
C. F. CRESWELL, Wholesale and Retail Seed Merchant, Hobart Town, Tasmania; or at his Branch Establishments, 478, George Street, Sydney, New South Wales; and 37, Swanton Street, Melbourne, Victoria.
Price LISTS sent gratis to any part of the World on application.

Eltham Nursery, Kent, S.E.

One Mile from Eltham Station, Loop Line; Two Miles from Blackheath, North Kent.

THIRTY ACRES of well-grown NURSERY STOCK, comprising Specimen CONIFERS and EVERGREENS, all sizes; Standard ROSES, FRUIT TREES, &c.
Gentlemen who intend planting this season are invited to come and select for themselves. JAMES W. TODMAN.

NEW CATALOGUES for 1874.

A Descriptive CATALOGUE of ROSES,
A Descriptive CATALOGUE of FRUITS.
A Descriptive CATALOGUE of BULBS.
A General CATALOGUE of GENERAL NURSERY STOCK. Address
WM. WOOD AND SON, The Nurseries, Maresfield, near Uckfield, Sussex.

PEACHES and NECTARINES, in pots, for Forcing; strong pyramids and bushes, in fine fruiting condition.
ROSES (a choice selection) for Forcing or Greenhouse, strong plants, in 6 and 8-inch pots.
STANDARD ROSES, very fine.
Descriptive CATALOGUES sent post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.—(Great Eastern Railway.)

Nursery Stock.

JAMES DICKSON AND SONS' Stock of FOREST and FRUIT TREES, ROSES, EVERGREENS, and all other Trees and Plants, &c., is *unsurpassed*, therefore they have every confidence in inviting intending planters to visit their extensive Nurseries, which can now be reached on foot in seven minutes from the Chester Railway Station, by their new private road from the foot of Flookersbridge Railway Bridge. Priced LISTS, and all information, on application.
Newton Nurseries, Chester.

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS and CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.
Wandsworth Common Nursery, Surrey, S.W.
The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

STRONG FOREST TREES.

LARCH, 2 to 3, and 2½ to 3½ feet.
SCOTCH, 2 to 2½, 2½ to 3, and 3 to 3½ feet.
SPRUCE, 2 to 2½, 2½ to 3, and 3 to 4 feet.
OAKS, English, 3 to 4, 4 to 5, and 5 to 6 feet.
The above, with other sorts, are all strong and good, and there is a considerable quantity of each size on offer. Apply to JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

PLANTING SEASON.

LARCH, SCOTCH FIR, ENGLISH OAK, and all other Forest Trees.
QUICK, and all other Hedge Plants.
COVERT PLANTS in great variety.
FRUIT TREES, including all the best and most esteemed varieties—quarter of a million trees.
ROSES, Standards, Dwarfs, the newest and best varieties—100,000 to select from.
VINES, all the leading varieties in 2000 well ripened canes for fruiting in pots and for planting out.
EVERGREENS in great variety, including large quantities of all the choicest Hollies, &c.
CONIFERS, including Picea Nordmanniana, &c.
ORNAMENTAL TREES and Plants of all sorts.
*** The whole in very great quantity and stout vigorous condition, with fine roots for safe removal.
Priced LIST and all particulars on application.
JAMES DICKSON & SONS, Newton Nurseries, Chester.
☞ The "Newton" Nurseries are within eight minutes' walk, by the new road, from the Chester Railway Station.

To the Trade and Others.—Cheap Plants.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the following various plants, of which he has a good stock:—

AZALEAS, Ghent, fine named varieties, 9*s.* per dozen.
RHODODENDRONS, hardy hybrid, choice named varieties, [12*s.* per doz.
MAGNOLIA GRANDIFLORA, 9*s.* per doz.
,, PURPUREA, bushy, 9*s.* per dozen.
,, EXONIENSIS, strong, in tubs, 21*s.* each.
,, MACROPHYLLA, strong, 7*s.* 6*d.* each.
MENZIESIA POLIFOLIA, alba and rosea, 6*s.* per dozen.
PÆONIES, Tree, fine, named, 15*s.* per dozen.
SKIMMIA JAPONICA, 6*s.* per dozen.
ARALIA SIEBOLDII, strong plants, 12*s.* per dozen.
ROSES, Standard Perpetual, £4 per 100.
,, Dwarf, 50*s.* per 100.
,, Tea, choice, 18*s.* per dozen.
,, Climbing, choice, 9*s.* per dozen.
LILIUM LANCIFOLIUM RUBRUM, 9*s.* per dozen.
,, ,, ALBUM, 12*s.* per dozen.
,, ,, PUNCTATUM, 9*s.* per dozen.
,, ,, RUBRUM, extra, 18*s.* per dozen.
,, SUPERBUM, 9*s.* per dozen.
,, TESTACEUM, 12*s.* per dozen.
,, POMPONICUM, 6*s.* per dozen.
TRITOMA UVARIA GRANDIFLORA, 25*s.* per 100.
ASCLEPIAS TUBEROSA, flowering roots, 25*s.* per 100.
IRIS HISPANICA, in fine varieties, 12*s.* per fifty roots.
CYPRIPEDIUM ACAULE, 18*s.* per dozen.
SARRACENIA PURPUREA, 24*s.* per dozen.
YUCCA FLEXILIS, 6*s.* per dozen.
,, RECURVATA, fine, 12*s.* per dozen.
,, ALOIFOLIA, fine, 12*s.* per dozen.
FUNKIA UNDULATA, fol. elegantissimus var., 50*s.* per 100.
HEMEROCALLIS FULVA, flore-pleno, 9*s.* per dozen.
HELLEBORUS ABSCHASICUS, flore-rubro, 40*s.* per 100.
,, ,, flore-albo, 40*s.* per 100.
CONVALLARIA MAJALIS, flore-rosea, 6*s.* per dozen.
,, ,, flore-pleno, 6*s.* per dozen.
,, ,, foliis striatis, 6*s.* per dozen.
ANEMONE HEPATICA, roseo-pleno, 6*s.* per dozen.
,, PULSATILLA, 6*s.* per dozen.
ADONIS VERNALIS, 4*s.* per dozen.
SPIRÆA JAPONICA, strong clumps, 21*s.* per 100.
PHORMIUM TENAX, 18*s.* to 24*s.* per dozen.
,, VEITCHII, fol. var., 10*s.* 6*d.* each.
,, COLENSOI, fol. var., fine plants, 21*s.* each.
OTAHEITE ORANGES, 12*s.* to 18*s.* per dozen.
ORANGE TREES, fine, 21*s.* per pair.
AZALEAS, Indian, with flower-buds, £4, £6, to £8 per 100.
CAMELLIAS, with flower-buds, £6 to £8 per 100.
,, without buds, £5 per 100.
,, Double White, without buds, 24*s.* to 36*s.* per dozen.
,, strong plants, 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each.
FUCHSIA SUNRAY, fol. var., 6*s.* per dozen.
PETUNIA ERMENEA REVEIL, fol. var., 6*s.* per dozen.
CYCAS REVOLUTA, 60*s.* per dozen.
,, ,, very strong and fine specimens, 105*s.*
,, MEDIA, 48*s.* per dozen.
,, CIRCINALIS, 60*s.* per dozen.
AGAVE, twelve fine varieties for 24*s.*
ECHEVERIA ATROPURPUREA, 6*s.* per dozen.
,, CALOCEPHANE, 6*s.* per dozen.
BROMELIACEOUS PLANTS, of sorts, 24*s.* per dozen.
MEDINILLA MAGNIFICA, 30*s.* per dozen.
MUSA SUPERBA, 60*s.* per dozen.
,, ROSACEA, 18*s.* per dozen.
FICUS ELASTICA, 12*s.* to 24*s.* per dozen.
GARDENIA RADICANS and FLORIDA, 6*s.* per dozen.
JASMINUM GRANDIFLORUM, 9*s.* per dozen.
DIOSMA PURPUREA, 6*s.* per dozen.
GREVILLEA ROBUSTA, 12*s.* per dozen.
CYPRIPEDIUM INSIGNE, 24*s.* per dozen.
,, MAULEI, 48*s.* per dozen.
,, BARBATUM, 18*s.* per dozen.
PASSIFLORA, of sorts, 12*s.* per dozen.
COFFEA ARABICA, 18*s.* per dozen.
AMARYLLIS RETICULATA STRIATIFOLIA, 12*s.* to 18*s.* [per dozen.
GLOXINIAS, strong bulbs, fine mixed, 25*s.* per 100.
,, in named varieties, 6*s.* per dozen.
ACHIMENES, in sorts, 15*s.* per 100.
CALADIUMS, twelve fine varieties for 15*s.*
BEGONIAS, fine foliaged varieties, 6*s.* per dozen.
,, bulbous varieties, fine mixed varieties, 18*s.* per dozen.
MARANTAS, in fine varieties, 18*s.* per dozen.
CROTON, in fine varieties, 18*s.* per dozen.
CAMPYLOBOTRIS, in fine varieties, 18*s.* per dozen.

FERNS.

LOMARIA ZAMIOIDES, fine plants, 24*s.* per dozen.
,, GIBBA, 6*s.* to 9*s.* per dozen.
,, FALCATA, 6*s.* to 9*s.* per dozen.
BALANTIUM ANTARCTICUM, 40*s.* to 60*s.* per 100.
DARÆA DIVERSIFOLIA, 6*s.* to 12*s.* per dozen.
ALSOPHYLLA AUSTRALIS, fine, 9*s.* per dozen.
GYMNOGRAMMA, of sorts, 9*s.* per dozen.
PTERIS CRETICA, albo lineata, 42*s.* per 100.
SELAGINELLA, of sorts, 6*s.* per dozen.
ADIANTUM, of sorts, 42*s.* per 100.

PALMS.

PHŒNIX RECLINATA, fine young plants, 18*s.* per dozen
,, ,, in store pots, 2-yr. old, 25*s.* per 100.
CHAMÆROPS FORTUNEI, fine plants, 18*s.* per dozen.
,, HUMILIS, 2-yr. seedlings, 63*s.* per 100.
,, ,, fine plants, 24*s.* to 36*s.* per dozen.
CORYPHA AUSTRALIS, fine, 18*s.* to 24*s.* per dozen.
ARECA LUTESCENS, fine plants, 5*s.* each.
,, VERSCHAFFELTII, fine plants, 5*s.* to 7*s.* 6*d.* each.
,, SAPIDA, fine plants, 15*s.* each.
LATANIA BORBONICA, 18*s.*, 24*s.*, and 36*s.* per dozen.
,, ,, young specimen plants, 6*s.* to 8*s.* each.
PTYCHOSPERMA ALEXANDRÆ, fine plants, 36*s.* per doz.
KENTIA BALMOREANA and FORSTERIANA, fine [plants, 21*s.* each.
SABAL ADANSONII, 24*s.* per dozen.
EUTERPE EDULIS, 18*s.* per dozen.
MAXIMILIANA REGIA, 18*s.* per dozen.
COCOS CORONATA, 30*s.* per dozen.

CONIFERS.

ARAUCARIA IMBRICATA, 1 foot, 63*s.* per 100.
WELLINGTONIA GIGANTEA, 6 to 9 inches, 50*s.* per 100.
CUPRESSUS MACROCARPA, 25*s.* per 100.
PINUS EXCELSA, 3-yr. seedlings, 21*s.* per 100.
,, DENSIFLORA, 1½ to 2 feet high, 18*s.* per dozen.
THUJA ELEGANTISSIMA, 42*s.* per 100.
,, VERVÆNEANA, strong, 18*s.* per dozen.
LARIX KÆMPFERII, seedlings, 30*s.* per dozen.
THUJOPSIS DOLABRATA, 1 foot, 9*s.* per dozen.
,, BOREALIS, fine plants, 9*s.* per dozen.
CEDRUS DEODARA, fine stuff, 4-yr. transplanted, 63*s.* [per 100.
ABIES NORDMANNIANA, 1½ foot high, fine plants, 30*s.* doz.

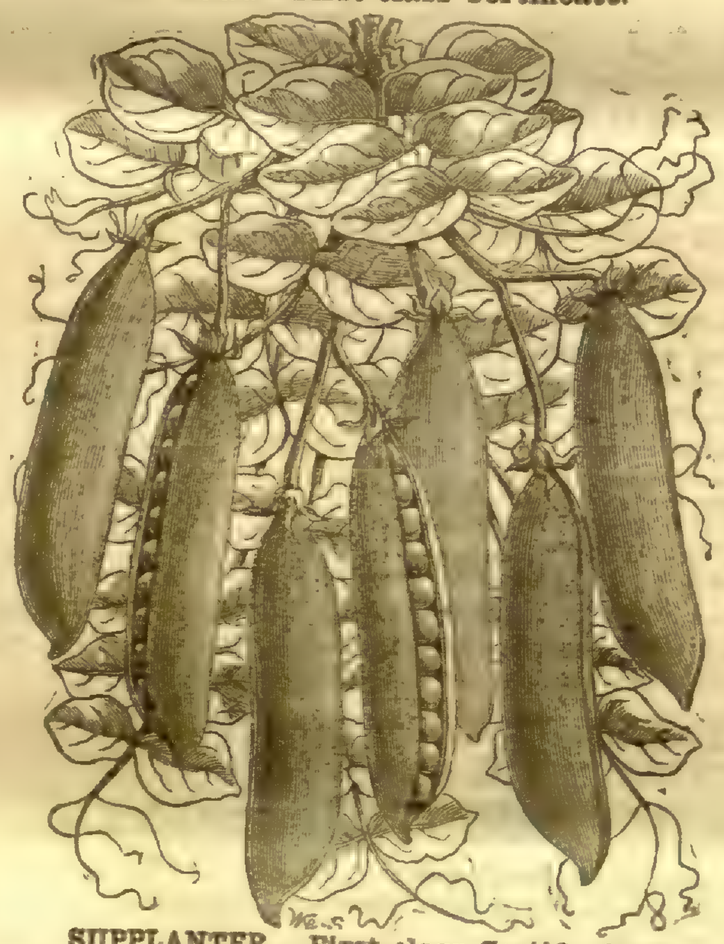
Reference from unknown Correspondents.

Agents: Messrs. R. SILBERRAD AND SON, 5, Harp Lane, London, E.C.

MR. LAXTON'S NEW PEAS, 1875.

UNIQUE (Dwarf).—First-class Certificate.

DR. HOGG.—First-class Certificate.



SUPPLANTER.—First-class Certificate.

☞ *For particulars of these, with* Connoisseur, *see previous Advertisement.*

HURST & SON,
6, LEADENHALL STREET, LONDON, E.C.

To the Trade.

ERINUS ALPINUS, for Rockwork, Edgings, Sowing on Garden Walls, Ruins, &c.—This beautiful little tufted evergreen perennial, a native of Switzerland and the South of Germany, establishes itself freely when sown in crevices of old ruins, garden walls, rockwork, &c. It produces a mass of purplish mauve bloom during the early summer months, and, if grown on previously prepared mounds of some gritty substance, such as old mortar, &c., the bloom becomes much larger and more durable. It may also be used to advantage as an evergreen permanent edging. ⅛ oz. packets 2*s.* 6*d.*, post free.

CAMPANULA TURBINATA HYBRIDA, for Rockwork, Edgings, and small Beds.—This variety has been produced between C. carpatica and C. turbinata, of Backhouse. It is the most compact and floriferous Bellflower yet introduced. New seed, per dozen packets, 3*s.*; retail, each 6*d.*

JOSEPH B. HARTLAND, "The Old Established" General Seed Warehouse, 86, Patrick Street, Cork.

ORNAMENTAL HEDGES.

THUJA LOBBII, 4 to 5 feet, 90*s.* per 100; 5 to 6 feet, 100*s.* per 100. This tree forms a most beautiful evergreen fence.
THUJOPSIS BOREALIS, 2½ to 3 feet, 75*s.* per 100; 3 to 4 feet, 100*s.* per 100.
ENGLISH YEW, 2½ to 3 feet, 75*s.* per 100; do., very bushy, 3 to 3½ feet, 100*s.* per 100.
AMERICAN ARBOR-VITÆ, 5 to 6 feet, 50*s.* per 100*s.*; 6 to 7 feet, 60*s.* per 100.
LAUREL, Common, 2½ to 3 feet, 20*s.* per 100, £9 per 1000.
,, Portugal, 2 to 2½ feet, 50*s.* per 100.
PRIVET OVALIFOLIUM, 2 to 3 feet, 5*s.* per 100.
,, Common Evergreen, 2 to 3 feet, 30*s.* to 40*s.* per 1000.
LAURUSTINUS, transplanted last spring, bushy, 50*s.* per 100.
RHODODENDRON PONTICUM, 1½ to 2 feet, 60*s.* per 100; 2 to 2½ feet, 75*s.* per 100.
BOX, Broad-leaved, 1½ to 2 feet, 21*s.* per 100; 2 to 2½ feet, 25*s.* per 100.

Cranston's Nurseries, King's Acre, near Hereford.
Address: CRANSTON AND MAYOS.

4000 Double-flowered Chinese Primrose.

E. G. HENDERSON AND SON can now offer of the above, strong healthy New Plants, of 1874 growth, including Atro-rosea, Blushing Beauty, Exquisite, Empress, Emperior, Lilac Queen, King of Purples, Magenta Queen, Magnifica, Mrs. Eyre Crabbe, Pearl Blossom, Princess of Wales, rubra grandiflora, &c. Twelve varieties, from 30*s.* to 42*s.* and 60*s.*

PRIMULA JAPONICA, mixed varieties, 9*d.* each, 6*s.* per dozen; in six colours, raised from selected varieties, 1*s.* 6*d.* each.

AUBRIETIA HENDERSONI, the finest variety in growth and colour, strong plants, 2*s.* each, 18*s.* per dozen.

DAISY, Flower of Spring, beautiful and effective, pure white, with elegant gold-blotched leaves, 1*s.* each, 9*s.* per dozen.

VIOLETS, White Czar and Victoria Regina, 1*s.* 6*d.* each.

CYCLAMEN PERSICUM (from 3000 plants), mixed colours, 9*s.*, 12*s.*, and 18*s.* per dozen; collection to name 21*s.* and 30*s.* per dozen.

IRIS KÆMPFERI, Edward George Henderson and Andrew Henderson, the most beautiful of all the Iris group.

LEUCOJUM VERNUM, the true Spring Snowflake, with fragrant, large, Snowdrop-like flowers, dwarfer in habit than other species, 1*s.* 6*d.* per dozen, 8*s.* per 100.

MYOSOTIS RUPICOLA, the most beautiful of Forget-me-nots, 1*s.* 6*d.* each.

The Trade supplied on usual terms for all the above.
For full descriptions see CATALOGUE 155.
Wellington Nursery, St. John's Wood, London, N.W.

FRUIT TREE GARDENS and ORCHARD PLANTATIONS.

PYRAMID PEARS, handsomely grown, bearing trees on Quince stock. Upwards of 100 varieties, and all the choicest kinds: 18*s.* to 24*s.* per dozen, £5 to £10 per 100.
PYRAMID and BUSH APPLES, 15*s.* to 18*s.* per dozen, £5 to £7 per 100.
PYRAMID and BUSH PLUMS, 18*s.* to 30*s.* per dozen, £6 to £10 per 100.
PYRAMID and BUSH CHERRIES, 18*s.* to 24*s.* per dozen, £6 to £7 per 100.
STANDARD APPLES (Dessert, Culinary, and Cider), 18*s.* to 24*s.* per dozen, £7 to £10 per 100.
STANDARD PEARS (Dessert, Baking, and Perry), 18*s.* to 24*s.* per doz., £7 to £10 per 100.
STANDARD PLUMS, 18*s.* to 24*s.* per doz., £7 to £10 p. 100.
DWARF-TRAINED PEARS, PLUMS, CHERRIES, and APPLES, 30*s.* to 42*s.* per dozen.
GOOSEBERRIES, CURRANTS, RASPBERRIES, STRAWBERRIES, &c.

Trade prices to Nurserymen and Market Gardeners on application.
Cranston's Nurseries, King's Acre, near Hereford.
Address: CRANSTON AND MAYOS.

FOREST TREES.

ASH, 2 to 3 feet, 30*s.* per 1000
BEECH, 3 to 4 feet, 40*s.* per 1000
BIRCH, 5 to 6 feet, 60*s.* per 1000
CHESTNUT, Horse, 6 to 7 feet, 20*s.* per 100
HAZEL, 2 to 3 feet, 30*s.* per 1000
POPLAR, Black, 2 to 3 feet, 35*s.* per 1000
,, Lombardy, 7 to 8 feet, 20*s.* per 100
,, Ontario, 8 to 9 feet, 35*s.* per 100
FIR, Scotch, 2 to 3 feet, 30*s.* per 1000; 5 to 6 feet, 8*s.* per 100
SPRUCE, 2 to 3 feet, 15*s.* per 100; 3½ to 4½ feet, 40*s.* per 100
SYCAMORE, 2 to 3 feet, 40*s.* per 1000; 6 to 7 feet, 12*s.* per 100
ARBOR-VITÆ, American, 3 to 4 feet, 20*s.* per 100
CEDRUS DEODARA, 2 to 3 feet, 140*s.* per 100
ABIES BALSAMEA, 3 to 4 feet, 30*s.* per 100
BERBERIS AQUIFOLIA, 1½ foot, 15*s.* per 100
COTONEASTER MICROPHYLLA, 15*s.* per 100
IVY, Irish, fine for edgings, 8*s.* per 100
LAUREL, 2 to 3 feet, 15*s.* per 100; 4 to 5 feet, 25*s.* per 100
,, Portugal, 1½ to 2 feet, 35*s.* per 100
LAURUSTINUS, 1½ to 2 feet, 45*s.* per 100
PICEA NORDMANNIANA, 2½ to 3 feet, £10 per 100
PINUS AUSTRIACA, 2 to 3 feet, 12*s.* 6*d.* per 100; 3 to 4 feet, 25*s.* per 100; 4 to 5 ft., 35*s.* p. 100; 5 to 6 ft., 45*s.* p. 100
,, INSIGNIS, 3 to 4 feet, 75*s.* per 100
ROSES, Standard Perpetual, £6 per 100.
,, Dwarfs, £3 per 100
,, Tea, in pots, 15*s.* per dozen.
THUJA LOBBII, 1½ to 2 feet, 20*s.* per 100; 2½ to 3 feet, 35*s.* per 100; 4 to 4½ feet, 50*s.* per 100
THUJOPSIS BOREALIS, 3 to 4 feet, 90*s.* per 100

DAVISON AND WHITTEM, White Cross, Hereford.

THE MOST IMPORTANT PRIZE
OFFERED TO
GARDENERS, GENTLEMEN,
AMATEURS, and OTHERS,
During the year 1875, is
THE CARTER CUP,

VALUE FIFTY GUINEAS,
Which is to become the absolute Property of the Winner, and will be awarded at the Provincial Show of the Royal Horticultural Society, under the following Conditions:—

FIRST PRIZE—The "CARTER CUP," Value FIFTY GUINEAS, to become the absolute property of the Employer to whom the Prize may be awarded also Ten Guineas for the Gardener.
SECOND PRIZE—Seven Guineas.
THIRD PRIZE—Five Guineas.
FOURTH PRIZE—Three Guineas.
FOR THE
Best Collection of Vegetables, 24 Dishes,
TO INCLUDE
½ peck Carter's Early Premium Gem Pea.
½ " James' Prolific Pea.
½ " G. F. Wilson Pea.
½ " Hardy's Pedigree Windsor Bean.
½ " Carter's White Advancer French Bean.
½ " Carter's Champion Runner Beans.
½ " Blue Peter Pea.
½ " Carter's Commander-in-Chief Pea.
½ " Carter's New Mammoth Long Pod Bean.
½ " *Carter's New Fern-leaved Parsley, and Little Heath Melon.

* Owing to the difficulty that would be experienced in getting this Parsley to perfection in time for the show any other good curled variety would be eligible.

Conditions, &c.—All vegetables to be grown by *bonâ fide* Gentlemen's Gardeners or Gentlemen Amateurs, and in the open ground, excepting Cucumbers and Melons. The following to comprise dishes:—Of Peas, half peck (unless otherwise stated); Onions, 12; Melons or Cucumbers, 1 brace; Beet, 3; Potatos, 18; Cauliflower, 2; Parsnips, 6; Celery, 3; Broad Beans, 18 pods; French Beans, 24 pods.

Many valuable prizes will also be offered at the London Shows of the Royal Horticultural Society during the year by JAMES CARTER AND CO.

Pretty Flowers in Winter and Spring.
Carter's Popular Guinea Collection of Bulbs
For the OPEN GROUND, contains:—

12 Named Hyacinths, distinct
12 Mixed Hyacinths
6 Polyanthus Narcissus
12 Double White Narcissus
12 Narcissus Poeticus
25 Extra Fine Double Tulips
25 Extra Fine Single Tulips
50 Yellow Crocus
50 White Crocus
50 Blue Crocus
50 Striped Crocus
12 Star of Bethlehem
12 Extra Fine Spanish Iris
50 Winter Aconites
25 Extra Fine Persian Ranunculus
25 Extra Fine Anemones
12 Extra Fine Fritillarias, mixed
12 Blue Scillas

PACKING AND CARRIAGE FREE.
OTHER COLLECTIONS, price 10s. 6d., 42s., 63s., and 84s. 20s. value carriage free.
We allow a Discount of 5 per Cent.

CARTER'S,
The Royal Seedsmen, High Holborn, London, W.C.

SATURDAY, DECEMBER 26, 1874.

CHRISTMAS TREES.

WINTER having now set in in good earnest, and outdoor vegetation being very much at a standstill, it behoves such of us as are horticulturally inclined to turn our attention to indoor plants, and to endeavour by their assistance to solace ourselves for the absence of outdoor flowers. Heaths, Poinsettias, Primulas, and the like are readily obtainable by those whose purses allow them to indulge in such luxuries; and the Christmas evergreens brighten the "hearth and hall" of humbler homes, to which winter flowers must remain strangers. But there is one tree above all others that is popular at this time of year with the juvenile members of the family—a tree, indeed, of comparatively recent introduction, but one which bears most ample and most various fruit, which it would puzzle the most learned of systematic botanists to classify, although in its absence he would probably be able to identify the tree as a member of the order Coniferæ. This tree is known to great and small as the Christmas Tree *par excellence.*

When, where, and how the Christmas Tree originated it is not easy to ascertain. It has been suggested by some that it took its origin from the Roman Saturnalia, and in Smith's *Dictionary of Roman and Greek Antiquities* there is an engraving (under the word Oscillum) which is held by Mr. W. B. Maccabe to be "an exact picture of a Christmas Tree." Be this as it may, there is no doubt that its introduction into our own country is due to the Germans, among whom it is in some way supposed to be connected with S. Maternus, who was one of the earliest preachers of Christianity among them, and who is reported to have slept under a Fir tree. Hall, the historian, in the following passage, appears to indicate that something of the kind was presented before Henry VIII. at Richmond. "There was," he says, "a pageant devised like a mountayne, glisteninge by night as though it had bene all of golde and set with stones, on the top of which mountayne was a tree of golde, the brannches and bowes frysed with golde, spreadynge on every side over the mountayne with Roses and Pomegarnettes."

It may, however, fairly be urged that this "tree of golde" was rather an adjunct of the "pageant" than of individual importance; and it would appear that it was not until the present reign, when the introduction of German customs received an additional impetus from the lamented Prince Consort, that Christmas trees became at all generally known. Such a tree, however, was made for a juvenile party in the reign of Queen Caroline, by a German of her household. "The tree was a branch of some evergreen fastened on a board. Its boughs bent under the weight of gilt oranges, almonds, &c.; and under it was a vast model of a farmhouse, surrounded by figures of animals, &c., and all due accompaniments." Our modern Christmas Tree, like its German original, bears on its branches not only Oranges and Apples, but more varied and substantial gifts. Coleridge has a pretty description of a German Christmas Tree; and who does not know Hans Andersen's beautiful story of the discontented Fir Tree? Whether our Christmas Tree is a remnant of ancient tree-worship is not clear, but we are told that in the Hartz district the maidens dance and sing "most heathenish songs" round the Fir-tree, which is adorned with painted eggs, &c.; while in Voigtland it is said that the lights on the Christmas Tree must be of an even number, and it is also said in some places that the shadows cast by these lights, of persons who will die during the coming year, will appear without heads.

Another Christmas Tree which may fairly claim notice upon the present occasion, is the far-famed "Glastonbury Thorn," which, tradition tells us, sprang from the wand of S. Joseph of Arimathæa, who planted Christianity in England, and "built with wattles from the marsh a little lovely church in days of yore." When the tradition that

> "the winter Thorn
> Blossoms at Christmas, mindful of our Lord,"

first arose, it is not easy to ascertain, but it is one of considerable antiquity, and lasted long beyond the period which some persons are fond of styling "the dark ages." The fame of this Thorn extended to foreign lands, and slips or pieces of it were valued articles of export. Visits were made to it at Christmas as recently as the beginning of the last century; and Queen Anne, in common with many nobility of that period, purchased slips of the tree at a high price. The original tree remained until the reign of Charles I., when it was cut down by a Puritan; one of its trunks had already been destroyed in the time of Elizabeth. A slip was, however, secured; and two old Hawthorns, purporting to be descendants, are still to be seen near the old Abbey at Glastonbury.

It seems almost incredible that such a circumstance as the blossoming of a Thorn should seriously influence the conduct of a large number of persons; but that such was actually the case is plain from the following extract from the *Gentleman's Magazine*, referring to Christmas Eve, 1753. It will be remembered that the introduction of what was termed the "new style," which took place in that year, had met with considerable opposition; and the Glastonbury Thorn was visited by a large number of people, but was found (as might have been expected) to show no appearance of leaf or bud, whereas on Old Christmas Eve "it blowed as usual." The extract above referred to runs as follows:—"At Quainton, in Buckinghamshire, above two thousand people went, with lanterns and candles, to view a Blackthorn (*sic*) in that neighbourhood, and which was remembered to be a slip from the famous Glastonbury Thorn, and that it always budded on the 24th, was full blown the next day, and went all off at night. The people, finding no appearance of a bud, it was agreed by all that December 25 (new style) could not be the right Christmas Day, and accordingly refused going to Church, and treating their friends on that day as usual; at length the affair became so serious that the ministers of the neighbouring villages, in order to appease them, thought it prudent to give notice that the Old Christmas Day should be kept holy as before."

The Glastonbury Thorn is known to horticulturists as Cratægus Oxyacantha præcox; examples of it are not very uncommon, although the blossoms seldom fully expand.

Another tree, which was believed to be sacred to Old Christmas Day, was the Cadenham Oak, in the New Forest, which for more than two hundred years was supposed to bud only on that day. From a contemporary account, it appears that the sapient King James I. "could not be induced to believe" in this marvellous occurrence "till Bishop Andrewes, in whose diocese the tree grew, caused one of his own chaplaines, a man of known integritye, to give a true information of it, which he did; for upon the eve of the Nativitye, he gathered about a [hundred] slips, with

the leaves newly opened, which he stuck in claye in the bottom of long white boxes, and soe sent them post to the Courte, where they deservedly raised not only admiration, but stopt the mouth of infidelitye and contradiction for ever. Of this I was both an eye-witness, and did distribute many of them to the great persons of bothe sexes in Courte, and others, ecclesiastical persons. But in these last troublesome times, a divelish fellow (of Herostratus humour) having hewen itt round at the roote, made his last stroke on his own legg, whereof he died, together with the old wondrous tree; which now sprowted up againe, and may renew his oakye age againe, yf some such envious chance doe not hinder or prevent itt: from which the example of the former villane may perchance deterr the attempte. This I thought to testifie to all future times, and therefore subscribe with the same hand through which those little oakye slips past." Thus far Dean Wren, whose good faith is so obvious that one cannot help feeling a little sorry that in after years a lady, who was "attentively curious in everything relative to art or Nature," took upon herself to make a journey to Cadenham, on January 3, 1756, "purposely to enquire on the spot about the production of this famous tree." To make short a long story of the Salisbury newspaper which reports this occurrence, the guide on ascending the tree found on the first branch "several fair new leaves fresh sprouted from the buds, and nearly an inch and a half in length:" so that "the mouths of infidelitye and contradiction," so far from being "stopt for ever," as Dean Wren fondly hoped, were once more at liberty to dispute the marvellousness of the occurrence. The Oak in the New Forest described by Aubrey was probably identical with this. He says, "Old Mr. Hastings, of Woodlands, was wont to send a basketfull of [the twigs] to King Charles I. Mr. Perkins, who lives in the New Forest, says that there are two other Oakes besides that which breed green buddes after Christmas Day, pollards also, but not constantly." The same author tells us of other trees which are similarly precocious with the Glastonbury Thorn and Cadenham Oak. "In Parham Park, in Suffolk, is a pretty ancient Thorne that blossomes like that at Glastonbury; the people flock hither to see it on Christmas Day. But in the rode that leads from Worcester to Droitwiche is a Blackthorne hedge at Clayes, half a mile long or more, that blossoms about Christmas Day for a week or more together." Besides the Thorn, Glastonbury possessed a Walnut tree which grew in the churchyard there, and which "did putt out young leaves at Christmas." *B. M.* [To this account of our correspondent we may add that we have just received from Essex sprays of Laburnum in full leaf for the second time this year! EDS.]

New Garden Plants.

MASDEVALLIA CHIMÆRA, *Rchb. f.*

This plant has just been represented in my *Xenia Orchidacea*, vol. ii., 185, 186, with the assistance of Director Linden, who lent me the sketches prepared by Mr. G. Wallis. I have now great pleasure in stating that it flowered in the beautiful collection of the fortunate Mr. Edwin G. Wrigley, Broadoaks, Bury, Lancashire, in August last. The flower, as a first one, of course, was not equal to good wild flowers, but it was decidedly very pretty. The honour of the introduction of this surprising plant is due to Director Linden, who had to thank for it Mr. Wallis, whose rich New Grenadan stores were partly sold at Mr. Stevens' rooms. Mr. E. Wrigley writes:—"The enclosed flower is from a plant bought at one of M. Linden's sales at Mr. Stevens' sale rooms as M. Chimæra. I have three plants. Two of them have proved to be poor varieties of M. nycterinia, and the other has just opened the flower sent with this." Though it is a bad experience to pay for three Chimæras and to have but one, yet Mr. Wrigley must be highly congratulated on the unexpected success of having been the first to flower the gorgeous plant, when others, as Mr. Day, Mr R. Aders of Belle Ville, Messrs. Veitch, Mr. W. Bull, &c., succeeded only in flowering the night bird, M. nycterinia. I never was so lucky as to see displayed such charms as those represented by Mr. W. Smith in these columns from a plant I saw several times with Mr. Day.

The very interesting question is now whether M. Chimæra produces several flowers. Mr. Day has discovered, and kindly showed me, that M. nycterinia, after having produced its first flower, extends a new internode, not to be seen before, with a second flower. And perhaps there appears then a third one. It may be expected that M. Chimæra may follow the same course. Yet, since the flowers would then be heterochronic, this would not be sufficient to corroborate Mr. Roezl's statement, that there are several flowers produced at once.

Finally, I like to correct an oversight. The first discoverer of the section of the Saccolabiatæ is Señor Endres, whose gorgeous undescribed M. Endresii, Rchb. f., has been in my herbarium for at least seven years. Among the very numerous new Masdevallias discovered by this excellent observer, there is also a quite new group represented by two very lovely species. *H. G. Rchb. f.* [To this account we hope shortly to add a figure, from a plant just flowered by Mr. Bull. EDS.]

CURMERIA ROEZLII, *Mast., sp. nov.** (figs. 159, 160).

This is a new and interesting Aroid, introduced to the establishment of Mr. W. Bull, by M. Roezl, from Columbia. It has its rather thick leaves springing

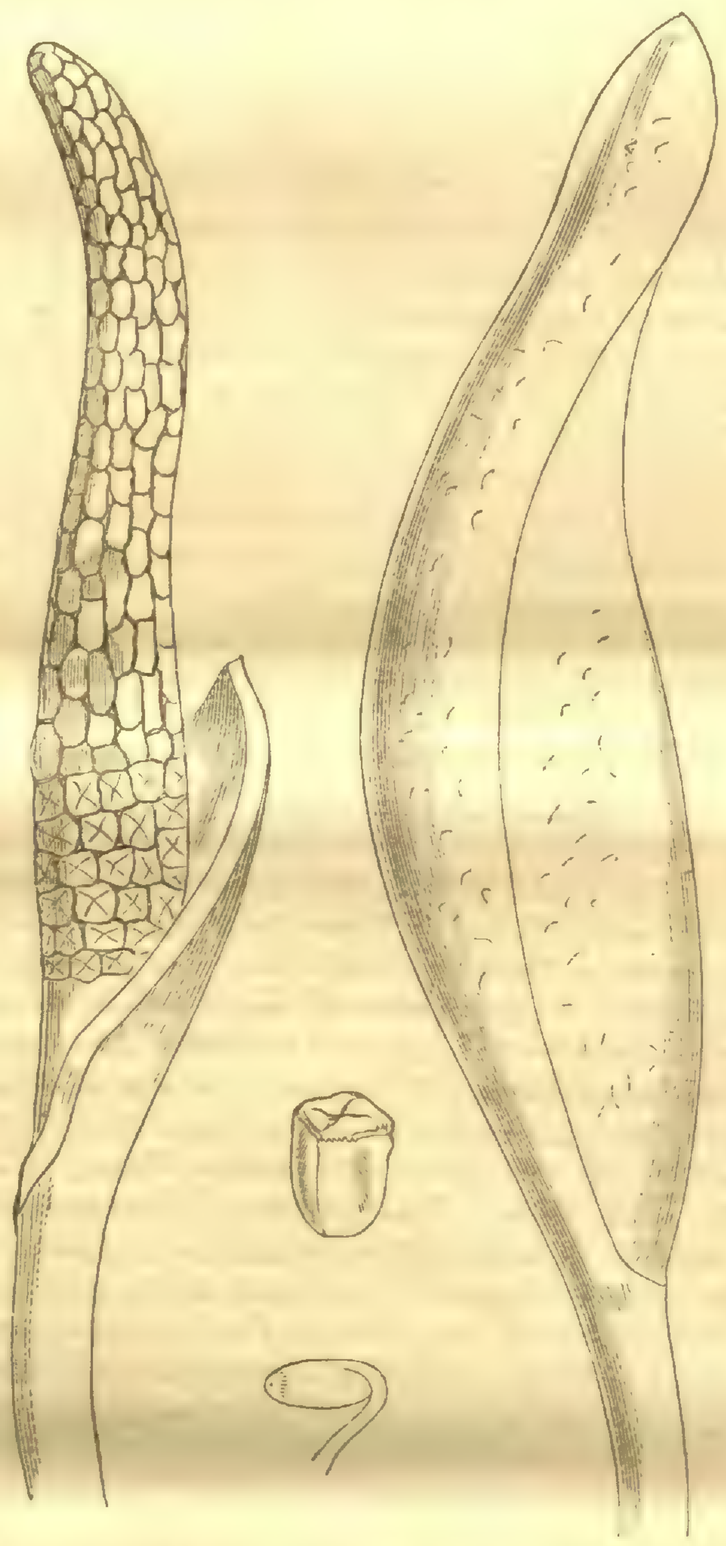


FIG. 159.—CURMERIA ROEZLII.
Spathe and spadix natural size, ovary and detached ovule magnified.

from a tuft, each being from 1—2 feet long by 8—16 inches in width, of an oblong ovate form, with a short acumen and a tapering base. The upper surface is green, mottled with pale yellow spots; the lower surface is paler, almost cream-coloured, and marked by the very prominent midrib. The leaf-stalk is compressed at the side, furrowed above and sheathing at the base. The spathe is borne on a cylindrical stalk of 3—4 inches in length, and is ovate acute, somewhat convolute, except at the apex, where it is hooded, and contracted above the dilated middle. Externally it is glaucescent, of a brownish olive hue, studded with minute spots; internally it is quite smooth, shining, cream-coloured. The spadix is about 3 inches long, cylindrical or somewhat tapering at the point, confluent on one side at the base with the spathe, elsewhere quite free, and completely covered with flowers, of which the males occupy the upper two-thirds or rather more, the females the lower third, without any intervening neutral flowers. Anthers discrete pinkish at the top, and opening by a chink just below the flattened, irregularly four-sided summit. Ovaries free, yellow, oblong, smooth, surmounted by a disc-like slightly 4-lobed stigma; internally 2 (? 4) celled, placenta axile, ovules ∞, horizontal, supported on very long ascending funicles. Fruit ****

The nearest ally to this is the plant called by MM. Linden and André Curmeria picturata (*Ill. Hort.* 1873, p. 45, tab. cxxi.), to which genus accordingly we refer it, with the more satisfaction as it provides a companion to the species already described, and does away with the uncertainties and inconvenience attaching to a monotypic genus. Our notes were taken in Mr. Bull's nursery in June last, but the plant is also in flower at the present time. The leaves have a sub-acid and slightly aromatic flavour. *M. T. M.*

ODONTOGLOSSUM MADRENSE, *n. sp.**

This is a rather curious thing. It was discovered by M. Roezl in the Sierra Madre of Mexico, well known for certain of its benevolent inhabitants, who are deeply frightened lest travellers might feel overburdened by too heavy coin. The bulbs imported were very narrow, and looked rather Trichopilioid, though the sheaths were not blotched. I obtained the single inflorescence M. Roezl saw—a very poor specimen. I hoped it would prove to be O. maxillare, yet the fresh callus, &c., prove it is quite distinct. Messrs. Veitch obtained the whole lot. It flowered lately in the rich and well grown collection of Mr. Edwin Wrigley, Broadoaks, Lancashire. It appears, however, to have flowered at the same time, or even a few days earlier, at Chatsworth, at the Duke of Devonshire's place. It was brought home by the Duke's brother, Lord F. Cavendish. I have obtained the flowers from Messrs. Veitch, who tell me the gardener adds it is very free blooming. *H. G. Rchb. f.*

AGANISIA FIMBRIATA, *Rchb. f.; supra, p.* 452.

It is my duty to state that all the statements quoted under this head are due to the intelligence and kindness of Mr. Salter, gr. to A. Sillem, Esq., Laurel Park, Sydenham. *H. G. Rchb. f.*

MISTLETO AS MEDICINE.

THERE are probably no plants better known in England than those which are now lending their Christmas brightness to our streets and markets, preparatory to their finding their ultimate destination in our homes and in our churches; and it may also be said that few, if any, plants have had their histories more frequently served up for popular edification than the Holly, the Ivy, and the Mistleto, which have served as texts for an endless supply of popular papers, all going over exactly the same ground, giving the same illustrations and the same quotations, and meeting always with the same indulgent readers who are not apt to be hard upon Christmas literature.

It is not our intention to add one more to the goodly list of wanderers across this beaten track, and yet we are going to chat for a few moments about the "mirth-provoking Mistleto," viewed from a somewhat unusual, and some may think unseasonable, point of view—that of a medicine. Perhaps the mention of such an ill-omened name at Christmas time may demand an apology; it is only very little boys whom it is considered legitimate to harass with threats of the doctor at Christmas, when an unlimited capacity for plum-pudding and mince-pie seems likely to render a visit from that functionary necessary; and at Christmas such threats sound after all more like a joke—if a somewhat grim one—than anything else. Our readers may be disposed to think that the Mistleto would probably act more powerfully upon the spirits than upon the body as a remedial agent, but such was not the opinion of Sir John Colbatch, who published in 1719 "A Dissertation concerning Mistleto: a most wonderful remedy for the cure of convulsive distempers." "I have had it upon my spirits for weeks past," he says, "that it would be highly criminal in me to let another Mistleto season pass without informing the world what a treasure God Almighty has every year presented to their view;" and he proceeds to show in how many and various ways it may be employed for the benefit of the

* Acaulis; rhizomate perennante aromatico crasso; foliis 2-pedalibus subcoriaceis glabris superne pallide viridibus flavo-maculatis subtus pallidioribus glaucescentibus, ovato-oblongis basi apiceque acutis breviter acuminatis, unicostatis, costa superne sulcata subtus valde prominente, nervis secondariis approximatis parallelis indivisis curvatis; petiolis laminis 2—3-plo brevioribus lateraliter compressis superne exaratis basi vaginatis; spatha 4—5 poll. long, stipiti tereti 2—3 pollicari sublevata ovata acuta arcte convoluta basi attenuata, supra partem mediam ventricosam constricta apice cuspidata parum aperta, coriacea fusco olivacea superne pallide rosea intus nitida; spadice spatham vix æquante.

* Aff. Odontoglosso nebuloso, Lindl. Pseudobulbis ligulatis ancipitibus diphyllis seu monophyllis; foliis loratis acutis; pedunculo porrecto pauciflore; bracteis triangulis acuminatis ovaria pedicellata subæquantibus; sepalis linearibus acuminatis dorso carinatis; tepalis multo latioribus oblongis apiculatis; labello optime unguiculato, callo velutino oblongo antice retuso bipapuloso papulis collateralibus, calli lateribus erectis; lamina triangula nunc bene cuspidata; basi utrinque obtusangula, crenulata. Flores lactei maculis in basi sepalorum brunneis, maculis majoribus in basi tepalorum. Callus et discus laminæ labelli flavi.

human race. That of the Oak seems to have been preferred by former writers, but being unable to obtain any of this, he used that from the Lime, of which "the trees in one of the parks at Hampton Court" supplied a great quantity. "I order'd it to be gather'd at the latter end of December; the leaves, berries, and very tender twigs I got dry'd over a baker's oven, where there was a constant gentle heat, and then had it made into very fine powder, to be put into a glass cover'd with bladder or leather, and kept in a very dry place. If it be not kept close and dry it will contract a dampness, grow mouldy, and be good for nothing; if it be scorch'd by the fire in drying it will also be spoil'd, and of no effect. The larger stalks must also be carefully dry'd and preserv'd for decoctions and infu sions." Some of the most successful instances in which the Mistleto was used were cases of epilepsy and catalepsy, in which it appears, from the accounts given by Sir John, that a beneficial effect was produced. The "Mistleto of the Oak" was considered the most efficacious, no doubt because of the great difficulty of obtaining it; but Sir John says, "Suppose that the Mistleto of the Oak does surpass that of all other trees, yet from ten years' large experience I find the ordinary Misleto to be the most noble medicine I ever knew;" and he even places its virtues above those of the "Jesuit's Bark." Epilepsy was cured "by the powder of the true Mistleto of the Oak, given as much as would lie upon a sixpence, early in the morning, in black-cherry water, or even in beer, for some days near the full moon." Ordinary Mistleto was equally efficacious in similar cases; in quartan agues, in St. Vitus' Dance, and in children's diseases, it seems to have worked as many wonderful cures as any patent medicines of modern days.

A second edition of the pamphlet gives full particulars of the discovery and virtues of the tincture of Mistleto, which was a later discovery of our author. This is too long to extract, but contains some interesting information. Of the use of the berries Sir John says:—"I have not yet dared to rob the Mistleto of but few of its berries; but from some observations I have made of them, I am inclined to think that they are the greatest restorers of decayed nature, swallowed whole as they are, either green or dry, and a draught of generous wine to be drank after them, ten or a dozen, every night at going to bed."

The medical uses of Mistleto were greatly advocated by the older writers; and Sir John Colbatch does little more than give the weight of his own support to views which had been already expressed, and which had received the support of John Ray, who mentions it as a specific in epilepsy, and as useful in apoplexy and giddiness. Dr. Bull, however, whose interesting paper on the Mistleto is well known, says that "the real properties of the plant are those of a slight tonic;" and it is not employed in any way in modern practice, except so far as animals are concerned. In connection with this part of the subject it may be noted that it is still a common custom in many parts of the country to give a branch of Mistleto to the cow which calves first after New Year's Day, it being supposed that this will ensure luck to the dairy throughout the coming year. Sir Thomas Browne mentions this as a common practice in his time; and Dr. Bull states that he learnt from a woodman near Ledbury, that "a piece of Mistleto from the haw chopped in pieces and given to a cow after calving will do her more good nor any drench you can give her." It is also given to sheep after lambing, and the berries are sometimes administered to them as a purgative.

It is not our intention to enter upon the subject of Mistleto on the Oak, about which so much has been written; but the following note from Sir Hugh Plat's *Garden of Eden* may perhaps assist some in discovering this variety, although the author adds at the end, *Beati qui non crediderunt*:—"By sitting upon a hill late in an evening, near a wood, in a few nights a Fire-dark will appear; mark where it lighteth, and there you shall find an Oak with Mistleto therein, at the root whereof there is a Misle-childe, whereof many strange things are conceived." *B. M.*

FIG. 160.—CURMERIA ROEZLII (MUCH REDUCED).

NEW PLANTS CERTIFICATED

BY THE FLORAL COMMITTEE AT THE ROYAL HORTICULTURAL SOCIETY'S MEETINGS, 1874.

*** *F.C., First-class Certificate; B.C., Botanical Commendation; C., Commendation.*

Adiantum gracillimum ..	Williams, May 13—F.C.
Agave filifera superba	Croucher, May 13—F.C.
" micracantha picta ..	Croucher, May 13—F.C.
Alsophila elegantissima ..	Bull, Feb. 18—F.C.
Amaranthus Henderi (awarded to the strain)	Hender, Aug. 19—C.
Amaryllis (Hippeastrum) Oriflamme	Williams, April 1—F.C.
" (Hippeastrum) vittata Harrisoniana (as picturata	Bull, Feb. 18.—F.C.
Angræcum citratum	Veitch, Feb. 18—F.C.
Anthericum Williamsii ..	Williams, Nov. 11—F.C.
Aquilegia leptoceras lutea = A. chrysantha	Douglas, May 13—F.C.
Azalea (mollis) Alphonse Lavallé	Lane, May 13—F.C.
Begonia Model	Veitch, Sept. 2—F.C.
Begonia Royalty	Chambers, Oct. 7—F.C.
Betula alba foliis purpureis ..	William Paul, July 15—F.C.
Boronia megastigma	Veitch, April 1—F.C.
Campanula Smithii	W. Smith, July 15—F.C.
Cattleya fausta	Veitch, Oct. 7—F.C.
" gigas	Veitch, April 15—F.C.
" Veitchiana	Veitch, March 18—F.C.
Cerasus Mahaleb pendula ..	Paul & Son, Aug. 19—F.C.
Ceterach aureum	Williams, April 15—F.C.
Cheilanthes Bergiana (see Hypolepis)	
Chrysanthemum (Japanese) Duchess of Edinburgh	Veitch, Nov. 11—F.C.
" " Gold Thread	Veitch, Nov. 11—F.C.
" " The Cossack	Veitch, Nov. 11—F.C.
Chysis Chelsoni..	Veitch, March 18—F.C.
Cineraria, double-flowered ..	Haage & Schmidt, May 27—F.C.
Clematis Countess of Lovelace	Jackman, April 15—F.C.
" Lord Gifford	Noble, April 15—F.C.
" Lucie Lemoine	Veitch, March 4—F.C.
" Marquis of Salisbury ..	Jackman, April 15—F.C.
" purpurea elegans ..	Cripps, June 4—F.C.
" Robert Hanbury ..	Jackman, May 13—F.C.
Coleus Duchess of Edinburgh	Chitty, June 17—F.C.
Cornus alba marginata ..	Paul & Son, Aug. 19—F.C.
Cyclamen Rose Queen ..	Goddard, April 1—F.C.

Cyclamen Royal Purple ..	Goddard, April 1—F.C.
Cypripedium Argus	Veitch, March 18—F.C.
„ Roezlii	Veitch, Jan. 21—F.C.
Dahlia Countess of Pembroke	Keynes, Sept. 2—F.C.
„ John McPherson ..	Keynes, Sept. 2—F.C.
„ Sarah McMillan.. ..	Rawlings, Oct. 7—F.C.
Decabelone elegans	Croucher, Aug. 19—B.C.
Dendrobium Ainsworthii ..	Mitchell, Feb. 18—F.C.
„ amœnum	Bull, June 4—F.C.
„ erythroxanthum	Denning, Aug. 5—F.C.
Drosera glanduligera	Bull, Sept. 2—B.C.
„ Menziesii	Bull, Sept. 2—B.C.
Echeveria Peacockii	Croucher, July 1—F.C.
Epidendrum Catillus = E. Imperator	Denning, March 4—F.C.
Ficus Parcellii	Veitch, April 15—F.C.
Fuchsia procumbens	Kinghorn, Aug. 5—B.C.
Gladiolus Duchess of Edinburgh	Kelway, Sept. 2—F.C.
„ James Kelway	Kelway, Sept. 2—F.C.
Gloxinia Queen of England ..	Gee, June 4—F.C.
Gymnogramma triangularis ..	Williams, May 13—F C.
Hæmanthus Cooperi	Henderson, May 13—F.C.
Hippeastrum picturatum (see Amaryllis)	
Hollyhock Mulberry Gem ..	Chater, Aug. 19—F.C.
„ Rose Supreme	Chater, Aug. 19—F.C.
Hyacinth Anna	Veitch, March 18—F.C.
„ Cavaignac	Veitch, March 18—F.C.
„ Mr. Plimsoll	Veitch, March 18—F.C.
„ Quirine Christine ..	Cutbush, March 18—F.C.
„ Sir Garnet Wolseley ..	Veitch, March 18—F.C.
Hypolepis Bergiana	Rollisson, May 13—F.C. Blackwood (as Cheilanthes), Aug. 19—F.C.
Iris Kæmpferi Edward George Henderson	Henderson, July 1—F.C.
Ixora Fraseri	Fraser, July 15—F.C.
Kniphofia McOwanii	Green, Oct. 7—F.C.
Lilium speciosum atrosanguineum rubrum ..	Wilson, Aug. 5—F.C.
„ Washingtonianum purpureum..	Veitch, June 17—F.C.
Lobelia (bedding) Duchess of Edinburgh	Lidgard, June 17—F.C.
„ „ Magnifica	Pine-apple Nursery Co., July 1—F.C.
Macrozamia tenuifolia? (as plumosa)	Bull, June 4—F.C.
Mammillaria Roezliana longispina	Croucher, May 13—F.C.
Metroxylon filare	Bull, Aug. 5—F.C.
Mimulus (awarded for the strain)	Henderson, May 13—C.
Narcissus (Polyanthus) fl.-pl. .	Veitch, March 18—F.C.
Nerium Dr. Golfin	Henderson, Sept. 2—F.C.
Odontoglossum Alexandræ Rothschildii	Richards, May 13—F.C.
„ maxillare	Shields, Sept. 2—F.C.
Œceoclades guineensis ..	Bull, Sept. 2—F.C.
Oncidium fuscatum	Veitch, April 1—F.C.
Pelargonium (double) Emily Laxton	Laxton, June 4—F.C.
„ „ Jeanne Alegatière ..	Wm. Paul, July 15—F.C.
„ (golden tricolor) Dr. Masters	Henderson, July 1—F.C.
„ (show) Duchess of Edinburgh	Braid, May 13—F.C.
„ (zonal) Sir Garnet Wolseley	George, July 15—F.C.
Pellæa decomposita ?	Backhouse, June 4—F.C.
„ mucronata	Backhouse, June 4—F.C.
Pentstemon (awarded for strain)	Dean, June 17—C.
Pleocnemia Leuzeana	Bull, Feb. 18—F.C.
Polyanthus (bedding) The Bride	Dean, March 18—F.C.
„ (fancy) Purpurea ..	Dean, April 1—F.C.
Primrose Splendour	Dean, March 18—F.C.
„ Violacea	Dean, Feb. 18—F.C.
Primula (sinensis) Prince Arthur..	Perkins, Feb. 18—F.C.
Puya chilensis	Smith-Dorrien, May 27—F.C.
Rapatea pandanoides	Bull, Feb. 18—F.C.
Rhododendron Duchess of Edinburgh	Veitch, March 4—F.C.
„ Early Gem	Veitch, March 4—F.C.
Rose (H.P.) Duchess of Edinburgh	Bennett, April 1—F.C.
„ „ Madame Lacharme..	Bennett, March 18—F.C.
„ „ Royal Standard ..	Turner, July 15—F.C.
„ „ Sir Garnet Wolseley	Cranston, July 1—F.C.
„ (Tea) Duchess of Edinburgh	Veitch, May 13—F.C.
„ „ Madame François Janin	Bennett, March 18—F.C.
Sarracenia Stevensii	Veitch, June 4—F.C.
Saxo-Fridericia subcordata (see Rapatea)	
Selaginella lepidophylla ..	Henderson, Sept. 2—F.C.
Silene pendula flore-pleno ..	Dean, July 1—F.C.
Solanum quitoense	Veitch, Sept. 2—F.C.
Sonerila Hendersoni	Henderson, July 15—F.C.
„ Hendersoni argentea ..	Henderson, July 15—F.C.
Tacsonia insignis	Backhouse, June 4—F.C.
Toxicophlæa spectabilis ..	Veitch, Feb. 18—F.C.
Vanda limbata	Williams, June 4—F.C.
Viola (bedding) White Swan ..	Dean, May 13—F.C.
Vitis heterophylla humulifolia	Woodbridge, Oct. 7—F.C.
Zygopetalum Sedenii	Veitch, Aug. 5—F.C.

NEW PLANTS CERTIFICATED

BY THE ROYAL HORTICULTURAL FLORAL COMMITTEE AT THE CHISWICK TRIALS, 1874.

*** *F.C., First-class Certificate; S.C., Second-class Certificate.*

Pelargonium Anna Pfitzer ..	Henderson, Aug. 29—F.C.
„ Bonfire	Henderson, Aug. 29—F.C.
„ Claude de la Meurthe ..	Henderson, Aug. 29—F.C.
„ Colonel Holden	Pearson, Aug. 29—F.C.
„ Ellie	Miles, Aug. 29—F.C.
„ Little Trot	Davis, Aug. 29—F.C.
„ Master Christine ..	Veitch, Aug. 29—F.C.
„ Mrs. Halliburton ..	Kinghorn, Aug. 29—F.C.
„ Mrs. Tate..	Pearson, Aug. 29—F.C
„ Mrs. Turner	Pearson, Aug. 29—F.C.
„ Prince Arthur	Fraser, Aug. 29—F.C.
„ Queen of Beauties ..	Hodgson, Aug. 29—F.C.
„ Rev. T. F. Fenn ..	Pearson, Aug. 29—F.C.
„ Richard Dean	Henderson, Aug. 29—F.C.
„ Sparkler	Henderson, Aug. 29—F.C.
Tropæolum compactum yellow	Dean, Aug. 29—F.C.
Viola Blue Bell	Dean, July 15—F.C.
„ Chieftain	Dicksons & Co., July 15—S.C.
„ Dicksons' Golden Gem ..	Dicksons & Co., July 15—F.C.
„ Dicksons' King	Dicksons & Co., July 15—F.C.
„ Dicksons' Queen.. ..	Dicksons & Co., July 15—F.C.
„ Imperial Blue Perfection	Dean, July 15—F.C.
„ Lily White Tom Thumb	Dean, July 15—F.C.
„ Miss Maitland	Milligan & Kerr, July 15—F.C.
„ Mulberry	Dean, July 15—F.C.
„ The Tory	Dicksons & Co., July 15—F.C.
„ Tyrian Prince	Dean, July 15—F.C.

NEW FRUITS AND VEGETABLES

CERTIFICATED BY THE ROYAL HORTICULTURAL SOCIETY'S FRUIT AND VEGETABLE COMMITTEE, 1874.

First Class Certificates were awarded to the following:—

AT CHISWICK.

Vegetables.

Bean, Carter's Mammoth Long Pod	Carter & Co., July 10.
„ Seville Long Pod ..	Vilmorin et Cie., July 10.
Potato, Barron's Perfection ..	R. Farquhar, Sept. 10.
„ Bountiful	R. Fenn, Sept. 10.
„ Cattell's Eclipse	J. Cattell, Sept. 10.
„ Dwarf White	Bliss & Sons, Sept. 10.
„ Early Dimmick	R. Farquhar, Sept. 10.

AT SOUTH KENSINGTON.

Vegetables.

Tomato, Carter's Green Gage.	Carter & Co., Oct. 7.

Fruits.

Grape, Mrs. Pearson	J. R. Pearson, Nov. 11.
„ Venn's Seedling	W. Sweeting, Aug. 19.
Musa Champa	J. Woodbridge, July 15.
Pear, Beurré de l'Assomption	R. H. S. Chiswick, Sept. 2.
„ Lucy Grieve	P. Grieve, Oct. 23
„ Pitmaston Duchesse d'Angoulême	Rev. G. Kemp, Oct. 23.

THE ROYAL AGRICULTURAL SOCIETY AND THE POTATO DISEASE.

THE last number of the *Gardeners' Chronicle* contains an article by Mr. Carruthers headed "The Royal Agricultural Society and the Potato Disease," and which is a criticism of the proceedings at the General Meeting of the Royal Horticultural Society on December 2. In the course of that article he prefaces what refers to myself with the following remark:—"I must ask your indulgence while I point out, without comment, the relation between the statements in Mr. Berkeley's paper and Professor Dyer's account of them."

Mr. Carruthers then proceeds to contrast my account clause by clause with passages from Mr. Berkeley's paper, which he has carefully detached from the context for that purpose. I am afraid I must disagree with Mr. Carruthers in thinking that it is doing a service to science to deal with a paper like Mr. Berkeley's in such a way.

I did not in what I said at the meeting attempt to quote the paper itself, as Mr. Carruthers appears to think, but I gave what appeared to me to be a proper estimate of its general bearing. At the risk of rather unduly occupying your space, I will give your readers a further opportunity of comparing what I said about the paper with some rather longer passages from the paper itself than those given by Mr. Carruthers, and which were in my recollection at the time I was speaking. I said then that the paper "clearly established that the disease was due to a fungus which penetrated, by means of its mycelial filaments, the tissues of the plant, and, eventually reaching the tubers, involved the whole in a common destruction. When it reached the leaves it protruded branches through the stomata, and these branches bore spores of two kinds."

Mr. Berkeley's language is this:—"The leaves then began suddenly to assume a paler and at length a yellowish tint, exhibiting here and there discoloured spots, and, if I mistake not, were less copiously clothed than usual with pubescence on the under surface. More or less exactly coinciding with these spots on the reverse of the leaves appeared white mealy patches, consisting of a minute mould, proceeding, either singly or in fascicles, from the stomata, and arising from an abundant branched mycelium creeping in every direction through the loose tissue beneath the cuticle. The upper surface rarely if ever exhibits the mould, it being almost physically impossible for its delicate threads to penetrate the closely packed cells, which, being arranged side by side, leave scarcely any intercellular passages. The mould in a few hours from its first piercing the apertures of the stomata perfects its fruit, and in so doing completely exhausts its matrix, which in consequence withers. No sooner have a number of the leaves been attacked than the stem itself is subject to change, becoming spotted here and there with dark brown patches, in which the cells are mostly filled with a dark grumous mass, without exhibiting any mucedinous filaments, though occasionally, as in a portion figured, I have ascertained their presence. Very rarely fructifying but dwarfed specimens of the mould occur upon it. I have figured such, as sent to me from the neighbourhood of Bristol by Mr. Broome. The stem now rapidly putrefies, the cuticle and its subjacent tissue becoming pulpy, and separating when touched from the woody parts beneath. The whole soon dries up, and in many instances exhibits in the centre the black irregular fungoid masses which are known under the name of Sclerotium varium, and which are believed by the most competent authorities to be the mycelium of certain moulds in a high state of condensation.

"If the tubers are now examined, the greater part will often be found smaller than usual, especially if the disease has commenced at an early stage of growth, but in their natural condition; while here and there a tuber, particularly if it has chanced to be partially exposed, exhibits traces of disease. The surface is, however, soon marked with livid patches, commencing generally about the eyes, or at the point of connection with the fructifying shoots, according to Payen and Phillips; these rapidly acquire a spotted appearance, the spots being rather waved, and assuming often a more or less concentric arrangement. Sometimes, especially on the smoother kinds of tuber, two or more regular systems of concentric spots are exhibited on the same tuber. The skin now withers, and is easily separated; the spots become depressed, and of a yellowish tinge; and if the tubers be laid in a moist place, in a day or two—sometimes in the space of a few hours—the same mould which destroyed the leaves springs from them, piercing the cuticle from within, yet not scattered as on the leaves but forming a conspicuous white tuft." (Pp. 14, 15.)

It will be seen, therefore, that Mr. Berkeley distinctly traces the progressive character of the disease from leaves to tubers, and I do not see how I could have summed up the matter more precisely than I did. I may, however, point out that this was held to be the bearing of Mr. Berkeley's views at the time. Thus, at the Botanical Society of Edinburgh, February 12, 1846, Mr. Goodsir read a paper on the disease; and in the discussion Dr. Maclagan "entertained no doubt, from the observations of Mr. Goodsir, Mr. Berkeley, and others, that the fungus present in the diseased Potato had originated in the leaves, and been propagated down along the stem to the tubers."

How thoroughly we are indebted—in this country, at any rate—to Mr. Berkeley's observations for a correct understanding of this matter is clear to any one who will take the trouble to run down its history in the *Gardeners' Chronicle*. Thus, August 30, 1845, p. 593, we find him writing:—

"The malady by which Potatos are so generally affected this year, both in this country and on the Continent, does not appear to prevail in this neighbourhood. I have inquired in every direction, and can hear no tidings of it. . . . I have this morning received from Dr. Montagne, of Paris, some leaves affected with the mildew. . . . The parasite of the Potato does not appear to have been observed before by systematists."

On September 6 of the same year, p. 608:—"You will be interested to learn that the mould upon the Potatos which you sent me is identical with that upon the leaves, and the same with what I have received from Paris."

"It appears, then, that the decay of the tuber is produced by the same cause which affects the leaves—viz., by the growth of a mould whose development has been promoted by the excessive wet. The parasite does not appear to have been observed before; but there is little doubt that it will now be found to be more or less prevalent in damp and ill-drained spots, even in the driest years. The excessive development of the mould, and its consequent injurious effects, depending entirely upon the season, it will be beyond doubt impossible to find a remedy; nor does it seem, from what has been stated above, that even the best cultivation will insure exemption. It is greatly to be desired that, as such points are seldom, if ever, taken in hand by Government, some of our agricultural societies would from time to time take proper [!] steps to insure the best information possible as to the extent and circumstances of any plague like that which is at present so injurious."

On September 20, p. 640:—"In every case I find the Botrytis infestans preceding the work of destruction. It appears while the leaves are yet green or yellowish-green, and the parts attacked soon become brown and withered."

I will give one more extract to show how Mr. Berkeley's views influenced opinion at the time. Mr. Errington writes a month later, in the *Agricultural Gazette* (Oct. 18, 1845, p. 710):—"I have not a doubt on my mind that this mildew commences with the leaf, like other mildews, and breaking up the tissue there . . . induces the gangrene which, finding a proper nidus all the way down the stem, descends as rapidly through the stem into the Potato, the cellular tissue of the interior of which affords as ready a facility for the spread of it."

The great point which Mr. Berkeley undoubtedly made out independently, if he were not absolutely the first to do it, is the identity of the fungus which is present in the tubers with that which is present in the leaves. It is easy enough for us at the present day to accept the theory of the disease in its present form, but thirty years ago to grasp this point

firmly was no small achievement. So acute a botanist as Lindley quite rejected the fungus hypothesis, and it will be seen from the following extract from Mr. Berkeley's paper that it had not the support of Montagne:—"The order of phenomena described above is such as to show a very intimate connection between the parasite and the disease. Accordingly the notion that the disease is the effect of the parasite has met with some advocates, especially in Belgium. Monsieur Payen also, to a greater or less extent, accords with Dr. Morren; and, after an attentive consideration of the progress of the disease and of almost everything of value that has been written on the subject, and after duly weighing the peculiar difficulties with which it is attended, I must candidly confess that, with a becoming share of philosophic doubt, where such authorities are ranged upon the opposite side, I believe the fungal theory to be the true one. I cannot claim the support here of my friend Dr. Montagne, though he has been imagined by some of his colleagues to accord in opinion with Dr. Morren; but in the very first communication I had from him upon the subject he expressly stated his doubts as to the true cause of the disease, though at the same time he admitted its intimate connection with parasitic fungi." (P. 18.)

What the exact position of Morren in the history of the subject may be I am unable to say, but I should infer from his paper, published at the end of 1845 in the *Bull. Acad. Sc. Brux.*, t. xii., that he had only ascertained the identity of the mould produced from the tubers later than Mr. Berkeley did, though, no doubt he was acquainted with that upon the leaves earlier. With regard to the two kinds of spores, I never stated that Mr. Berkeley "said" anything about them, I only contended that his paper "clearly established" their existence. And so it does, in the light of our present knowledge. With respect to Mr. Carruthers' statement, that in a letter in *Nature*, on November 26, I held up the "botanic referee" of the Agricultural Society to ridicule, I can only express my regret that he should have viewed my remarks in that light. I confess that I am sorry that so able a botanist as the keeper of the Botanical Department in the British Museum should have his energies directed to an object so fruitless (as it seems to me) as the visitation of trials of "disease-proof" Potatos in twenty different stations scattered over the three kingdoms. But I neve intended that the opinion should in any way be held to cast ridicule on Mr. Carruthers himself. *W. T. Thiselton Dyer.*

FIG. 161.—SETTLEMENT OF AN INDIARUBBER COLLECTOR ON THE MADEIRA RIVER.

Natural History.

MICE *v.* SLOW-WORMS.—For snakes to feed upon mice seems all right and proper, but for mice to destroy and feed upon reptiles would not seem to be quite the correct thing for them to do, although the facts I am about to detail tend to show that they may sometimes indulge in carnivorous propensities. A friend of mine (a well-known entomologist) at one time had a fondness for reptiles. To keep them he made a glazed case, about a yard in length, breadth, and height, with about 6 inches of earth at the bottom, into which was sunk a pan of water—the earth in places was raised in little hillocks by means of bits of stone, &c., and was here and there studded with flowering plants and Ferns, which had a very pretty effect. In this case he placed a common ringed snake, six young, and one old slow-worm, several green lizards, and some common lizards. All went on well and comfortably for some months, but the difficulty was, where to get food for the snake—it had been without any for a long time. As my friend resided in the suburbs of London it was impracticable to obtain frogs, so knowing that mice formed another article of a snake's diet, he set a trap and caught one, which he put in the case for the snake to devour; but the snake, although so hungry, took no notice of it, and the mouse remained untouched for some time. Presently, however, it was noticed that one or two of the slow-worms had disappeared. Search being made, it was discovered that they had been eaten by something, and upon watch being kept, the mouse was found to be the delinquent, and means were taken to catch him, but in vain, for he would not again enter a trap, and eluded all attempts to catch him with the hand, by retreating to a hole under one of the hillocks; ultimately he was smoked out, but not until he had eaten three of the common lizards, and all seven of the slow-worms. [!] From observations made, it seems that the mouse (in the case of the slow-worms, at least) devoured them by gradually eating from the tail to the head. Two questions arise from these facts, viz. :—1. Do mice, in a state of Nature, sometimes become carnivorous?—or was this one driven by hunger (I believe no food was given it) to feed upon the reptiles? I, myself, am rather inclined to the latter belief. 2. Why did the snake refuse to eat the mouse? The only probable reason is that it only preys upon field-mice, and that house-mice are unsuited to its palate. *N. B.*

The Villa Garden.

GREENHOUSE.—The wintry weather we are now experiencing is causing much anxiety to owners of greenhouses and conservatories, who cannot protect their plants by means of artificial heat. With such it is indeed an anxious time, and some are put to their wits' end what to do to mitigate as far as possible the injurious effects of the frost. In many cases they are not at all helped by the position of their houses. The modern builder erects a bit of a conservatory, not as a place to grow plants in, but as a kind of ornamental addition to the dwelling, and the consequence is, that plants are either frozen to death in winter, or scorched out of being in summer. In such structures plant growing is indeed working under difficulties.

Any exterior covering to the roof is a matter of difficulty, unless it can in some way be fastened so as to prevent its being blown off by the wind; an outside blind made of strong sailcloth and worked by means of a roller and revolving wheel and cord at one end of it is an extremely useful appliance for warmth in winter and for shading in summer. There should be a kind of box framework at the back of the exterior of the roof of the house for it to rest in so as to keep it dry, and the rope must be securely tied to a fastening in the wall to keep it fixed in its place when rolled up. As a matter of course, the roller at the end of the blind should be a stout and heavy one, so as to keep the blind in its place during high winds, if necessary to let it down; but it is seldom that intense frost is accompanied by wind high enough to render it unsafe to let down the blind. However, a weight can be attached to it readily enough to keep it in its place. The width of the blind should be so regulated as that the roller may fall down just over the bottom part of the roof where the gutter is placed. A blind of this character will do much towards keeping a house warm during frosty weather.

Then, again, its injurious effects can be mitigated to a considerable extent by keeping the plants dry while such weather prevails. It is surprising what an amount of cold plants, such as Pelargoniums, Fuchsias, Azaleas, Primulas, Plumbago capensis, Abutilons, Mesembryanthemums, Cinerarias, Calceolarias, &c., will stand if the soil be dry about the roots. Our practice is, in a house filled with plants of the foregoing and other kinds, some young, some old, to take advantage of a bright sunny morning following frost and sprinkle the plants over-head by means of a fine rose-watering pot, and then to open the windows to admit of a free circulation of air, which soon dries up any moisture about the floor of the house which has resulted from the watering. Between 2 and 3 o'clock the house is shut up closely, while the atmosphere is warm, which maintains a comfortable temperature for a considerable time. Occasionally the soil in the pots is frozen hard, but owing to its being dry very little perceptible harm results. As soon as mild weather prevails the pots are freely watered till well soaked, and they will not again require it for a considerable time. The sprinkling over-head keeps the surface of the leaves fresh, clean, and green, and the plants are no doubt benefited by it. Under such circumstances but little flower can be expected at this season of the year; Abutilon Duc de Malakoff, starved in a pot, is flowering, so are some charming Fern-leaved Primulas, Roman Hyacinths, and a few Zonal Pelargoniums. But there are fast coming into flower, quickened into growth by means of the pleasant sunlight of the past few days, Hyacinths, Tulips, Crocus, Scilla sibirica, Myosotis dissitiflora, Triteleia uniflora, the pretty white Primula nivalis, various single and double Primroses, &c. Only let us reach on into the month of January, and then the apparently dormant energies of Nature will begin to rouse themselves to action, and the onward flow of vital force that heralds the spring-time will set in like an irresistible current, carrying on its bosom as barques of promise many pleasant anticipations of what soon shall be when the lengthening days bring an increase of solar heat.

In the case of greenhouses, where artificial heat can be applied, it should be put on at this season of the year only sufficiently to exclude frost. There is a fatal tendency among amateur gardeners to fire up needlessly, drying up the plants, causing the leaves to shrivel, and causing greenfly to increase to an alarming extent by reason of the dry, close atmosphere that prevails. Unless the frost is very intense, a little fire will do well enough; and some air should be given, and sprinklings also when the days are fine. When damp, dull weather prevails, especially if the days be foggy, it is well to put on a little fire to keep the place dry. Let it be borne in mind that Heaths, or any plants growing in peat, must not be allowed to become very dry, or to have a damp surface kept, which might cause the plants to become injured immediately round the base of the stem. All dead and decaying leaves should be removed, as they serve to breed damp, of which the house should be kept as free as possible.

SHRUBBERY.—Advantage should be taken of frosty weather to clear leaves out from amid belts of shrubbery, plantations of Laurels, &c., if it is advisable to do so. If they are allowed to remain, they get blown about by the wind, and they, consequently, give the garden a "littery" appearance, as the gardeners term it; at the same time, the continual raking out of the leaves robs the shrubs of their natural nutriment; and by constantly raking the leaves out, much of the surface soil is also brought away with them. Perhaps it would be well if once in three years or so some soil were sprinkled over the leaves in the shrubberies, which would be an excellent surface-dressing from time to time, and be of great advantage to the shrubs, as the roots come upwards to feed on what may be lying on the soil. The leaves thus obtained should be put aside in a secure place, as they will prove very useful for making up into a hotbed by-and-by in the spring, where they will gradually rot, and furnish some leaf-soil for potting hereafter.

At this season of the year, and on to the month of April, shrubbery borders and plantations may be renewed where vacancies have occurred by death or removal. Horticulturists differ in opinion as to the best time for planting deciduous shrubs and evergreens, some contending for the autumn, and others for the spring. As a general rule they are planted all through the autumn and winter, and generally with success. Where renewals are made, dig the ground deeply, and as widely round the spot to be planted as possible, removing all rootlets; and, if the soil be impoverished, digging in decayed leaves and other rubbish to afford sustenance. In planting spread out the roots nicely on the loose soil at the bottom of the hole, then sprinkle some soil over them till they are covered; and water well, gently lifting the plants up and down for the moist soil to fall among them. Then fill in the remaining earth, and tread it firmly about the roots.

Some good advice respecting planting has just been given by Mr. A. Mongredien. He says—"Beware of planting too deep. The tree should not be fixed in the ground lower than will bring the soil, when the hole is filled, an inch or two above the collar of the tree." By the collar of a tree gardeners mean that part of it where the roots spring from the main stem; and the soil should therefore be only an inch above the roots. "Thousands of young trees perish annually from being planted too deep. In situations exposed to violent winds it may be allowable to plant a little deeper, but it is only meeting one evil by substituting another; and it would be preferable to undergo the expense and trouble of staking the young trees where it is required."

FLORAL CHARADE.

DOUBLE ACROSTIC.

Although not a monkey, deny it who can,
I'm really and truly the type of a man,
A kind of preceptor to age, youth, or child
Whose study is Nature artistic and wild;
Indeed there is no one, friend, foe, or *confrère*,
Who fails to acknowledge the status I bear
In questions connected with field or parterre.

I.

A style of art to most well known,
Graven in wood or carved in stone,
By monk or vicar choral.
I "early" at the Temple stand,
I'm "pure" at Saint Stephens, and
At Richmond's tomb I'm "floral."

II.

In days of yore with good intent
I oft o'er student's shoulder bent
But not in admiration;
In forests wild a stalwart tree
I weep o'er maidens' bowery,
And take part in cremation.

III.

Science has aroused the fears
Of T. T. advocates,
For a spirit lurks in the cup that cheers
Though not inebriates.

IV.

I journey on through many a field
Rich with the Grapes of Spain
To a well-known port, whence the harvest yield
Is spread o'er the western main.

V.

A garden wide and fair to view,
Where Nature's fruits and flow'rets grew,
And all that grew was good,
By man's neglect to time a prey,
My glory long has passed away,
And none know where I stood.

VI.

Mother, why sent thou thy daughter to glean
In the field of thy kinsman king?
For, whatever thy motherly thoughts may have been,
It was hardly the right sort of thing.

VII.

Frail as thou'rt beautiful; fragrant of breath;
Asserting thy power o'er chaplet and wreath,
Thou'rt not in thine own home; yet, lacking home care,
If here thou art exquisite, what wert thou there?

VIII.

Eugène, thy claim to Flora's heart
Is known to great and small,
For who her fragrance can impart
So pleasantly to all?

IX.

Time was when I, a keen and swarthy wight,
O'er lawn and meadow held proscriptive right;
Alas, the fatal day
When complicated revolutions came,
Usurped my throne, destroyed my hard-earned fame,
And swept that right away! *Clio.*

Notices of Books.

La Pluie et le Beau Temps. Par Paul Laurencin. Rothschild. (Rain and Sunshine, &c.)

This is a little book intended to instruct beginners and amateurs in the principles of meteorology, and reproduces in popular guise the till lately generally adopted theories. It takes time for the recently advocated views as to marine currents to percolate into such books as these, and very properly so, for, until well-established, it is better either to keep them out of elementary treatises, or only to mention them in passing. Judged from its own standpoint, this little volume may properly receive commendation; though, if all its statements were as curiously inaccurate as the following, we should hardly be able to recommend the book to favourable notice:—"In England, the curious melancholic affection called the 'spleen,' is attributed to the effects of the east wind. This hypochrondriacal affection is marked by a general relaxation of the nervous system, by a feeble will, a general *ramollissement*, a profound sense of weariness (*ennui*), which nothing can dispel, and which too often induces the individual affected to commit suicide." What would Canon Kingsley say to this? It is surely time our nearest neighbours knew more about us than to reproduce gravely such nonsense as the above.

A Year's Botany, adapted to Home and School Use. By Frances Anna Kitchener: illustrated by the author. (Rivingtons.)

This is a little volume very much on the plan of *Botany for Beginners*, but more especially intended "to be put into the hands of pupils preparing for the University Local Examinations." It must, however, not be inferred from this that the book is a "cram"

FIG. 162.—BASE OF A GIANT BUTTRESSED TREE IN THE FORESTS OF THE AMAZON.

book. On the contrary it is an honest attempt to make pupils use their own powers of observation and reasoning, their own eyes and their own fingers, instead of depending on those of other people. We may thoroughly commend the book to beginners and pupil teachers, who will find it very serviceable to them. Perhaps the authoress has, in her aim at simplicity, occasionally erred, but if so the fault is on the right side. We cannot see, for instance, that to the novice it is any more difficult to remember the word "stamen" than it is to remember the awkward term dust-spike. The authoress is much more *au fait* with modern botanical science and literature than, we are sorry to say, is usual with writers of elementary books of this description; and in some points she shows herself to have clearer notions than many authors of much greater pretensions. Her expression of the parts of the flower "coming off" from the receptacle, the corolla, or what not, is much more correct than the usual term "insertion." But it is in the chapters on fertilisation that we find the most evidence of original observation and reflection.

—— We give, by permission of Messrs. Chapman & Hall, two additional woodcuts from Keller's splendid work on the Amazon and Madeira Rivers, already alluded to by us. The annexed illustration (fig. 162) represents one of the giant buttressed trees (the species is not mentioned) which constitute so peculiar a feature in many tropical countries. The present may be well compared with a sketch of a similar tree from the pencil of Captain Oliver, which we gave some time since. The illustration (fig. 161) represents the settlement of an indiarubber collector on the Madeira River. Brazil takes the first place among the rubber-producing trees (Siphonia elastica) though much injury has been done by reckless felling and the absence of any provision for replacing the old trees by young ones. As it is more than twelve million pounds per annum are produced, while the price of the exported article is steadily rising. The Siphonia grows best on a soil wherein its stem is annually submerged by the floods to a depth of 3 or more feet. "The best ground for it therefore is the igapó, the lowest and most recent deposit of the river; and there, in the immediate vicinity of the seringaes or rubber-woods, may be seen the low thatches of the gatherers' huts—wretched hovels most—rendered tenantable during the inundations by the device of raising the floors on wooden piles of 2 metres high, in which the cano—the seringaeiro's indispensable horse—also finds a protected harbour. As soon as the dry season sets in the collector betakes himself to the trees and cuts holes in the bark with his hatchet. The milk-white sap immediately exudes into pieces of bamboo tied below over little cups set under the gashes to prevent their trickling down the stems. The collector travels thus from trunk to trunk, and to facilitate operations on his return visit he pours the contents of the bamboos into a large calabash provided with liana straps, which he empties at home into large turtle-shells, which serve as basins. Without any delay he sets about the smoking process, as the resinous parts will separate after a while, and the quality of the rubber so becomes inferior. An earthen jar without bottom, and with a narrow neck, is set by way of chimney over a fire of dry Palm nuts (Attalea sp.), whose smoke alone has the immediate effect of coagulating the caoutchouc. The milk is thoroughly exposed, by stirring with a wooden shovel, to the smoke, and ultimately consolidates on the shovel, and takes a greyish-yellow tinge. Thus he puts layer upon layer, until at last the caoutchouc on both sides of the wood has reached about an inch in thickness, when it is cut off from the shovel and hung in the sun to dry, when it assumes its dark brown colour. It will thus be seen that not only is there great waste in the collection, but great imperfection in the manufacture." This is only one illustration of the immense riches of this region; to some others we may hereafter advert, and in the meantime commend to the reader Mr. Keller's volume, not only for its great artistic merit, but for he abundance of useful information it contains.

—— The third part of Dr. Carrington's *British Hepaticæ* (Hardwicke) has been issued. The work will be found indispensable by students of this class of plants.

—— There is little excuse now-a-days for a want of acquaintance with British literature on the ground of expense. We have before us the complete works of James Thomson and of Mrs. Hemans (Dicks), printed in small but clear type, for sixpence each! Shakspeare may be had for a shilling, Pope for a like sum, Goldsmith for ninepence, Bunyan for twopence, and other standard authors for similar small sums. A selection from the best plays may be had at one penny each. At a time when there is such an overflow of trashy literature it is satisfactory to find that no small numbers of readers crave for more wholesome and nutritious literary food.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

HENRY ORMSON,
HORTICULTURAL BUILDER and HOT-WATER APPARATUS ENGINEER,
Stanley Bridge, King's Road, Chelsea, London, S.W.
PLANS and ESTIMATES on application.

THE THAMES BANK IRON COMPANY
(Successors to LYNCH WHITE),
Old Barge Wharf, Upper Ground Street, London, S.E.,
ERECT HOT-WATER APPARATUSES complete, or supply BOILERS of all kinds. PIPES and CONNECTIONS at Wholesale Prices.
Price List on application, or six stamps for Catalogue.

PEAT.—From 5 to 100 tons of excellent Peat can be delivered at any Station on the South-Eastern or South-Western Railways. Apply to
Mr. TARRY, Golden Farmer, Frimley, Surrey.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
WHEAT MANURE, for autumn sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

ODAMS' MANURES,
FOR ALL CROPS.
Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 150,000 Acres of Land.
Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

GISHURST COMPOUND. — Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1*s.*, 3*s.*, and 10*s.* 6*d.* Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10*s.*; one year and under 12, £2 15*s.*
For further information apply to the office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

To Nurserymen and Others.—In Liquidation.

TO BE LET, with immediate possession, an old-established BUSINESS of a NURSERYMAN, SEEDSMAN, and FLORIST, situate at Thirsk, Yorkshire. The Stock in Trade, which is of a general character, to be taken at a valuation. There are several thousand feet of glass (belonging to the landlord), adapted for the growth of Grapes and Stove and Greenhouse Plants, with Propagating Houses and Cold Pits. The principal Houses are heated with hot-water. The Vines are now in a fruit-bearing state, and the Pits are well constructed for growing Cucumbers and Melons.
An energetic man will find this an excellent opportunity to establish himself in business. Thirsk is on the main line of the North-Eastern Railway, and distant from the Station 1 mile. For particulars, and order to view, apply to
Mr. THOMAS SCOTT, Trustee, or
Messrs. SWARBRECK AND RHODES { Solicitors, Thirsk.
Thirsk, Yorkshire, Dec. 21, 1874.

TO BE LET, THREE or FOUR ACRES of WALLED GARDEN, Cottage, and large Vinery.
Apply at Percy Cross House, Fulham, S.W.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards. Freehold, from 10*s.* to 25*s.* per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to
ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

SALE BY AUCTION.

Seeds and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, December 28, at half-past 12 o'Clock precisely, a Consignment of CONIFEROUS and other SEEDS from various parts; and a great variety of GLADIOLI, LILIUMS, and other BULBS.
On view the morning of Sale, and Catalogues had.

LILIUM AURATUM.—The annual importations from Japan have now arrived. The bulbs this season are in the finest condition possible. Price 12*s.*, 18*s.*, 30*s.*, and 42*s.* per dozen.
Mr. WILLIAM BULL, Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

J. SCOTT'S TREE and SHRUB CATALOGUE is replete with information about Trees, &c. It enumerates the names and gives descriptive notes of one of the best and well-grown Collections in the West of England. Parties intending to Plant should send for a copy, supplied gratis, as are also the SEED and BULB CATALOGUES; and SCOTT'S ORCHARDIST, at 5*s.* 6*d.*, free by post.
The Nurseries, Merriott, Somerset.

J. SCOTT'S FRUIT TREES cover many Acres, and form the most complete Collection in the World, consisting of 2200 sorts of Pears, 1400 sorts of Apples, and other kinds in proportion, amounting in the whole to over 5000 sorts. CATALOGUES, gratis, sent to all applications; or SCOTT'S ORCHARDIST, post free, for 5*s.* 6*d.*, the most complete work upon Fruit Trees in the English Language.
Merriott Nurseries, Somerset.

Home Grown Agricultural and Garden Seeds.

H. AND F. SHARPE are now prepared to make special offers to the Trade of their home-grown choice selected stocks of AGRICULTURAL and GARDEN SEEDS of this season's growth. They have been harvested in very fine condition, and are quoted low in price.
Seed Growing Establishment, Wisbech.

Pelargoniums for Early Blooming.

JAMES HOLDER can supply Extra Strong Plants of Six Distinct Varieties, at 6*s.*, 9*s.*, and 12*s.* per dozen. Also, a General Collection of 100 Plants, distinct sorts, for 40*s.* cash. Baskets and Packing included.
Crown Nursery, Reading.
N.B.—HUNT'S SUPERB SWEET WILLIAM SEED, 1*s.* per packet, post-free.

From Paris.—Gladioli Seedlings,
Per Colour, Mixed Seedlings, and Sorts to name.

LEVÊQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer, for the first time, SEEDLING GLADIOLI, in separate colours, beautiful, of flowers equal to the collection.
Mixed White, 12*s.* per 100; do. Red, 12*s.* per 100; do. Yellow, 24*s.* per 100; do. Rose, 12*s.* per 100.
Seedlings, mixed, of all colours, 8*s.* per 100, £3 4*s.* per 1000.
Their stock of named sorts is splendid and cheap.
See the LIST, sent free on application.

150,000 Gladiolus.

EUG. VERDIER, FILS AINÉ, NURSERYMAN, 72, Rue Dunois, Paris, having a most complete collection of the above, solicits the favour of orders for the same from Nurserymen, Seedsmen, and Florists—to whom he engages to send only good healthy bulbs, correctly named.
NEW VARIETIES for 1874-75; do. of 1873-74, and of 1872-73. The old varieties, Amabilis, Archimède, Aristote, Berthe Reabourdin, Canari, Clémence, Courantii fulgens, Don Juan, Edith, Eldorado, Fanny Rouget, Fulton, Imperatrice, Le Poussin, Lord Byron, Louis Van Houtte, Madame Coudere, Madame Monneret, Napoleon III., Penelope, Prince Imperial, Princess of Wales, &c., are to be obtained per 1000 of each sort.
Mixed, by separate colours, and very varied.

GLADIOLI—GLADIOLI.—Our AUTUMN CATALOGUE is now ready, and contains all M. Souchet's (and others) NEW VARIETIES for the present season. Also collections for Exhibition or general purposes, all at the most reasonable prices consistent with good bulbs. Delivered free in London, Edinburgh, or Glasgow. LISTS, as usual, sent to all Gardeners and Amateurs free, on application to Messrs. MERTENS AND CO., Walbrook House, Walbrook, London, E.C., or to ourselves, direct,
ANT. ROOZEN AND SON, Overveen, near Haarlem, Holland.

The Nurseries, Dumfries, N.B.

FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, ROSES, GREENHOUSE PLANTS, &c.
Our Stock of the above is one of the largest in Scotland. The Trees and Shrubs are of all ages and sizes, and are well adapted for extensive Planting, or giving immediate effect in the Formation and Improving of Ornamental Parks, Pleasure Grounds, &c.
Priced CATALOGUES free on application.
THOMAS KENNEDY AND CO., Seed and Nursery Establishment, Dumfries.

Picea nobilis.

THOMAS METHVEN AND SONS beg to announce that, having a very large and fine Stock of this, one of the hardiest and most ornamental of the Californian Conifers, raised from SEED saved from the original glacous-leaved variety, they are in a position to offer it in large quantities, on terms more favourable to purchasers than it has ever been offered since its introduction to this country: 1-yr. Seedlings, 1-yr. transplanted, about 3 inches high, 90*s.* per 1000; 1-yr. Seedlings, 2-yr. transplanted, 4 to 6 inches high, 120*s.* per 1000. Price to the Trade on application.
Leith Walk Nurseries, Edinburgh.—December 1.

WELLINGTONIA AUREA VARIEGATA.
Planted by H.R.H. the Prince of Wales at Sandringham.
Planted by H.R.H. the Princess of Wales at Blenheim.
Planted by H.R.H. the Duke of Edinburgh at the Vice-Royal Lodge.
Planted by H.E. the Earl Spencer at Althorpe.
And by the leading Noblemen in the United Kingdom.
Splendid plants, finely rooted, 5 feet high, and covered with Golden Variegation, at £5 5*s.*; smaller, £3 3*s.*, £2 2*s.*, and £1 1*s.*
CIRCULARS, with List of Prizes taken, and Testimonials received from the leading Coniferæ Growers of Europe, can be had on application to
R. HARTLAND, The Lough Nurseries, Cork.
November 26.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.
The ANNUAL GENERAL MEETING of the Members of this Society will be held at the BEDFORD HOTEL, Covent Garden, W.C., on THURSDAY, January 14, 1875, for the purpose of Receiving the Report of the Committee and the Accounts of the Institution for the present year, and Electing Officers for the Ensuing Year, and for the purpose of Electing Two Pensioners. The Chair will be taken at 6 o'Clock. The Ballot will Close at 8 o'Clock precisely.—By order,
December 18. EDW. R. CUTLER, Sec.
P.S.—The Voting Papers have all been sent out, any Member not having received one is requested to make immediate application.

IMPORTANT ANNOUNCEMENT.—In compliance with the wishes of the Council of the Royal Horticultural Society, JAMES CARTER AND CO. beg to announce that the CARTER CUP, value Fifty Guineas, with Seventy-five Guineas in other prizes, for the best Collection of Vegetables, will be competed for at the PROVINCIAL MEETING of the ROYAL HORTICULTURAL SOCIETY in 1875. This magnificent Cup to become the absolute property of the winner. For particulars apply to
CARTERS', The Royal Seedsmen, High Holborn, London.

TO BE SOLD, a few large VARIEGATED FOLIAGE PLANTS, including:—

Alocasia metallica,	Croton angustifolium,
„ macrorhiza variegata,	Maranta zebrina,
„ zebrina,	Dieffenbachia maculata,
Croton variegatum,	Sanchezia nobilis variegata,

also a few large FERNS.
Apply to the GARDENER, Aldershot Park, Hants.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
Priced Descriptive CATALOGUE, post free.
DICKSON AND ROBINSON, 23, Market Place, Manchester

NEW and RARE LILIES, AMARYLLIS, &c.—Our Consignments are now arriving, in excellent condition, comprising Lilium auratum, very large; L. eximeum, L. japonicum, L. Wilsonii, L. Krameri, L. tigrinum splendens, very large; Cypripedium japonicum, &c. A small Consignment of the rare and beautiful LILIUM NEILGHERRICUM has arrived. Our Peruvian Bulbs and Amaryllis have come over in splendid condition. CATALOGUES on application.
The New Plant and Bulb Company, Lion Walk, Colchester.

Vines, Vines, Vines.

VINES.—Fruiting and Planting Canes, strong, well-ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan; 2*s.* 6*d.* to 5*s.* each; a few extra strong canes, 6*s.* 6*d.*
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Forty Thousand Plants, from 3 to 10 and 12 feet high, of the finest Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.
Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

Remarkable Novelties.

AMYGDALUS ALBA AUREA-VARIEGATA, a splendid shrub, with grand foliage marked with broad bands of yellowish white; superior to the Acer Negundo variegata (see *Revue Horticole*, September 1, 1874). Price, strong plants, 28*s.* to 40*s.*
BETULA ALBA FOLIIS PURPUREIS, a magnificent shrub, of the most bewitching aspect. Price 12*s.* to 25*s.*
GLADIOLUS—NEW ROSES.
EUG. VERDIER, FILS AINÉ, Nurseryman, 72, Rue Dunois, Gare d'Ivry, Paris.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire, has to offer:—
100,000 LARCH, 2 to 3 feet, very strong, 30*s.* per 1000.
50,000 SPRUCE FIR, 1½ to 2½ ft., very strong, 25*s.* p. 1000.
50,000 SCOTCH FIR, 1½ to 2½ ft., very strong, 25*s.* p. 1000.
20,000 BLACK ITALIAN POPLAR, 2 to 4 ft., 25*s.* p. 1000.
BLACK AUSTRIAN PINES, three times transplanted, 2 to 3 feet, 20*s.* per 100.
The above are all very fine stout trees, being thinly planted. The prices are for cash, less 5 per cent. discount, and delivered free on the Railway.

SPRING-FLOWERING PLANTS.

	Per dozen.	Per 100.
PRIMROSE, Double Yellow	3*s.* 0*d.*	16*s.* 0*d.*
„ Double Lilac	3 0	16 0
„ „ White	3 0	30 0
„ Crimson-purple	5 0	
Other sorts as per Catalogue, to be had on application.		
DAISIES, of sorts	1 0	5 0
„ Aucuba-leaved	2 6	16 0
AUBRIETIA GRÆCA, the best of them all	2 0	10 0
ALYSSUM SAXATILE	1 6	8 0
BROMPTON STOCKS, strong	2 0	10 0
THYME, Golden	2 6	16 0
„ Silver	2 0	12 6
POLYANTHUS, of sorts	2*s.* to 3 0	8*s.* to 16 0

RODGER, McCLELLAND AND CO., 64, Hill

Notice to Subscribers.

THE GARDENERS' CHRONICLE may be had DIRECT from the OFFICE, on PAYMENT IN ADVANCE at the following rates, including Postage to any part of the United Kingdom :—

Three Months .. 5s. 11½d. | Six Months .. 11s. 11d.
Twelve Months .. £1 3s. 10d.

FOREIGN SUBSCRIPTION.

£1 6s. *for 12 months, including postage to—*

AUSTRALIA, BELGIUM | CANADA, FRANCE | JAMAICA, NEW ZEALAND | WEST INDIES, UNITED STATES

£1 10s. 4d. *for 12 months, including postage to—*

AUSTRIA, CHINA | HOLLAND, INDIA | PORTUGAL, PRUSSIA | SPAIN, SWITZERLAND

£1 14s. 8d. *for 12 months, including postage to—*

RUSSIA | ITALY | DENMARK

Post Office Orders to be made payable to WILLIAM RICHARDS, at the King Street Post Office.

Office, 41, Wellington Street, W.C.

THE

Gardeners' Chronicle.

SATURDAY, DECEMBER 26, 1874.

COMPARED with those immediately preceding THE YEAR now drawing to a close has been comparatively a quiet one, so far as horticulture is concerned. No very startling discovery has been made, and no very extraordinary new plant has made its appearance. Culturally speaking, the event of the year has been the production and exhibition of a bunch of Black Hamburgh Grapes weighing no less than 21 lb. 12 oz., and this is a feat of which Mr. HUNTER may well be proud.

The Royal Horticultural Society, under the new *régime*, has been doing its work quietly, and, it is asserted, satisfactorily, so far as the paying off of old liabilities is concerned. Sundry disquieting rumours, like the "little cloud," are indeed afloat, but it is to be hoped that the Society may ride harmless through the storm, should it break over it. The shows and meetings have been of fully average excellence, and they have been well attended. The absence, however, of a provincial exhibition is a distinct loss to horticulture, which it is to be earnestly hoped will not be permanent, and it is also to be hoped that the difficulties caused by the necessity, or supposed necessity, for a guarantee fund may be met, and that the next year may not be suffered to pass over without an attempt being made to revive so important and useful an exhibition. It is also to be hoped that the work of the Society at Chiswick, and its endeavours to promote the science of horticulture, as well as its practice, may be so extended as to remove the reproach that other countries, with far less opportunities, are doing far more than we are in a progressive direction. Provincial exhibitions of a different character from that above-named have been numerous and good, particularly those at Birmingham, Belfast, Manchester, Leeds, York, and others that might be mentioned.

The great International Exhibition at Florence was in all ways of great interest, and the Botanical Congress held in connection with it unusually successful. It is full time that we should be setting about the task, if we intend once again to show our Continental friends what we can do, both in the way of generous emulation, and equally generous hospitality. It seems very doubtful whether circumstances are favourable enough to induce the inauguration of another exhibition on a scale to equal that of 1866, which—splendid success that it was—was yet attended with such risks that the horticulturists may well be pardoned for exercising caution. It may, however, be quite practicable to organise something on a smaller scale—say something like the Ghent Quinquennial Exhibition, which will answer the purpose without incurring so great a risk.

A new society has been established in the shape of a Pelargonium Society, and which, if managed on a sufficiently comprehensive basis, may be of great service alike to practical and scientific horticulture.

An attempt is also being made to provide a centre of social intercourse for the general welfare of horticulture, by means of a Horticultural Club, on a different plan to any yet attempted. The thing is in itself so desirable, and is recognised as such by so many of the leading amateurs and professionals, that we trust the scheme may be vigorously pushed to a successful issue.

The crops of fruit and vegetables have, on the whole, been of fair average. The Potato disease, though not entirely absent, has often been much worse. The Hollyhock disease has, on the other hand, been all but universal, and there is a fear lest other Malvaceous plants may be affected, and especially Cotton. The Phylloxera has extended its ravages in France and other Continental countries, but it does not appear to have spread much in home vineries up to the present time.

Mr. M'NAB has raised a most interesting inquiry as to whether a change of climate has occurred in Scotland, and answers it in the affirmative. His conclusions have, however, not been allowed to pass unchallenged, and the subject evidently requires fuller corroboration, especially from the meteorologists, than it has yet had.

Much interest has been excited by the revival of an old statement, to the effect that some plants not only capture insects, but also dissolve, and, it is to be presumed, digest them. Many new facts have been brought to light in connection with this question. The electrical phenomena which accompany the movements of the Venus' Fly-trap have also been studied by Dr. SANDERSON, and compared to the similar phenomena in the animal kingdom.

The obituary list of the year, as usual, contains the names of many veterans and good servants of horticultural science, among whom we may mention the names of JOHN SALTER, GEORGE GLENNY, W. B. BOOTH, WILLIAM MASTERS, J. T. MOGGRIDGE, MARKHAM NESFIELD, Mrs. HOOKER, and D. NASH. Abroad horticulture has to lament the loss of Count JAUBERT and M. FÉE, and others less widely known.

We shall, hereafter, devote special articles to a comment on the new plants, fruits, and vegetables of the year, but we may cursorily allude to the hybrid Sarracenias obtained by Dr. MOORE and Mr. STEVENS.

Lastly, we may be pardoned for alluding to our own concerns. Some of our oldest and most valued friends shook their heads doubtfully at the elimination of the *Agricultural Gazette*, and the devotion of the increased space so gained entirely to matters more strictly horticultural. It may be pleasant to them, as it is to us, to know that the change has been thoroughly successful, and has proved acceptable not only to the vast majority of our former friends but has been the means of largely adding to our subscribers. That our efforts to provide an increase and greater variety of subject-matter and a larger supply of illustrations have proved successful is a matter on which we may fairly congratulate ourselves and our readers. So far as illustrations are concerned we have studied originality, interest, and value more than mere pictorial effect. We believe that on no former occasion have so many illustrations of such permanent value been brought together in like compass. The cuts representing vegetation in foreign climes have been no fancy sketches but original illustrations taken from Nature by botanical artists or direct transcripts from photographs. In this manner have been brought together a series of illustrations, not only of interest to gardeners as showing the conditions under which plants grow naturally, but also such as will be of permanent value to those interested in the geographical distribution of plants.

Our representations of new garden plants have been selected with a view to furnish, so far as the limits of the wood engraver's art will permit, accurate illustrations of plants of the greatest cultural or botanic interest. We may also allude to the copiously illustrated Special Supplements of Hatfield and Windsor, because they have been so favourably received by our subscribers. We allude to these matters merely to justify the course we took at the beginning of the year, and as an earnest to our subscribers that we shall do our best to consult their interests in the future as we have done in the past.

—— AT a public meeting of the MODEL HOUSES Association, which has been formed for the improvement of the dwellings of the labouring classes, and for the diffusion of sanitary knowledge, held at the Seymour Hall, Portman Square, a few days ago, under the presidency of the Earl of ABERDEEN, the front of the platform had an attractive appearance given it by the employment of a fine group of plants contributed and arranged by the Pine-apple Place Nursery Company. The presence of the plants afforded the noble Chairman and other speakers opportunities for enforcing the necessity of promoting a taste for the growth of plants among the denizens of popular districts in London and other large cities, and bearing testimony to the great value of those societies whose object it is to encourage the growth of window plants in the City, Westminster, and elsewhere. It was contended by one speaker that the creation of a taste for the culture of plants did as much as anything to neutralise the dreaded influences of the public-house, while, wherever the desire to attempt plant cultivation was aroused to action, it invariably resulted in a marked improvement in the condition of the home. Surely such testimonies ought to encourage the promoters of window gardening societies.

—— The beautiful turquoise-blue MYOSOTIS DISSITIFLORA, unquestionably the best of all the early-flowering Forget-me-nots, is already rapidly developing its buds in pots under glass without artificial heat. If protected from the rain and kept moderately dry, it seems to thrive as well as could be desired without the necessity for artificial heat. The application of a little heat would get it into flower by Christmas, or earlier. It can be grown from seed, or from division of the old plants, but the former mode is much the best; the plants are certain to do well, whereas divided plants are somewhat uncertain. The seed should be sown as soon as ripe, and the young seedlings pricked off into shallow boxes when large enough, finally potted into 48-sized pots in September, and plunged in ashes in the open ground till the beginning of December, when they can be sheltered in a cold greenhouse in pots to flower. The lovely blue colour of the flowering sprays, always acceptable, appears to be ten times more so about the opening of the new year, when so few flowers of this particular hue of colour are in blossom. Fancy the flowers multiplied ten times, and with the necessary appendages of a Dendrobe, appearing as a new species of that prolific genus. A rich blue Dendrobium would indeed be a treasure.

—— In reference to SOLDIERS' GARDENS, we learn from *Allen's Indian Mail* that our soldiers in India are gradually developing a healthy and profitable taste for gardening under the spur applied to them by the higher powers. In his remarks on the garden fund report for last year, Lord NAPIER notes with pleasure the increased number of soldiers who devote their leisure time to regimental gardens. In 1872 the number thus engaged was 572; in 1873 it was 1185, or more than double the figures of the preceding year. This increase is held to afford satisfactory evidence of the interest taken in these gardens, which appear in many instances to have fairly answered the purpose of their institution, supplying plenty of fresh vegetables to the commissariat for issue to the troops, and affording an agreeable lounge for the soldiers and their families. Complaints are still made of the wretched quality of much of the seed supplied, but this, it is hoped, may hereafter be remedied.

—— M. DUCHARTRE, as we have already had occasion to mention, has lately published in the *Journal de la Société Centrale d'Horticulture de France*, an account of the GERMINATION of various SPECIES of LILIUM, and of the production of their bulbs. There is, it appears, considerable diversity in the case of different species, not only in the mode of formation of the bulb but also in the length of time required for germination even in seeds from the same seed-pod. Thus in the case of seeds of Lilium giganteum, sown in winter at the Luxembourg, the majority came up in the following spring, some in summer, and others not till autumn. In other cases as long an interval as eighteen months elapsed, while in some other species germination has not been observed till the third year after sowing. Similar irregularities have been observed on this side of the Channel. In the case of Lilium giganteum the first thing observed is the elongation of the embryo, especially of the cotyledon. In this stage the embryo consists of a small conical radicle, surmounted by a minute, slender, cylindrical tigellum, bearing at its summit the now extremely minute gemmule, and the long linear cotyledon, which is provided with a long sheath-like stalk. The base of this sheath gradually assumes a succulent and dilated form, and at the same time the gemmule developes two small scale-leaves. Here, then, at the end of the first stage of germination we have the bulb, though very minute, yet perfectly formed, and consisting of the upper portion of the tigellum, the thickened base of the cotyledon, and the two leaf-scales of the gemmule. The original radicle soon disappears, and to supply its place secondary rootlets are formed in two series, one at the base of the tigellum, the other at the top of the latter organ, just where the incipient bulb is placed. The first series are transitory, but the second divide and subdivide, and constitute the only roots the plant possesses in the second stage of its germination. In the second year the seedling is found to have lost its original radicle, its tigellum, the upper part of the cotyledon, and the first series of adventitious roots; while, on the other hand, the bulb is more distinctly defined, and the first perfect heart-shaped leaf is formed. In succeeding years other leaves are formed, and in the sixth year the flowering stem developed from the central stem; as a consequence of which, after flowering, the original plant dies, not, however, before provision has been made for reproduction in the shape of a number of axillary bulbils. M. DUCHARTRE contrasts this mode of germination with that in L. cordifolium, formerly considered as specifically identical with L. giganteum, by Mr. BAKER. M. DUCHARTRE, however, points out certain differences in the mode of germination, and indeed in other particulars, while Mr. BAKER himself, in his most recent revision, has acknowledged the distinctness of the two species. As to the germination, the main distinction consists in the circumstance that in L. cordifolium the radicle, instead of speedily disappearing, persists much longer, increases in size, and produces many branches. The adventitious roots are by consequence much less developed than in L. giganteum at the same stage. The tigellum is scarcely at all developed. We have no space to follow M. DUCHARTRE further in his researches. Suffice it to say, that of the other species of Lily of which he has observed the mode of germination, some follow the fashion of L. giganteum, others of L. cordifolium. The diversity in the mode of germination in different species should be a lesson against hasty generalisation.

—— In view of the anticipated diminution in the supply of ESPARTO FOR PAPER MAKING, owing to the destruction of the plants in collecting the materials for European consumption, the following notes from Mr. Vice-Consul DUPUIS' report on the trade and commerce of Susa will be of some interest. The grass appears to be as common to the range of the Atlas as it is to the mountains of Spain, where, as is natural to suppose, there can be no very great diversity of climate or soil. It is found at the three points where the range nears the coast, at Susa on its most eastern slopes, at Oran in the Lesser Atlas or Rif coast, and at the most western extremity on the Atlantic, though in smaller quantities. As many as 2000 tons were shipped from Mogador in 1872, and the supply from the interior of Morocco would be as great if communication were easier. It is stated that immense quantities of the grass exist in the interior, but at a distance of six or eight days' journey from the coast, where it is collected by the Arabs when not engaged on their lands and brought to the towns. During the past year the price of Esparto rose to £6 10*s.* per ton, free on board. It is used in the country for making cords, mats, baskets, &c., and was shipped to France and Italy for similar purposes long before its use as a paper material became known in England. So important is it as a crop that it is stated to have saved the natives from utter starvation during the failure of the Olive and other crops. It would, therefore, be to the interest of the country to encourage the trade in this article, the cost of which is so slight. "It is self-supplying, and indebted to no culture; as fast as the blades are pulled up they grow again. This is done by twisting the grass round a piece of stick, and wrenching it up; it is then bound in bundles with a few extra blades. It is the conveyance to the coast at seasons when animals are scarce which raises its price. If the continuance of the demand now made could be relied upon, other means for bringing it would perhaps suggest themselves to the more enterprising European." Five thousand tons were exported to Great Britain in 1872, which increased to 6000 tons during the past year. The short and thin grass is chiefly sent to France, and the long and thick to Italy. As it is an article of considerable bulk greater facilities are needed by the collectors on the coast for packing and storing it. The only improvement which has taken place of late is the manner in which the bales are pressed, and the use of iron bands instead of cords for securing them. "More care is likewise taken in stacking it, experience having taught how liable it is to perish in the wet season, exposed as it is to the open air for want of proper sheds and stores. There is a proposition for renting a piece of ground from the Government, but the concession has not yet been made."

—— No little scepticism may well be indulged in as to Mr. MEEHAN'S alleged case of TRANSMUTATION of WHEAT TO "CHESS" (Bromus), even when brought before so learned a body as the Academy of Natural Sciences of Philadelphia. Such cases have too often been exposed for the old birds of this country to be taken in by chaff of this description. The real explanation will, we suspect, be found to be analogous to that of the case figured in an early volume of the *Gardeners' Chronicle*, where a stalk of Oat had entwined itself around the rachis of a Wheat-ear, and was so thoroughly concealed that not until all the chaff of the Wheat was removed could the intruder be made visible.

FIG. 163.

THE COMMON HOLLY AND ITS VARIETIES.—V.

(*Continued from p.* 752.)

A. LEAVES GREEN (*concluded*).

§§ Spines marginal, few wanting or inconstant.
† Leaves plane, or nearly so.

48. I. A. MAGNIFICA, Fisher; heterophylla major, Lawson.—A truly magnificent Holly, the leaves being sometimes as much as 5 inches long. It is one of the purple-barked forms, and of strong free growth. The leaves vary from ovate-lanceolate to oblong ovate, and are of thick texture, and of a shining dark green colour, 4 inches to 5 inches long, and from 2 inches to 2¼ inches broad, the margin being either entire or with a few erratic stoutish wavy spines. It comes very near to camelliæfolia, but appears to develope fewer spines. Both these are evidently large-leaved, almost spineless forms of the common Holly, and quite different in character from the few-spined varieties allied to maderensis.

49. I. A. CAMELLIÆFOLIA, Fisher, Smith (fig. 164 B).—As already mentioned this variety comes very near to magnifica, but it appears to differ in its more elliptic outline, and in the greater development of marginal spines, which are not, however, constant, some leaves being entirely spineless. The bark of the young wood is purple. The leaves are oblong or elliptic, acuminate, of a dark shining green colour, from 3½ inches to 5 inches long, and 1½ inch to 2 inches across, the margin either smooth and spineless throughout, or with an erratic spine or two, or with the lower part entire and the upper with some four or five well-developed undulating spines on each side, the spiny leaves being sufficiently few to permit of the variety falling into the present category. The rib of the leaf is tinged with purple beneath. It is a grand variety, and should be in every collection.

50. I. A. LAURIFOLIA, Waterer, Lawson, Smith, Fisher, W. Paul; old smooth-leaved, Fisher.—A well-marked and well-known variety, one of the commonest and best of the entire-leaved type, but, like most others, varying a good deal in the actual armature of selected leaves. The plant is of erect tall growth, but rather open and irregular, a fault which, however, can be remedied by the use of the knife. The bark is dark purple. The leaves also are of a dark green hue, and very glossy; they vary from about 2 inches to 3 inches in length, and in form from ovate to oblong-lanceolate or elliptic, and they are usually quite entire, rarely with from one to six marginal spines, and occasionally but very rarely spiny throughout, the surface being either flat or slightly undulated.

51. I. A. LAURIFOLIA FRUCTU-LUTEO; yellow-berried laurifolia, Waterer.—This variety differs from the preceding mainly in the colour of its berries, which are yellow, instead of red, and in the green bark of its young shoots.

52. I. A. SENESCENS, Smith, W. Paul; nana, Lawson.—Very much like laurifolia, but with green bark, and smaller ovate acuminate or elliptic leaves, about 2 inches long and 1 inch broad, bright green, entire or with a few erratic spines, rarely with many, which are if present somewhat divaricate.

53. I. A. INTEGRIFOLIA, Lawson; senescens, Masters & Kinmont; rotundifolia, Lawson (fig. 164 E).—In this variety the bark is purple, and the leaves ovate, entire, thick in texture, with a somewhat thickened margin, dark green, 2 inches long and 1 inch broad, having a slight twist, the point being sometimes acute, as in the annexed figure, sometimes bluntly rounded. It has something the character of scotica, but the leaves are not so decidedly rounded or twisted, and they are also somewhat larger. The Lawson Company's rotundifolia does not appear to present any tangible difference from the variety sent as integrifolia.

54. I. A. SCOTICA, Waterer, W. Paul; Dahoon, Smith, Fisher (fig. 164 A).—A very distinct and well-marked Holly, and very effective in plantations, being of free erect growth, and densely clothed with very dark green glossy leaves. The bark of the young growth is of a dark purple colour. The leaves are oblong-obovate, bluntish, rounded at the apex, 1½ inch to 2 inches long, and ¾ inch to 1 inch broad, leathery, the margins entire thickened wavy, the apex usually blunt, but occasionally with a short spine, or with a cup-like thickening, and the margin moreover bears an occasional but very rare erratic spine.

55. I. A. TRAPEZIFORMIS, Smith (fig. 164 D).—The affinity of this Holly is with montrosa (29) and latispina (56), coming nearer to the latter, but having smaller leaves with fewer and less grotesquely placed spines. The bark of the young wood is purple. The leaves have a quadrate or squarish limb, bearing a strongly developed terminal spine forming an acuminate point, which is more or less recurved, and generally inclined to one side, the obliquity thus produced having apparently suggested the name; they are about 2 inches in length, by 1 inch in breadth, of a very deep green colour, and have a wavy margin with occasionally one or two erratic divaricate spines. We have received the same variety from Ochtertyre.

56. I. A. LATISPINA, Waterer, Smith, W. Paul, Fisher (fig. 164 F).—A grand and most effective Holly, being of free growth with a fine pyramidal habit. The bark of the young shoots is dark purple. The leaves vary from about 2 inches to 2½ inches long, and from 1 inch to 1½ inch broad; they are somewhat quadrate in their general outline, with a very long acuminate spiny point which is generally decurved, and a few (about two or three) marginal spines, which are broad and elongated, commonly deflexed but sometimes erect, occasionally hooked backwards with a rounded shoulder, and altogether so various in form and so misshapen as to have quite a grotesque appearance. The colour is a very deep glossy green, and the texture is leathery, with a thickened margin, while the whole blade of the leaf is in some instances slightly twisted. Sometimes the margin is merely wavy without spines, save the long terminal one, and the quadrate general outline of the leaf is then more strongly marked.

†† Leaves much twisted spirally.

57. I. A. TORTUOSA, Waterer; crispa, Lawson; recurva, W. Paul (fig. 164 C).—This is known in cultivation as the Screw Holly, and is a very well marked and characteristic sort. It is one of the purple-barked series, and remarkably dense in its growth and foliage. The leaves are about 2 inches in length, and nearly an inch in breadth, the blade once spirally twisted, the edge being in addition more or less revolute and marginate, but very rarely spiny. They have usually a well developed terminal spine, which is sometimes considerably elongated, and generally decurved, as shown in the figure. The surface has a slight tendency to become rugose, but not in so marked a degree as in the next variety.

58. I. A. MARGINATA, Loudon; contorta, Smith; recurva, Fisher (fig. 164 G).—A fine, well-marked Holly, with the bark of the young shoots purple, and

FIG. 164.—ILEX AQUIFOLIUM, VARS.

A, scotica; B, camelliæfolia; C, tortuosa; D, trapeziformis; E, integrifolia; F, latispina; G, marginata.

the leaves blunt-ended and spirally twisted; having, moreover, a certain degree of rugosity or asperity on the upper surface, as if it were trying to throw up the superficial spines characteristic of the Hedgehog Holly. As in so many other varieties, the leaves appear to be of two kinds, the extremes of which are represented by our figs. G 1 and G 2, and which are connected by intermediate states; the fig. G 1 represents the entire-leaved form, which differs very little from senescens and scotica, except in being larger, and in the more decided twist of the leaf, the apex of which is either obtuse, or bears a short spine; in other cases the margin becomes angularly scracely spiny-toothed, the majority being of this character, with here and there a tooth more fully developed, and forming an ordinary spine as in G 2. The chief peculiarity of this variety is the roughness of the upper surface of the leaf, suggestive of the first step towards "hedgehogism." The spiral twisting of the leaf-blade is another characteristic feature.

§§§ Spines both superficial and marginal.

59. I. A. FEROX, Waterer, Fisher, W. Paul, Lawson, Masters; echinatum of some gardens.—This variety, in consequence of the prickly surface of its convex leaves, is commonly called the Hedgehog Holly. The bark of the young shoots is purple. The leaves are ovate-oblong or narrowly ovate, 2 inches to 2½ inches long, much acuminate, with strongly developed divaricate marginal spines, the surface, which is more or less convex, being echinate or furnished with stiff erect bristles, whence the name of Hedgehog which is applied to it. The acuminately spiny apex and the convex echinately spiny surface of the leaves of this variety are its chief distinguishing features. It grows to a considerable size. At Ochtertyre there is a tree of it 20 feet high. *T. Moore.*

P.S. At p. 752, No. 36, by oversight, bears the name of HYBRIDA, which had been already applied to No. 17, p. 520. The name of VIRENS should be substituted in the case of No. 36.

Home Correspondence.

Heating a Conservatory.—We all make mistakes, few or many, but I believe that there would be fewer if they were honestly confessed for the benefit of others. A few years since I built a house, and thinking that the conservatory flue might be easily arranged in a new erection, I built a chimney for it in a stack with those for the drawing-room and for the spare bed-room over it. All seemed to answer admirably until one still frosty night there was an unpleasant smell in the house, and upon entering the spare bed-room it was found to be filled with a foul vapour sufficient to have stifled any person who might have occupied the room. The cause was obvious; the drawing-room fire obtained part of its supply of air by various apertures from the bed-room above; this caused a draught down the bed-room chimney, into which was drawn the vapour from the

slow combustion of the stove. The error was this; the architect, for the symmetry of the fireplace, had placed the bed-room chimney in the centre; the vapour, therefore, after gaining the open air immediately descended the adjoining aperture. Had the drawing-room chimney been in the middle its strong current would have separated the other two, and the evil would have been avoided. What we have since suffered I will not inflict upon your readers, but should any of them be meditating a similar arrangement I trust that they may take warning from *H. K., Sussex.*

The Doum Palm.—In a recent article upon the Libyan Desert, p. 743, the writer seems in doubt whether the fruit of the Doum Palm is worth carrying from the place of its growth. I remember many years ago seeing at Jaffa a coasting vessel laden with a cargo of hard Palm nuts, on its way to Jerusalem, to be manufactured into rosaries; these I understood to be the produce of the Palm in question, and evidently formed a considerable article of commerce. *H. K.*

Prize Gardening.—By all means let us give due weight to a good house of Grapes; but when the judges are in the way I would suggest that they examine and judge, not the vineries alone, but the whole garden establishment. It might be worth the expenditure in the cause of horticulture to set the necessary machinery in motion to point out the best managed garden in a certain number of counties. Were a garden competition held in connection with the provincial show of the Royal Horticultural Society, it would be both interesting and instructive; and most gardeners while at the show would endeavour to visit the prize gardens as being the best in the district, and where a bit of good gardening was to be seen. I believe a prize garden competition would meet with the approval and support of most employers, and I think I may venture to say most gardeners too. Were a good prize got up—say, from £50 to £100, there would be no lack of competitors. There are no insuperable difficulties in the way of carrying out such a competition were the Royal Horticultural Society to take the matter up, as the Royal Agricultural Society of England have for some years worked a prize farm competition for the benefit of farmers and the advancement of good farming. *D. Melville, Dunrobin Gardens.*

Decorations in the Household.—The excellent illustration which appears on your page 773 will doubtless induce some of your readers to attempt something of a similar kind at this festive season in their own rooms. It may not, therefore, be unacceptable if I jot down a few of the thoughts that occurred to me while I was examining it and reading your description of it. First let me remark that the arrangement must have looked much better than the engraving represents it to be, inasmuch as the black, buff, and red colours of the Dado gave a warmth and solidity to the base of the walls which prevented the festoons on the upper parts from appearing so massive as they seem to be in the illustration. I have also no doubt that the skirting was either dark chocolate or black, which, by affording still more depth to the general colouring below, to the same extent lightened the effect of the decorations above. (It will, I hope, be understood that in making these remarks I am not saying anything against the engraving, since that could not possibly convey colour effects.) Then again the festoons were set off by a grey paper behind them, and nothing so well displays arrangements of this kind as a pale neutral tint without any pattern on it. I desire to call particular attention to the two circumstances of the dark Dado and the light walls, both being of neutral colours, as being absolutely essential to decorations of this kind being effective, and to caution those who attempt such arrangements upon a bright-coloured or figured background, such as most wall-papers present, that they will be liable to great disappointment in the resulting effect. At the risk of being charged with hypercriticism, I venture to say that the arrangement of plants upon the mantelpiece might have been improved upon. By placing these plants tall enough to reach the festooning round the upper part of the walls, it seems to me to make the ceiling look lower than it is—or, as people say, to pull the ceiling down upon you; whereas, if the central plant of Acacia had not quite reached up to the frame of the word "Welcome," and if the two other Acacias had been only half their depicted height, a pyramidal grouping would have appeared there which would have carried the eye up to the upper decorations, and given apparent height to the room. The plants of Chinese Primroses must surely have been a mistake; their gloomy foliage must have ill-assorted with the cheerful greens of the Holly, Abutilons and Acacias; and whether their blooms were pink or white they could scarcely have looked well amongst decorations in which red and scarlet were so much used. Four small plants of Solanum Capsicastrum with ripe berries would have looked much better. Your description of the non-floral portion of the decorations mentions "cloth" being used, of red, blue, and gold colours. This was more probably paper with a cloth-like surface on one side of it, which may be procured of almost all colours. I hope you will shortly give some illustrations of decorations suitable for drawing-rooms on festive occasions, for it is not every one who luxuriates in a billiard-room. *W. T. P.*

The Potato Disease and the Royal Agricultural Society.—In reply to Mr. Carruthers' comment on some incidental observations of mine on this subject at a recent meeting of the Royal Horticultural Society, I may say that had I been desirous of alluding to the general history of the Potato disease, or had I spoken with more premeditation, I should doubtless have recalled the fact quite familiar to me that other observers besides Mr. Berkeley had worked in the same field before Mr. Berkeley gave us that *resumé* of the subject which has become classical. The omission, however, does not in my opinion at all invalidate the general spirit and tenour of my remarks. It seemed to me then, as it seems to me now, that an unfortunate slight was passed on the botanist who, of all others in this country, was the one most competent to give advice on the subject, and through him on the Society which published the result of his labours. I am willing to believe that the omission was accidental. That it was unfortunate is, I think, sufficiently proved by the abortive results (predicted by scientific and practical men alike) which have accrued from the prize essay scheme and the recent trial of alleged disease-resisting Potatos—results which, I submit, justify anything I may have said. *Maxwell T. Masters.*

Some New Roses: What are their Merits?—Will any of your correspondents tell me what is their experience of the Rose "Cheshunt Hybrid"? I bought a plant of it in the early part of last year and budded three stocks with it, all of which, as well as the original plant, have grown well; but not a single flower-bud has appeared upon any one of these plants. Is, therefore, the character of the "Cheshunt Hybrid" that of a very shy bloomer?—and, if so, is it worth growing at all? I shall be glad to hear what other growers think of this Rose. Another of the expensive Roses—Madame Lacharme—appears to me to be absolutely worthless, so far as my experience goes. Of another new Rose—the Perle de Lyon—I had several fine plants against a south wall, which gave about ten fine buds and fine foliage; but not a single one of the buds opened, and this was most disappointing after all the trouble and expense incurred about them. One plant in an orchard-house opened two blossoms, but those flowers were of only second or even third-rate quality as regards shape. So that I want to know whether this Perle de Lyon is considered to be worth growing or not. *Old Subscriber.*

The Gardeners' Royal Benevolent Institution.—Kindly permit me to invite all the friends of the late John Scobie, of Holland House, Kensington, and all my own friends, to vote on this occasion for his widow. I shall be thankful to receive proxies, and grateful to those also who will return their papers direct to the office filled up for Mrs. John Scobie. *D. T. Fish, Hardwicke, Bury St. Edmunds, Suffolk.*

—— The voting-papers for the January election I have just received, and learn therefrom that three pensioners will be put on the list without election; this leaves seven other candidates for two vacancies. Five of these are non-subscribers, one a subscriber for seven years, the other for three years. Respecting the two last, I write for information. Is it right that they, being subscribers (although not to the full extent of the time), should be placed on a level with, and put to the same trouble and expense as those who have never subscribed a farthing? In my opinion they ought not to be so placed. I know nothing of either of the seven candidates—I am, therefore, not interested in either; but in the interest of justice, the two subscribers, I think, should be first thought of. Gardeners have been blamed and called improvident for not subscribing, and I think this is not the way to encourage them to do so. *A Subscriber to the Funds.*

Fruiting of Stephanotis floribunda.—Seeing at p. 785 that it is rather unusual for this plant to fruit, allow me to mention that on entering upon my present duties last March I found a plant in the stove with three fruits on it which became ripe about July and split open, but only one of them contained good seed. I sowed three dozen of the seeds in a 6-inch pot, placed it in a Cucumber frame, where they soon germinated. I potted them off when large enough, and I have now thirty-four healthy little plants. *Joseph Carter, Arlington Court, Barnstaple, Devon.*

Flower Shows.—When I read my letter under the above heading in last week's *Gardeners' Chronicle*, it occurred to me that the words in brackets ("or buying"), referring to buying plants for exhibition, would, in the absence of your editorial signature (which was omitted) be considered as emanating from me, whereas the reverse is the fact. They were your own, not mine [As our readers from long custom would understand]. Kindly set this right next week by publishing this letter. With reference to Mr. Croucher's attack upon me, suffice it to dismiss that most immaculate gardener with the remark that I have beaten him in every competition hitherto for Mr. Bull's cups; that the disparaging article written last year in the *Gardeners' Chronicle* about the plants I exhibited was written by him [Will Mr. Shuttleworth give us the reference to this article—we know of none written by Mr. Croucher]; that in the interval between South Kensington and Bath he had fortified himself with several additional plants, and that, being defeated again, his behaviour in the exhibition tent was so unseemly that he got a severe reprimand from Mr. Parker, of Tooting, one of the judges, whom, together with his colleagues, he attacked the moment the winning card was placed on my collection. And this is the man, forsooth, who now attacks my horticultural morality—and this man is tolerated as a judge at our flower shows. Truly it is time for somebody to stir. *T. M. Shuttleworth, Howick House, Preston, Dec. 21.*

Objections to Dyed Plants.—The seed and fruit shops are at present gay with dried flowers and grasses from the Continent, the latter dyed of every beautiful colour, but utterly untrue to Nature—and I am sure the practice is an unwholesome one, pandering to a false, meretricious taste, and converting even natural objects into shams, which is allowed to be one of the prevailing and worst characteristics of the present day, not confined to dyed grasses alone. Scientific people, and the possessors of country places and gardens, would never dream of buying or using these make-believe bunches; but dwellers in towns, who know no better about natural objects or what is called good taste, might come to take for granted that "quaking grass," &c., although faded drab and brown in this country, grows in foreign countries blue, red, and purple, or, what is much worse, that man can improve by such puerile arts the works of Nature as created by God. How jealous are we of meddling with man's creations. Who now-a-days would presume to patch up and improve the Temples at Thebes, the Coloseum at Rome, restore the Elgin marbles or torso in the Vatican, finish up Raphael's cartoon sketches, or complete the MS. left by a grand master-mind in music or poetry? Such is but right and fitting respect, due to the artist's greatest works, but why should there be less reverence paid to the works of the great Creator? I may be thought to carry such a view to a ridiculous extreme—a trifling bunch of dyed grass can do no one any harm; but I hold that nothing is a trifle in regard to the truth of Nature where the works of creation are concerned, and it is a pity to foster such a false taste in the multitude. *F. J. Hope, Wardie Lodge, Edinburgh, December.* [We entirely concur in the spirit of our correspondent's remarks. EDS.]

The Sanitary Condition of Villages.—I have been reading with considerable interest the very practical remarks on sanitary matters, commencing at p. 717, and entirely endorse the remark that, "in relation to sanitary matters we are doubtless far behind most of the nations of antiquity, for the records and ruins alike of such great people as the Greeks, Romans, Egyptians, and Jews attest the care taken to provide for cleanliness, and to promote the health of the people." I flatter myself that I have read the New Testament as carefully as a good many people, but I have never yet met with the clause "Cleanliness is next to godliness." I think it would interest very many of your readers besides myself if you could give us chapter and verse for the quotation. *William Chitty.* [Me believe that the quotation, "Cleanliness is next to godliness," is taken from one of John Wesley's sermons. EDS.]

Solanum Capsicastrum.—In answer to "W. R.," p. 753, I beg to say that our plants are seedlings of four or five years' growth. We find them invaluable for winter decoration in our large conservatory; they are loaded with their beautiful orange-scarlet berries for at least five months of the year, and that at a time when they are of much service—from October to March. We manage them as seedlings very much in the same way as Mr. Ward does his (*Gardeners' Chronicle*, p. 720), but always keep them in pots, and comparatively small ones for the size of plant. About April all the berries are taken from the plants; they are then pruned in a little, all the weak shoots taken out, and the plants put into a house in which we have Azaleas and Camellias making their growth, keeping them close and moist till they begin to make a start. We then turn them out of their pots, reduce the mass of roots, and repot them again in the same size pots, returning them again to a growing house, till the pots are well filled with roots and they have made some growth. If larger specimens than you already have are wanted give them another small shift, and place them in a growing house again for a short time, till the roots get well hold of the fresh soil. We then gradually give them more air, and about June or July stand them outside where they get

plenty of sun: they will keep growing and flowering, and will set every berry. As the pots fill with roots, give manure-water two or three times a week, place them into the conservatory about the last week in September, and allow them to remain all the winter. They can be grown either as bushes, pyramids, or standards: we grow most of ours as standards—I find them the most useful. They have a very pendulous habit when loaded with berries, and show off, to my mind, better this way than any other. I find these plants are much benefited by an occasional dose of Standen's Manure, as are also other Solanaceous plants in a marked degree. We treat Habrothamnus elegans in a very similar way, and find it very valuable for winter decoration. *W. B. Latham, Botanic Gardens, Birmingham.*

The Pomona Palace Show.—Mr. Goodacre feels surprised at the withholding of the 1st prize in the class for ten dishes of fruit, and asks the judges what more could be expected for the first week in December, and whether the prize was not well contested? First, then, many a person reading Mr. Goodacre's account of the collection he exhibited would be inclined to think that he had not been fairly dealt with, but allow me to tell him (as one of the judges) that my opinion of his collection of fruit was very different to the one he has himself laid before the readers of the *Gardeners' Chronicle;* and as I have been a successful exhibitor and fruit grower for more than twenty years I feel persuaded that I know good fruit from inferior. As to the prize—a £10 prize—being well contested for the first week in December, I differ from him, and think that it was a disgrace to the fruit growers to let such a prize slip through for want of better competition. We considered it our duty (in accordance with the rules of the schedule) to withhold the 1st prize. Why should inferior fruit be encouraged at our exhibitions? I say not at all. In the next class, of six dishes, the fruit was everything that could be wished for, both in size, quality, and competition, as also in the other classes—even Black Hamburghs were in as good condition as if it had only been midsummer. It would be a very easy matter for judges if they had nothing but size to consider in fruit judging. I always look at the matter as if the fruit was on the dessert-table ready to eat—not what it has been, nor yet what it is to be; and that was the reason why some of the large bunches of Grapes had to stand behind the smaller—because these were in better condition. I may add that I coincide with Mr. Shuttleworth, that if the rules were more rigidly enforced it would be better for the managers, better for the judges, and better for exhibitors generally. *James Smith, The Gardens, Waterdale, St. Helens.*

—— As one of the judges at the above show, I feel bound to reply to Mr. Goodacre's letter in your issue of December 12. He says the prize was well contested, and good collections were staged from various parts of the country. The fact is, four collections only were staged, two from England, one from Ireland, and one from Jersey. I copy from my pocket-book notes I made on Mr. Goodacre's collection, and will leave your readers to judge for themselves if the collection really deserved a prize of £10. One Queen Pine, about 3 lb., badly swollen, the pips being very small; one Pernambuco Pine, probably 4 lb., in bad condition, both the fruit and top being much disfigured; two bunches of Alicante, about 2½ lb. each, good in colour and bloom, but uneven in berry; two bunches of Muscat of Alexandria, about 2 lb. each, fair in size of berry, but rather shrunk and of bad colour; two West's St. Peters, about 2½ lb. each, small and uneven in berry; two poor Mrs. Pince, the bunches very unsymmetrical, and very bad in colour; one dish Glou Morceau Pears, small, and green-looking; one dish Golden Pearmain Apples, fair; one Duke of Cornwall and one Elvaston Late Melon. The judges did not cut the Melons, but were well satisfied that they were anything but what Mr. Goodacre represents. He asks, what more could be expected for the first week in December? I have seen very much better collections of twelve varieties exhibited at the same time of the year, and that too for a prize of £3. To show how unreasonable some exhibitors are, I may mention that out of the four competitors, three of them thought they ought to have been put first. *John Potts, Manley Hall.*

—— As one of three judges who were called in to decide upon the verdict of Messrs. Smith and Potts—which verdict we unanimously confirmed—I cannot allow Mr. Goodacre's remarks to pass without saying that I demur to them altogether. It would be useless now to argue about the weight of his Jamaica Pine, or the fine flavour of his Melons, but there are grounds for reasonable doubt in both cases, and I think no less so as to there having been general dissatisfaction among the exhibitors. I can only say that I never heard so few complaints at any large show where the competition was as keen as it was in most classes at the Pomona, with the exception of the one for ten dishes of fruit. *F. Harrison, Knowsley.*

—— There must be few who did not share surprise at the judging on this occasion, and in particular at Mr. Goodacre's collection of fruit having only a 2d prize. Many gardeners considered the Elvaston collection, taking the time of year into consideration, well worthy of a 1st prize. If an extraordinary high standard of quality is once taken by the judges, they should show it through the judging by all means; but who could understand six splendid home-grown Black Jamaica Pines being 2d, and six Cayennes of foreign growth being placed 1st? Why not have awarded the medal placed at the disposal of the fruit judges to the latter, if so good, as it appears nothing of English growth was good enough to gain the medal—not even the Grapes, although some of our well-known Grape growers exhibiting in their well-known style? *W. S.* [The suggestion that the judges should be "kept away at staging time," embodies a most unworthy insinuation. We think Mr. Goodacre will do well to submit without complaint to the decision of the judges. EDS.]

Unpopular Grapes.—Although such Grapes as Raisin de Calabre and White Nice will not compare with others for flavour, they are fairly good when grown as your correspondent, Mr. Johnstone, advises; and as they are so splendid in bunch, one hardly likes to give them up. All late keeping Grapes are greatly improved by the same treatment, and instead of trying to retard, it will be found the best practice to have the Vines at work as early as possible, so as to get the fruit well matured by the end of September. It is just at the time of ripening that such Grapes require assistance, and if they are then pushed on by lighting the fires early in the afternoon, it is surprising how greatly it improves their flavour and keeping qualities. Muscats even take at least a couple of months' assistance in this way to have them at all presentable. As a late black Grape I find nothing equal to Alicante, as it is good at all points, large both in bunch and berry, and quite unapproachable for the perfect blue-black finish it puts on. Mrs. Pince and Madresfield Court may perhaps excel it in flavour, but neither can at all compare with it for keeping qualities or perfect finish. *J. S.*

Potting.—Good, careful potting is one of the primary causes of success in plant growing, but, unfortunately, it is often done in a very unworkmanlike manner, and is consequently attended with very indifferent results. All writers agree that clean pots should always be used, but I have seen such plants as Cinerarias, Primulas, Strawberries, &c., do equally as well in dirty pots; though, admitting such to be the case, in the long run labour is saved by washing the pots before using them. I do not like using new pots, and never do so without thoroughly soaking them in a tub of water, as they for a long time too rapidly absorb the moisture from the fresh soil. The pots at all times should be well drained, and I prefer a covering of moss over the crocks, as that keeps them clear until the roots have thoroughly penetrated them, and then all danger of clogging is past. I shall now venture a few remarks on a practice rather in opposition to that generally followed. Most gardeners, doubtless, in their younger days have turned on to the rubbish heap numbers of discarded plants, and in my experience I have found many plants, the roots of which had never penetrated the soil of their final shift; others, again, with the major part of the soil untouched as it were, the roots all being matted to the pots. The former was the result of too many shifts, or of improper workmanshsip, such a potting when the ball was in a dry state, &c.; the latter of being over-shifted. To avoid both of these evils I recommend the following, which I have seen practised with convincing results. Most plant growers resort to small and frequent shifts in order to get a limited quantity of soil well and equally filled with roots, but from experience I find that the same, if not better, results (hard wooded plants excepted) may be obtained by one shift only, providing the soil used always contains a quantity of either charcoal, crocks, or broken bricks (for many things crushed bones might be advantageously used) given in proportion to the size of shift. For Vines, Pines, Cucumbers, &c., we use lumps of broken bricks as large as hen's eggs, having them in a separate heap, and throwing them in as we fill in with soil. The use of them is to arrest the growth of the first vigorous roots, causing them to throw out a quantity of rootlets, and thus utilise the whole of the soil. Plants to be potted on should never be allowed to become pot-bound; if such is unavoidably the case, the roots must be carefully loosened when potting, and if possible spread evenly over the soil, which they soon take to. I have seen the above successfully practised with Vines, Pines, Cucumbers, Melons, Ferns, Chrysanthemums, Primulas, Euphorbias, Poinsettias, and many other plants; when turned out they are invariably found to be full of good healthy roots, the growth of the plants of course being equally satisfactory. It likewise saves a great amount of labour, a great object where many of the above plants are required by hundreds. *W. J., a Foreman.*

Foreign Correspondence.

AGRI-HORTICULTURAL GARDEN, MADRAS: *Nov.* 7, 1874.—I observe you quote from the *Delhi Gazette*, in your issue of October 10, some particulars concerning the importation of Mahogany tree seed. I have thought the following few notes, taken from my pocket-book, might be of interest to your readers. At the request of Major Beddome, Conservator of Forests for the Madras Presidency, I opened the box of seeds, on their arrival in Madras from Honduras, on June 30, 1873. The box was filled chiefly with the entire capsules, packed with charcoal; inside was a smaller box, about 9 inches square, filled with cleaned seeds, also packed with charcoal. These were very fresh and good, but the former, packed capsules and all, were mouldy, and about 50 per cent. bad. It has gone abroad, somehow, that the Madras Garden only received good seeds. In the interest of the experiment, and in justice to the officials who distributed them, I most emphatically deny that statement. I can only account for their better germination in the fact that they were a shorter period exposed to the injurious effects of an Indian climate, and perhaps a little more skilled attendance. On the receipt of such seed, one point should be impressed upon all connected with such experiments—that seeds should be sown as soon as possible after being opened. The Mahogany seeds under consideration were exactly one month opened previous to their delivery at the garden—a period of time sufficient of itself to destroy almost any tropical seed, as it is a well-known fact that most tropical seeds retain their vitality but a very short time when exposed to the action of the atmosphere. Many seeds require to be placed in soil at once, or otherwise they perish. A remarkable instance of this is Shorea robusta, also Artocarpus incisa, and even seeds grown in a temperate climate soon lose their vitality in a tropical climate; indeed my pocket-book abounds with notes on this subject, as I have nearly daily complaints about seeds failing to germinate, and as I have tried nearly all the seedsmen of London and many other most respectable firms, I came to the conclusion something was wrong elsewhere. I therefore made it a point when a complaint was lodged of the failure of seeds of inquiring as to how the seeds had been preserved: in nine cases out of ten they had been treated as if they were a bundle of reports, viz., pigeon-holed.

My digression from the subject under immediate consideration is to show why the seeds sent to North Arcot, Cuddapah and Nelumbur, might have failed, in comparison with those sent to the Madras Gardens, viz, length of exposure to the atmosphere.

The Mahogany tree grows well and quickly in Madras. There are seven large trees in the garden here about thirty or thirty-five years of age, as far as can be ascertained from records, the largest of which measures 7 feet 4 inches in circumference at 2 feet from the ground, and is about 75 feet or 80 feet in height—the smallest of the seven seeded in the year 1871. They all flower freely yearly in the month of April. This is the only instance of any having seeded. The capsule contained fifteen seeds, twelve of which grew, and they are planted in various pleasure grounds about Madras.

To return to the Honduras seed, I sowed half of the seeds immediately on receipt, of which about 50 per cent. grew. As this was the beginning of September (one of our hottest months, and one which experience has taught me is most destructive to young vegetation), all my young Mahogany trees were literally scorched up. I sowed the other half of the seeds received on October 1; of this sowing only about 25 per cent. germinated, although I had carefully secured the seeds from contact with the external air. Of those now growing I measured one to-day, November 7, a few days more than one year, and it measured 4½ inches at the base and 8 feet in height, which I think is a marvellous growth in such a short period. They differ much in appearance from the plants raised from the garden seed, being much more rapid in growth, and the leaves very much larger. *John Murray Henry, Superintendent.*

PARIS: *Application of Sewage.*—The question of the purification of the Seine, and the economical application of the sewage, continues to occupy attention in Paris.

The Academy of Sciences has been occupied with the subject, M. Boudet having made a communication on the results of his researches into the condition of the water of the Seine above and below Paris. Instead of ascertaining directly the quantity of organic matter in suspension, he measured the oxygen in solution, on the systems of M. Shutzemberger and M. Gerardin. The quantity of oxygen in water is in inverse proportion to the organic matter, the latter consuming the oxygen in order to oxidise itself; thus to measure one is to measure the other.

M. Boudet assayed the water of the river at six points between Corbeil and Paris—taking his speci-

mens, not in the middle of the river only, but at several points in the transverse section—and he found the quantity of oxygen to vary only from 7.5 to 9.50 per cent. Below Paris the condition was very different; at Auteuil the percentage was only 6, and this went on gradually diminishing, till at Saint Denis it was only 2, and at Epinay only 1 per cent. Thus we see that within a few miles the dose of oxygen varied from 9 to 1 per cent. At Saint Denis and the places just below it, the pollution had reached its acme—fish and mollusks had disappeared, and the gravel taken up from the bed of the river was found to be covered with organic matter in a state of decomposition. Further down the river the water became comparatively pure again—at Poisy there was 6 per cent. of oxygen; at Meulan, 8½ per cent.; at Vernon and at Rouen, 10½ per cent.

As was to be expected, the greatest pollution of the waters of the Seine corresponded nearly with the mouth of the great sewer collector. Reference was made to what had been done in London, and M. Dumas closed the discussion with the following expression—that the waters at Paris must be made to filter through the earth and not allowed to pass into the river again until they have undergone almost perfect natural purification, and at the same time endowing the soil with all the fertilising matter which would otherwise be lost in the river.

This plan, as is already known, has been partially carried out on the plain of Gennevilliers opposite the mouth of the sewer collector at Clichy, and the Municipal Council has determined to complete the work, which will entail serious expenditure. The new sewers, and the construction of five steam pumping stations, are estimated to cost about £200,000, the necessary annual expenditure amounting to about £40,000. On the other hand, the available area of the plain of Gennevilliers is only about 250 acres. A week or so ago the Council, on the report of M. Vauthier, voted a sum equal to £30,000 for conduits and gutters to carry the sewage water over the plain, and since that the erection of a second steam engine has been determined on. This new engine is to raise 110 gallons per second, and is estimated to cost an outlay of £10,000 and an annual expense of £8,000.

This determination is severely criticised, and the expense declared to be entirely useless, as the plain of Gennevilliers already receives 500 litres per second by the sewer of Saint Ouen, and 500 more with the aid of the one raising engine; and these 1000 litres, it is argued, are sufficient to irrigate 1500 acres, whereas the city has only 250 at its disposal.

These experiments and discussions add to the evidence of the serious evil which besets all rivers passing through large towns, and of the extreme difficulty of finding a remedy for the evil. The Paris authorities have fairly tried the effect of chemical purification and found it totally inefficient, and now that they would filter the sewage by the natural process they have not the necessary extent of soil at their disposal for the purpose.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DECEMBER 23, 1874.

Month and Day.	Barometer: Mean Reading Reduced to 32° Fahr.	Barometer: Departure from Average of 18 Years.	Temperature of the Air: Highest.	Temperature of the Air: Lowest.	Temperature of the Air: Range.	Temperature of the Air: Mean for Day.	Temperature of the Air: Departure of Mean from Average of 50 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition: Degree of Humidity. Sat. = 100.	Wind: Average Direction.	Rainfall.
Dec.	In.	In.	°	°	°	°	°	°			In.
17	29.92	+ 0.10	36.0	27.7	8.3	32.4	— 7.4	30.3	92	N.N.E.	0.00
18	29.99	+0.16	36.3	25.2	11.1	31.1	— 8.5	26.7	83	NNE: WSW	0.01
19	29.64	—0.19	38.9	28.0	10.9	33.5	— 5.9	30.3	88	WSW: N.N.E.	0.05
20	29.36	—0.48	36.0	26.7	9.3	32.1	— 7.0	25.8	77	N.W.	0.00
21	29.38	—0.48	34.2	27.0	7.2	30.8	— 8.0	25.1	79	N.W.	0.00
22	29.64	—0.21	30.1	22.5	7.6	26.4	—12.1	26.2	99	E: NE	0.00
23	29.82	—0.03	26.0	21.3	4.7	23.6	—14.5	23.2	98	WNW: W.	0.00

Dec. 17.—Fine; generally cloudy.
— 18.—Fine and partially cloudy till afternoon, then foggy; overcast at night, and snow fell after 10 P.M.
— 19.—Cloudy till the afternoon, and rain, sleet and snow fell frequently; partially clear and frosty at night.
— 20.—Generally cloudy till evening: then cloudless.
— 21.—Fine in early morning; cloudy and dull afterwards.
— 22.—Overcast and dull throughout the day; slightly foggy after 7 P.M. Temperature of vegetation, 18°.8.
— 23.—A thick mist; trees and shrubs covered with hoar-frost, spiculæ in some cases ½ an inch in length. Temperature of the air at 9 A.M. 21½°, at 11 A.M. 22°, at noon it was 23°.5, and the maximum, 26°, was reached a little before 1 P.M., when the sun's place was just visible through the mist.

—— In the neighbourhood of London the reading of the barometer at the level of the sea increased from 29.27 inches at the beginning of the week to 30.09 inches by the morning of the 15th, decreased to 29.58 inches by 9 A.M. on the following day, increased to 30.22 inches by the morning of the 18th, and then decreased to 29.78 inches by the end of the week. The mean reading for the week was 29.87 inches, being 0.47 inch above that of the preceding week, and 0.13 inch below the average of the corresponding week, as deduced from observations extending over a period of eighteen years.

The highest temperatures of the air at 4 feet above the ground ranged from 33° on the 15th to 40½° on the 13th, the mean for the week being 36¾°. The lowest temperatures at night varied from 25¼° on the 18th to 34¼° on the 13th, with a mean value of 29¼°. The mean daily range of temperature was 7½°, the greatest being 11° on the 18th, and the least 3¾° on the 15th.

The mean daily temperatures of the air were all much below their averages, their values being as follows:—13th, 36°.7; 14th, 34°.1; 15th, 30°.7; 16th, 31°.5; 17th, 32°.4; 18th, 31°.1; 19th, 33°.5; and the departures in defect of the respective averages, 3°.8, 6°.3, 9°.5, 8°.5, 7°.4, 8°.5, and 5°.9. The mean temperature of the air for the week was 32°.9, being 7°.1 below the average of the corresponding week, as deduced from fifty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 57° and 59° on the 17th and 18th respectively, but on the 15th and 16th the maximum values were only 39° and 37° respectively.

The lowest readings at night of a thermometer on grass with its bulb fully exposed to the sky were 22¼° on the 15th and 18th, 22½° on the 19th, and 23¾° on the 17th.

On the 15th the sky was overcast throughout, but at other times the amount of cloud was very variable.

The general direction of the wind was N.N.E.; its strength was brisk on the 13th and 14th, but gentle on the remaining days.

Snow fell heavily on the morning of the 16th, and occasionally on the 18th and 19th. Rain fell on the 13th.

The amount of rain and melted snow measured was 0.41 inch.

In England the extreme high day temperatures ranged between 45° at Sunderland and 38½° at Nottingham, Eccles, and Bradford; the general average all over the country being 40°. The mean low night temperatures varied from 27¾° at Liverpool to 14½° at Wolverhampton. It was 15° at Eccles, 17° at Manchester, and 18¾° at Leicester; the general average was 22½°. The mean range of temperature in the week from all stations was 17½°. The mean high temperatures observed by day varied from 41¾° at Sunderland to 34¾° at Wolverhampton, with an average value of 36¾°. The mean low temperatures observed by night ranged from 31½° at Leeds to 24¼° at Wolverhampton and Manchester, the general average being 28¼°. The mean daily range of temperature in the week was 8½°, the greatest range being at Manchester, 11½°, and the least at Leeds, 6°. The mean temperature for the week was 32½°, the highest being at Sunderland, 36½°, and the lowest at Wolverhampton, 29½°. At Eccles the mean temperature for the week was 30½°, being 9½° below the average of the preceding thirteen years, and 8° lower than any corresponding week during the same period.

Rain fell on every day in the week at Norwich to the amount of three-quarters of an inch, but at Newcastle-on-Tyne 2¼ inches was measured on five days only; at Sheffield one-hundredth of an inch only was recorded, the average fall over the country being rather more than half an inch.

The weather during the week was fine, frosty, but generally cloudy.

Snow fell heavily during the early morning hours of Wednesday, December 16, and has all the week remained on the ground.

JAMES GLAISHER.

Obituary.

DEATH OF A FELLOW APPRENTICE OF THE LATE JOHN C. LOUDON.—"December 16, at his residence, Deescart, County Monaghan, formerly of Edinburgh, Mr. JOSEPH ARCHIBALD, aged 90 years." It is supposed that with the deceased the last link of two previous generations of gardeners has been removed, that connecting the last century with the first half of the present, which latter produced so many remarkable and able men, both as horticulturists and practical botanists. He lived to see horticulture advance from mere routine empiricism to that of almost an exact science. Archibald's father had a small nursery near Edinburgh, during the last century, at the place which yet bears his name, "Archibald Place," now built over, and one of the fashionable districts of the city.

A sketch of the early life of John Claudius Loudon having appeared in a cotemporary, it was sent to Archibald by the writer of this notice, thinking it would please him to see written the traits of character of the early life of his old comrade, after the lapse of so many years. At the same time, Archibald was requested to state his recollections of the period alluded to, which he did in the following letter:—

"Deescart, Kingscourt, July 27, 1872.

"I am inclined to think in respect to the youthful days of John C. Loudon some flattery has been employed. In the first place, the date of his birth is certainly not correct. I always considered he was three or four years my senior. I was born on November 5, 1784, and in 1796 I was bound an apprentice (when little more than twelve years of age) to Mr. John Mawer, nurseryman, Dalry, Edinburgh; and at that time Loudon, being a comrade apprentice and my bed-fellow, had, if I am not mistaken, served three years of his apprenticeship when I joined the nursery. As to his being draughtsman or assistant to Mr. Mawer, I do not recollect anything of the kind, with the exception of his having been occasionally employed copying some documents or accounts.

"According to his indenture as well as my own, we were each to be allowed to attend the lectures on botany in the last two years of our apprenticeship, which Loudon did, but Mr. Mawer having died very suddenly, an end was put to my apprenticeship, when very little more than three years of it had been served. Loudon's knowledge of the French language must have been attained subsequently, for I do not recollect ever hearing him attempting to express any of the most commonplace phrases. As to Latin, I am vain enough to boast that I was the greatest proficient of the two.

"After leaving Dalry I went, in October, 1799, to Archerfield, Dirleton, East Lothian, where I remained two years; and in 1802 I went to Messrs. Cormac & Son's nursery, New Cross (Kent) Road, London," &c.

Mr. Archibald was for many years gardener to the Earl of Dalhousie, Dalhousie Castle, N.B.—where the writer first made his acquaintance in 1825. He was then famed for the cultivation of rare North American plants, many of which Lady Dalhousie sent to him, when Lord Dalhousie was Governor of Canada. He often recounted with pleasure a visit which the late Dr. Graham of Edinburgh and the late Mr. M'Nab paid to him, when he gave them notice of the flowering of some North American Orchids, which he had lately received from Canada—among them Habenaria ciliaris and Malaxis liliifolia, neither of which those gentlemen had previously seen. He stated that after the plants had been looked at on every side, examined and re-examined, Mr. M'Nab found it difficult to remove himself from them. The recollection of a large three-light frame filled with Epigæa repens in full flower at Dalhousie still haunts the writer. In 1826 Archibald left Dalhousie and came to Ireland, where he was engaged to be gardener to Lord Farnham, Farnham Castle, County Cavan. There he remained for many years, and formed a very respectable collection of plants. Lastly he became gardener and general manager to the late Colonel Pratt, at Kingscourt, County Monaghan. On leaving his employment, he, with his son, rented a farm from Colonel Pratt, which the son still occupies, and where the old man died. Archibald was a model of what a good gardener ought to be, and what so few out of the many who follow that calling really are. Besides being a good practical horticulturist, the principles of vegetable physiology and trigonometry were familiar to him. He drew plans and measured flat and round surfaces with readiness and accuracy. He was also acquainted with the rudiments of the Latin and French languages, all of which he could bring to his aid after he was over fourscore years of age, although modest and reserved in his habits withal. His activity of mind and the full use of his mental and bodily faculties were vouchsafed to him until within a few months of his death, when he departed this life full of years, mourned and respected by all who had the pleasure of knowing him. *D. M.*

Forestry.

THE FORESTS OF RUSSIA.—The following details are extracted from a report by Mr. Werekha on the forests of Russia and their products. The forests of Russia, excluding those of Central Asia, the Caucasus, and Finland, extend over 177,159,000 deciatines* (about 457,560,733 acres), or nearly 40 per cent. of the whole superficial area of European Russia. A comparison of the space covered with wood with the number of inhabitants gives 2½ deciatines (about 5¾ acres) to each inhabitant. The distribution of these forests in the different governments is very unequal. Thus, 97,930,000 deciatines, or about 65 per cent. of the total extent of forest, are situated in the four governments in the North—Arkhangel, Vologda, Olonets, and Perm. In the ten central, most densely populated governments of Moscow, Riazan, Penza, Kalouga, Toula, Tambow, Orel, Koursk, Voronej, and Kharkow, the forests occupy an area of only 7,938,000 deciatines. In the seven governments of

* A deciatine is nearly 2½ acres.

the South the proportionate extent is still smaller, being only 1,795,000 deciatines, or little more than 3 per cent. of the whole forest land. Poland contains 3,053,000 deciatines of woodland. This unequal distribution of the forests is a great drawback to the prosperity of different parts. There is a superfluity in the North of what is needed in the South, but the absence of water communication in many places renders it unavailable.

The ownership of the forest lands is divided as follows: belonging to the State, 110,726,000 deciatines; belonging to the Crown mines and works, 5,394,000 deciatines; as appendages of the Crown, 5,487,500 deciatines; belonging to towns, churches, monasteries, and different institutions, and to private owners, 55,551,500 deciatines. The proprietary of Russian forests may be divided into three categories—those subject to State administration, those coming within the domain of crown appanages, and private forests. The forests granted for the use of the peasantry come under the first category, and are subject to a code of regulations.

With few exceptions, Russia in Europe possesses nearly all the trees found in Western Europe. The principal ones forming the objects of forest management are the following: Scotch Pine, Pinus sylvestris. This extends northward almost to the extreme limits of vegetation, and in many places covers large areas, especially on peaty and sandy soils. It forms an important article of export under the name of Riga Pine, particularly to England. For building it is cut at the age of 100 to 150 years, and for fuel, on the average, at the age of sixty years. The Spruce, Abies excelsa. The timber of this tree is chiefly consumed within the empire. It is mainly used by the poorer classes, being about 30 per cent. cheaper than the Pine. The Larch, Larix europæa, extends over a large part of the north-east of the empire. Until recently its use was limited, and even now it is not very extensive, owing to the difficulties of transport. During the past few years, however, the Ministry of the Marine has annually drawn 100,000 feet from the forests of Arkhangel. In shallow soil in the North it grows slowly, and is only fit to fall at an age of 180 to 200 years. The quality of its wood is better where it grows faster. The Birch, Betula alba, is the most widely spread of Russian trees. Its wood is chiefly used for small articles of joinery, in coach building, and for fuel. For coach building it is exported from the ports of the Black Sea. The Lime, Tilia "parvifolia," extends from the most southern districts to the government of St. Petersburg and Lake Onega. It rarely forms forests by itself. Its chief value is in its bark, for making mats, &c. Trees of twenty years of age are employed for this purpose. The Aspen, Populus tremula, flourishes up to 63° N. lat.; but its wood is little esteemed, and only used when other cannot be procured. It is chiefly used for firewood, but even for this purpose it holds the lowest position of all. It has recently acquired some importance as a material for paper-making. The Oak, Quercus pedunculata, is found throughout Russia, with the exception of the northern districts, its limit being in about 58° N. lat. in Livonia, and 53° on the Asiatic frontier. The forests are becoming much exhausted through injudicious felling. Besides the foregoing there are many other useful trees, but they cover relatively small areas, and are confined to the southern parts of the empire. Such are the Beech, Elm, Hornbeam, Ash, Black Poplar, White Poplar, Maple, various species of Willow, &c. A rational system of forest management only came into practice in Russia in 1841. The system of leaving the care of cutting and clearing to the purchaser is a very serious evil, which it is impossible to exaggerate, as the supervision of the workmen is always defective and insufficient.

Since 1842 some advance has been made in planting new forests, principally in the steppes of southern Russia. The following figures show the rate of progress of the last few years:—

		Deciatines.		Deciatines.	Total.
1866 ..	seeded ..	2088	planted ..	2060	.. 4148
1867 ..	" ..	1372	" ..	1400	.. 2772
1868 ..	" ..	1317	" ..	1690	.. 3007
1869 ..	" ..	1447	" ..	2303	.. 3750
1870 ..	" ..	255	" ..	975	.. 1230

Private owners have also planted on a large scale—some as much as 500 or even 700 deciatines.

It is still the custom in some parts, after exhausting the soil by repeated crops, to leave it for a number of years, when it becomes overgrown with wood, which is burnt on the ground, its ashes furnishing the manure for another series of crops.

The value of forest products exported from Russia in 1871 amounted to 16,289,302 roubles—a rouble is about 10½*d.* in English money. Of this amount a sum of 5,935,488 roubles was contributed by Great Britain. Between 1861 and 1871 the value of forest products exported has just doubled.

There are two first-class schools for the training of foresters, one at St. Petersburg, and one at Moscow, besides two or three schools for officers holding lower grades. Practical instruction is given in forests attached to the schools.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—Whichever way we turn there is the same cry amongst gardeners of a greatly increased demand for flowers for indoor decoration—halls, sitting-rooms, the breakfast and the dinner table alike have to be embellished with flowers. Through the dull winter months many a gardener is sorely taxed to keep pace with the demand, for at this season numbers of things which can be brought into bloom in the stove, and whilst there are very attractive, are totally unsuited for the purposes under consideration, from their inability to stand when cut and removed to the lower temperature and dried atmosphere of a room. It becomes therefore a matter of the first importance to select such as will answer the required purpose by not only looking well for a time, but by their long endurance under the adverse conditions in which they will be placed. As has been frequently pointed out in previous Calendars, a good deal depends upon the treatment winter-flowering plants receive in bringing them into bloom. This especially refers to the different shrubs, evergreen or deciduous, that are used to assist the regular winter-flowering occupants of the stove and greenhouse. In selecting these, such should be chosen as have a natural habit of flowering early, and will push forward with the least application of fire-heat, for, as a rule, the higher the temperature needed to induce a plant to open its flowers, the shorter the time they will last, especially when cut from the plant, and removed to a drier atmosphere. The double *Prunus*, as is well known, is a useful plant for this work, but its flowers do not last so well as some things, not being equal in this respect to the indispensable *Deutzia gracilis*, the latter plant being for this purpose treated regularly as a pot plant, and grown in a little heat after forcing, turning it out-of-doors when the growth is completed, and its flower-buds set. Plants that have before been forced and so treated are much the best for subjecting to heat, as they come on quicker, and do not require so high a temperature to bring them into flower. Where *Rhododendrons* are thus employed, the earliest flowering sorts should be selected—those which, when out-of-doors, bloom so soon in the season as to be often cut off by spring frost; for this purpose one of the best is the variety called Cunningham's White, which is a dwarf, compact grower, the freest of the free in blooming, and requiring very little excitement to bring it on; when its flowers are opened under glass it is very pure in colour. Of *R. caucasicum pictum* there are, I believe, two varieties grown; that which I now refer to is a very small-leaved, compact grower, with a profuse flowering habit, and like the preceding opens its blooms, which are slightly suffused with pink, with little heat; the single flowers, removed from the truss with their foot-stalks entire, are most useful for small vases, and so used will last for a week. The lilac-coloured *Syringa*, or common Lilac of gardens, so much esteemed by the French for forced flowers in a blanched state (they use the variety known as Charles X., which comes whiter in the flowers when so treated than the common kind), is in this state a fine addition to our winter-blooming plants, but has not as yet been generally managed with success in this country, many of the attempts ending in the flowers not being of the desired white colour—this, no doubt, owing to the ineffectual exclusion of the light, and the process of forcing being too slow. Indeed there does not exist in many private establishments the convenience of a hot dark chamber, such as the Parisian flower-forcers use; yet moderate-sized plants can be satisfactorily managed in the hottest end of warm stoves or winter Cucumber houses, where sufficient space can be found near the pipes for a few large wooden cases to completely enclose the plants, but they must not receive a ray of light either through the joints of the boards, or at the bottom where they rest upon the ground. The best means I have found to exclude the light, is to place a few inches of sand round the bottom of the box, and to have a hole in the top that can be closely covered with several folds of sacking, the removal of which affords an opportunity for watering and syringing, which latter is required two or three times a-day. Lilac so forced is unlike any other forced flower with which I am acquainted, in not flagging in the least when exposed to the air, despite the dark, hot, unnatural conditions under which the flowers are developed. The *Guelder Rose* (Viburnum Opulus) is a fine forcing plant, but it is naturally a somewhat straggling grower, and to be in the best condition for forcing should be prepared by having its shoots stopped during their previous growth, so as to keep the bushes in shape. For this purpose also few things surpass the common *Laurustinus*, which, from its natural disposition to bloom during the winter, is easily induced to open its flowers in a little warmth, by which means they come larger and purer in colour; its profuse habit of blooming is also much in its favour. Dwarf and full standards thus prepared by previous training, make beautiful conservatory objects, occupying little room and affording an acceptable relief from the low bushy forms of the generality of other associated plants. The white variegated-leaved *Acer Negundo* makes a charming decorative plant for forcing, for which purpose large quantities are now grown in the shape of dwarf standards, the beauty of its finely marked leaves, which produced in a little heat are much purer in colour than when grown out-of-doors, is very effective; plants that will make nice heads, that are not too large in the roots for a 6-inch pot, can now be procured, and have the advantage of occuping little room. *T. Baines.*

ORCHIDS.—Rest is of the greatest importance to Orchids, hence care is necessary not in any way to excite them into growth at this season. The day temperature of the East India house should average about 60° by day and 55° by night; the Mexican house 55° by day and 50° by night; the cool house 50° by day and 45° by night. No more fire-heat should be used than is required to keep the temperature as recommended, allowing a rise of a few degrees by sun-heat. This treatment will induce a more vigorous subsequent growth than if they were subjected to a high temperature in dull weather. Attention must be paid to the atmosphere in regard to moisture. A saturated atmosphere at this season will cause serious injury; on the other hand it should not be allowed to become too dry or the stems and leaves will shrivel; a little water should therefore be poured over the paths and benches every morning, when the weather is fine. The glass must be kept clean, so that the plants may get as much light as possible. Plants of *Dendrobium nobile*, which completed their growth early, should have their flower-buds in a forward state; if placed in heat, and a little water is given, they may be had in flower in a short time. Plants grown in 6-inch pots come in very useful for placing in vases and for other decorative purposes: it is very easy to keep up a succession of these plants from January until May by calculating each plant to last in flower three weeks. It also makes one of the finest exhibition plants. When it is necessary to retard the flowering until May, they should be placed in a greenhouse temperature, and very little water should be given until they begin to grow. Many of the Dendrobiums make grand plants for exhibition. For that purpose it is necessary to retard some of the varieties when they are required to bloom at the end of May. Such kinds as D. densiflorum, D. Farmerii, D. macrophyllum giganteum, are very easily kept back; they should be now in a cool house, and kept dry. It is very unwise to check any plant after it has once started into growth. A good supply of peat and sphagnum should be got under cover. The sphagnum cannot be used too fresh; if spread out thin on a damp floor, and kept sprinkled with water, it may be kept in a growing state for some weeks. All rubbish should be carefully picked out of it, otherwise it will rot the moss. Where baskets are used, a quantity of various sizes should be made, so that they may be ready for use when the time arrives for the general business of potting. Various materials are used for making baskets: the best is wood, to which the young roots will readly cling. Maple is the most suitable wood for large baskets, and Hazel for small ones; these will last very well two years, and a plant should require a larger size by that time. The wood should be cut into proper lengths, and the holes bored for the wire while it is green. *G. Baker, Clapham Common.*

KITCHEN GARDEN.

The present severity of the weather, with a considerable amount of snow on the ground, has put a stop to all ground operations. Advantage may be taken of this to prepare stakes, sticks, &c., for use at a busier period. Potatos, and other roots, may be sorted over, and any which may be decayed or diseased removed. The later kinds of Potatos are found to keep very badly, owing to the germs of disease being present when they were taken up. The earlier kinds intended for planting should be placed thinly on shelves or other suitable places, so as to prevent them starting too early into growth. Where Peas have not been sown in autumn, preparation should now be made for sowing under glass, either in cold pits, on the floor of a late Peach-house or in the orchard-house. We usually sow in the old-fashioned draining tiles, 3 to 4 inches in diameter. Troughs of wood may also be used; but, where turf can be obtained, this, cut 2 inches thick and divided into strips of 4 inches wide, forms the best material for the purpose. The strips should have a groove cut down the centre, half the depth of the turf, inverted, the seed sown, and covered about 1 inch deep. When the Peas are 3 to 4 inches high, the turves may be carried out and placed in drills prepared to receive them. In the forcing department continual attention will be required where dung beds are in use, and for many purposes these cannot well be dispensed with. Continue to prepare well fermented material, as dung, leaves, &c., for successional plantings of *Potatos*, as also for *Carrots*, *Cauliflowers*, *Lettuce*, *Radish*, &c.

Keep up a successional supply of roots of *Seakale*, *Asparagus*, and *Rhubarb*, to supply the place of those now in use. Sow *Celery* and *Tomato* for a first early crop, and keep up the sowings of *small Salad*, which is generally in request at this season. *Parsley*, *Lettuce*, *Cauliflowers*, &c., in pits should have as much air and light as possible during the warmer part of the day, taking care to provide a sufficiency of covering to exclude frost during the present severe weather. *W. Cox.*

Enquiries.

He that questioneth much shall learn much.—BACON.

32. BUNCH GRASS.—Will any of your readers inform me where I can procure seed of Elymus condensatus (Bunch Grass)? *An Old Subscriber.*

33. JETHRO TULL.—Is there a portrait of Jethro Tull in existence? and, if so, in whose possession is it? and has it been engraved? *Drill.*

Answers to Correspondents.

COVER FOR WILD FOWL (Q. 29, p. 755): Your correspondent, *A. H.*, will find the common Water Reed the best hide for wild fowl, as they rarely leave the water to seek shelter on land. In addition to the above, a few Weeping Willows planted near the margin of the lake will soon droop over, and form an inviting summer shelter. The common Rhododendron will be found the best evergreen; and to this may be added Privet and Pampas Grass. *J. S.*

CARPET BEDS: *Landscape.* Try some of the plans in Carter's *Practical Gardener.*

FRUIT ROOM SHELVES: *E. B.* A similar question to yours was answered in our last issue. It does not matter much what wood is used, but we should give preference to the best yellow Pine, on account of its lasting qualities.

INSECTS: *A Subscriber.* The insects on your Myrtle are one of the many species of Psocus, which are not known to be decidedly injurious to vegetables. They may easily be killed by ordinary fumigation. *I. O. W.*

LABELS: *H. J. C.* There is no right or wrong way. It is just a matter of use or convenience. Whichever you find you can most easily write or read is best. The plan most commonly followed is to write from the bottom upwards; and the fact that this is the common custom goes far to prove that it comes most convenient to the majority.

NAMES OF PLANTS: *G. K.* Cotoneaster frigida.—*S. H.* One of the variegated varieties of Elæagnus japonica.—*Subscriber.* 1, insufficient; 2 and 4, forms of Selaginella Martensii; 3, S. Galeottiana.

SHADING FERNERY: *C. P.* A fernery glazed with 21-oz. corrugated or rough plate glass will not, under ordinary circumstances, need any other shading. A conservatory much exposed to the sun would require a summer shade of tiffany.

STEPHANOTIS FLORIBUNDA: *H. H.* The model was prepared from a fruit ripened this year. There were no shows in London at the time the fruit was ripe. That is the reason, we believe, that it was not shown.

WHITE POINSETTIA: *W. J.* The branching of the inflorescence is a natural character, the number of divisions depending on the vigour of the plant.

CATALOGUES RECEIVED.—Suttons (Royal Berks Seed Establishment Reading), Spring Catalogue for 1875 and Amateur's Guide—Dicksons & Co. (1, Waterloo Place, Edinburgh), Descriptive Price List of Gladioli.

COMMUNICATIONS RECEIVED.—J. W.—G. M.—A. F.—W. Small.—A. O. W.—Ochtertyre.—L. H. G.—New York.—G. W. Y.—J. B.—D. T. F.—W. E.—Gustav Wallis.—V. Lemoine.—A. D. C.—J. R. J.—R. C. B.—S. Dodd (we do not profess to give such advice as you require).—P. G.—Landscape.—A. W. F.—A Subscriber.—W. M.—W. P.—T. S.

Markets.

COVENT GARDEN, December 23.

There being a fair supply of fruit, both Continental and home grown, prices are not much influenced by the season, the demand from the provinces not being very brisk. Some good Pines from St. Michaels by the Orange ships came to hand recently, making fair prices. Good English Grapes have advanced a little during the past week. *Thos. Taylor, Wholesale Apple Market.*

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Azaleas, p. 12 sprays	1 6– 3 0	Mignonette, 12 bun.	4 0– 6 0
Camellias, 12 blooms	6 0–18 0	Pelargoniums, 12 spr.	1 6– 3 0
Carnations, 12 blooms	2 0– 4 0	— Zonal, 12 spr.	0 9– 1 6
Chrysanthem., 12 bl.	3 0– 6 0	Roman Hyacinths, per 12 spikes	2 0– 4 0
— 12 bunches	9 0–18 0	Roses, indoor, p. doz.	2 0– 6 0
Cyclamen, 12 blooms	0 3– 0 6	— French, do.	2 0– 3 6
Epiphyllums, 12 bl.	1 0– 2 0	Stephanotis, 12 sprays	9 0–15 0
Eucharis, per doz.	9 0–15 0	Tuberoses, p. doz.	2 0– 4 0
French Lilac, p. bun.	10 0–15 0	Violets, per 12 bun.	1 6– 3 0
Heliotropes, 12 sprays	0 6– 1 0		

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Begonias, per doz.	6 0–12 0	Heaths, in var., doz.	12 0–30 0
Bouvardias do.	9 0–18 0	Mignonette, do.	4 0– 6 0
Chrysanthemums, do.	4 0– 9 0	Myrtles do.	3 0– 9 0
Cyperus, do.	6 0–12 0	Pelargoniums, dble., per doz.	6 0–12 0
Dracæna terminalis	12 0–30 0	— Scarlet, do.	6 0– 9 0
— viridis, per doz.	12 0–24 0	Primula sinensis, do.	4 0– 8 0
Epiphyllums, each	1 6– 3 6	Solanums, do.	6 0–18 0
Ficus elastica	1 6– 7 6		
Fuchsia, per dozen	6 0–12 0		

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Melons, each	1 0– 3 0
Chestnuts, per bush.	10 0–20 0	Nuts, Cob, p. lb.	1 6– 2 0
Grapes, English, p. lb.	....	Oranges, p. 100	8 0–12 0
— Muscats, do.	4 0– 8 0	Pears, p. doz.	3 0– 6 0
Lemons, per 100	8 0–12 0	Pine-apples, p lb.	3 0– 6 0
Medlars, per doz.	....	Walnuts, p. bush.	16 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, Fr., each	0 8– ..	Lettuces, per doz.	1 6– ..
Beans, French, p. 100	2 0– ..	Mushrooms, per pott.	1 0– 2 6
Beet, per doz.	1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle	0 9– 1 6	Parsley, per bunch	0 4– 0 6
Brus. Sprts., p. bush.	8 0– ..	Parsnips, p. doz.	0 9– 1 0
Cabbages, per doz.	1 0– 2 0	Radishes, per bunch	0 2– 0 4
Carrots, p. bundle	0 4– 0 6	— black, Turnip, do.	– 0 6
Cauliflowers, per doz.	2 0– 6 0	Seakale, per bundle	1 6– 2 6
Celery, per bundle	1 6– 2 0	Shallots, per lb.	0 3– ..
Cucumbers, each	2 0– 4 0	Salsify, per bundle	1 6– ..
Endive, per doz.	1 0– 2 0	Spinach, per bush.	5 0– ..
Herbs, per bunch	0 2– 0 4	Tomatos, per doz.	1 0– 3 0
Horse Radish, p. bun.	3 0– 5 0	Turnips, per bundle	0 3– 0 4
Leeks, per bunch	0 2– 0 4		

Potatos:—Early Shaws, 110*s.*; Early Myatt's, 140*s.*; Early Regents, 120*s.*; and Early Dons, 120*s.* per ton.

SEEDS.

LONDON: *Dec.* 23.—The agricultural seed trade has now assumed quite a holiday character. In all descriptions of Clover seeds there is for the moment very little doing: values, nevertheless, keep very firm. Cable advices just to hand from New York quote American Red at 47*s.* per cwt., cost, freight and insurance; French parcels, being this season mostly of good quality, are held at high rates. In home grown samples, for lack of supply, the business done thus far has been limited. Trefoil seed is in improved request at full currencies. As regards Alsike seed the late advance has been well supported. White Clovers also keep exceedingly firm. For perennial Rye-grasses and foreign Italian the demand is at present almost *nil.* Mustard seed moves off slowly at unchanged currencies. In Rape seed the long continued low level of prices remains undisturbed. Canary seed has not yet received any check in its wild career upwards: £1 per bushel is now easily made for indifferent foreign seed. Hemp seed, on the other hand, is still cheap and neglected. The cold weather has increased the demand for boiling Peas; the supply being scanty, 2*s.* to 3*s.* per quarter more money is realised. A fair trade has been transacted during the week in feeding Linseed. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the market was dull and hardly so firm as on Monday last, notwithstanding the low temperature. The supplies of Wheat were rather limited, and recent currencies were supported for the better qualities of both English and foreign. Barley was steady, and a moderate inquiry prevailed for good malting produce. Malt was very quiet, and somewhat disposed to give way in price. The arrivals of Oats were large, and a little less money was accepted for inferior, and in some instances for sound corn. Maize was firmly held, Beans and Peas were slightly easier in value, and flour was steady.—The average prices for the week ending December 19, were: Wheat, 45*s.* 1*d.*; Barley, 44*s.* 7*d.*; Oats, 29*s.* 8*d.* For the corresponding week last year: Wheat, 61*s.* 7*d.*; Barley, 44*s.* 7*d.*; Oats, 26*s.* 3*d.*—On Wednesday Wheat sold slowly at Monday's rates. For Beans and Peas the tendency was against buyers; Maize was held for full terms, Barley was firmer, and Oats were without change in value.

CATTLE.

At the Metropolitan market on Monday the number of beasts was small, but enough for the demand, butchers pretty generally having completed their purchases for Christmas. Some choice qualities were still in demand at high rates, and a fair clearance was effected. The number of sheep was also small, but fair for the day. Trade was active for choicest qualities at late rates, but dull for other kinds. Choice calves were scarce and dear. Quotations:—Beasts, 4*s.* to 5*s.* 6*d.*, and 6*s.* to 6*s.* 8*d.*; calves, 5*s.* 6*d.* to 6*s.* 10*d.*; pigs, 4*s.* 4*d.* to 5*s.* 4*d.*; sheep, 5*s.* to 5*s.* 8*d.*, and 6*s.* 2*d.* to 6*s.* 6*d.*

HAY.

The arrivals of fodder at Whitechapel have been rather larger, but the trade was not less active in consequence, nor was there any diminution of strength in the quotations:—Prime meadow hay made 100*s.* to 125*s.*; inferior ditto, 85*s.* to 95*s.*; and straw, 33*s.* to 40*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 115*s.* to 126*s.*; inferior, 95*s.* to 105*s.*; superior clover, 120*s.* to 130*s.*; inferior, 100*s.* to 112*s.*; and straw, 38*s.* to 43*s.* per load.

POTATOS.

At the Borough and Spitalfields markets sound descriptions of Potatos command a steady sale at full prices, but otherwise the trade is slow. The supplies on offer are moderate. Regents, 90*s.* to 110*s.*; Victorias, 110*s.* to 120*s.*; Flukes, 120*s.* to 140*s.*; and Rocks, 60*s.* to 70*s.* per ton.—Last week's imports consisted of 396 tons and 9081 bags from Antwerp, about 1000 tons from Dunkirk, 100 bags from Boulogne, and 38 packages from other quarters.

COALS.

In the market on Monday the demand was active, at fully last prices, which showed a rise of 1*s.* to 1*s.* 6*d.* on the week. Wednesday's trade was steady, at firm rates.

Russia Mats.

BLACKBURN AND SONS, the only Importers of Mats in London, have, in consequence of the SCARCITY of ARCHANGEL MATS, instructed their Russian friends to send **100,000** best selected PETERSBURG, which they are now offering, to the Trade only, at low prices.

Samples and prices on application, at 4 and 5, Wormwood Street, London, E.C.

Russia Mat Merchants.

MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., have a large Stock of Archangel, Heavy and Close-woven ST. PETERSBURG MATS, and all kinds of DUNNAGE MATS, RAFIA FIBRE, &c.

N.B.—The best Heavy St. Petersburg Mats are most suitable for covering purposes.

FIFTEEN THOUSAND ARCHANGEL BEST MATS, and 12,000 ST. PETERSBURG MATS, just arrived; also a Parcel of SECOND-HAND good MATS, for Covering or Packing, cheap. Prices, &c., on application to WM. PETERS, 44, Tenter Street South, Goodman's Fields, near Minories, E.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.

JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

RUSSIA MATS.—A large stock of ARCHANGEL and PETERSBURG, for Covering and Packing, Second sized ARCHANGEL, 100*s.*; PETERSBURG, 60*s.* and 80*s.*; superior close Mat, 45*s.*, 50*s.*, and 55*s.*; PACKING MATS, 20*s.*, 30*s.*, and 35*s.* per 100; and every other description of MATS at equally low prices, at

J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For Particulars, and Testimonials apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton, and the late Professor Lindley, &c., &c.

MADE OF PREPARED HAIR AND WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.

PROTECTION FROM COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1*s.* 4*d.* per yard.

"FRIGI DOMO" CANVAS.

Two yards wide	1*s.* 10*d.* per yard run.
Three yards wide	3*s.* per yard.
Four yards wide	3*s.* 10*d.* per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.

NOTICE.—REMOVED from 3, CANNON STREET, CITY.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3*s.* per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.

See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

OSBORN & SONS

BEG TO ANNOUNCE THAT THEIR

PRICED AND DESCRIPTIVE CATALOGUE

OF KITCHEN GARDEN AND FLOWER SEEDS,

GARDEN SUNDRIES, &c., &c., for 1875,

Is now published, and will be forwarded Post Free on application. It contains a choice selection of all the best and most approved kinds of Vegetable and Flower Seeds, also the leading Novelties for the present Season, including :—

BEAN, DWARF FRENCH—Osborns' New Early Forcing.

The earliest in cultivation for forcing purposes, very dwarf, wonderfully prolific, and of an excellent flavour, and equally valuable for open ground culture. We have received letters from many eminent Gardeners speaking of it in the highest terms, but as it is now so well known, and so many articles have appeared in the leading gardening papers in its favour, we think it unnecessary to make any further extracts than the few noted below.

The following Testimonial, extracted from the *Gardeners' Chronicle* of August 16, 1872, p. 1115, is one of many which have lately appeared in its favour in various horticultural papers :

OSBORNS' FORCING FRENCH BEAN,

"Some few months ago I took the opportunity to bring before the notice of your readers the good quality of the above French Bean for forcing purposes. Having now given it a trial out-of-doors, I am in a position to speak of its merits there. To those who have not hitherto grown this French Bean, I can confidently recommend it as a really good useful variety. It is moderately dwarf in growth, a tremendous cropper, and as early as any French Bean I know. We have this season grown 'Fulmer's Forcing,' 'Negro Long-podded,' 'Sion House,' and 'Sir J. Paxton;' and OSBORNS', in my opinion, is the best of the batch. I purchased only a half-pint packet of seed this spring; after trying about a dozen pots of it the rest was sown in a row 50 feet long, from which we could pick to-day at least five pecks of good Beans. In these days of great Novelties, when so many useless vegetables are palmed on the gardening public, I think it only right that any good thing that does come out should be well known. Like 'Veitch's Autumn Giant Cauliflower,' 'OSBORNS' FRENCH BEAN' will come to be a standard vegetable in most gardens."
Gardener, Grimston Park, Tadcaster, August 6.

The late Mr. BROWN, *of Powis Castle, Welshpool, in his letter of Jan.* 5, 1874, *says* :—"I have proved your Bean. With me it beats all I have hitherto grown, both for forcing and out-door supply."

Mr. JOHN STIRLING, *Park Wern, Swansea, July* 14, 1874, *says* :—"My principal object in writing is to congratulate you on the very superior qualities of your Bean. I have sown it side by side with 'Fulmer's' and 'Negro,' and find it about ten days earlier than either of those varieties, and from its compact growth and very prolific bearing qualities it cannot fail to become a general favourite. It will be invaluable to small gardens with limited space, as from its dwarf and compact habit it does not require nearly so much room as other varieties."

Price 3s. per quart.

BEET, OSBORNS' SELECT RED (or DELL'S CRIMSON).

"We can guarantee our stock as being the true and original one raised by Mr. Bogue many years ago, and selected by him and ourselves with the greatest care ever since. It is no doubt the finest Beet in cultivation, equally valuable for culinary purposes from the high colour and delicious flavour of its root; and for the Flower Garden for its foliage, which is of a beautifully rich bronzy crimson.

Price 1s. per ounce.

BROCCOLI, OSBORNS' WINTER WHITE.

Undoubtedly one of the best, if not the best, mid-winter variety in cultivation. It is very hardy, and produces handsome pure white heads of a delicious flavour; and by successive owings, commencing in March, may be had in use from November to May.

Price 2s. per ounce.

IMPORTANT.—O. & S. desire their Customers will kindly inform them should they not receive a copy in a few days, as many were Lost last Season.

FULHAM NURSERY, FULHAM, LONDON, S.W.

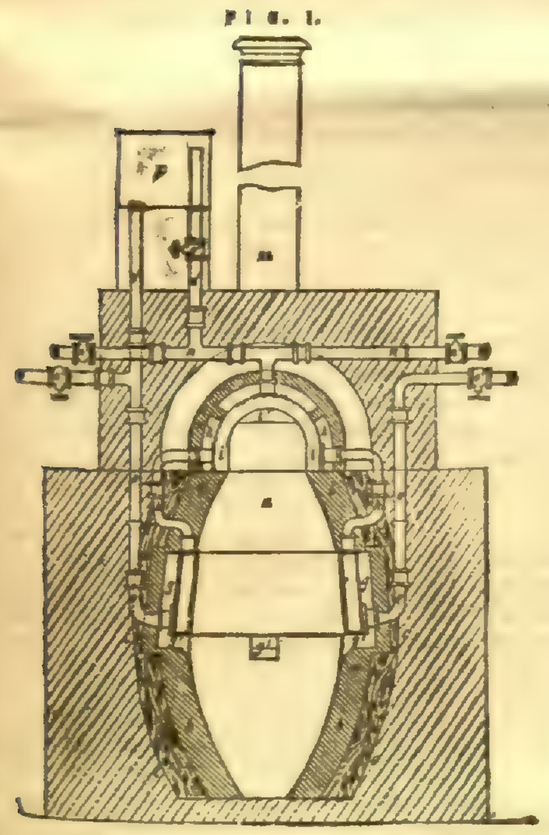
THE COWAN COMPENSATING HEATING COMPANY, LIMITED.

This Company, having purchased from the Dromore Patent Heating Company Mr. Cowan's valuable Patents for the United Kingdom, is now prepared to undertake the Erection of Apparatus on that System in all parts of the Country.

THE ADVANTAGES OF THE SYSTEM ARE AS FOLLOWS:—

1. **In most Cases it SAVES the ENTIRE COST of FUEL.**
2. **The Heat is maintained more steadily than by any other System.**
3. **No Night Attendance is required.**
4. **There is no Smoke or Unpleasant Smell produced.**

THE SUCCESS OF EVERY APPARATUS ERECTED BY THE COMPANY IS GUARANTEED.



Full Particulars of this System, Testimonials, and Opinions of the Press, can be seen in the Company's Illustrated Pamphlet, which can be obtained, post free, on application.

The Company has an Efficient Staff of Engineers, and sends at any time to inspect places where the idea is entertained of Erecting the Apparatus.

The System has lately been adopted at Hazelwood, Herts, the seat of Lord Rokeby; Stackpole Court, the seat of the Earl of Cawdor; Ripley Castle, Yorkshire, the seat of Sir H. D. Inglby, Bart.; Langleybury House, Herts, the seat of Jones Lloyds, Esq.; and at many other places. Also Mr. E. Bennett, of Hatfield, says :—

"I now most cordially beg to congratulate you on the glorious success of your Heating Apparatus (now in use at Hatfield), which is working most satisfactorily, and which has exceeded my expectations. It is a decided success, and more cannot be said in its favour. Should it continue to work in the manner it now does, it will prove a great boon here, and start a new era in the heating of horticultural buildings generally. By your Compensating System we have for every barrow of coals thrown into the kiln some substantial return; by the old system the returns were ashes, and the trouble of clearing them away. I find our chalk is of an inferior quality to some I have seen in the neighbourhood, but we have plenty of heat."

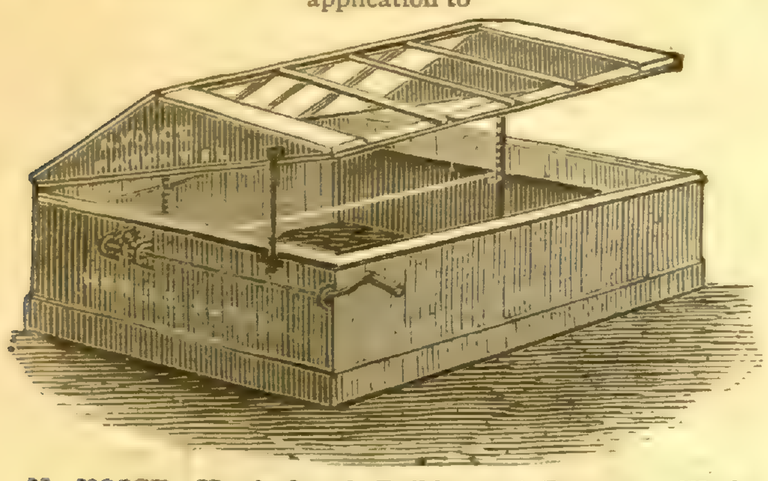
The Company also undertakes the Erection of all other kinds of Heating Apparatus, and of Horticultural Buildings.

PLANS AND ESTIMATES FURNISHED ON APPLICATION.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

Office: 4, LOTHBURY, BANK, LONDON, E.C.

N. VOICE'S NEW PATENT.—All particulars and Price List forwarded post free on application to



N. VOICE, Horticultural Builder and Patentee; Works, Horley, Surrey.

N.B.—AGENTS WANTED.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Sole Agent and Manufacturer of RICHARDSON'S PATENT PORTABLE HORTICULTURAL BUILDINGS for London and the South of England.

ESTABLISHED 1856.

KEEP OUT THE FROST.

WILLIAM H. HONEY'S PORTABLE

VAPORISING STOVES,

To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

Prices, in block tin, 30s.; in copper, 50s. Copper, with glass, to give light and heat, 55s. Either will be sent on receipt of Post-office Order.

To be seen in operation at

WILLIAM H. HONEY,

263, REGENT STREET, W.

Catalogue free. No agents appointed

HOT-WATER APPARATUS

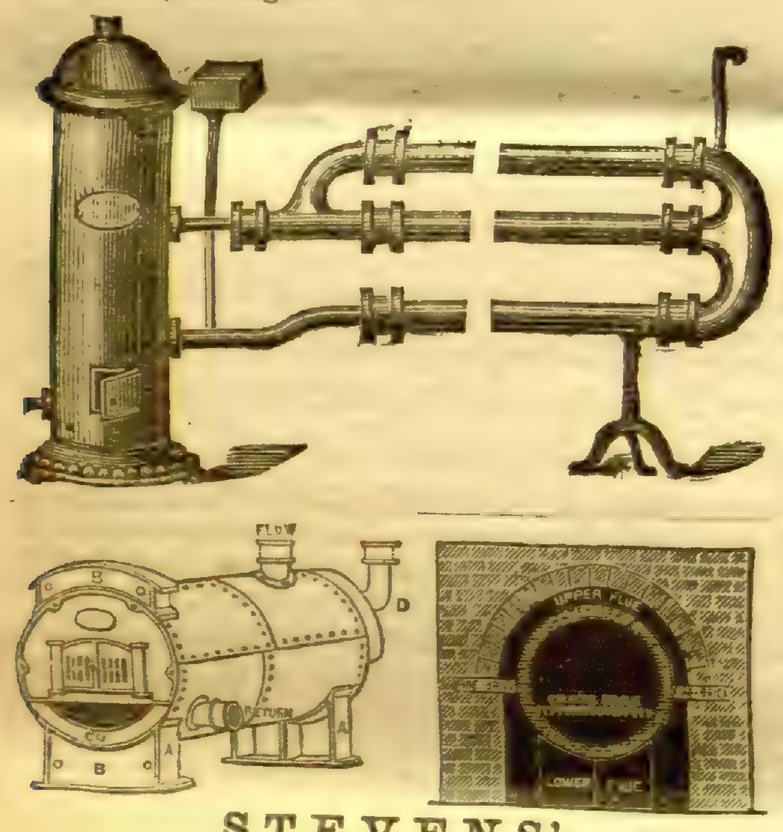
(Heated by Gas)

FOR SMALL CONSERVATORIES, GREENHOUSES, &c.

Price from £3 3s. To be had of

JOHN GILL AND CO., 299, Oxford Street, London, W., and of all Ironmongers.

Wholesale only of JOHN WRIGHT AND CO., Essex Works, Broad Street, Birmingham.



STEVENS'

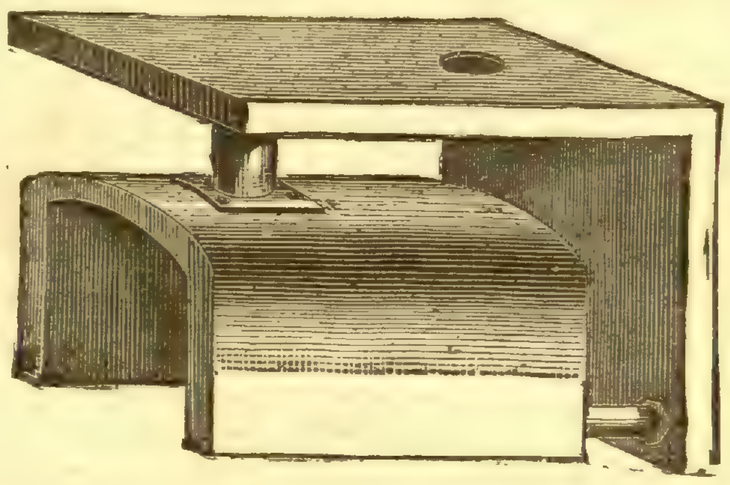
TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. AND J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

JONES'S

PATENT

"DOUBLE L" SADDLE BOILER.



This boiler, which has now had a good trial, presents advantages that other boilers do not possess. Instead of a large portion of the heat being absorbed by the brickwork setting, or passing direct up the chimney, before the heated particles emitted from the fuel in process of combustion have properly done their work, as is the case with many other boilers at present in use, this boiler, by its peculiar, yet simple, construction, as well as by a judicious arrangement of flues, obtains the full amount of heat from the fuel before the products of combustion pass into the chimney. Compared with the old Saddle and other boilers, it is computed that it will do nearly twice the amount of work with the same amount of fuel. The cost of setting is less, as is also the space occupied, and the boiler being made in wrought instead of cast iron, thereby avoiding its liability to crack, renders it one of the best boilers yet brought out.

For the rapidity with which heat can be got up in one or any number of houses it is unsurpassed, and the following extracts from Testimonials received from persons accustomed to the use of hot-water apparatus will prove that the expectations raised for this boiler have been fully realised.

J. JONES & SONS beg to state, in conclusion, that they are prepared to send to any part of the country, at a moderate charge, to take particulars and prepare plans and estimates for hot-water work of every description; or they will, on receipt of full particulars by post, send estimates, &c., free of charge.

The Patent "DOUBLE L" SADDLE BOILER is made in sizes to heat from 300 to 10,000 feet of piping, and can only be obtained from the Patentees.

All communications respecting prices of boilers, &c., should be addressed—

J. JONES AND SONS, HOT-WATER ENGINEERS,

6, BANKSIDE, SOUTHWARK, LONDON, S.E.

EXTRACTS FROM A FEW TESTIMONIALS

IN FAVOUR OF

JONES'S PATENT "DOUBLE L" SADDLE BOILER.

From Mr. J. AITKIN, *Gardener to* W. Stuart, Esq.

"ALDENHAM ABBEY, WATFORD, *June* 5, 1873.

"Concerning the working of your Patent 'Double L' Saddle Boiler, I have only to say that it gives entire satisfaction, and, although a small one, it heated the 700 feet of 4-inch piping nearly all the winter. I had seldom to use the other Boiler that is attached to the pipes; it also requires a considerable deal less fuel than the old Saddle, which is of some importance at the present price of coal; it also heats much quicker than any Boiler I ever had to superintend."

From Mr. J. W. ABRAHAMS, *Gardener* to N. M. Forbes, Esq.

"TILBURSTOW LODGE, GODSTONE, *December* 30, 1871.

"I have proved your 'Double L' Saddle Boiler, and find it everything that could be needed. I am of opinion that the Boiler is able to drive as much more Piping as it is now required to do. It is the kind of Boiler I should recommend to all Gardeners for Forcing Houses, as you can get both a quick heat and a regular heat; in fact, I believe it to be the best Boiler I ever had to deal with."

Extract from Second Testimonial from the above.

May 29, 1873.

"The 'Double L' Saddle Boilers, as well as the apparatus in the Stove House, answer exceedingly well, and give whatever heat I require—from 80° to 90° day or night—with very little trouble or attention."

From Mr. R. WILLMOTT, *Gardener to* C. Doridante, Esq.

"THE GARDENS, ALDERSHOT PARK, *May* 26, 1873.

"The 'Double L' Saddle Boiler and Apparatus erected by you has given me great satisfaction, as it does its work quickly and economically, and requires very little attention. I consider it a great improvement on the old Saddle Boiler; in fact, I prefer it to any other boiler we have."

From Mr. J. SIMS, *Gardener.*

"BOVINGDON HOUSE, HEMEL HEMPSTEAD, *December* 18, 1871.

"I have given your 'Double L' Saddle Boiler a fair trial during the severe weather we have had, and am well satisfied as to its being a great deal more economical than the old Saddle, and will do the same amount of work with about half the quantity of fuel."

From Mr. D. ROBERTSON, *Gardener to* Rev. Dr. Ainger.

"WHITTON TOWER, ROTHBURY, *June* 3, 1873.

"Your 'Double L" Saddle Boiler is giving great satisfaction. We have had a severe winter, the houses are old, and consequently very open, and yet it has kept them at the proper temperature from 10 P.M. to 8 A.M., which would be very hard on any other boiler that I am acquainted with, considering the size."

From Mr. CHARLES YOUNG.

"NURSERIES, BALHAM HILL, S.W., *May* 29, 1873.

"Having given your Patent 'Double L' Boilers a fair trial at my Nurseries, I beg to say they are most satisfactory. I consider them the best in use, and without doubt the most economical of all boilers; they will burn the refuse of other tubular boilers I have in work."

From Mr. R. THOMPSON, *Gardener to* H. Crawshay, Esq.

"LANGLAND BAY, near SWANSEA, *June* 5, 1873.

"Your 'Double L' Saddle Boiler I like very much. I have worked it regularly since it was fixed, and I find it to be a very powerful, and, at the same time, an economical Boiler. I am also pleased with the manner in which the pipes are fixed, and their working throughout. The stops could not possibly be better. This I consider a good point, as it enables the person in charge to regulate the heat as he pleases."

From Mr. I'ANSON, *Gardener to the* Rev. G. H. Devonport.

"FOXLEY, near HEREFORD, *June* 4, 1873.

"I have given your 'Double L' Saddle Boiler a fair trial, and it gives every satisfaction. It is the quickest heating boiler I have had under my charge, and burns the least fuel."

From Mr. H. BROOKS, *Gardener to* J. T. Belk, Esq.

"THE PARK, MIDDLESBORO', *May* 28, 1873.

"I have given your 'Double L' Saddle Boiler a fair trial, and have found it give every satisfaction. It acts admirably with a small amount of fuel, which is a great point at the present price of fuel. I consider it the best I have used, and the most economical."

From Mr. J. MCCULLUM, *Gardener to* J. W. Hallewell, Esq.

"STRATFORD COURT, STROUD, *May* 30, 1873.

"I have thoroughly tested the efficiency of your Patent 'Double L' Boiler, and I am so satisfied with its heating powers that I can recommend it with confidence. When properly managed I find it one of the most economical Boilers I ever used."

From Mr. W. BEECH, *Gardener to* Sir J. W. Hartopp.

"KINGSWOOD WARREN, EPSOM, *May* 30, 1873.

"The two 'Double L' Saddle Boilers you put in here for the Hot-water Apparatus are working very satisfactorily."

From Mr. S. PETTIT, *Gardener to* F. Sartoris, Esq.

"RUSHDEN HALL, HIGHAM FERRERS, *May* 29, 1873.

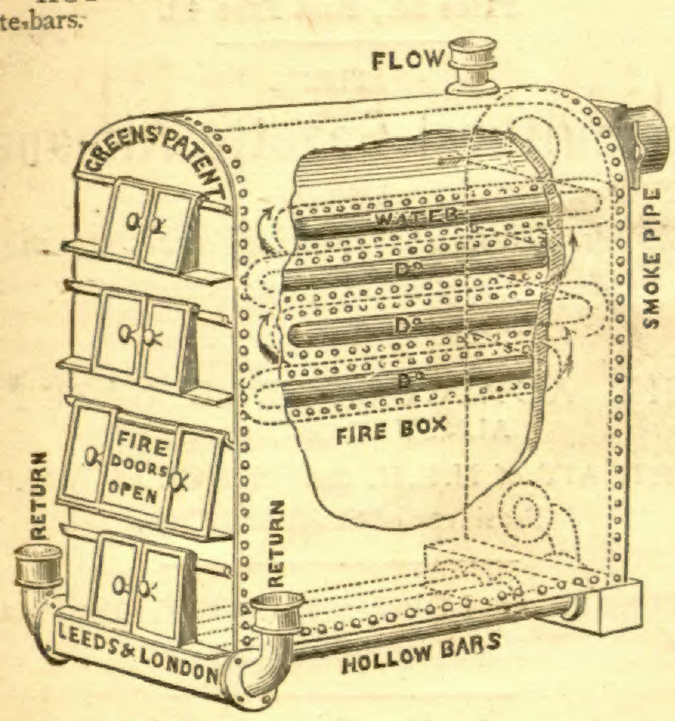
"Your 'Double L' Saddle Boiler has had a good trial this last winter, and does its work first-class, with comparatively little fuel, considering the work it has to do."

J. JONES & SONS,

HOT WATER ENGINEERS,

6, BANKSIDE, SOUTHWARK, LONDON, S.E.

GREEN'S PATENT WROUGHT-IRON HOT-WATER BOILERS, with Shelves and Hollow Grate-bars.



For economy in fuel and power in working they are unsurpassed.

See Illustrated Price List for description, &c., to be had on application to

THOMAS GREEN AND SON, Smithfield Ironworks, Leeds; and 54 and 55, Blackfriars Road, London, S.E.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE.

Illustrated Price Lists free.

HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

FOWLER'S PATENT STEAM PLOUGH and CULTIVATOR may be SEEN at WORK in every Agricultural County in England.

For particulars apply to JOHN FOWLER AND CO., 71, Cornhill, London, E.C.; and Steam Plough Works, Leeds.

J. G. SMEATON & CO.,

Horticultural Architects and Builders,

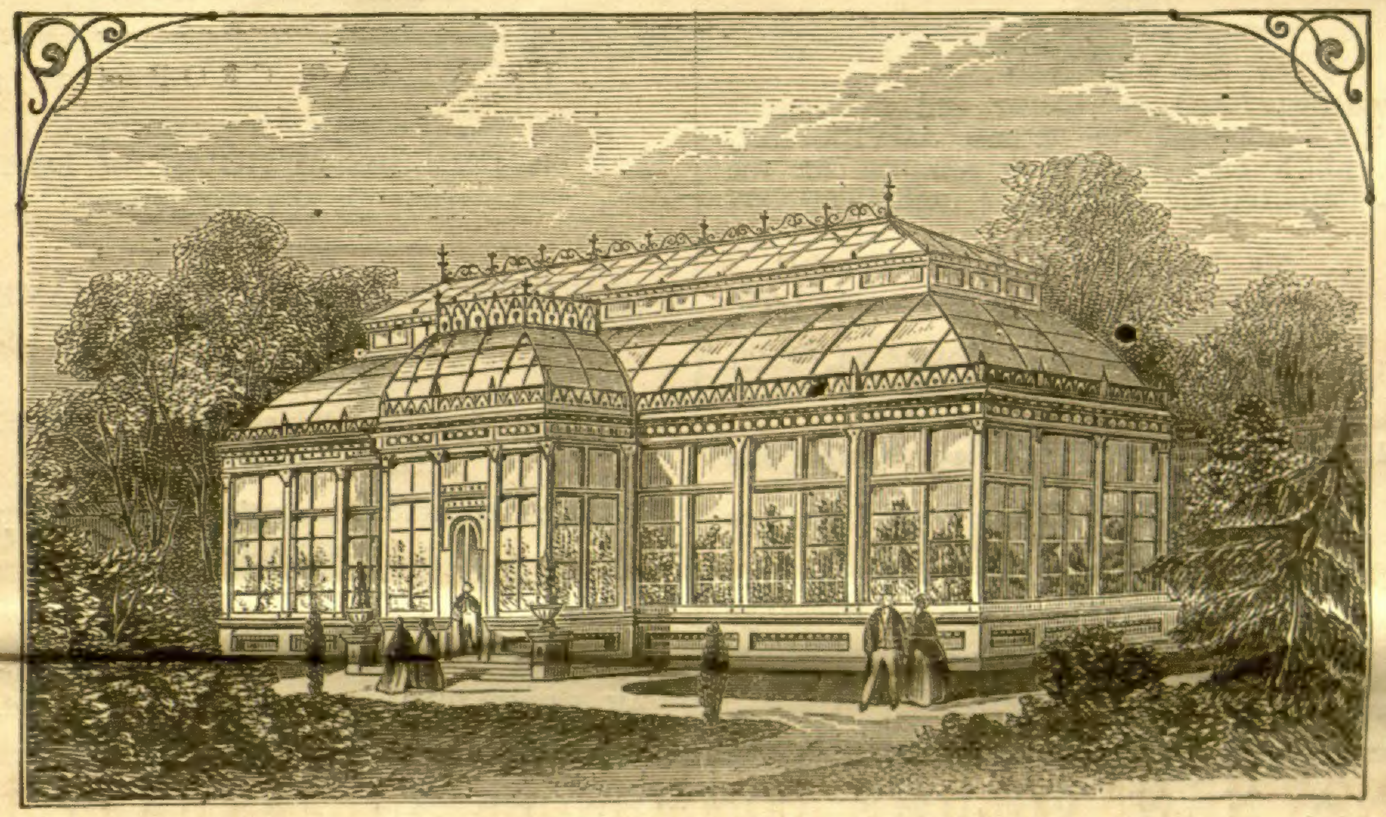
HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

HARWOOD ROAD, FULHAM, LONDON, S.W.

Plans and Estimates for every Description of Horticultural Structure. Consultations in all parts of the Kingdom.

HEATING AND VENTILATING ENGINEERS TO THE SCHOOL BOARD.

ST. PANCRAS IRON-WORK COMPANY.



CONSERVATORIES, GREENHOUSES, &c.

ARCHITECTS' DESIGNS CAREFULLY CARRIED OUT.

APPLY FOR ESTIMATES TO

OLD SAINT PANCRAS ROAD, LONDON, N.W.

THE THAMES BANK IRON COMPANY

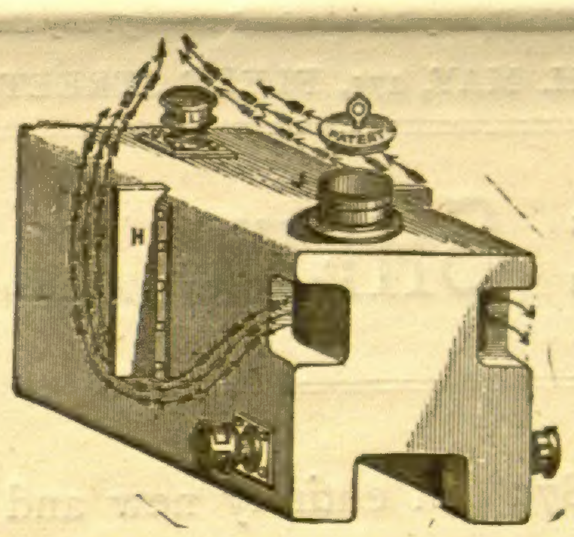
(Successors to LYNCH WHITE),

OLD BARGE WHARF, UPPER GROUND STREET, LONDON, S.E.,

SURREY SIDE, BLACKFRIARS BRIDGE,

Have the largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.

HOT-WATER BOILERS,



("CLIMAX.")

PIPES, CONNECTIONS,

AND ALL CASTINGS FOR HORTICULTURAL PURPOSES.

NEW PATENT "CLIMAX" BOILER (1874). See p. 666, *Gardeners' Chronicle.*

"GOLD MEDAL" BOILER (Birmingham, 1872).

PATENT "EXCELSIOR" BOILER (1871).

"WITLEY COURT" BOILER (Silver Medal, 1872).

"TRENTHAM IMPROVED" BOILER, with Waterway End and Smoke Consumer.

"TUBULAR," and every other Boiler of known merit or excellence.

HOT-WATER APPARATUS ERECTED COMPLETE.

PRICE LIST on application; or, Six Stamps for DESCRIPTIVE CATALOGUE, 4th Edition.

THE FRENCH SYSTEM

OF WIRING GARDEN WALLS, &c., FOR

TRAINING FRUIT TREES.

Prices on application to

J. B. BROWN AND CO., 90, Cannon Street, E.C.

Garden Wall Wiring.

R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

For Strength,—Because very much stronger Wire can be used, therefore not liable to be drawn out of the horizontal line by the branches of trees.

For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

The above Engraving is an Example of our system of Wiring Garden Walls. We have recently completed the Wiring of the New Garden Walls for the Marquis of Salisbury, Hatfield House. The Walls are 12 feet high and 753 yards long, wired on both sides; making a total length of 1506 yards,—our system being chosen in preference to any other.

Illustrated Catalogues of Garden and Conservatory Wirework, Rabbit Proof Hurdle Fencing, &c., may be had on application as above.

For Park, Farm, and General Enclosures.

FRANCIS MORTON & Cos (LIMITED) LIVERPOOL NAYLOR STREET CABLE FENCING

Is in use over many thousand miles,

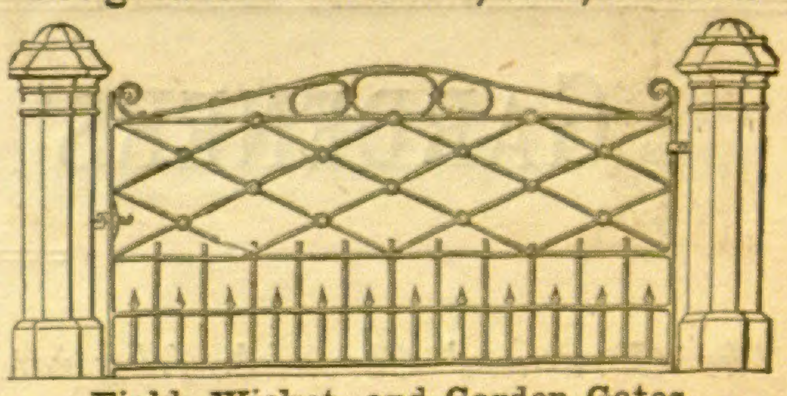
And has been awarded the Silver Medals and Highest Commendations of the leading Agricultural Societies, it forms the most efficient strained iron fence known.

ORNAMENTAL

IRON ENTRANCE GATES, &c.,

IN WROUGHT AND CAST IRON,

Designed for the Mansion, Villa, or Farm.



Field, Wicket, and Garden Gates

In Great Variety of Patterns.

ORNAMENTAL and FIELD HURDLES,

With Round or Flat Bars.

Continuous Bar Iron Fencing,

Fitted with F. M. & Co.'s Patent Self-locking Joints, which form a continuous rigid brace from end to end of the Fence, and the most perfect system for securing its efficiency.

F. M. & Co.'s New Illustrated CATALOGUE is now ready, and will be forwarded on application.

LONDON OFFICE—

1, DELAHAY ST., WESTMINSTER, S.W.

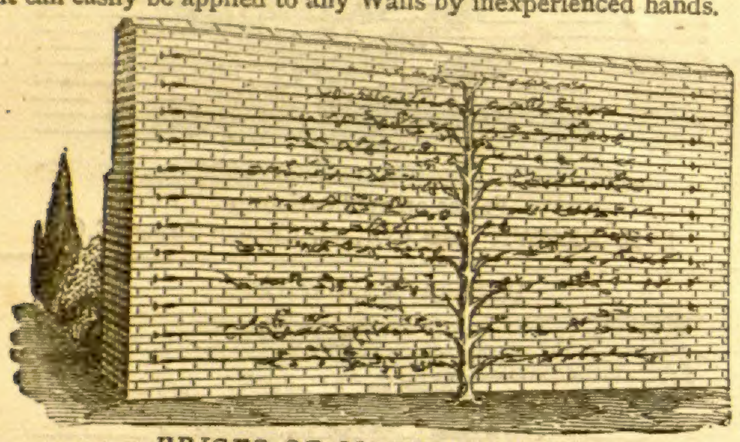
GALVANISED WROUGHT IRON

FITTINGS for WIRING WALLS,

For the Purpose of Training Fruit Trees
ON THE FRENCH SYSTEM,

and as recommended by Mr. W. ROBINSON, F.L.S., in his new work, "The Parks, Promenades, and Gardens of Paris."

By this system nails and shreds are entirely dispensed with, the walls are not injured, and no harbour is afforded to small insects. The Tying of the Fruit Trees is effected in one-fifth of the time required by the old system. The arrangement is so simple, that it can easily be applied to any Walls by inexperienced hands.



PRICES OF MATERIALS:—
GALVANISED RAIDISSEURS for Tightening the Wires. One of these required for each Line of Wire.

No. 900. 4*s.* per doz.

GALVANISED WALL EYES, 6*d.* per dozen.
GALVANISED TERMINATING HOLDFASTS, 2*s.* per doz.
GALVANISED WIRE, 2*s.* 6*d.* and 3*s.* per 100 yards.

ILLUSTRATED LISTS, with full particulars of the above, and of FITTINGS for ESPALIER TRAINERS, on very economical principles, free on application to

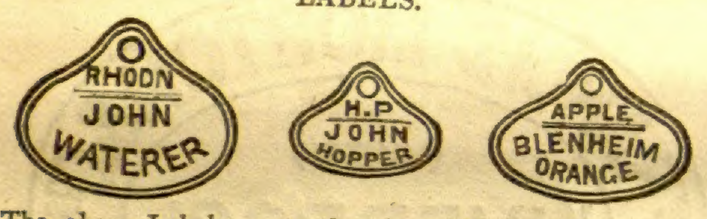
BARNARD, BISHOP & BARNARDS,
NORFOLK IRONWORKS, NORWICH.

Labels—Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3*s.* 6*d.* per 1000, or 30*s.* per 10,000; if eyeleted, 4*s.* per 1000. Vellum Cartridge, 4 inches long, 3*s.* per 1000 for 10,000. Sample Labels sent on receipt of Postage Stamp. Orders delivered free in London.
JOHN FISHER AND CO., Label Works, Boston.

By Appointment to, and Under the Distinguished PATRONAGE of, HER MAJESTY.

J. SMITH'S IMPROVED METALLIC LABELS.



The above Labels are made of a white metal, with RAISED BLACK-FACED LETTERS, and are of various shapes and sizes. For illustration of the different shapes see the *Gardeners Chronicle*, Nov. 28.
Samples and Price List free.
Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

CANTHARIKOPHO.
COCKROACH AND BEETLE POISON.
Destroys Rats and Mice.
Sold everywhere in Tin Boxes. By post, 1*s.* 3*d.* and 1*s.* 10*d.* each.

Notice.
(*By Appointment to the Royal Horticultural Society.*)
To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.
ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.
ADAMS AND FRANCIS, Advertisement Agents, 59, Fleet Street, E.C.

THE SYDNEY MAIL
AND
NEW SOUTH WALES ADVERTISER.

CONTENTS:—
INTERCOLONIAL and GENERAL NEWS.
SPORTING and the FIELD, in which is incorporated BELL'S LIFE in SYDNEY.
RECORD of RACES, and NOTES on the TURF.
CRICKET and AQUATICS.
THE FLORA of AUSTRALIA (Drawn and Engraved specially for this Journal).
NATURAL HISTORY (Original Articles).
AGRICULTURE, PASTORAL, HORTICULTURE.
GOLD FIELDS and MINING generally.
STOCK and SHARE REPORTS.
ORIGINAL and SCIENTIFIC ARTICLES.
TALES by POPULAR ENGLISH and AUSTRALIAN AUTHORS.
THE FASHIONS. DOMESTIC ECONOMY.
INDOOR AMUSEMENTS.
THE CHESS PLAYER. THE HOME CIRCLE.
COMMERCIAL NEWS.
SHIPPING INTELLIGENCE.

The SYDNEY MAIL has a wide circulation throughout the Australian Colonies, New Zealand, Polynesia, &c. It contains a large amount of information on a great variety of subjects.

Subscription in Advance, £1 per Annum.
Single Copies, 4*d.*; Stamped, 5*d.*
Publishing Office—Hunter Street, Sydney, New South Wales.

ENGLAND.
The undermentioned Newspaper and Advertising Agents are authorised to receive ADVERTISEMENTS, which must be paid in advance, for the SYDNEY MORNING HERALD and SYDNEY MAIL.

London .. Mr. George Street, 30, Cornhill, E.C.
Mr. F. Algar, 8, Clement's Lane, Lombard Street, E.C.
Messrs. Gordon & Gotch, St. Bride Street, Fleet Street, E.C.
Birmingham. Mr. R. S. Kirk, 90, New Street.
Liverpool .. Lee & Nightingale, 15, North John Street.
Bristol .. James & Henry Grace, Royal Insurance Buildings.
Edinburgh .. Robertson & Scott, 13, Hanover Street.
Glasgow .. W. Porteous & Co., 15, Royal Exchange Place.

Copies of each Journal are filed at the above Offices or the use of Advertisers.

SECOND EDITION, NOW READY.

Price 3d., Post Free 4d.

THE
Agricultural Gazette Almanac,
1875.
The best Illustrated Agricultural Almanac.
Office: 7, Catherine Street, Strand, W.C.

THE AGRICULTURAL GAZETTE ALMANAC CONTAINS:—
PORTRAIT of H.R.H. the PRINCE of WALES, President of Smithfield Club.
PORTRAIT of LORD BRIDPORT, President of Royal Agricultural Society.
PORTRAIT of Dr. VOELCKER, President of London Farmers' Club.
PORTRAIT of H.R.H. the PRINCE of WALES' CHAMPION PRIZE HEIFER.
PORTRAIT of Mr. STRATTON'S Prize Heifer, "NECTARINE BUD."
The WHEAT CROP of 1874.
LIST of MEMBERS of HOUSE of LORDS, and HOUSE of COMMONS.
AGRICULTURAL SOCIETIES, CHAMBERS of AGRICULTURE, and FARMERS' CLUBS.
PORTRAITS of Prize-taking CATTLE, SHEEP, and PIGS at BEDFORD, and
Numerous other Illustrations, with Letterpress Descriptions.

Price 3d., Post Free 4d.

W. RICHARDS, 7, Catherine Street, Strand, W.C.

A NEW VOLUME COMMENCES IN JANUARY.

THE FLORIST AND POMOLOGIST:
A PICTORIAL MAGAZINE OF GARDENING.

Monthly 1s.; Annual Subscription 12s., or Free by Post, 13s.

Two finely Coloured Plates issued with each Number.
Established as the "Florist" in 1848.

The FLORIST and POMOLOGIST is a Popular Monthly Magazine of Gardening in all its Departments. It supplies the class of information required by GARDEN AMATEURS, as well as by PROFESSIONAL AND COMMERCIAL GARDENERS. It keeps its readers informed as to the NOVELTIES which may interest them, and instructs them as to the best forms of GARDEN PRACTICE.—The subjects for the COLOURED PLATES are selected with the greatest care, and the drawings are made by the leading Floral and Botanical Artists; while as the LETTERPRESS is contributed by some of the most distinguished Practical and Scientific Horticulturists of the day, the sound practical character of the information contained in its pages is assured.

The FLORIST and POMOLOGIST may be obtained through any Bookseller or Newsagent, or direct from the Publisher,

MR. EDWARD H. MAY, 171, FLEET STREET, LONDON, E.C.

GARDENERS' CHRONICLE SHEET ALMANAC.

The Gardeners' Chronicle Illustrated Sheet Almanac for 1875 (an entirely new and original design) *will be issued (gratis) with "The Gardeners' Chronicle" for next Saturday, Jan.* 2, 1875.

The Almanac may be had separately, mounted on rollers, price 6d., post free.

PUBLISHED BY W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.

THE AGRICULTURAL GAZETTE,

SATURDAY, DECEMBER 26, 1874,

Contains—

ORIGINAL ARTICLES on Cattle, Food, and Condiments—Pleuro-pneumonia, can it be Cured?—Sir Christopher Wren's Beehive (Illustrated)—Propagating Italian Bees—Agricultural Machinery (Illustrated) — Labour Saving Machinery—The Timber Trees of New Zealand—The Racing Season of 1874—Trial Eights at Cambridge and Oxford — "Free Land"—Common Law for Farmers—Merino Sheep (Illustrated)—The Shorthorn Herd Book—About Drainage — Tenant Right — The Thames Valley Drainage—The Potato Bug, &c.

HOME AND FOREIGN CORRESPPONDENCE on High Rents in Scotland—When Doctors Differ who shall Decide?—Management of Highways—Labourers' Movement—Tenant Right, a Suggestion—The Vanity of Prizes for Fat Cattle—Why are Good Horses so Rare?—The Exodus of Labour—Steam—Manilla Ropes—French and Australian Agriculture, &c.

FARM NOTES AND MEMORANDA from a large number of Counties in Great Britain and Ireland.

REPORTS OF SOCIETIES, FARMERS' CLUBS, &c.

ALSO—

The Veterinarian — The Poultry Yard—The Garden of the Farm—Forestry—The Weather—Reports of Markets—Notices of Books—Miscellaneous, &c.

Price 4*d.*; post free, 4½*d.* Published by WILLIAM RICHARDS, at the Office, 7, Catherine Street, Strand, W.C.

Works on Botany, by Dr. Lindley.

THE VEGETABLE KINGDOM; or, THE STRUCTURE, CLASSIFICATION, AND USES OF PLANTS. Illustrated upon the Natural System. In One Volume, 8vo, cloth, price 25*s.*, with upwards of 500 Illustrations.

EXTRACT FROM THE AUTHOR'S PREFACE.

"The Vegetable Kingdom contains, among a large quantity of plants of no known importance to man, various useful species employed in medicine, the arts, or in the many branches of domestic œconomy. The principal part of those which can be brought by teachers in Europe under the notice of students, or which, from their great importance, deserve to be among the earliest subjects of study, are mentioned in the following pages, where they are arranged in the manner proposed in the *Vegetable Kingdom* of the author, with the sequence of matter departed from in a few instances, when it was believed that the convenience of younger students would be consulted by doing so. The author trusts that this selection will be found to have been made in such a way that all teachers who possess reasonably extensive means of illustrating their lectures, and all Botanic Gardens, may furnish the larger part of the species which are mentioned. A small selection was indispensable; firstly, because a greater work would have been beyond the reach of the majority of purchasers; and secondly, because experience shows us that those who have to study a science of observation, such as Botany, require to concentrate their attention, in the first instance, upon a limited number of objects."

By the same Author.

INTRODUCTION to BOTANY. Fourth Edition, greatly enlarged; with six Plates, and numerous Wood Engravings. Two Volumes, 8vo, 24*s.*

*** It has been the Author's wish to bring every subject that he has introduced down, as nearly as possible, to the state in which it is found at the present day. In doing so, he has added so very considerable a quantity of new matter, especially in what relates to Vegetable Anatomy and Physiology, that the present Edition may be considered, in those respects, a new work.

DESCRIPTIVE BOTANY; or, THE ART OF DESCRIBING PLANTS CORRECTLY, in Scientific Language, for Self Instruction and the Use of Schools. Price 1*s.*

MEDICAL and ŒCONOMICAL BOTANY; or, AN ACCOUNT OF THE PRINCIPAL PLANTS EMPLOYED IN MEDICINE OR DOMESTIC ŒCONOMY. In One Volume, 8vo, with numerous Woodcuts, price 5*s.*

SCHOOL BOTANY; or, THE RUDIMENTS OF BOTANICAL SCIENCE. In One Volume, 8vo, half bound, with 400 Illustrations, price 5*s.* 6*d.*

London: BRADBURY, AGNEW AND CO., Bouverie Street, E.C.

This Month will be Published a New and greatly Enlarged Edition of

GORDON'S PINETUM:

BEING A

Synopsis of all the Coniferous Plants at present known,

WITH

DESCRIPTIONS, HISTORY, and SYNONYMS,

AND

Comprising a considerable number of New and Undescribed Kinds;

With elaborate Indexes of both Scientific and Popular Names.

In One Volume, 8vo, Cloth, Price 18s.

*** The former Edition, now extremely scarce, was published at 16*s.*, the Supplement at 6*s.*, both of which are included in the present with considerable additions.

LONDON:

HENRY G. BOHN,

18, HENRIETTA STREET, COVENT GARDEN, W.C.

EVENING LECTURES to WORKING MEN.

ROYAL SCHOOL of MINES, Jermyn Street, S.W.

The SECOND COURSE of this SESSION, consisting of SIX LECTURES on GEOLOGY, by Professor RAMSAY, F.R.S., will be commenced on MONDAY, January 4, 1875, at 8 o'Clock. Tickets can be obtained, by Working Men only, on Monday evening, December 28, from 7 to 10 o'Clock. Only One Ticket can be issued to each applicant, who is requested to bring his Name, Address, and Occupation written on a piece of paper, for which the Ticket, price 6*d.*, will be exchanged. TRENHAM REEKS, Registrar.

NEWS.—See next Advertisement.

COUNTRY and GENERAL READERS desiring to be well posted in London News should send at once to MUDIE AND SONS, 15, Coventry Street, London, W., for DESCRIPTIVE LIST, showing the Age, Politics, Distinctive Features, Price, &c., of the Principal (more than 100) Newspapers published in London. Post free for one stamp. The *Gardeners' Chronicle* and all other newspapers supplied at Publishers' prices.

Price 2*s.* 6*d.*, free by post 2*s.* 10*d.*,

THE NEW QUARTERLY MAGAZINE for JANUARY.

Contents.

Canada: An Emigrant's Journal. By Lewis Parker.
Nathaniel Hawthorne. By George Barnett Smith.
The Mad Willoughbys. By E. Lynn Linton.
English Flower Gardens. By Archibald Banks.
Notes of Travel in Portugal: Supplementary Chapter. By John Latouche.
Sir Philip Sidney. By Henry Kingsley.
A Tragedy Queen: A Tale. By John Dangerfield, Author of "Grace Tolmar."

London: WARD, LOCK, AND TYLER, Warwick House, Paternoster Row, E.C.

Just Published, price 6*d.*,

FRANCIS MOORE'S ALMANAC for 1875.

This very popular Almanac, which, besides the usual Calendar, contains a fuller account of the Eclipses and Astronomical Phenomena of the Year than any publication of its class, was lately increased by several pages, giving Lists of the Members of the Government, the Houses of Parliament, and other useful information, to which has been since added a List of the Principal Business Fairs in England and Wales.

THE STATIONERS' COMPANY, Ludgate Hill, London, E.C., and all Booksellers.

Belgian.

BULLETIN d'ARBORICULTURE, de FLORICULTURE, et de CULTURE MARAICHÈRE. A monthly horticultural work, with superb Coloured Plates and Illustrations. Published since 1865 by F. BURVENICH, E. PYNAERT, E. RODIGAS, and H. J. VAN HULLE, Professors at the Horticultural School of the Belgian Government at Ghent. Post paid 10*s.* per annum.

H. J. VAN HULLE, Botanical Gardens, Ghent, Belgium.

THE NEW METHOD of GROWING FRUIT and FLOWERS. By the Rev. J. FOUNTAINE, Southacre, Brandon, being a practical combination of Vinery, Orchard House, and Conservatory, as now worked in a new house erected for the purpose at Chiswick. Fourth Edition, illustrated.

Free by post for seven stamps to the *Journal of Horticulture* Office, 171, Fleet Street, E.C.; or to the Author.

Youatt on the Horse. Edited by Watson.

Latest Edition, in 1 Vol., 8vo, price 12*s.* 6*d.*

THE HORSE. By WILLIAM YOUATT. Revised and enlarged by WALKER WATSON, M.R.C.V.S. With upwards of fifty Woodcut Illustrations.

YOUATT on the DOG, uniform, price 6*s.*, may also be had.

London: LONGMANS, GREEN, AND CO., Paternoster Row, E.C.

HORTICULTURE.—The following Works (by THOMAS RIVERS) may be had by post at the prices quoted:—

THE ORCHARD HOUSE; or the Cultivation of Trees in Pots. Fifteenth Edition. 3*s.* 6*d.*

THE MINIATURE FRUIT GARDEN; containing Directions for Root Pruning, &c. Seventeenth Edition. 3*s.*

THE ROSE AMATEUR'S GUIDE; containing the History and Culture of Roses. Tenth Edition. 4*s.*

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.

THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

Advertising charges, 8*d.* per square inch, Translation included.

Ten per cent. Discount for six months; 20 per cent. Discount for 12 months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

Plant Collector.

MESSRS. JAMES VEITCH AND SONS wish to ENGAGE at once an active, intelligent young MAN, in the above capacity.—Apply, stating references, &c., at The Royal Exotic Nursery, King's Road, Chelsea, S.W.

WANTED, a HEAD WORKING GARDENER, without children; to live at the Lodge. Must understand the Management of Vines, Houses, Fruit, and Flowers.—Polwithen, Penzance, Cornwall.

WANTED, a GARDENER, at Hinton's Royal Spa Hotel, Esplanade, Shanklin, Isle of Wight. Must well understand Kitchen Gardening and the Management of a Cow. No objection to a married Man, whose Wife is a thoroughly good Laundress, as a Laundress is also wanted. Wages for Gardener, single Man, with board and lodging in the house, 10*s.* per week.—Please send references.

WANTED, a GARDENER who is fully competent to take the Management of a Garden, with Stove and Greenhouses. A married Man without incumbrances preferred. House, fuel, and vegetables found.—A. Z., Mr. Johnson, Stationer, Stamford.

WANTED, a WORKING LANDSCAPE GARDENER, able to prepare Plants, and willing to fill up his time in the Nursery. Applicants to state experience and wages required.—FISHER, HOLMES, AND CO., Handsworth Nurseries, Sheffield.

WANTED, a HEAD SHOPMAN, for a large Seed Establishment in the South of Ireland. He must be a First-class Man, of thorough business habits, with good address, and be possessed of general experience in the Trade.—Apply, stating age, expectations of salary, and other particulars, to M. L., *Gardeners' Chronicle* Office, W.C.

Seed Trade.

WANTED, an ASSISTANT SHOPMAN. Must be a good Writer. State age, experience, and salary required.—JOHN SHAW, 29, Oxford Street, Manchester.

Seed Trade.

JAMES DICKSON AND SONS, 108, Eastgate Street, Chester, REQUIRE a JUNIOR ASSISTANT.—Apply, in own handwriting, stating age, experience, and salary expected.

WANTED, a JUNIOR CLERK, for a large Nursery and Seed Business in the Suburbs of London: one used to the trade preferred.—Apply, in own handwriting, giving full particulars, age, and wages required, W. B., *Gardeners' Chronicle* Office, W.C.

WANTED, as JUNIOR CLERK, a steady, respectable Youth. Must be quick at figures and write a good hand.—Apply, by letter only, stating full particulars, to JAMES VEITCH AND SONS, Royal Exotic Nursery, Chelsea, S.W.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

EDWARD HOLMES, Whittington Nursery, Lichfield, has Two young Men he can recommend, who are seeking situations as UNDER GARDENERS; also Two or Three HEAD GARDENERS, with good characters, and of first-rate ability.

GARDENER (HEAD).—Age 33; seventeen years' experience, acquired in first-class Establishments; no objection to a place where choice Fruits, &c., are extensively cultivated for Market Purposes. Nearly three years' character.—HORTUS, Oak Hill Nursery, Surbiton, S.W.

GARDENER (HEAD), age 36, married.—Mr. B. FINDLAY, Curator of the Botanic Gardens, Manchester, can with confidence recommend the above to any Lady or Gentleman wanting the same. He is steady, industrious, and trustworthy, and a successful cultivator of Fruits, Stove and Greenhouse Plants, Orchids, &c. Mr. FINDLAY will be glad to answer any inquiries that may be made to him.—A. B., Botanical Gardens, Manchester.

FOREMAN, in a Nobleman's or Gentleman's Establishment.—Age 24; well up in Early and Late Forcing, also the Cultivation of Stove and Greenhouse Plants. Good references.—E. H., Hanch Hall, near Lichfield.

FOREMAN, in a Nobleman's or Gentleman's Garden.—Age 27; good experience. Has served in several good Establishments, and can be highly recommended.—J. M., Mr. Adderley, Gardener, Bourne Park, Canterbury.

PROPAGATOR, of Soft-wooded Plants.—Age 23, attentive, industrious, and trustworthy. Seven years' experience. Highly recommended.—C. H. P., Botanic Gardens, Manchester.

KINAHAN'S . LL . WHISKY. This celebrated and most delicious old mellow spirit is the very CREAM of IRISH WHISKIES, in quality unrivalled, perfectly pure, and more wholesome than the finest Cognac Brandy. Note the Red Seal, Pink Label, and Cork branded "Kinahan's LL" Whisky.
Wholesale Depot, 20, Great Titchfield Street, Oxford Street, W.

Grateful—Comforting.

EPPS'S COCOA BREAKFAST.

"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast-tables with a delicately flavoured beverage, which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us, ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame." See article in the *Civil Service Gazette.*

Made simply with boiling water or milk.

Sold in packets (in tins for abroad) labelled:—

JAMES EPPS AND CO., HOMŒOPATHIC CHEMISTS, 48, Threadneedle Street, and 170, Piccadilly, W.

Works:—Euston Road, and Camden Town, London, N.W.

Makers of Epps's Glycerine Jujubes for Throat Irritation.

DINNEFORD'S FLUID MAGNESIA.

The best remedy for Acidity of the Stomach, Heartburn, Headache, Gout, and Indigestion; and the best mild Aperient for delicate constitutions, especially adapted for Ladies, Children and Infants.

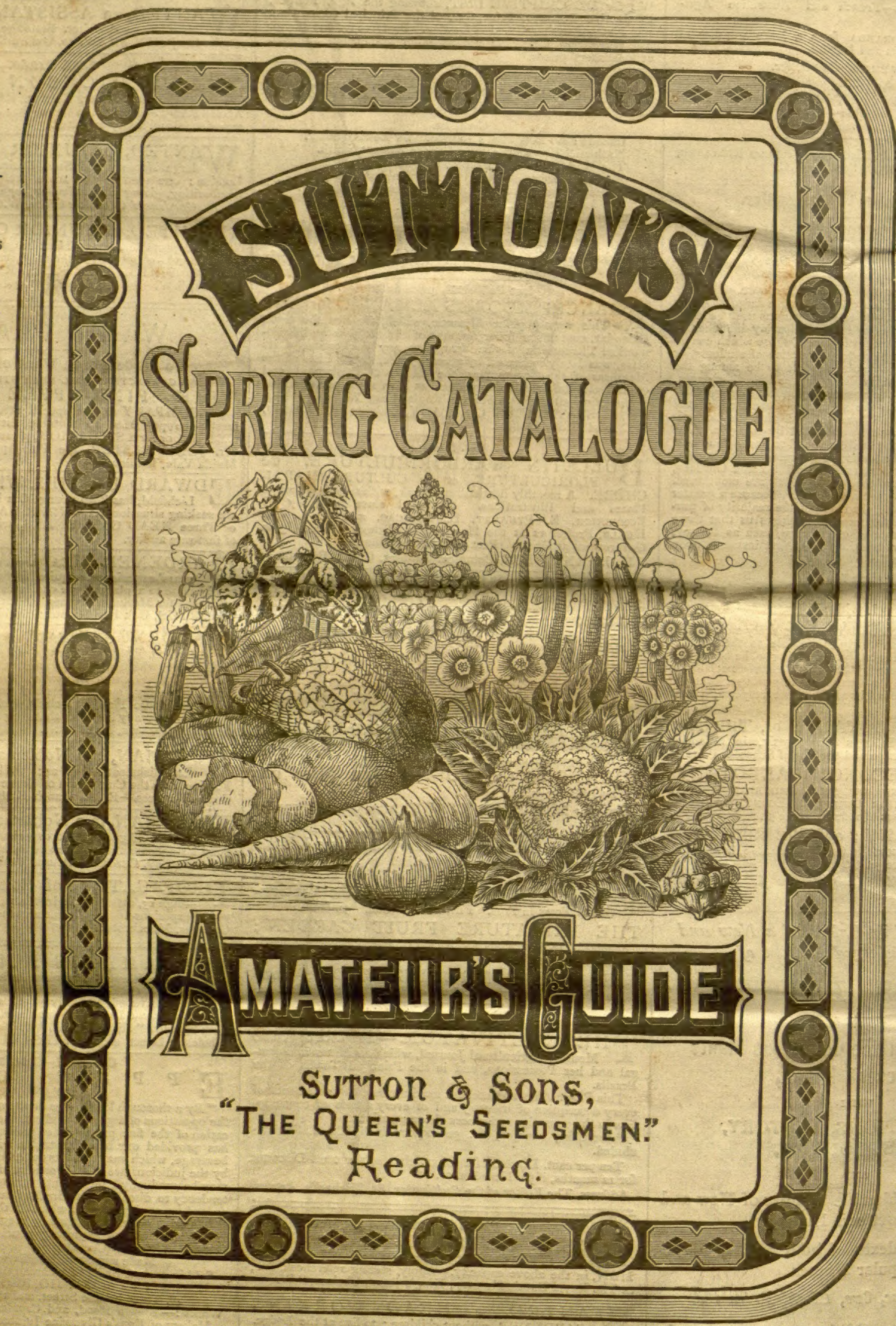
DINNEFORD AND CO., 172, New Bond Street, London, W.; and of all Chemists throughout the World.

EVERY ONE WHO HAS A GARDEN,

AND WISHES TO GROW

THE BEST VEGETABLES, THE BEST FLOWERS,
THE BEST POTATOS,

SHOULD SEND FOR



"Sutton's Amateur's Guide" is beautifully illustrated with several handsome Coloured Plates, and upwards of 250 Engravings. It also contains complete instructions for the successful cultivation of Vegetables, Flowers, and Potatos.

From the *Court Circular:*

"We have received 'Sutton's Spring Catalogue and Amateur's Guide'—an admirable and exhaustive Catalogue of Root, Fruit, and Flower Seeds grown by the great firm at Reading. This handsome book is illustrated with some beautifully executed plates. The directions for the cultivation of the various seeds, given in the case of each, are clear and concise, and of great use, both to Amateurs and Professional Gardeners. They raise the work above the level of a Trade Catalogue to that of a work on Gardening."

THE MOST PRACTICAL WORK ON GARDENING YET PUBLISHED.

NOW READY, AND MAY BE HAD,

Price 1s., Post Free. Gratis to Customers.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, December 26, 1874.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.